The United States.

To all to whom these Presents shall come—Greeting.

Whereas Francis Bailey of the City of Philadelphia in the State of Pennsylvania, Printer, hath invented certain Methods not before known or used, for forming Punches, by which to impress on the - - - - Matrices of printing Types, whether such Types be for Letters or Devices, as well as to impress on any Metal or other Substance capable of receiving and retaining Impressions various Marks which are difficult to be counterfeited, and the said Invention appears to be useful and important: These are therefore in pursuance of the Act, entituled "An Act to promote the progress of Useful Arts", to grant to the said Francis Bailey, his Heirs, Administrators and Assigns, for the Term of fourteen Years, the sole and exclusive Right and Liberty of using and vending to others the said Improvement, according to the true Intent and - - Meaning of the Act aforesaid.—

In Testimony whereof I have caused these Letters to be made patent, and the Seal of the United States to be hereunto affixed. Given under my Hand at the City of Philadelphia this Twenty ninth Day of January in the Year of our Lord one thousand seven hundred and Ninety one and of the Independence of the United States of America the Fifteenth.

Go: Washington

By the President

Th: Jefferson

City of Philadelphia January 29th 1791.—

I do hereby Certify that the foregoing Letters patent were delivered to me in pursuance of the Act, entituled "An Act to promote the progress of useful Arts", that I have examined the same, and find them conformable to the said Act ——— Edm. Randolph
Attorney general
of the
United States

Type Patent.—

Delivered to the within named Francis Bailey this thirty first of January 1791.—

Th: Jefferson

FOURTH UNITED STATES PATENT ISSUED 1791
(Signed by George Washington and Thomas Jefferson)

PATENT ESSENTIALS

FOR THE

Executive, Engineer, Lawyer and Inventor

A RUDIMENTARY AND PRACTICAL TREATISE ON THE NATURE OF PATENTS, THE MECHANISM OF THEIR PROCUREMENT, SCIENTIFIC DRAFTING OF PATENT CLAIMS, CONDUCT OF CASES AND SPECIAL PROCEEDINGS, INCLUDING FORMS.

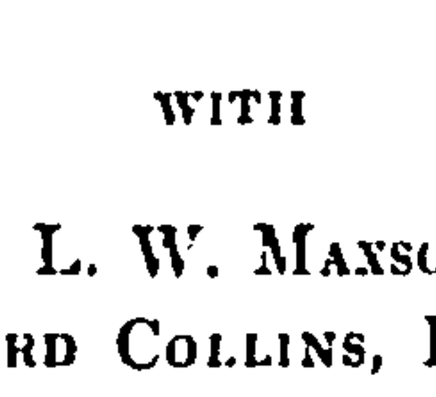
By

JOHN F. ROBB, LL.B., LL.M., M.P.L.

Of the Cleveland and District of Columbia Bars,

WITH

PAPERS BY G. P. TUCKER, L. W. MAXSON, E. C. REYNOLDS, L. A. SADLER, AND EDWARD COLLINS, PATENT EXAMINERS.



FUNK & WAGNALLS COMPANY

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1922

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IN TOKEN OF OUR FRIENDSHIP
THIS BOOK IS INSCRIBED TO
F. W. FITZPATRICK, Esq.,
OF CHICAGO

CONTENTS

LIST OF FULL-PAGE ILLUSTRATIONS AND CHARTS

INTRODUCTION

SOME twenty-two years spent in the practise of patent law, and certain experience as an inventor, have led me to realize the need of a handy volume tersely covering essentials of the law and practise before the United States Patent Office, including the mechanism of patent procurement, important information regarding infringement, validity and valuation matters, and the treatment of contracts affecting patents.

My personal dealings with business executives, managers of industry, engineers, inventors, and general practising lawyers, have disclosed their requirements along the above lines, and my aim has been to fulfil the same by presenting the subjects in a simple manner readily understandable to the layman.

The scope and usefulness of patents for the protection of the products of industry and commerce are being recognized more fully every day, but the general works upon the abstract law, tho by authors of preeminence, do not meet the real need.

This work is intentionally rudimentary and practical. It contains little or nothing not known to the expert practitioner, and yet many things helpful for him to have at his elbow. In some phases, on the above account, the work has text-book analogy to the advantage of lawyers of general practise, engineers, inexperienced patent attorneys and examiners, and inventors, thereby enabling the quick acquirement of a working knowledge about patents, and things appertaining thereto.

The treatment of the science of drafting patent claims, as to which I have specialized for many years, and the complete illustrative cases, are features wholly new in any

book upon the subject, so far as I am aware, not to mention other matters generally covered in a non-technical manner for the purpose stated.

The cases used are actual ones selected out of many hundreds that I have supervised in my practise. The forms are complete rather than of the skeleton type so often of little assistance. I acknowledge, especially, the helpfulness of the papers of Patent Examiners Tucker, Maxson, Sadler, Reynolds, and Collins. These papers have particularly fitted the objects of this book. Also, I express my obligations and appreciation to Joseph Robinson, Esq., of Montreal; E. H. Lichtenberg, Esq., of Milwaukee; L. Roy Zapf, Esq., of Indianapolis; and my brother H. C. Robb, of Washington, for their kind consideration of my manuscript, and encouragement to complete it.

As a little light out of the heart of a busy experience this book is subscribed in the hope of adding new dignity to work in a very useful profession.

JOHN F. ROBB.

TABLE OF DECISIONS CITED

I

GENERAL MATTERS AND PROCEDURE

Patent Office: Purpose and Personnel.—Patent Office: Jurisdiction and Procedure.—Progress of an Invention through Patent Office (From Application to Patent).—Brief Definitions of Patent Terms.

Patent Office: Purpose and Personnel

In Article I, Section 8, of the United States Constitution, Congress is given power to promote the progress of science and useful arts, by securing for limited times to authors and inventors, the exclusive rights to their respective writings and discoveries.

To carry into effect the foregoing provision of the Constitution is the function of that department of our government known as the United States Patent Office. Practically during the entire period of modern times the Patent Office has been organized on such a basis of high efficiency that it has occupied a unique place amongst the various government departments. It is the only bureau which has been self-sustaining, and more than this, it is the only government office which has realized a surplus from its operation, turning into the United States Treasury annually large amounts over and above the expense of such operation.

As it stands to-day the personnel of the Patent Office includes the Commissioner of Patents, who is the administrative and judicial head of the Office. Upon him depends largely the efficiency of the Office as may result from his executive ability, and the legal condition of the Office as may be determined by his judicial capacity.

A First Assistant Commissioner of Patents, and an Assistant Commissioner of Patents, are the next officials of the Office under the Commissioner, acting in his stead when he is absent and ranking in the order named. Both of the Assistant Commissioners give attention largely to judicial matters, tho they have authority and do cooperate in respect to administrative work. Appeals and petitions are heard and decided by the Commissioner and his Assistant Commissioners in the regular course of the official business.

There is a Chief Clerk for the Office, who has general jurisdiction over the administrative operation of the official work. This official is often promoted from the examining corps tho, generally considered, his work is entirely separate and independent of that of the Examiners.

A lower appellate tribunal composed of certain especially qualified Chief Examiners, known as the Board of Examiners-in-Chief is also provided. Appeals are taken from the Primary and Interference Examiners to this Board which is composed of five examiners all of whom do not sit, however, at one time. From this board of Examiners-in-Chief appeals are taken to the Commissioner of Patents and heard by him personally, or by his Assistant Commissioners. Appeals may then be taken to the Court of Appeals of the District of Columbia from adverse decisions of the Commissioner or his Assistant Commissioners.

At present five Law Examiners give special time and attention to legal questions and work of the Office. For instance, one of them directs actions of the Primary Examiners in respect to "divisional" requirements, besides doing other work. Another of the law examiners attends to the argument of appeals taken from the Commissioner of Patents to the Court of Appeals of the District of Columbia; also this Examiner represents the Commissioner in suits in the Federal Courts brought under Section 4915 of the Revised Statutes, to compel the Commissioner of Patents to issue patents.

Still another law examiner has charge of hearings of motions to dissolve in interference cases. Formerly these motions were heard by the Primary Examiners who instituted the interferences. The new practise is well considered since it brings to bear upon the questions in the interference a fresh and unbiased mind capable of deciding such questions free of all previous commitment of opinion. No doubt there is mentioned above just a small portion of the work of the law examiners, others of whom have charge of supervision of literature of patent solicitors, writing of opinions, etc.

The Office has two Examiners of Interference, one having charge of patent interferences, the other trade-mark interferences and oppositions. These examiners render decisions upon interlocutory motions and final hearings.

There is an Examiner of Trade-Marks and Designs who has supervision of the examinations as to the registrability of trade-marks and the patentability of designs, and decides motions to dissolve in trade-mark interferences; also a Classification Examiner in charge of patent classification.

Approximately forty-eight Primary examiners, who supervise the examinations as to novelty of inventions, are in regular service in the Office. Each of these examiners has under him from six to eight assistant examiners of first, second, third, and fourth grades. These examiners, numbering in all approximately four hundred fifty, are especially qualified technical men to whom are entrusted the determination of the allowability of the patents, the institution of interferences between patent applications, and between applications and patents; their work is largely local and mechanical in so far as decisions as to patentability, novelty, and invention are concerned.

Patent practise, both from the examining and soliciting viewpoint demands the commingling, rather oddly perhaps, of thorough mechanical and legal knowledge, and preferably an understanding of chemistry and electricity.

The general clerical force of the Office is comprised of a financial clerk who handles the moneys; a librarian in charge of the scientific library, which is a highly complete and valuable asset of the Office; approximately eight chiefs of clerical divisions, with assistants for them; certain translators; and a large number of clerks, draftsmen, copyists, messengers, laborers, etc.

Patent Office: Jurisdiction and Procedure

Under the supervision of the Patent Office comes the granting of patents for inventions consisting of mechanical devices, articles of manufacture, processes, compounds or compositions (usually chemical), and designs.

Additionally, the Patent Office has jurisdiction over the registration of trade-marks under the laws known as the Trade-Mark Act of 1905, and the Trade-Mark Act of 1920; also the registration of copyrights for prints and labels. Why the jurisdiction of the Patent Office over a special class of copyrights exists is not apparent. It would seem as if all copyrights should be within the jurisdiction of the Register of Copyrights at the Library of Congress.

The Patent Office procedure aside from the clerical work involved in the financial, filing, assignment for examination, and similar business of the department, has to do primarily with the examination system which may be characterized as an original American institution. In other words, the United States was the first country making provision for examinations of prior art to determine patentable novelty, this being the basis upon which grants of patents are now made.

A general idea of the operation of the examining system in the Patent Office will be had by detailing just how an application for patent progresses from the filing thereof to the issue or refusal to grant the patent, as the case may be. It is worthy of especial note, however, that the efficiency of every

patent system depends primarily upon efficient examination of the prior art to determine the scope of novelty. A patent office handicapped in making thorough examinations as to novelty may in time prove a liability rather than an asset.

Progress of an Invention Through Patent Office

(From Application to Patent)

An application in complete and proper form, when filed at the Patent Office with the first fee of $20.00 payable to the Commissioner of Patents, is first received by the Mail Division, if arriving by mail, or by the Financial Division if filed by person. Thereafter, the financial details having been complied with, the case is transferred to the Application Division where it is entered in the books of filings, and assigned a serial number and filing date. A certificate of filing is made up and forwarded to the applicant, or to his attorney of record if there be an empowered attorney.

The date of filing and serial number are important record data, for upon them may depend the priority and validity of a patent.

Perpetual motion inventions may be detained in this division by special practise outlined under subject entitled "Complete Application—Parts."

The Application Division, after completion of some other details of work of no special interest, assigns the case to the proper Examining Division of the Office; and the papers including the drawings are transferred thereto.

There are some fifty Examining Divisions in the Patent Office. Each division comprises a primary or principal examiner of long experience, and some six to eight assistant examiners of grades known as first, second, third, and fourth, ranging in experience from the first down to the fourth, at which last grade examiners enter the Patent Office.

Patent examiners are men (or occasionally women) of special qualifications for the work. Often they are not only

possessed of unusual technical qualifications, but many have a complete legal education, and certain legal experience. The assistant examiners act under the supervision of their chief, the primary examiner, who has exclusive charge of the work of his division, subject to supervision by the commissioner in person.

As examples, the primary examiners in charge of Divisions 1 and 4 of the Patent Office have the following classes of inventions under their jurisdiction for purposes of examination as to allowability of the applications, and therefore the grant of patents.

DIVISION I Class No.	CLASSES Name
268	Closure Operators
256	Fences
39	Gates
55	Harrows and Diggers
97	Plows
269	Railway Gates
111	Seeders and Planters
47	Trees, Plants, etc.

DIVISION IV Class No.	CLASSES
14	Bridges
193	Conveyers
212	Cranes and Derricks
37	Excavating
57	Hoisting
61	Hydraulic Engineering
214	Loading and Unloading
189	Metallic Building Structures.

When any question arises as to whether an invention should be assigned to a certain class and examiner, the ultimate decision lies with the Examiner of Classification.

With the application duly assigned to the proper division, and ready for examination after being entered upon the books of that division, there are followed the provisions of Rule 63 which reads as follows:

> 63. Applications filed in the Patent Office are classified according to the various arts, and are taken up for examination in regular order of filing, those in the same class of invention being examined and disposed of, so far as practicable, in the order in which the respective applications have been completed.
>
> Applications which have been put into condition for further action by the examiner shall be entitled to precedence over new applications in the same class of invention.
>
> The following cases have preference over all other cases at every period of their examination in the order enumerated:
>
> (a) Applications wherein the inventions are deemed of peculiar importance to some branch of the public service, and when for that reason the head of some department of the Government requests immediate action and the Commissioner so orders; but in this case it shall be the duty of the head of that department to be represented before the Commissioner in order to prevent the improper issue of a patent.
>
> (b) Applications for reissues.
>
> (c) Cases remanded by an appellate tribunal for further action, and statements of grounds of decisions provided for in Rules 135 and 142.
>
> (d) Applications which appear to interfere with other applications previously considered and found to

be allowable, or which it is demanded shall be placed in interference with an unexpired patent or patents.

(e) Applications which have been renewed or revived, but the subject matter not changed.

(f) Applications filed more than twelve months after the filing of an application for the same invention in a foreign country.

Applications will not be advanced for examination excepting upon order of the Commissioner either to expedite the business of the office or upon a verified showing that delay will probably cause the applicant serious and irreparable injury.

Since the procedures of the examination and prosecution are elsewhere separately treated in detail, for the purposes of this chapter they will be passed. It suffices to state that the applicant is entitled to a thorough examination of his case on the merits, if formal, unless he has included and claimed more than one invention. Necessarily, the Patent Office can not be expected to examine claims for several independent inventions embodied in a single application, so that a divisional requirement will be made in such instances. See the subject of Division and note pages 334-363 containing a typical example of the manner in which it is the duty of the applicant and the examiner to act in the course of prosecution of a patent application. The examination usually results in one or more rejections of the application upon reference to prior art patents, or publications, on the ground of lack of patentable invention, or because the claims are not proper combinations or involve aggregations, etc., all requiring laborious effort on the part of the solicitor to overcome.

After the application has passed the examination stage, by which is meant that it has been found formal in all respects, its claims allowable, and no interference necessary, it is trans-

ferred to the issue division where a certificate of allowance is drawn up and issued to the attorney of record, or to the applicant if there is no such attorney. At this stage the case is known as an allowed application.

Upon allowance, an application may no longer be amended except under special conditions indicated in Rules 78, 165, and 166.

> 78. Amendments after the notice of allowance of an application will not be permitted as a matter of right, but may be made, if the specification has not been printed, on the recommendation of the primary examiner, approved by the Commissioner, without withdrawing the case from issue.

Under this rule it is common for the primary examiner to approve amendments to correct obvious informalities and typographical errors; in fact the examiner will usually approve any amendment to cure overlooked informalities. Amendments requiring reexamination of the case as to merits will not usually be allowed at this time. Forfeiture and renewal of the application is the usual method of obtaining such a reexamination.

Under the statutes, an applicant is allowed six months from the date of allowance of his application in which to pay the final government fee of $20.00 required for the sealing and issue of the patent grant. There are no days of grace granted, and the practise is so stringent that a fee arriving a few hours late is not receivable.

A case is known as forfeited if the final fee is not paid within the specified time, and if the last day is Sunday the time expires upon the Saturday just preceding. Forfeited cases may be renewed (see subject of Renewals).

If the final fee is paid in proper time, the Letters Patent will issue upon a day certain, namely, upon the fourth Tues-

day after the first Thursday of or following the day of payment at the Patent Office.

When issued the Letters Patent will be sent to the attorney of record unless the latter directs otherwise. *An attorney has a lien upon the documentary patent in lieu of his fees.* The patent as issued takes the form of a grant of which the insert on page 12 is a facsimile:

Annexed to this grant when issued is a complete printed copy of the specification, including the claims and drawings of the invention. It is to be observed that the grant runs in this language: "Now therefore these Letters Patent are to grant unto the said....., his heirs or assigns, for the term of seventeen years from the.....day of ....., 19...., the exclusive right to make, use, and vend the said invention, etc." As developed in later discussion, the invention can not be made, used, or vended without infringement if there is an unexpired valid patent broadly covering such invention. The grant must therefore be accepted subject to such condition.

After the issue of the Letters Patent the same are susceptible of correction, in the event of mistake incurred through the fault of the Patent Office. For this purpose under the terms of Rule 170 a certificate of correction may be endorsed upon the original Letters Patent, and thereafter the copies printed for the purposes of purchase by the public have a printed copy of the certificate annexed thereto. The certificate is issued primarily in those cases where instructed amendments in the specification or claims have not been made, through inadvertence or mistake of the Patent Office (see Form of Petition for a Certificate of Correction).

The highest degree of care dictates that patents when issued be compared with the solicitor's duplicate of the specification and claims to catch possible errors in the document as finally granted.

A patent once granted is subject to entire reissue on ac-

1357423

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Whereas

[illegible]

of

[illegible]

has presented to the **Commissioner of Patents** a petition praying for the grant of Letters Patent for a certain new and useful improvement in

[illegible]

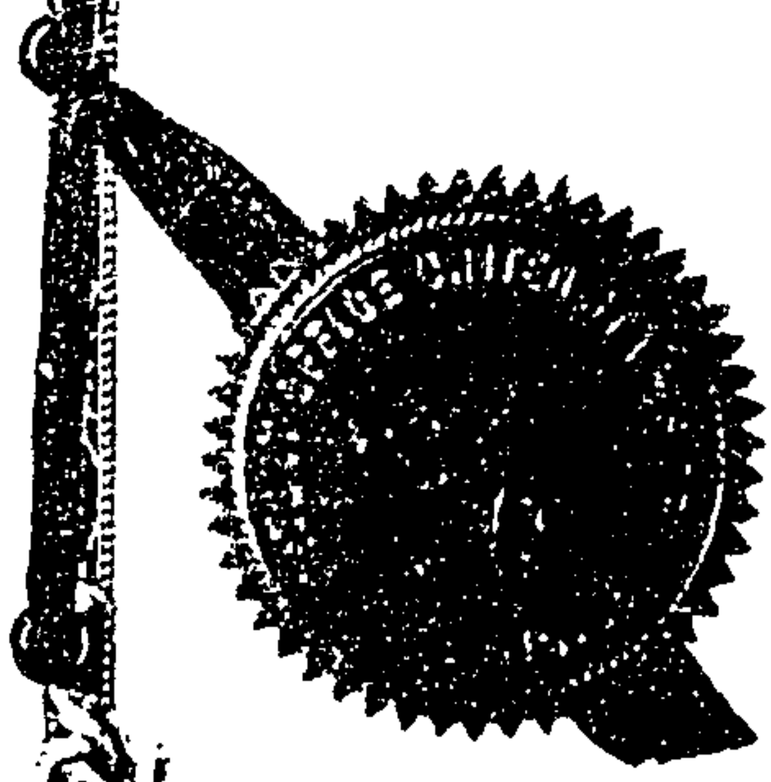
a description of which invention is contained in the specification of which a copy is hereto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided, and

Whereas upon due examination made the said [illegible] is adjudged to be justly entitled to a patent under the law

Now therefore these **Letters Patent** are to grant unto the said

[illegible]

for the term of SEVENTEEN years from the second day of November, [illegible] and the said [illegible] shall have the exclusive right to make, use and vend the said invention throughout the United States and the Territories thereof.



In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington this second day of November, in the year of our Lord one thousand nine hundred and [illegible], and of the Independence of the United States the one hundred and forty-fifth.

[illegible]

FACSIMILE OF GRANT OF UNITED STATES LETTERS PATENT

count of the invalidity or inoperativeness of the original patent, due to a defective or insufficient specification, inadequate claims, or because of the patentee claiming as his invention that which he had no right to claim as new. It is absolutely elemental to the validity of reissues, however, that the defect in the original patent shall have been due to inadvertence, accident, or mistake, without fraudulent intention or deception. The law of reissues is well established and a typical reissue application will be found herein (see chapter on Reissues).

Brief Definitions of Patent Terms.

INVENTION:

An invention in the contemplation of patent law is a new and useful device, machine, art. article of manufacture, process, composition, or design, evolved as the result of the exercise of the inventive faculty.

PATENTABLE INVENTION:

When an invention is such as to meet the requirements of the law, as to novelty, utility, etc., it may be considered patentable, or in other words, an invention for which a patent may be obtained.

PATENTABILITY:

That quality or condition of an invention by which it is rendered of a patentable nature.

PATENTABLE NOVELTY:

The *newness* of an invention which meets the requirement of the statute warranting the grant of a patent, combined with the prerequisite that it is a result of the exercise of the inventive faculties.

PATENT OR LETTERS PATENT:

The grant or letters defined by one author as representing "the indicia of a governmental effort to reward the inventor for the disclosure of his invention by

giving him, for a fixed period, the right to exclude others from its practise." The documentary letters are issued under seal and suitably engrossed.

MECHANICAL SKILL OR INGENUITY:

That capability resulting from practise in the mechanical or other arts enabling a person to do things, generally previously performed and known, or to extend the application of such previous knowledge in a manner such as would occur to anyone correspondingly informed.

REJECTION:

This is the name of the written action made by the Patent Office on a patent application, when for some reason, or other, on account of form or on merits, a patent is for the time being refused. When the rejection is final recourse may be had only by appeal.

AMENDMENT:

The name of the paper writing filed in response to an action or rejection of an application by the Patent Office, when such writing makes any alteration in the application as originally filed. The amendment is usually accompanied by an argument or explanation of its purpose.

INTERFERENCE:

An interference is a special proceeding instituted by the Patent Commissioner to enable a proper decision upon the question of priority of inventorship, where two or more inventors are claiming an allowable patent upon the same invention, or where one inventor has a patent, and another or others claim the invention of said patent.

INFRINGEMENT:

The making, selling, and using, or doing of any one of these things, in regard to an invention covered by the claims of a valid patent.

VALIDITY:

That quality or condition of a patent which renders it enforceable against infringers to prevent loss of any or all of the benefits intended to be conveyed by the grant.

ASSIGNMENT:

The deed by which a part or whole interest in a patent, or invention, resting in application is transferred for a valuable consideration.

TERRITORIAL ASSIGNMENT:

A deed conveying the rights to an invention for a specified territory, such as a state, county, city, etc.

LICENSE:

A right springing up by implication; or granted constructively or expressly, to make or sell or use an invention of a patent.

SHOP RIGHT:

The right to use an invention, which is automatically created on behalf of the owner of a shop, when the invention is developed in such shop by an employee who uses the time and equipment of the shop. The right is non-assignable and applies alone to inventions pertaining to the employer's business.

PRIOR ART:

Patents, inventions, publications, or the like, known or used before an application for patent, are considered as showing a state of the prior art, or as prior art.

REFERENCES:

Those things in the way of patents, publications, public use, demonstrations, etc., which are citations relied upon by the Patent Office in making actions upon patent applications.

II

UTILITY, INFRINGEMENT, VALIDITY AND INVESTIGATIONS

Utility of Invention.—Patent Infringement.—Validity of Patents.—Infringement and Validity Investigations in General.—Infringement Investigations.—Validity Investigations.—Other Investigations.

Utility of Invention.

The enabling statute controlling the issue of patents for inventions requires that an invention shall be useful as well as novel. The nature of the utility as contemplated by the statute is not infrequently misunderstood.

In soliciting patents, rejections are sometimes met with based on the ground that the alleged improvements claimed by an applicant are not improvements at all, but are a step backward in the art for the reason that others have made better improvements already. A rejection of this sort is based upon a misconception of the spirit of the statute.

Utility as necessary to patentability means, essentially, usefulness of purpose. So long as the object of the invention is worth while, and the purpose not such as would make the grant of the patent against public policy, the patent should issue, if this phase controls the situation.

The clearest explanation of the proper practise is contained in the case of ex parte Cheeseborough, decided May 11, 1869, from which this extract is taken:

The various modes of treating this application in the different tribunals through which it has passed have involved the subject in unnecessary obscurity. The real issues are few and simple.

The applicant claims to have invented a new and useful mode of preventing canals from freezing. The purpose to be accomplished is certainly new, and the means by which it is to be accomplished are somewhat startling.

They consist briefly in placing steam boilers at stated intervals, and connecting them with iron pipes through which superheated steam is passed, at the bottom of the canal under the water, which is, by this means, to be raised to a temperature above the freezing point. This bold attempt to reverse or arrest the ordinary processes of nature, by providing a summer river in the midst of winter, would, I think, be pronounced by most persons a great novelty, an original as well as striking conception. Yet the examiner finds no difficulty in anticipating it by bathtubs, wash-boilers, and the like, which have been heretofore heated by iron pipes, and by race-ways where hot water has been poured upon the ice to thaw it. The applicant having, like Columbus, put the egg on end there is now no difficulty in suggesting other means, and accordingly he is informed that others might build fires by the side of the canal or put furnaces under it, or in short, heat it in other ways. It is some tribute to the utility of the plan proposed by applicant that none of the means suggested will compare in practicability with that described in his patent.

I have still less difficulty with the second question. Utility, in the eye of the patent law, refers rather to a utility of purpose than a utility of means. If the end which the inventor proposes to accomplish be useless, mischievous, frivolous, or immoral, he can obtain no patent altho the means which he proposes may be ingenious, and for his purpose, of great utility. A burglar's tool may be admirably adapted to break open doors and shutters, and for that purpose, eminently useful, and yet a patent would unquestionably be denied. On the other hand, if the purpose be a good

> or useful one, the utility of the means need not be carefully scanned. If the means are inferior to the old way, of doing the same thing, or inferior to other new ways, the invention sinks into obscurity, and is soon forgotten. The best test of utility is use; and in the busy competition of trade this test is soon applied, and the judgment of the inventor is affirmed or reversed by an inexorable tribunal."

When an invention actually is behind the times, as regards improvement in that which has gone before, the theory is that the law contemplates that it may be patented, opportunity for any good resulting not being suppressed. If nothing of profit to the public is effected through the patent, no harm is done and the inventor alone stands the loss.

When the question of possible good or bad to be derived from such patents is considered, the view may be taken that good is more likely to spring from the grant. At least the repetition of the error of judgment in making the invention, and capitalizing it, may be avoided if the inventor's effort becomes of record in a published patent.

Patent Infringement

This is to be a practical discussion, not a technical one, of the subject of patent infringement. A rudimentary knowledge of infringement is desirable for the inventor, and the manufacturer or promoter of patented inventions.

This subject has to do with established patent monopolies, and, as simply expressed as can be, infringement consists in making, using, and selling, or doing any one of these things, respecting the invention covered by the *claims* of a patent. When this definition is understood it becomes evident that unless the claims of a patent are protective of its essential novelty, the patent will fail to sustain the monopoly which was intended to be created by its grant. The patent may be fatally defective owing to the claiming of more than the

patentee had the right to claim, or on account of claiming of less than he was entitled to (see subject of Validity).

The claim or claims constitute the full measure of the protection afforded by the patent, as is later presented in the treatment of the subject of claims proper.

> The claim in a patent is the measure of the invention, and, while the specification may be referred to for the purpose of explaining any ambiguity in the claim, it can not be referred to for the purpose of expanding or changing the claim. National Enameling & Stamping Co. et al. *vs.* New England Enameling Co., 151 F. 19.
>
> Courts will be liberal in so construing a claim as to secure to the patentee his real invention, but in doing so, they can not disregard the form and language in which the inventor has chosen to make his claim. To give him more than he actually claims, would import infinite confusion into the administration of the patent law, as well as contravene the statute itself. Empire Cream Separator Co. *vs.* Electric Candy Mach. Co., 166 F. 764, 766.

Viewed from the standpoint and in the words of a layman, the question frequently arises whether an invention of a patent may infringe upon that of another patent. Strictly, this must be answered in the negative, if we are speaking of the mere existence of one patent as against another. But, dealing with practical conditions, it is often not understood how it is possible for a man to get a patent for his invention granting him the right to make, sell, or use the invention, and find himself confronted with an infringement of another patent. The view seems to be general that a patent once secured gives an exclusive right to the patentee or owner to make, sell, or use the invention thereof. A reading of the grant of the United States letters patent, (facing p. 10) will confirm this belief and involves in the view of the author possibilities of

deception. Rather should the grant of a patent read that the right is vested in the patentee or owner to *prevent others from making, using, or selling* the patented invention as claimed. By excluding others a monopoly is assured the patentee for his particular invention, but, nevertheless, his right may be subject or subordinate to the patent rights of another, or others (see Swindell *vs.* Youngstown Co., 230 Fed. 438).

In explanation, the situation at times arises where a patent is granted for improvements in an invention which is the subject matter of another and earlier patent, or earlier invention. In this circumstance, assuming that the earlier patent contains the broader claims to the main or original invention, the latter invention is dominated thereby. Thus, the patentee of the improvements is not entitled to make, use, or sell his invention, without the consent of the earlier patentee, or owner of such patent, so long as the dominating patent is alive. When the dominating patent expires, the patent for the later invention really becomes a workable monopoly freed of control by the patent for the earlier invention. This controlling patent may be either earlier or later in date so long as the invention is the earlier of the two conflicting.

Thus it is that a patent for a valuable improvement may occasionally be valueless for a period of time, affording no real protection so far as a commercially workable invention is concerned. Experience shows, however, that not infrequently a dominating patent covers an impractical invention, and a dominated patent (as for an improvement) covers the things needed to make the earlier invention useful to the public. When this is the case, the *dominated* patent may be that of greater importance and value. To bring the inventions of two such patents to the market, under the last stated conditions, requires mutual licensing; otherwise, it is not in the power of either party to operate successfully with his invention.

Because there merely exists a preceding patent for a very

similar invention is no reason to maintain that an infringement exists. It is of the essence of infringement that the substance of the claims shall be the basis upon which to decide infringement, and physical acts of making, or selling, or using must absolutely be present; mere similarity of inventions does not create infringement.

As illustrative of the different views which are taken by the Courts and the Patent Office in the practical operation of the Patent Laws, a special phase of the interpretation of patent infringements by the courts is worthy of discussion. The broad assertion may be made that the Patent Office in the granting of a patent does not in any way take cognizance of the question of infringement of any prior patent. In other words, the function of the examination of the Patent Office may be stated to comprise the determination of whether the application for patent is in proper form, and whether the invention of the application possesses patentable novelty sufficient to warrant the grant of a monopoly therefor. If there exist prior patents in an art in which is classified the invention of the application, and these prior patents would be infringed if the applicant made, used, or sold his invention, the condition is entirely ignored by the Patent Office, and properly so, in view of the statutory rights of an inventor to protect his novel invention.

Now let us consider this situation as it is regarded in the courts. It is quite common practise for a Federal Court of Equity, in determining whether a patent is infringed by an alleged infringer, to decide the question of infringement on the basis that *no infringement exists if the infringer has been granted a patent by the Patent Office subsequent to the alleged infringed patent.* In other words, to a certain extent it would seem the view of the courts that the grant of a patent upon an improved construction in a certain art is indicative of a certain condition of the invention of such patent establishing non-infringement, notwithstanding that there may be prior to the

patent another patent which contains claims clearly reading upon the second patented construction. This should be true but it does not work out in practise!

In the case of Imperial *vs.* Crown, 139 F. 312 (4th Cir., 1905) the Court ruled:

> Where defendant is manufacturing in accordance with a patent the presumption is that he does not infringe an earlier patent. The grant of the later patent must be considered as expert evidence, of high and impartial character, of non-identity, and raises a fair presumption of patentable difference in its favor, which requires strong evidence to overcome.

> The foregoing illustrates what may be characterized as the use of a non-controlling factor in the determination of a special question. In other words, the fact that there exists a patentable difference between the construction of a later patent and that of an earlier patent, under what must be considered a general fair interpretation of the law, ordinarily affects in no material way a situation of infringement. It is the common experience of most practitioners, to take out a patent from time to time for an invention of considerable novelty, not necessarily basic novelty at that, and owing to the commercial importance and exploitation of the machines of such patent, competitors of the patentee will promptly apply for and procure improvement patents on the construction. This represents no great inventive effort, of course. To hold that because such later patentees obtain protection for improvements on the original patentee's construction, they thus obtain immunity from attack for infringement, is to rule that a man may take advantage of his own wrong. In other words the improver in this way might well and easily protect his piracy.

Therefore, it is believed that too much importance has been attached, in infringement causes, to the fact of the grant of a later patent or patents for the improved subject matter of

an earlier patent covering an alleged infringed construction. Another case in point may be cited:

> Upon suit for infringement and where the defendant is operating under a later patent, the fact that the file-wrapper of the later patent shows that the application when filed was considered in connection with the patent in suit, certain claims were rejected thereon, and the patent was finally issued upon a palpably narrow claim, amounts to an unusually strong presumption that there is substantial difference between the patent in suit and that of the defendant, and *prima facie* the grant of the later patent negatives infringement. New Jersey Wire Cloth Co. *vs.* Buffalo Expanded Metal Co., et al., 131 F. 265 (N. Y.).

A thorough knowledge of Patent Office practise must lead only to the opposite conclusion that the conditions stated in the above quoted decision warrant the view that an improvement alone has been made by the later patentee, and not the presumption that the said improvement, which may be merely additive to the earlier patented invention, escapes the protection of the earlier patent. In fact the customary condition is that the improvement patent most frequently embodies nearly everything that the earlier patent contains, or merely slight modifications of the details of the earlier patented construction; otherwise the claim would not be so "palpably narrow," and the prior patent would not be used for rejection purposes.

The practise most favorable to the earlier patentee in the situation under discussion, is developed in the case of Ries *vs.* Barth, 136 F. 850 (7th Cir., 1905):

> Where neither a new result nor a new principle of operation in producing the result has been achieved, and the patentee has merely improved upon the old way of accomplishing the old result, the presumption is that his patent is not infringed by a later patent for an improvement upon the same old way of accomplishing the

old result. But where a complainant patentee has accomplished a new result by a new means, a defendant cannot escape the charge of infringement merely by showing a later patent. Whether the defendant has devised an independent method of arriving at the same result or has merely added supplementary devices or improved some details of the primary patent is to be determined from the proof.

The real point proposed herein is that the question of infringement can not be properly decided in the light of a decision on the ground of mere patentability or novelty, and adjudication of infringement should not be based upon an action of the Patent Office that in no way takes into consideration the question of infringement; if the later patented construction does not infringe, the condition arises from some other cause than the mere grant of a subsequent patent for the alleged infringing thing. The real basis for the judgment of non-infringement should be that the *later patented construction does not show the same invention* as covered by the claims of the earlier patent, something which must not be presumed, in fairness, from the mere fact of the grant.

It is also notable that infringement can not exist with respect to an invalid claim or claims of a patent. The claim or claims must be such as would withstand the test of being sustained in the courts.

Validity of Patents

A patent is *prima facie* evidence of its own validity, which is to say that the courts assume a patent not only to be valid when put up for adjudication, but the rule is to give effect to the patent in the absence of clear and convincing evidence showing the monopoly to have been improperly granted. A patent alone, therefore, possesses inherent strength; so much is this true, that a heavy burden is always upon him who attacks it.

It has often been the dream of students of patent systems to attain the ideal system wherein the patent, once granted, stands unimpeachable as covering the invention purporting to be disclosed thereby. So long as patents depend upon the human factor, as must always be the case, impeachment of their scope and validity will be resorted to.

Wonder may be properly expressed why patents for inventions should be classified by the public as of such a sacred nature that their validity should not be open to attack. Land patent grants, real estate deeds, and personal property transfers have always been susceptible of being set aside as invalid, so it may be somewhat strange that the status of invention patents should be so differently viewed by people. The reason doubtless is because an invention is so personal a thing; it is wholly wrapped up with the idea of individual thought and effort. And yet, to those who deal with inventions as a life work, it is known that a large proportion of patents are secured for improvement effort. Notwithstanding the foregoing, in respect to a majority of improvement inventions, the real work of the inventor has been the evolution of far more than what may be secured by the protection of the ultimate grant; in other words, the whole invention is often devised, tho an improvement alone may ultimately be covered by the patent.

How is a patent invalidated? There are certain statutory provisions upon which the grant is founded. Without attempting to detail all, an important one or two may be treated.

If an invention has been in public use in this country more than two years prior to an application for United States patent therefor, a valid patent can not issue upon such invention. An inventor may have originated the invention as developed by him, but if it was in use two years prior to his application for his patent he obviously was not the first to bring its benefits before the public and a valid patent to him is barred. But the Patent Office may be, and often is, not aware of the public

use that constitutes a bar to the grant. The inventor may thus secure his patent in good faith on the part of all concerned. A court to which such prior public use is shown on pressing the patent for infringement must declare the patent invalid.

In the course of practise it is known that frequently public use evidence is offered in the endeavor to invalidate patents, but the evidence when insufficient, as most often is the case, fails to accomplish the desired result. The courts require such evidence to be convincing beyond a reasonable doubt, and justifiably so.

Again, experience well shows that an invention duly patented may be the original thought of more persons than the patentee. A publication, such as a technical or other magazine, of a date twenty years previous to an application may contain fairly accurate description and drawings, or pictures, if not drawings, of the patented device. This is not at all uncommon. Under such conditions the patent would be invalid. As a rule no fraud, and usually no neglect, is involved in the grant, for it is requiring more than fallible human memory will permit, to hold that an examiner of patents should be charged with knowledge of all that has taken place in an art many times older than he, or a knowledge of even that which is contained in publications affecting that art, having dates of long previous periods. The publication of the invention more than two years previous to applying for the patent invalidates the grant.

The law of public use and publication patent bars is founded upon the idea that if an invention has been in the possession of the public two years, either by way of use or knowledge, it should never be made subject to monopoly, and the questions of whether the bars of public use or publication were the result of negligence, inadvertence. or incapacity of the inventor, are never entered into, nor that of whether the invention was originated earlier than the times said bars arose.

Two years is considered a long enough time for any one desiring a patent to arrange to apply for it.

And so there may be many bars to maintaining the validity of a patent, once secured, including prior use, prior inventorship, prior art which anticipates the invention (shows it to be lacking in novelty), etc.

Where the examination of an application in the Patent Office is faulty, invalid claims of too great breadth may have been secured and they are not sustainable. Often through carelessness or the incapacity of an attorney to recognize the merits and novelty of an invention, a patent fails to grant the deserved protection to the patentee.

Infringement and Validity Investigations in General

Investigations to determine questions of infringement and validity are usually compelled by reason of *fear,* tho experience indicates that they might well be resorted to with larger benefits if directed with the primary object of *safety.* In other words, patent counsel is very quickly sought to ascertain the possible outcome of a threatened suit for infringement, when by a little foresight, all possibility of such a suit might have been avoided, and with a negligible amount of expense in comparison.

Let us go into these matters a little more fully. Manufacturer *A* has excellent factory equipment for sheet metal work, adapted for producing gas stoves, and desires to take on a new line. Understanding that a type of such stove made by manufacturer *B* has met with much success, instructions are issued to the factory of *A* to produce a stove similar to *B's,* but with such improvements or changes (usually they are changes) as can be devised so that the two products are distinguishable. At much expense in designing, production of patterns, etc., *A's* new type of gas stove is marketed, and meets with ready acceptance by the public. After a year of

introduction effort *A* is confronted with a notice of infringement of several gas stove patents owned by *B*, a peremptory request to desist, and to make an accounting of his profits. *A* has just gotten to a point of commencement of profits, however. He is not so much concerned with accounting for profits not yet produced, as with the loss of the time incident to designing his stove, and the production expense and effort, only to be enjoined from further manufacture as a fair possibility. This is a proposition of long litigation, and very likely, an ultimate injunction, all the while under heavy expense always accompanying such litigation. Often *A* has gone so far that he has to go on, and the litigation ensues. The cost under these conditions is frequently fifteen to twenty times greater than that of a preliminary "safety" investigation that would have located the infringement, and steered *A* past such an obstacle. His probable course might have been to wholly sidestep the art of gas-stove manufacture, and engage in that of making sheet metal electric radiators, by the advice of counsel who ascertains that the patents for gas stoves are too broad to avoid or "break," while there is little or no patent conflict confronting a prospective manufacturer in the electric radiator field, and less competition.

The foregoing is a situation which commonly comes before experienced patent practitioners. Time and again manufacturers invest $15,000 to $20,000 in designing and bringing to market a machine, only to have to junk the product, or face the outlays of patent litigation with its doubtful final results. A fraction of the above expense would have enabled a safe course to be pursued after full investigation of the patented arts involved. Frequently, at the early stage of the investigation it is easy to arrange for licenses under patents in conflict, and thus insure absolutely, not only freedom from attack, but immediate protection of the prospective industry. After entering the market the licenses are difficult to negotiate upon fair terms, for obvious reasons.

With the above in mind concerning the usual and proper modes of entering upon new operations in old, or even new, industrial fields, the subject may beneficially be treated somewhat in detail, and viewed from the controlling phases of "safety."

For the most effective exploitation or promotion of inventions, and frequently in order to determine the status of machines, devices, and methods affecting an industry, as when the adoption of new appliances or apparatus is planned, infringement and validity investigations to-day are necessary.

The prime considerations to be weighed most heavily by those interested in the manufacture and marketing of a patented or unpatented invention, are twofold.

In the first place, the question is presented as to whether or not the patent rights obtained, or in process of procurement, will afford such a monopoly as will guarantee reasonable security to those making the investment necessary to introduce the invention to the public. To determine this matter, it is required that investigation be directed to making certain that the invention is possessed of patentable novelty already sufficiently protected, or susceptible of proper protection, to ensure a fair monopoly. Absolute or complete control of all inventions like that under consideration is not necessary to success, however. A fair degree of protection preventing a close simulation of the intended manufacture or process is the minimum desideratum, tho, of course, the better the protection the more safe the venture.

The issue of the patent does not constitute full assurance that its subject matter is new and patentable. Through inadvertence, or error, the patent may not be valid, as has been already pointed out herein. Prior art of an anticipating nature may also exist, and if so, must be located. A poorly contested case in the Patent Office, on account of inadequate examination often makes for great difficulty in the event of a contest in the courts. An easily secured patent is, there-

fore, liable to make less for safety, than otherwise, contrary to the average opinion.

Other statutory bars may affect the grant of the patent but will not be enumerated.

Hence it is essential that a *valid* patent right be available or obtainable as the first prerequisite.

Now it may be that a perfectly valid patent was issued or may be issued, and yet the promotion of the invention would be a hazardous undertaking.

This brings us to the second prime consideration, which is to ascertain whether the monopoly established as valid will be or is subject to another and controlling monopoly, such as that of a broad outstanding patent. If such is the state of affairs, infringement will take place on making, selling, or using the invention.

The existence of a live patent covering an invention the promotion of which is contemplated, and thus giving rise to possible infringement, is obviously a menace that warrants a decision not to introduce the invention to the public. Otherwise there is the hazard of an attack for an injunction, and accounting for profits and damages, a risk which reasonable men ordinarily do not wish to assume. The obstacle consisting of the patent which is liable to be infringed may sometimes be removed by acquirement outright, or license; if not, the venture should preferably be abandoned.

The primary objects of infringement and validity investigations are to advise upon the foregoing propositions, the settlement of title to the rights in prospect of acquisition or promotion being a part of the work.

Infringement Investigations

Infringement investigations may be divided into two classes. There are those which determine *prima facie* infringement, and those upon which conclusions as to *actual infringement* may be based.

To ascertain if a patent is infringed necessitates a study of the claims of the patent, to find out if such claims are broad enough to include the device or other invention which it is contemplated to promote. If, upon a careful perusal of the claims of a patent, interpreted in the light of its specification, a claim or claims are found to comprehend within their scope the invention proposed to be practised, the conclusion is that *prima facie* infringement exists. That is to say, *assuming the validity of the patent*, the newly proposed invention will infringe the granted monopoly as viewed upon its face.

But since a patent is never infringed if it is invalid, any final definite conclusion as to infringement must take into consideration the question of validity. Therefore, once a patent has been ascertained to be *prima facie* infringed, and it is determined that the patent is valid, then a case of actual infringement would exist, incident to making, selling, or using the invention forming the basis of the infringement investigation.

Infringement investigations are arduous proceedings, because they require exhaustive research into direct and related arts, an application of all of the principles of patent law to enable intelligent conclusions to be reached, and, additionally, they require tedious and studious examination of *each and every claim* of all the patents in the particular arts covered, which often run into thousands.

Infringement researches for determining *actual infringement* invariably involve the investigation of validity of patents infringed *prima facie*.

Validity Investigations

In ascertaining the validity of a patent the question of novelty of the invention is uppermost, for, if the claims of the patent are shown to be anticipated by the prior art, prior invention, etc., obviously they can not be sustained as valid if the patent is ever taken into the courts for adjudication.

As has been briefly outlined elsewhere herein, many different things affect the validity of patents. The field of search upon a validity investigation is often broader than that for the infringement research, depending largely upon the nature of the invention.

Investigations of the validity of patents are ordinarily, tho not necessarily, made in connection with those involving infringement of patents. While *actual* infringement of a patent can not be determined without regard to its validity, the validity of a patent may be determined entirely independently of any question of infringement, and may be inquired into by prospective investors, or others interested in one way or another in the particular patent rights.

Patents should never be taken into the courts for adjudication until a validity investigation shows that they may reasonably be expected to be sustained. Otherwise litigation may be created without likelihood of possible termination favorable to the patentee, or patent owner.

In the cases of complicated investigations of this character, it is not uncommon for the research work to require weeks and even months of time. Especially is this true when a strenuous effort is being made to break or invalidate a patent in an infringement suit. An exhaustive validity search requires the investigation of all pertinent foreign patents, both United States and foreign publications, every field of related prior patent art, and all possibly anticipatory prior public uses, information of which can be obtained.

Other Investigations

In the Patent Office, patents are classified in various arts by classes and subclasses. The classification is carried on as a part of the regular work and represents, of course, a tremendous amount of labor.

While certain arts have not been reclassified for many years, it is possible to obtain copies of whole classes of patents, or

special subclasses. Interesting investigations may be made in these classes and subclasses by way of showing to an inventor, manufacturer, or promoter, the art which appertains particularly to a certain invention. The extent of the investigation, when making a state of the art search, depends necessarily upon the nature of the invention, for obviously, the work is very extensive in classifications of complicated inventions, such as electric motors, adding-machines, sewing-machines, etc., as compared with more simple inventions, such as kitchen cabinets, article attaching devices, stationery, wooden receptacles, etc.

Another investigation, which is commonly known by the name of "preliminary search" or "examination" of the records, may be made prior to the filing of an application for patent, to determine primarily whether a patent can be secured. When this search is made by a competent person, it affords a general basis for an opinion as to the novelty of an invention, which basis may be fairly relied upon. As a general thing, copies of several of the most pertinent patents relating to the invention are secured and reported to the inventor, or interested party, when a report is made upon a preliminary search. The difficulty with preliminary searches, however, is that for the small stipend usually charged, it is inpracticable to cover the particular art very fully. To make the search thorough would require often more time and involve more expense than is incident to filing a patent application itself. Thus it is that in relation to inventions of many types a preliminary search does not possess very great value so far as reliability of information based thereon is concerned.

III

PATENTS, VALUATION, DEPRECIATION, ETC.

Valuation

UNTIL recent years the factors of valuation, depreciation, and obsolescence of patents have been rather lightly considered by those having the largest interest in intangible property of this nature. That patents have a potential value is a fact too well known to require especial emphasis. One only has to recall that a comparatively few years ago certain interests controlled the basic patent rights to certain types of adding-machines, and, by reason of such control, the businesses of the particular owners were productive of larger profits incident to the monopolies of the patents than would have been true under conditions where competitors were able to operate in such numbers as are now in that special market. The same was true respecting manufacturers of graphophones, for nearly all of us can recall the approximate time when the field of competitive manufacture of this type of machines was *released for operation*, so to speak. It can not be gainsaid that the Victor Talking Machine Company would have the same profits to-day, in the absence of the perhaps fifty competitive manufacturers who have sprung up in recent years, as would be derived in the normal extension of their business with the monopoly of their broader or basic patent rights reserved.

Thus it is that to a certain business its monopoly under its patents may represent a valuation in excess of that of its actual factory and equipment for manufacture, just as is true in respect to the value of a trade-mark universally recognized

as the sign of origin of a commodity of a highly perfected nature.

Conceding, therefore, that in one business a patent valuation may be of exceeding importance, it is known that in respect to another business the corresponding valuation may be negligible.

The valuation of patents enters into a field of importance due to the fact that patents are frequently capitalized to a greater or less degree in the operation of industry. While blue sky laws have prevented much watered capitalizing of patents in later years, this has been due largely to arbitrary rulings upon the subject of valuation, rather than to any well-defined plan for fairly and intelligently computing patent values. Additionally, not only are the valuations of patent rights important for the determination of fair estimates of the value of capital assets, but for purposes of estimating properly the foundation upon which taxation of these values may be based. In the latter connection, perhaps to the greatest degree, have rules been laid down with authority, enabling intelligent surveys of the values of patent rights to be reached.

The Federal Income Tax Law became effective in 1913, and the Internal Revenue Bureau which administers said law has established certain rules for the valuation of intangibles, including patents and copyrights, and these rules comprise largely the legal authority upon the subjects of general valuation and depreciation of this class of property. It is incumbent, therefore, upon executives and managers of businesses, to see that patents for inventions, the cost of development of which represents a very large item of expense in many instances, or a large item of capital investment, are properly carried upon the books of the business, and due allowance made for depreciation, or other factors of accounting that enter into the investment or expenditure of capital for intangible property of this sort.

Record has been made of an instance where a certain cor-

poration valued its patents, trade-marks, and good will, at less than $500,000. This was but a nominal valuation, and to gain the benefits derived by those carrying intangibles at real valuations, a correct appraisal was made and found to aggregate a valuation of $7,000,000. It is clear that figuring properly the depreciation upon the latter valuation, a very material decrease in net income must be estimated. By this process a corresponding lowering in income tax payments upon the tax returns is shown,, thereby producing a worth while saving to the corporation, or owner. In another case patents were not valued at all by the owning company. When properly appraised, a valuation of $200,000 was found appropriate and gave rise to important and advantageous results in respect to capitalization and taxation estimates.

The effort herein will not be to discuss in detail the deep accounting questions affecting valuation, depreciation, and obsolescence, as they pertain to patents. The intent is primarily to draw attention to these things as of great importance to be considered in the operation of any business which is intelligently conducted.

Patents are materially affected by the income tax law because from patents flows a tremendous aggregate of income whiclr is subject to taxation.

Patents are the source of royalties. Royalties constitute income and are taxable.

A patent may be sued upon for the infringement thereof, and upon an accounting, a recovery of profits or damages running into large amounts, sometimes as much as hundreds of thousands of dollars, may be produced. Such a recovery, with proper deductions well known to the accountant, represents income and must be rendered upon and taxes paid thereon.

There are certain businesses devoted to the making of patented articles and the profits derived must be viewed as income.

Again, we have the matter of sale of patents by the inventors obtaining the same, and the sale of patent rights by other owners, including manufacturers. The funds derived are considered income. Of an analogous nature is the income accruing from the licensing of others to operate under patents, either exclusively, or otherwise. There may be produced in this manner returns to a manufacturer, an inventor, or patentee, in the way of sums as royalties referred to above, and cash amounts paid as full consideration for the operation under licenses.

Many concerns receive large sums annually from competitors under licensed patents, and it is notable that frequently in the grant of a license, a settlement in cash is made for past infringement, fully conceded, and future payments in royalties are stipulated. Here we have two different kinds of income to be rendered upon, and growing out of the same contract.

Reverting now more specifically to the matter of patent valuation, there are different methods which must be applied to different businesses. And possibly no method at this time will dispose of the subject fairly. In this connection, it is had in mind that a certain client paid the sum of $200.000 cash for some patent rights some eleven years ago. To-day these patent rights would probably not bring $25,000 or $50,000 if sold. The decrease in valuation is not due to depreciation alone, but arises from other factors which need not be discussed, but which enter into the matter. Nevertheless, under the rules of the income taxing tribunal of the Government, the valuation of these patents might be maintained far above their actual value, upon the books of the corporation, assuming that the cost of the patents and the development of the inventions covered thereby is to be the basic element controlling such valuation.

In another case, a series of patents covering an important invention were secured and the invention developed to a

high degree. For a period, the value of the invention was rendered practically nothing, owing to the existence of another patent infringed by the production of the invention. The first series of patents mentioned and the development work could be estimated with entire accuracy, and yet the valuation was practically destroyed by the existence of an outstanding infringed patent. In a case of this sort obsolescence might be established.

Frequently, a company operating a patent department handling its infringement and patent procurement work, must arrive at a determination of patent valuation by methods different from those applicable to an inventor, or corporation having patent counsel outside the direct administration of the business, and who really constitute its patent department.

So many factors of this sort enter into the situation of patent valuations, and must be borne in mind, that the knowledge and service of expert accountants, as well as the assistance of patent counsel, should be availed of in this connection for obtaining intelligently arrived at valuation appraisals.

Consulting the authorities of the Bureau of Internal Revenue, however, some excellent enlightenment may be given upon the value of a patent or copyright ascertainable from the standpoint of the United States Government officials. These officials are not interested in buying or selling the patent rights before them, but in setting as nearly as practicable a true valuation thereon for the purposes of taxation. Some of the rules which have been provided, therefore, and approved by the Commissioner of Internal Revenue, are of special interest, and certain of these are now quoted:

A. For patents, etc., acquired before March 1, 1913, the fair market value on that date may be determined and entered on the books for purposes of depreciation and to be used in lieu of the cost value for determining profit or loss in case the patent is subsequently sold.

B. For patents, etc., acquired after March 1, 1913,

the cost thereof shall be entered on the books for purposes of determining capital invested, annual depreciation charges, and profit or loss in case of subsequent sale of the patent. This rule is further divided into:

(1) For patents, etc., acquired from the Government, the cost thereof shall be the various Government fees, cost of drawings, experimental models, attorneys' fees, etc., actually paid.

(2) For patents, etc., purchased, the cost thereof shall be the purchase price actually paid; if the purchase price be in stocks, bonds, or like securities, the cost price is the fair market value of such stock or other securities at the time of the purchase.

In the cases where the consideration of purchase, or a part thereof, is represented by stocks, bonds, or other securities, certain of the factors to be considered follow, tho it is recognized that much difficulty must be experienced in arriving at a proper valuation when the consideration is of the nature just specified:

The value of shares of stock as of March 1, 1913 (or any other date), should be determined on the basis of market quotations as at that date, instead of book values. (A. R. R. 33. 9-20-764.)

The appraised value of stock, as at the time of the creation of a trust estate, by appraisal of a State court, creates a presumption only that the stock is of the appraised value; this presumption may be rebutted by competent evidence to the effect that the stock was of another value than that appraised. (A. R. M. 7. 30-19-637.)

The "fair market value" of property is the sale value of property in money as between one who wishes to purchase and one who wishes to sell, and is the price at which a seller willing to sell at a fair price and a buyer willing to buy at a fair price, both having a reasonable knowledge of the facts, will trade. It implies the exist-

ence of a public of possible buyers at a fair price, and recognizes that property has no "fair market value" when market conditions are such that there would be no trading in the property in question at a fair price. (T. B. R. 57. 19-19-494.)

The value of stock which has no market price may be estimated by resort to the value of the assets capitalized and attendant circumstances which may affect the value of such assets. (Goodwin *vs.* Wilbur, 104 Ill. App. 45; Collins *vs.* Denny, 89 N. W. 1012; Virginia *vs.* West Virginia, 238 U. S. 202.) In the case of inventions, their value is dependent upon proven utility or the likelihood of practical usefulness, and, therefore, stock issued thereon will have a corresponding value. If an inventor should sell a recently patented invention to a manufacturer before its use has been tested, but simply upon its apparent usefulness, it may be said that the invention at that time is worth what is paid for it because a price has been offered and paid. The measure of value is the price paid. Stock issued upon such invention would be worth the value of the invention measured by the price which the manufacturer has paid for it.

Again, instances of sale of intangibles require the determination of valuation from this angle and on this acount the Internal Revenue Bureau has drawn up the following suggestions:

> The actual cash value of intangible property paid in for stock or shares must be determined in the light of the facts in each case. Among the factors to be considered are:
>
> (a) The earnings attributable to such intangible assets while in the hands of the predecessor owner;
>
> (b) The earnings of the corporation attributable to the intangible assets after the date of their acquisition;
>
> (c) Representative sales of the stock of the corpora-

tion at or about the date of the acquisition of the intangible assets; and

(d) Any cash offers for the purchase of the business, including the intangible property, at or about the time of its acquisition. A corporation claiming a value for intangible property paid in for stock or shares should file with its return a full statement of the facts relating to such valuation. (Art. 851, Reg. 45 Rev.)

Depreciation

If patents and like property are worthy of valuation, they are likewise deserving of having the depreciation thereof ascertained, a matter which in some phases is easier to accomplish than is the original valuation.

Depreciation is figured customarily on almost all kinds of property, in the regular methods of most businesses. It is strange, therefore, that a large number of business owners, and executives of businesses owning patent rights, still entirely ignore this item respecting patents owned or controlled.

The rules drawn by the Bureau of Internal Revenue, in the administration of the Income Tax laws, upon the subject of depreciation, and modes of determining same, are appropriate to consider in this connection, and certain of them are noted below:

> Intangibles, the use of which in the trade or business is definitely limited in duration, may be the subject of a depreciation allowance. Examples are patents and copyrights, licenses and franchises. . . . If a tangible asset acquired through Capital outlay is known from experience to be of value in the business for only a limited period, the length of which can be estimated from experience with reasonable certainty, such intangible asset may be the subject of a depreciation allowance. (Art. 163, Reg. 45, as amended by Treasurer's Decision 2929. 23-19-545.)

An allowance for depreciation of patents will be made on the following basis:. . . (Art. 137. Reg. 33, Rev.)

Depreciation of intangible property as explained in Art. 163 of Reg. 45 applies to all intangible property, including patents and copyrights, whether acquired for cash, other property, or corporate stock. The term "Capital Outlay" includes corporate stock. (O. D. 344, 30-19-640.)

The capital sum to be replaced should be charged off over the useful life of the property either in equal annual installments or in accordance with any other recognized trade practise, such as the apportionment of the capital sum over units of production. Whatever plan or method of apportionment is adopted must be reasonable, and should be described in the return. (Art. 165, Reg. 45, Rev.)

An allowable deduction for any given year for return of Capital Invested in patents at time of issue will be an amount equal to 1-17th of the actual cost, in cash or its equivalent, of such patents. . . . If the patent was purchased after a part of its life had expired, the cost for the purpose of a deduction for return of Capital will be ratably spread over the remaining years of its life. (Art. 174, Reg. 33, Rev.)

Frye, in his excellent work, "Income Tax As Affected By Patents and Trade-Marks," from which has largely been drawn the selection of the rulings and decisions quoted herein, gives the following commendable suggestions respecting the determination of depreciation of patent rights, as regards a group of patents such as so often comprises the patent list of a large company or business:

The procedure when several patents are owned is substantially the same.

Where several patents are owned by the same individual or corporation and are carried on the books

under the same Capital Asset Account, it is preferable, when possible, to add to this amount the cost of each patent as acquired, or, when this is not possible (see page 75), the amount representing the cost of the patents acquired during the year should be entered in the Capital Asset Account.

Then, preferably, the percentage of depreciation of each patent is separately computed, and the aggregate amount of such individual depreciations either deducted from the book value of the account or credited to the Depreciation Reserve. When this is not feasible, the total number of years the several patents have yet to run is ascertained and then divided by the number of patents to determine the average life of the entire group of patents. The corresponding percentage of the cost of the entire group is then charged off on the books.

Where it happens that a patent owner has not charged off depreciation in preceding years, he is not permitted because of this to charge off the entire cost during the remaining years.

Art. 167, Reg. 45, specifies:

> The fact that depreciation has not been taken in prior years does not entitle the taxpayer to deduct in any taxable year a greater amount for depreciation than would otherwise be allowable.
>
> But he is permitted to go back and reopen his books for the prior years and then charge off the depreciation in the proper years.

The obsolescence of a patent right appears to be something for which allowance has not thus far been permitted by the Internal Revenue officials. It is highly probable that in the comparatively near future rulings affecting obsolescence will be made in recognition of this factor as an important element in the computation of depreciation. This seems to be but a natural line of progress in the development of valuation work relating to intangibles; it should not be ignored any more

than at the present time the value of the service and time of an inventor is ignored in the determination of the true valuation of his patent right, respecting the work done by him in the development of his invention.

In conclusion, it is notable that foreign as well as United States patent rights may have their depreciation written off, upon the basis of the terms of their grant.

IV

MISCELLANEOUS LEGAL SUBJECTS—WITH AUTHORITIES

By Patent Examiners

I. Invention vs. Mechanical Skill, by G. P. Tucker.
II. Combination vs. Aggregation, by L. W. Maxson.
III. Division (Practise Relating to), by L. A. Sadler.
IV. Mechanical Processes and Functional Claims, by E. C. Reynolds.
V. New Matter, by Edward Collins.

There are some subjects of abstract patent law, without an understanding of which it may be difficult to obtain a full appreciation of the purport of certain phases of practise described herein. Recourse might be had with benefit to any of the well-known writers on this law for exhaustive treatments of these subjects, but this makes for complications in that some incompleteness might be ascribed hereto. For instance, it is well to know what constitutes "invention," so called. Moreover, a review of certain legal limitations relating to invention, known under the name of "mechanical skill expedients," is greatly to be desired. For a quick grasp of these and like subjects very terse presentations of the same are needed. The foregoing applies equally to the law of aggregation, rules concerning division, and other elemental propositions affecting patents or their procurement.

With the foregoing in mind the author knows no better elucidation of such subjects, for the purposes of this work, than found in certain of a series of papers written by Patent Examiners, and read before the Examining Corps of the Patent Office during the administration of Commissioner Ewing.

By these papers the practise in the office has been rendered more uniform than ever before, and authorities in point are usually supplied, at least to some brief extent.

Several of such papers have therefore been embodied herein, and are brief but comprehensive explanations of the law or practise involved. Coming as they do from recognized experts of long experience they will be found an invaluable addition to any work on practise. A student of patent procedure can not find a more profitable investment of his time than by studying the entire series of these Patent Office Papers or Lectures.

I. INVENTION *VS.* MECHANICAL SKILL

By George P. Tucker,
Law Examiner, United States Patent Office

In most Divisions of the Office there are classes of inventions long established; inventions in devices that generically have been in use almost from the time when the memory of man runneth not to the contrary. In no division probably is this more true than in Division 8. Furniture is as old as habitations and habitations nearly as old as man.

It follows that the classes of beds, chairs, and furniture proper must be well developed and that inventions therein must be directed to improvements: that the advance in the art made by each invention will probably be small, and that in each case, a search will disclose a fairly close approximation of the device as a whole and suggestions of the details of the improvement.

Under these circumstances, the question whether the applicant has produced something requiring the exercise of the inventive faculty or not, is continually before the Examiner for settlement and by virtue of its ubiquity overshadows all other questions in importance.

With a view of deducing, if possible, from the mass of decisions on the subject, some principles which may serve as buoys and beacons to mark the navigable channel of invention from the flats and shallows of mechanical skill, some study of the subject has been made and the results thereof are here set down.

It is an accepted rule that invention must be involved in the production of an Art, Machine, Manufacture, or Composition of Matter before the same can be held patentable. The statute, Section 4886, says—

> any person who has invented or discovered any new and useful art, etc., may obtain a patent therefor.

All the recent writers of text-books on the subject, from Robinson to Rogers, agree on this rule. Robinson, for instance, says in Book I, paragraph 77 and 78:

> The inventive act in reality consists of two acts; one mental, the conception of an idea; the other manual, the reduction of that idea to practise. . . . The mental faculties employed in the inventive act are the *creative*, not the *imitative* faculties. An invention is the product of original thought. It involves the spontaneous conception of some idea not previously present to the mind of the inventor. Industry in exploring the discoveries and acquiring the ideas of others, wise judgment in selecting and combining them, mechanical skill in applying them to practical results; none of these are creation; none of these enter into the inventive act.

The rule is so well set forth in the decision of Mr. Commissioner Hall, in Ex parte Devin, C. D., 1888, page 166, that I can not refrain from quoting. He said:

> It is not sufficient that an applicant shall have made a new and useful article or machine; but he must have made an *invention* or *discovery*. These terms have received a clear and well-defined construction at law, and in the decisions of the courts, the word *discovered* having practically the same meaning as the word *invented*.

In deciding adversely the case before him, he went on to say:

> It is well known that the mechanics, artizans, and laborers of the world are continually making an infinite multitude of new and useful contrivances, changes, and modifications in the affairs of life, and yet they do not dream of patenting them, for the reason that they are not the result of the exercise of the inventive faculty, but simply of the mechanical faculty.

A leading decision by the United States Supreme Court, setting forth the Rule requiring invention, is The Atlantic Works *vs.* Brady, printed in C. D., 1883, page 214, which says:

> The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary head workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development. . . . To grant to a single party a monopoly of every slight advance made, except where the exercise of invention somewhat above ordinary mechanical or engineering skill is distinctly shown, is unjust in principle and injurious in its consequences. The design of the patent laws is to reward those who make some substantial discovery or invention which adds to our knowledge and marks a step in advance in the useful arts. It was never the object of these laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures.

The above citations are thought sufficient to make the rule stated authoritative.

The problem for the Examiner is, of course, to determine in a given case whether invention is present.

Each case has to be decided on its own merits. No writer or court has ventured to state the elements of the mental creative act referred to by Robinson, in the quotation given above; some have expressed the seeming impossibility of defining invention. In McClain *vs.* Ortmayer et al., C. D., 1891, page 532, the Supreme Court said:

> The word "invention" can not be defined in such a manner as to afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty or not.

Judge Dennison in his recent talk before the Examining Corps admitted the courts are still struggling with the question of what constitutes invention. He gave a statement of one way of approaching the question, which is: First determine exactly what the inventor aimed to do to advance the art, and, secondly, determine whether the alleged anticipating invention evidences an invention to advance along the same line. This will place the investigator in a position to separate out and weigh the character of the difference between the results obtained by each.

Neither have we, relative to "mechanical skill," a dogmatic statement as to what the "artizan," "head workman," or "engineer," mentioned in the Supreme Court decision above, may be expected to produce. Definitions of "persons skilled in the art" are found in the decisions in Ex parte Kerr, C. D., 1884, page 27, and in The Tannage Patent Co. *vs.* Zahn, a circuit court decision printed in C. D., 1895, page 367: according to these decisions "persons skilled in the art," are those of ordinary and fair information relating to the subject matter of the invention. Of course, the section of the Statute, No. 4888. using this term, refers to the fulness and clearness of the description requisite to support a patent, such description being directed to "persons skilled in the art." But it is persons of this character who may be expected to, and do produce changes and improvements evidencing mechanical skill. A reasonable deduction must be that the skill and training of an engineer must be counted "ordinary" to his profession. A civil engineer, for instance, has large knowledge along certain lines, but so presumably have all civil engineers. A physician is wise in the matter of compounding prescriptions, but so, presumably, are all physicians. They are persons skilled in their particular arts. And if these persons make inventions which do not distinctly show originality, but merely a full professional knowledge availed of to produce results that might have been foreseen by persons equally learn-

ed and skilled, their work may properly be held to have evinced only mechanical skill.

But if a definition of exactly what constitutes invention be lacking, a number of decisions have been rendered in specific cases marking out, first, certain changes and even improvements that do not amount to invention: and, secondly, indicating changes and improvements that have been decided to involve invention.

By a consideration of the first class of decisions certain "flats and shallows of mechanical skill," to continue the nautical metaphor mentioned above, are located and the possible bounds of the "channel of invention" somewhat defined.

Of the first class, the following decisions may be noted:

Mere skill of construction is not invention but only mechanical skill. Ex parte Snider, C. D., 1894, page 23.

To make an apparatus portable is not a patentable improvement. Black Diamond Coal Mining Co. *vs.* Excelsior Coal Co., C. D., 1895, page 267 (U. S. Supreme Court).

The right to improve upon prior devices by making solid castings in lieu of constructions of attached parts is so universal in the arts as to have become a common one. Consolidated Electric Manufacturing Co. *vs.* Holtzer, C. D., 1895, page 476 (Circuit Court of Appeals).

Mere change of proportion is not sufficient to avoid a charge of infringement and is not therefore sufficient to establish difference of invention. Thomson-Houston Electric Co. *vs.* Western Electric Co., C. D., 1896, page 315 (Circuit Court of Appeals).

There was no invention in providing a bearing surface upon the frame of a dash . . . either by an increase in the quantity of metal or otherwise, so as to strengthen the proper part in a proper way for its proper duty. Peters vs. Hanson, C. D., 1889, page 444 (U. S. Supreme Court).

There is no patentable invention involved in swaging or striking up by means of a die, from a blank of iron or steel, a rail-brace of a form which had previously been made of cast metal. Strom Mfg. Co. *vs.* Weir Frog Co., C. D., 1896, page 618 (Circuit Court), and Kilbourne *vs.* W. Bingham Co., C. D., 1892, page 477 (Circuit Court of Appeals).

The matter of elastic suspension by springs, and of otherwise giving entire or partial independent support is so common in the arts that the presumption is against the patentability of any such mere form of suspension. The selection of a form of support is in the common field of mechanical construction. Thomson-Houston Electric Co. vs. Athol and Orange St. Railway Co., C. D. 1897, page 694 (Circuit Court).

To increase or decrease the number of intermediate gear-wheels in the train of gearing of a timepiece from the number shown in the reference to accommodate the mechanism to the size of the case and still maintain the proper value between the rate of revolution of the minute and hour hands is within the skill of the mechanic familiar with the art and does not involve invention. Ex parte Volkmann and Truax, C. D., 1906, page 372. See, also, New Departure Bell Co. *vs.* Bevin Brothers Mfg. Co., C. D., 1896, page 428 (Circuit Court of Appeals).

Where two mechanisms for performing successive operations upon a piece of work are both old in the art, the assembling of these mechanisms upon a unitary support in such manner that the operator may transmit the work from one to the other without changing his position at the machine, held not to involve invention. Ex parte Smith, C. D., 1909, page 214.

Held that ordinarily there is no invention involved in making in two pieces, and separable, things which have before been made in one piece of parts inseparably connected. Ex parte Thurston, C. D., 1905, page 294.

Butt-welding of metal being old, claims for a metal

> pan formed of two parts, with the joining edges butt-welded, *held* not patentable over the prior art, as the substitution of a butt-weld for a crimped seam does not constitute invention. In re Hogan, 203 O. G., page 1558 (Court of Appeals, D. C.).

A statement made by Judge Putnam, of the Circuit Court, District of Massachusetts, in the case Dalby *vs.* Lynes, C. D., 1895, page 381, deserves consideration, since it was afterwards quoted with approval by the Court of Appeals of the District of Columbia, in Fay *vs.* Duell, Commissioner of Patents, C. D., 1900, page 232. The statement is:

> A novelty involving a state of art so universal and common as the making and adjustment of clothing must be of a radical character to overcome the presumption against its patentability.

As to rearrangement and reversal of parts without the accomplishment of a new result, the following decisions are pertinent:

> The reversal of a tongue and its recess in the same kind of a structure, even if productive of an improved, but not a new, result does not require patentable invention. Sax *vs.* Taylor Iron Works, C. D., 1887, page 444 (Circuit Court).
>
> Where certain parts of a water-tight shoe were old, a simple change in the form and arrangement of such parts subserving the same purpose as like parts of shoes constructed under earlier patents, and without causing any new function to be performed, does not constitute invention. Burt *vs.* Evory, C. D., 1890, page 245 (U. S. Supreme Court).
>
> In a water-heating apparatus the arrangement of vertical pipes over instead of at the side of the fire does not constitute patentable novelty, and varying the length of these pipes so as to avoid interfering with the fuel space is an obvious change for an obvious purpose

and does not amount to invention. Ex parte Garland, C. D., 1892, page 3.

Wooden bearings in excelsior-machines being old, there is no patentability in a wooden bearing in such machine placed therein so that the grain of the wood will run vertically with the line of motion of the journal instead of at right angles thereto.

The use of lugs to prevent lateral movement being well known, their employment in an excelsior-machine to prevent lateral movement of the sliding plate involves no invention. Johnson *vs.* Olsen, C. D. 1894, page 453 (Circuit Court).

To make the handle of a knife for cutting hay reversible on the head of the shank to which the blade is attached, does not require anything more than ordinary mechanical ingenuity and does not involve invention. In re Iwan, C. D., 1901, page 344 (Court of Appeals, D. C.).

If, however, the rearrangement of parts involves a reorganization of the machine tending to simplification or an improved manner of operation, this may require and involve invention.

See, for instance, the following decisions: Wilcox and Gibbs Sewing Machine Co. *vs.* The Merrow Machine Co., C. D., 1898, page 584 (Circuit Court of Appeals), in which Judge Lacombe said in substance:

> Although the patentees have borrowed in part from the earlier art, they have so arranged the various parts as to tend toward simplicity, and have doubled speed of the overseam machine, and therefore the court is disposed to consider the changes in parts and arrangement of parts as showing meritorious invention.

Similar decisions are made in Morgan Engineering Co. *vs.* Alliance Machine Co., C. D., 1910, page 438 (Circuit Court of Appeals); Ex parte Johnson, C. D., 1909, page 188.

It may be considered settled that a mere carrying forward or change in degree of an original idea is not invention; such cases frequently present a mere duplication of existing parts.

In Williams et al. *vs.* The Goodyear Metallic Rubber Shoe Co., C. D., 1892, page 288. Judge Shipman said, speaking of the then recent Supreme Court decisions in Smith *vs.* Nichols and Burt *vs.* Evory:

> The tendency of these decisions is to confine patentability within narrower limits than formerly. They especially demand that a device which is an improvement upon a preexisting one must, in order to be patentable, contain a new idea, and perform some new function and not present changes of degree only, or simply "new and more extended applications of the original thought."

Other decisions of the same character are: Busell Trimmer Co. *vs.* Stevens, C. D., 1890, p. 586 (U. S. Supreme Court); Consolidated Roller-Mill Co. *vs.* Walker C. D., 1891, page 310 (U. S. Supreme Court); Wright *vs.* Yuengling, C. D., 1894, page 560 (United States Supreme Court); in re Seabury, C. D., 1904, page 655 (Court of Appeals, D. C.).

The question sometimes arises in the Examiner's mind whether the practically simultaneous invention of the same thing by a number of inventors working independently does not of itself indicate the work to be that of a skilled mechanic. In Bromley Bros. Carpet Factory *vs.* Stewart, C. D., 1892, page 669, Judge Acheson said:

> That upon the idea of making an improvement, an adaptation of an old machine to the new purpose was proposed almost simultaneously by three independent parties by an alteration of mechanism slightly different structurally, but the same in principle in each case, is evidence that such change was obvious and did not involve invention.

See, also, North British Rubber Co. *vs.* Jandorf, C. D., 1898, page 313 (Circuit Court); and Computing Scale Co. *vs.* Automatic Scale Co., C. D., 1905, page 704 (Court of Appeals, D. C.).

As to the omission of mechanical parts, the rule seems well settled and appears to be—

> A reconstruction of a machine so that a less number of parts will perform all the functions of the greater may be invention of a high order; but the omission of a part with a corresponding omission in function, so that the retained parts do just what they did before in the combination, can not be other than a mere matter of judgment, depending upon whether it is desirable to have the machine do all or less than it did before. McClain *vs.* Ortmayer, C. D., 1888, p. 231 (Circuit Court); See also National Hat Pouncing Machine Co. *vs.* Hedden, C. D., 1893, p. 294 (U. S. Supreme Court).

On the question of substitution of materials or parts, the rule clearly is that if the substituted material or part was well known and its advantages and virtues understood, and the new result attained by the substitution was due solely to the characteristics of the material or part substituted, the substitution displays no invention. Ex parte Krell, C. D., 1888, page 139; Ex parte Odenheimer, C. D., 1889, page 240; Ex parte Foss, C. D., 1891, pages 153 and 208; Ex parte Grayson and Crecelius, C. D., 1894, page 100.

However, if the substitution of a part results in overcoming particular difficulties and results in a particularly meritorious article or machine, the substitution may involve invention, according to the decision in Mast, Foos and Co. *vs.* Dempster Mill Mfg. Co., C. D., 1898, page 297 (Circuit Court of Appeals).

In the above series of decisions, I have tried to select those where the language used in each may be applicable to more

than one particular set of circumstances; in other words, to select cases typical each of a class.

In taking up the second class of decisions, viz., those deciding invention to have been present and its requirements satisfied, it is noteworthy that the great majority of them decide only its particular case; in other words, that as to that particular craft, it is in the "navigable channel of invention."

Some cases have been said to be just within the bounds of the channel and a few have used language broad enough to help in defining the channel.

For instance—

> Simplicity does not negative invention when a new and useful result is accomplished. Western Mineral Wool Co. *vs.* Globe Mineral Wool Co., C. D., 1896, p. 622 (Circuit Court).
>
> Whenever in an art, machine, manufacture, or composition of matter a change, however apparently minute, is made which is not obvious and results in marked advantages, a patentable invention has been produced. Ex parte Champney, C. D., 1892, page 176.
>
> In determining the question of patentable novelty, there can be no hard and fast rule. Each case must be decided upon its own facts. Mere change of form in and of itself does not disclose novelty. A new article of commerce is not necessarily a new article patentable as such. But patentable novelty in a case like the present may be founded upon superior efficiency; upon superior durability including the ability to retain a permanent form when exposed to the atmosphere; upon a lesser tendency to breakage and loss; upon purity and, in connection with other things, upon comparative cheapness. Union Carbide Co. *vs.* American Carbide Co., C. D., 1910, p. 471 (Cir. Court of Appeals).

In this case, a chemical compound, calcium carbid, was under consideration.

It is not considered necessary in this paper to touch upon the feature of invention as embodied in a patentable combination or a patentable process, as these subjects have been treated *in extenso* in excellent papers already read before the Examining Corps.

One subject of importance, however, deserves our attention; it is that of double or analogous use.

It is fundamental that a patent covers a device in all the uses to which it may be applied; if a device be transferred from one art to another and the arts be analogous, no invention is involved in the transfer. That the new use was not contemplated by the patentee is immaterial. Aron *vs.* Manhattan Ry. Co., C. D., 1889, page 650 (U. S. Supreme Court); Howe Machine Co. *vs.* National Needle Co., C. D., 1890, page 281 (U. S. Supreme Court); Ansonia Brass and Copper Co. *vs.* Electric Supply Co., C. D., 1892, page 313 (U. S. Supreme Court).

But, as the court said in the last-mentioned decision:

> If an old device or process be put to a new use which is not analogous to the old one, and the adaptation of such process to the new use is of such a character as to require the exercise of inventive skill to produce it, such new use will not be denied the merit of patentability.

In this case and especially in the celebrated case which was decided nearly three years later, viz: Potts and Co. *vs.* Creager et al., C. D., 1895, page 143, the Supreme Court discusses at length the question of double use.

In the latter case, the validity of two patents each to C. and A. Potts for a clay disintegrator, was being investigated. The disintegrator was made up of a revolving cylinder with longitudinal cutting bars at spaced intervals on and projecting from its surface. Opposed to this cylinder was, in one patent, a swinging board moved in and out by an eccentric, and in the other patent a smooth revolving cylinder. The action of the

machines was similar, namely, to cut up or shred the clay.

Numerous alleged anticipating patents were cited from many arts showing grinding, crushing, cutting and rolling operations applied to many substances: an exhibit of the Creager wood-polishing machine was considered by the court, the nearest approach to anticipation; it had a cylinder with projecting strips or bars of glass, and of this the court said:

> Had this machine been used for an analogous purpose, it would evidently have been an anticipation of the Potts cylinder, since the substitution of steel for glass strips would not of itself have involved invention.

Concerning the patents cited as anticipations, the court repeatedly asked the questions: Will the machine disintegrate clay? Will it cut or shred like the Potts machines?

The whole decision shows the great importance the court placed on the result obtained by revolving the knives in the new use.

The following much quoted conclusion was a part of this decision:

> As a result of the authorities upon this subject, it may be said that, if the new use be so nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use, but if the relations between them be remote, and especially if the use of the old device produce a new result, it may at least involve an exercise of the inventive faculty. Much, however, must still depend upon the nature of the changes required to adapt the device to its new use.

Another Supreme Court decision emphasizing the importance of the object and function of a machine relative to the question of anticipation and therefore having a bearing on the question of originality or invention is Topliff *vs.* Topliff, C. D., 1892, page 402, wherein the court said:

It is not sufficient to constitute an anticipation that the device relied on might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such function.

Another prominent Supreme Court decision, pointing out the importance of a new and improved result is Webster Loom Co. *vs.* Higgins, C. D., 1882, page 285, wherein it was said:

> A new combination of known devices producing a new and useful result (as that of greatly increasing the effectiveness of a machine), is evidence of invention.
>
> See, also, Miller *vs.* Lodge and Davis Machine Tool Co., *77* Federal Reporter, page 621 (Circuit Court of Appeals).

Two more points of importance remain to be considered: When is weight to be given, and how much importance is to be attributed, to affidavits filed showing that a device has gone into extensive use by the public and superseded others of its kind?

The Circuit Court of Appeals for the Eighth Circuit, in its decision in Boss Manufacturing Co. *vs.* Thomas (C. D., 1911, page 456), said:

> In doubtful cases, the fact that a patented article has gone into extensive or general use is evidence of its utility; but that is by no means conclusive of its patentability. When there is no invention, the extent of its use is a matter of no importance.

It is significant to note that the United States Supreme Court in most of its utterances on the subject says this sort of evidence can be availed of where the question of patentable *novelty* is in doubt.

For instance, in Potts *vs.* Creager, *supra*, the court said:

> Where the question of novelty is in doubt, the fact that the device has gone into general use, and displaced other devices employed for a similar purpose is sufficient to turn the scale in favor of the invention.
>
> See, also, McClain *vs.* Ortmayer, and Topliff *vs.* Topliff, *supra*.

Another decision which uses the term "invention" in place of "novelty," is Star Brass Works *vs.* Gen'l. Electric Co., 111 Federal Reporter, page 398 (Circuit Court of Appeals).

From the decisions, it seems fair to deduce that the Examiner should be careful not to give too much weight to this kind of evidence. In Ex parte Flomerfelt, C. D., 1896, page 59, Mr. Commissioner Seymour said:

> Where the patentability of a device is not clear, extensive sales may resolve the doubt of patentability in favor of an applicant. This, however, is an unsafe criterion and must be cautiously applied.

That the fact of large sales is an unsafe criterion in determining the question of patentability was specifically stated by the Supreme Court in Duer *vs.* Corbin Cabinet Lock Co., C. D., 1893, page 334.

The last point I wish to touch upon is this: The Examiner is frequently urged to resolve all doubts in favor of the applicant. The case is usually very nearly "in extremis," when this argument is resorted to.

There appear to be certain circumstances where this argument is proper and should be given weight.

The Circuit Court of Appeals of the First Circuit, in Simonds Rolling-Machine Co. *vs.* Hathorn Manufacturing Co. (C. D., 1899, page 421), said:

> On a question of anticipation if the identity of methods and results is doubtful, the doubt must be re-

> solved in favor of the successful patentee who has in a practical way materially advanced the art.

From this it appears the Examiner may properly resolve all doubts in favor of the applicant, where, for instance, the disclosure of the invention in an alleged anticipating reference is incomplete or obscure, necessarily leaving the Examiner in doubt as to the identity of the reference with the invention claimed.

It does not follow that all doubtful cases involving the separation of invention from mechanical skill should be decided in favor of the applicant. It should be remembered that the burden of proof is upon the applicant to establish the patentability of the invention as claimed. Durham *vs.* Seymour, Commissioner of Patents, C. D., 1895, page 307.

In conclusion, it may be said that the discussion above is thought sufficient to make clear that the presence of invention as an element of patentability is imperative; that the difficulty of distinguishing invention from mechanical skill is frequently great and demands careful thought; that the marked out "flats and shallows of mechanical skill" should be reviewed for purposes of comparison; that the object an inventor has in view is important; that the actual result he attains is even more so; that simplicity does not negative invention, and that reorganization of parts with a view to simplification is likely to evidence invention of a high order.

If the above consideration of these or other features shall be useful to the Examiners in deciding the case entitled "INVENTION *vs.* MECHANICAL SKILL," the purpose of this paper will be fulfilled.

II. COMBINATION VS. AGGREGATION

By Louis W. Maxson,

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R. S. 4886 states that a patent may be obtained by "any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, etc."

It is, therefore, clear that Congress has limited the subject-matter of a patent to an invention, novelty and utility alone being insufficient to justify the grant.

Where a device is composed of but a single element, the question of patentability is simple, depending on whether the element is the result of invention or the product of mere mechanical skill; but, when two or more elements are grouped together, as in combined tools, machines, or the several steps of a process, a new question arises. Are the several elementary parts so related as to produce a legitimate combination and, if so, under what circumstances do they constitute a patentable invention?

The decisions of the Federal Courts, from the beginning of our patent system, have been remarkably uniform in respect to this matter, yet, judged by the nature of the patents granted, the practical distinction between patentable and unpatentable combinations or aggregations seems to be little understood by many. I, therefore, base the remarks which I shall make on a few of the decisions which I have found most useful in determining the many cases which have come before me.

These are:

> To make a valid claim for a combination it is not necessary that the several elementary parts of the combination should act simultaneously. If those elementary parts are so arranged that the successive action of each contributes to produce some one practical result, which result, where attained, is the product of the simultaneous

or successive action of all the elementary parts, viewed as one entire whole, a valid claim for thus combining those elementary parts may be made.

Furbush et al. *vs.* Cook et al., 10 Mo. L. R., 664, Curtis, 1857.

Altho three elements of a patented combination may all be old and two of them have been combined before, yet he who brings into the combination the third element, and thereby gets a practical advantage, makes a patentable invention.

Ib.

Although a combination of old devices may be patentable when a new and useful result is produced, no one can, by combining several devices, each of which is old, thereby deprive others of the right to use them separately or the right to use them in new combinations, or the right to use some of them in combinations, omitting others.

Hailes et al. *vs.* Van Wormer et al., 7 Blatchford, 443, Woodruff, 1870.

The mere addition of an old device, producing a specific result, to another device, producing its own result, in such wise that their combination produces those two same results, and no other, is not invention.

Ib.

Patents may be granted for combinations in which some of the parts are old and some are new; and whatever in the several parts is new may be separately secured to the inventor; and yet it may be true that only in the combination described or in some similar combination, the new part thus secured to the inventor is of any practical use whatever.

Wheeler, Jr., *vs.* Clipper Mowing and Reaping Co. 10 Blatch., 185, Woodruff, 1872.

Under the statutes patentee is required to particularly specify what he claims to be new, and if he claims a combination of certain elements or parts, we can not declare that any one of these is immaterial. The patentee makes them all material by the restricted form of his claim.

Union Water Meter Co., *vs.* Desper, 101 U. S., 332, Sup. Ct., 1879.

A mere aggregation of old things is not patentable, and, in the sense of the patent law, is not a combination. In a combination the elemental parts must be so united that they will dependently cooperate and produce some new and useful result.

Wood et al., *vs.* Packer, 57 Fed. Rep. 651, Nixon, 1883.

A combination is patentable (1) if it produces new and useful results, though all the constituents of the combination were well known and in common use before the combination was made, provided the results are a product of the combination, and not a mere aggregation of several results, each the product of one of the combined elements; (2) if it produces a different force, effect, or result in the combined forces or processes from that given by their separate parts and a new result is produced by their union; (3) if it either forms a new machine of distinct character or formation or produces a result which is not the mere aggregate of separate contributions, but is due to the joint and cooperating action of the elements; (4) when the several elements of which it is composed produce, by their joint action, either a new and useful result, or an old result in a cheaper and otherwise more advantageous way.

Niles Tool Works *vs.* Betts Machine Co., 27 Fed. Rep., 691, Wales, 1886.

A patent for a combination can not be maintained where nothing is done except to bring well-known devices into juxtaposition, each working its own effect, and the aggregate producing no new and useful result.

Kerosene Lamp Heater Co. *vs.* Littell, 3 Banning and Arden, 312, Nixon, 1878.

There is no patentable combination, properly so called, in an aggregation of devices which have no common purpose or effect, concurrent or successive.

Tower *vs.* Bemis & Call Hardware & Tool Co. et al., 19 Fed. Rep., 498, Lowell, 1884.

A broad claim can not be sustained for merely putting together two old tools for convenience of manipulation in several and wholly distinct uses—the patent must be limited to some patentable improvement, either in the mode of combining the tools or in one or more of the tools themselves.

Ib.

To combine the parts of two existing machines, leaving the parts in the new union to work as before does not constitute a patentable combination, but merely an aggregation.

Troy Laundry Machinery Co. et al. *vs.* Bunnell, 23 Blatch., 558, Wallace, 1886.

A patent for a combination is not invalid because all the parts are old. But merely assembling them together, or placing them in juxtaposition does not indicate invention. Some new or peculiar function produced by such a combination must be developed. Unless this follows, the new arrangement is the mere exhibition of mechanical skill.

Scott Mfg. Co. *vs.* Sayre, 26 Fed. Rep., 153, Nixon, 1885.

The fact that an article is convenient and has commercial advantages does not render it patentable where it is made up of independent devices, each of which is unaffected by the presence or absence of the other.

Ex parte Davenport, C. D., 1904, 110.

From these it is clear that the patentability of a group of elements does not depend on their individual novelty, but upon their unitedly producing a new and improved result, the product of their combined operation, not the mere sum of their several individual effects. This result may be produced by the simultaneous or sequential operation of the elements, each upon the other or their cooperation in groups. If this united participation in the result is not present, then ordinarily no patentable combination exists, but an unpatentable aggregation, an arrangement lacking invention since based alone on mechanical skill.

The patentability of claims which involve several elements can ordinarily be readily determined by applying these tests:

Let A, B, and C represent several grouped elements. If their relation is A+B+C, their function or result being merely additive or the sum of their individual results, they constitute an unpatentable combination, whether new or old.

If their relation is A×B×C, each modifying the other or cooperating singly or by groups and all mutually tending to produce a unitary result, they form a legitimate combination and, if the result is new and useful, the device is patentable, but it does not follow that all legitimate combinations are patentable.

A×B×C is old in the art, and C^1, a modification or specific form of C, is substituted for that element.

If C^1 is an old and well-known equivalent for C, no new result is accomplished and the resultant combination is unpatentable.

If a new and improved result follows the substitution and

this is due to the modifying influence of the substituted element on all the others, the combination is new and patentable.

If C^1 does not affect the functions of A and B, individually or in group, other than did C, adding only its own peculiar function to the result, the combination is not patentable over A×B×C, the broad combination being exhausted, and C^1 should be claimed by itself since in it alone does the invention lie. This is true whether C is new or old. It is not a new combination since the only modification of the result rests in the substitute element.

A×B×C being old, if C is omitted while the old result is maintained, a new and patentable combination results.

Richards *vs.* Chase Elevator Co., 73 O. G., 1710.

In special art tools it may be that each element accomplishes only its own result, but, if the several elements contribute by their operation to the production of a unitary improved result, unattainable in the absence of either, there is a legitimate combination. Such an instance is seen in the ordinary glass cutter, in which the scoring roll of the cutter combines with the breaking notch to produce the complete severance of the glass.

Lying close to, yet apart from this clearly defined field of combination and aggregation, is a twilight zone in which there appears to be no well settled practise either in the courts or Patent Office. This resides in that class of cases in which old elements are so positioned with respect to each other that, while each performs its own function, the ultimate effect of grouping the parts is the production of a better, more advantageous or cheaper result. Such cases are discussed in Burdett-Rountree Mfg. Co. *vs.* Standard Plunger Elevator Co., 196 Fed. Rep., 43; Standard Plunger Elevator Co. *vs.* Burdett-Rountree Mfg. Co., 197 Fed. Rep., 743; and Krell Auto Grand Piano Co. of America *vs.* Story & Clark Co. et al., 207 Fed. Rep., 946, in the last of which it was held that a

patent for a mechanism consisting of two or more elements is not necessarily invalid as an aggregation because there is no direct coaction between the elements, where such coaction comes to produce a unitary result through the mediation of the operative or the operating force, but without the court laying down any hard and fast rule of general application.

Perhaps a few concrete illustrations of this type of invention will in part clear the practise. It is old to form a flexible metal tube of small diameter and to form a web or braided cover about such tube by separate machines, also to feed tubes through their forming mechanism by drawing rolls. So positioning these devices as to have a pair of rolls for forming a small flexible walled tube, a means in direct alinement with the delivery outlet of the forming rolls to form a web or casing about the tube, and drawing rolls for feeding the product through the forming and casing mechanism, forms a patentable combination, as the direct line delivery insures the perfection of the tube at the point where the web is placed about it and the feed rolls maintain the direct alinement of the material while being worked upon. The parts work as before, but synchronism of operation is maintained by the tube as drawn through the machine and the perfected product is due to the consecutive operation of the several elementary machines without any deformation of the tube due to intermediate handling.

It is mere aggregation to place an oil can in the handle of a wrench so as to have a handy supply of lubricant in case a nut is rusted on its bolt. Change the position of the oiler, by recessing the inner face of the wrench jaw, fitting the oil can therein with its elastic wall projecting into the space between the jaws and place its jet orifice near the outside of the jaw face, and a new and advantageous result is produced. The first motion of the wrench handle forces the nut against the can, ejecting the oil upon the rusted parts, while continued motion in the same direction loosens the lubricated nut.

This is a clear combination due to the exercise of invention in so arranging or constructing the parts, each old in itself, that an improved result is produced. Thatcher Heating Co. *vs.* Burtis, 121 U. S., 286, justifies the grant of a claim for such a device.

To place a can opener on the handle end of a bottle decapping tool is an aggregation, since each produces its own result and no more.

Change the position of the knife edge to the inner curve of the fulcrum arm of the decapper, where it is protected by the overhang of the decapper claw and fulcrum point, while the cam-shaped back of the fulcrum arm serves as a rolling fulcrum for the can-opening blade, and we again have a clear case of patentable combination due to change of position.

In the Tower *vs.* Bemis et al. decision, above noted, it is stated that there is no patentable invention in broadly combining two forms of wrench in a single tool. So position them that their joint operation is due to a single element and a patentable combination may result. Class 81-77 is made up of just such cases.

The same result follows where an intermediate jaw is placed between the jaws of an ordinary pair of pliers, doubling the efficiency of the tool by its cooperation with each.

While in cases like the above, legitimacy of the combination must be admitted, care must be exercised that this positioning is not too freely treated as a ground for allowing claims.

Tho the Constitution gives to Congress power to pass enabling legislation, I find neither in the Revised Statutes, nor in the decisions of the Federal Courts any authority for granting patents for structures which possess convenient and commercial advantages, but are made up of independent parts each of which is unaffected by the presence or absence of the other. I refer to aggregated tools or other parts in so-called articles of manufacture. "The beneficiary must be an inventor and he must have made a discovery. The statute has

always carried out this idea. . . . So it is not enough that a thing shall be new, in the sense that in the shape or form in which it is produced it shall not have been before known, and that it shall be useful, but it must under the Constitution and the statutes, amount to an invention or discovery."

Thompson et al. *vs.* Boisellier et al., 31 O. G., 377.

I will mention one more example, illustrating an extreme type, which yet has its advocates.

A ring having an inward extension on which is pivoted a screw-driver, adjacent lugs on the face of the ring with which the ends of the screw-driver may engage to hold the parts in fixed relation when the screw-driver is not in use, and a twine-cutter blade projecting from the exterior of the ring.

Herein is no community of operation, but rather a negation of results. The ring with its lugs protects the pocket of the carrier from being torn by the screw-driver blade, while the projecting blade of the twine cutter insures the opposite result. Graphically stated $+1-1=0$, and assuredly in such a case is neither invention nor utility. Each element may be patentable by itself, but where the result of their sequential use is the obliteration of any practical joint result, there can be no justification under the present law for the issue of a patent. For this reason I can find no justification for the theory that were the Reckendorfer *vs.* Faber (92 U. S., 347, Sup. Ct., 1875), case to be retried now, the Supreme Court would reverse its judgment, for there, as in the above illustration, we have as the only result of the alleged combination $+1-1=0$, means for making a mark, means for erasing the mark, conjointly producing nothing.

III. MECHANICAL PROCESSES AND FUNCTIONAL CLAIMS

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There are few, if any, classes of claims more difficult to deal with than those coming under the above headings, and perhaps none in which the decisions seem more at variance. This lack of apparent uniformity is, of course, largely due to the fact that no two cases present precisely the same state of facts. From this arises the practical difficulty that the citation of a number of decisions by the Examiner is usually met, on the part of the attorney, by an even more formidable list. Decisions are thus chiefly useful in enabling the Examiner to make up his own mind; they are rarely effective in convincing the attorney of the error of his ways; and even where the Examiner is sustained on appeal, the reasons and decisions relied on by the appellate tribunal are frequently quite different from those cited by him in the primary consideration of the case.

It will be of some assistance to the young Examiner if he will bear in mind the order of importance of the various tribunals whose published decisions are supposed to guide him in his work. This order, which is not the same in the Office as in outside legal practise, is believed to be as follows: 1st, the Commissioner then in Office; 2d, the Supreme Court of the United States; 3rd, the Court of Appeals of the District of Columbia, and 4th, the various Circuit Courts of Appeal. The decisions of the Commissioner are placed first in the order of importance because he is the responsible head of the Office and all patents are issued in his name. It is to be presumed that his decisions are made with a due regard for those of the courts and he is entitled to have his interpretation of the law followed by the Office force. The District

Court of Appeals is given preference over the Circuit Courts because it has the final voice in most matters arising within the Office and it would be obviously improper and incongruous to do otherwise than follow such courses of procedure as it may indicate. No attempt will be made in this paper to give an exhaustive list of decisions bearing upon the subjects under consideration. The few cited are mainly those which are believed to be in harmony with the present Office practise.

There never seems to have been any doubt but that inventions which related to the production of a definite product, and involved chemical or other elemental action, were proper subjects for process claims. In the case of articles which involved merely a change in form of the material acted upon, however, the question was long in doubt. In 1895 the Supreme Court in Risdon Iron Works *vs.* Medart, 71 O. G., page 751, said "Processes of manufacture which involve chemical or other similar elemental action are patentable, tho mechanism may be necessary in the application or carrying out of such processes, while those which consist solely in the operation of a machine are not."

The Supreme Court was still in doubt on this subject in 1898; see Boyden *vs.* Westinghouse, 83 O. G., page 1067, wherein the following statement is made: "Risdon *vs.* Medart, and other cases, assume, altho they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may still be regarded as an open question whether the patentability of processes extends beyond this class of inventions."

It should be noted that four justices dissented from this opinion. These statements of the Supreme Court were quite generally taken as precluding process claims in the absence of elemental action. Not all of the courts, however, adopted this construction, and in 1901 the Court of Appeals of the District of Columbia in In re Weston, 94 O. G., page 1786, expressed the opinion that processes involving simply mechan-

ical changes in the material acted upon might be patentable if the processes could be performed by hand or by mechanism other than that shown or preferred. For the sake of comparison with later cases, Weston's claim 1, which was allowed by the court, is here quoted:

> 1. The described method of manufacturing a symmetrical coil for an electrical measuring instrument, consisting in first forming a supporting frame or spool by subjecting a short tube of metal to pressure until the desired conformation and shape is obtained, then winding the coil thereon and finally securing the pivot pins in the axial line of the coil.

In 1909 the Supreme Court set its seal of approval upon this type of claim in the Expanded Metal Case, 143 O. G., page 863, wherein it held valid a process claim for making metal lathing from sheet metal. The process in this instance could be carried out by hand altho for profitable commercial purposes a specially designed machine was required.

It will be noted that in the foregoing instances and in fact in the large majority of cases which have been passed on by the courts, the process produces a definite, tangible article. In certain divisions of the Office, however, cases of alleged mechanical processes are constantly being filed which relate merely to the production of power and perhaps also its application to a driven shaft. These cases have a certain likeness to those of the most approved process type in that they involve an "elemental" action consisting in changes in temperature, pressure, degree of moisture and sometimes in the chemical composition of an expansible fluid. There is, however, no tangible product produced, and the element subject to change usually passes through a definite cycle or cycles at the end of which it is either restored to its original condition or is exhausted as a waste product of some description, usually a gas.

While not strictly analogous, the following claim declared valid by the Circuit Court may be of value:

> The herein described method of changing the speed of an electric motor which consists in maintaining upon each one of three or more conductors a potential difference from that on any other one of the conductors and connecting the armature terminals of the motor with different pairs of said conductors.

See Bullock Electric Mfg. Co. *vs.* Crocker Wheeler Co., Federal Reporter, Vol. 141, page 101.

In the absence of authoritative decisions upon this class of cases, those Examiners who have frequently to deal with such processes may be interested in the following claims which have been recently passed upon by the Examiners-in-Chief.

The first application discloses a steam turbine and a hot water heating system. Steam is withdrawn from an intermediate stage of the turbine and used to heat the water in the system. The amount of steam so used is regulated by varying the speed at which the water is pumped through the heater.

The claim which was held on appeal to be a proper process claim is as follows:

> The herein described process of variably regulating development of power and heat in a combined power and heating system, which comprises expanding a heated expansible working fluid in a suitable motor, withdrawing a portion of such working fluid from an intermediate expansion point of the motor, and exchanging heat between the working fluid so withdrawn and another fluid to be heated, and variably regulating the rate of absorption of heat by such second fluid with respect to the rate of supply of working fluid to said motor, and thereby variably regulating the proportion of the initial heat energy of such working fluid converted into power to the heat energy imparted to said heating fluid.

In the second application a boiler supplies high pressure steam to a water injector and the combined mass of steam and water is delivered against the blades of a turbine rotor. All of the steam is then condensed and pumped back into the boiler.

The following claim was held on appeal to be a proper process but was not allowed on account of references:

> The method of operating automobile power plants employing low speed steam or gas turbines, which consists in generating an expansive fluid at high pressure, converting the energy thereof into kinetic energy in a fluid of higher density, thereby imparting a low velocity to the denser fluid, delivering the last named fluid to a rotary part of a suitable turbine, and condensing and returning in the system such of the fluid as has become evaporated.

The third application discloses a turbine consisting of a number of thin, closely spaced discs, transversely mounted on a shaft and enclosed in a casing. A nozzle in the casing admits steam against the edges of these discs and tangential to their peripheries. The steam winds around in a spiral path between the discs, causing them to revolve by its adhesive action and is finally exhausted through openings in the discs near the center.

The original application disclosed both apparatus and method claims, but the method claims were later canceled and presented in a divisional case in order to secure a speedy allowance of the parent application, which application became a patent shortly thereafter. It should be noted that division was not required by the Examiner.

The claim presented in this case is as follows:

> The method of deriving energy from a fluid under pressure which consists in causing it to flow through

> unobstructed passages in a runner rotatably mounted in a closed casing so that it is free to follow natural spiral paths from peripheral ports of inlet to central ports of outlet, and thereby propelling the runner by the adhesive and viscous action of the fluid upon the plane surfaces of the passages therein.

The Examiners-in-Chief sustained the rejection of this claim, stating that in spite of its being nominally a process claim it was in reality an apparatus claim, and would have precisely the same scope if written in the following form:

> A machine for deriving energy from a fluid under pressure through the adhesive and viscous action thereof upon plane surfaces which comprises a runner rotatably mounted in a closed casing, a peripheral port of inlet, a central port of outlet, and an unobstructed passage through the runner such that the fluid is free to follow natural spiral paths in its passage through the machine.

The appellate tribunal further held that such a claim as the foregoing could have been presented in the original application or in a reissue thereof, and that to allow the claim or a substantial equivalent thereof in another case would result in extending the monopoly conferred by the first patent. They called attention to such decisions as Century *vs.* Westinghouse, 191 F. R., page 350; Thomson *vs.* Hoosic, 80 O. G., page 967, and Miller *vs.* Eagle, 66 O. G., page 845. The purport of these decisions is that while a patent for a process may issue after the grant of one for the apparatus, a second patent which merely covers the same invention in somewhat broader terms is ordinarily invalid.

The case just considered sets forth a unitary structure through which the steam passes steadily in a path absolutely determined by the construction of the engine, and which no change in size or proportions would affect except in degree.

It would seem, therefore, that the action of the steam is just as much a function of the machine as is the action of a train of gears in a clock mechanism.

The first two applications set forth groups of devices which might be combined in various ways and in which differences in proportion or in manipulation of the various parts will produce widely different results.

In the first case all of the apparatus assembled in the same relation was shown in a single reference, yet the claim was held to be for a valid process because a certain pump was manipulated in a way not contemplated by the patentee.

While in no sense conclusive, the following considerations may be found useful in dealing with alleged process claims involving the production of power by the use of an expansible fluid, and possibly in certain other cases where no tangible product is produced.

First: A process is not anticipated by an apparatus which might be used to carry out the process, but was not, in fact, intended to do so.

Second: There is probably no patentable process in a single machine using an expansible fluid, where the cycle of change in the fluid is uniform and definitely fixed by the construction of the machine.

Third: There is a presumption of a patentable process in the arrangement of a group of devices to produce a novel result, particularly where matters of proportion and relative position are important. This presumption is considerably strengthened if the process necessitates the manipulation of one or more of the devices involved.

If applications of the kind under consideration are not patentable, it is usually because the alleged process is in reality merely the function of the machine, and this leads naturally to the consideration of functional claims.

It is so well recognized that direct claims for a function are not patentable, that such claims are never presented except by

an occasional applicant who is quite unfamiliar with patent practise.

The greatest difficulties arise in connection with claims containing one or more clauses beginning with "means," "mechanism," or some similar expression, and followed by a statement of the function performed thereby. There has been considerable variation in the liberality with which such claims have been regarded.

The Supreme Court has several times set its seal of approval on claims involving sets of mechanism defined by the result produced; see, for instance, Morley vs. Lancaster, 47 O. G., page 267, in which the following claim was held valid:

> The combination, in a machine for sewing shank-buttons to fabrics, of button-feeding mechanism, appliances for passing a thread through the eye of the buttons and locking the loop to the fabric, and feeding mechanism, substantially as set forth.

The ideas expressed by the court in these decisions were elaborated, and possibly carried further than the court intended, in a series of Commissioner's decisions extending over the next ten years; see, for instance, Ex parte Pacholder, 51 O. G., page 295; Ex parte Halfpenny, 73 O. G., page 1135; and Ex parte Knudsen, 72 O. G., page 589.

This last decision has become almost a classic and for years no examination for promotion was considered complete in which it was not involved. It divides functional claims into four classes, of which only the third is of interest here.

This class defines the construction as "means," "mechanism" or "devices" for effecting certain results or it defines certain named elements by statements of function instead of structure. The decision further states:

> The use of the above noted phraseology does not of necessity render a claim objectionable, for where

the idea is clearly stated and the combination or relation of parts to produce a desired end is plainly expressed, the breadth of statement of the claim is no reason for objecting to it. . . . When indefinite, such claims should be objected to; but they can only be rejected on references when these disclose both the complete combination and the functional qualifications covered by the claim.

The result of this decision, and others of like nature, was that the attorneys, and to some extent the Examiners, came to consider that a claim was patentable over the art if it contained a clause prefaced by the word "means" followed by a statement of a novel function. There was a gradual reaction from this extreme view, the present practise being more nearly that indicated by the District Court of Appeals in In re Gardner, 140 O. G., page 258.

In this decision the court ruled adversely on the following claim:

> In a vapor register, in combination with the suitably inscribed dial, a device for automatically indicating thereon simultaneous pressures and heat characteristics for superheated vapor.

In spite of the use of the word "device" this claim was held to be substantially a claim for a function since it apparently covered all means by which the function could be carried out. The court also called attention to the Supreme Court decision of O'Reilly *vs.* Morse, 15 Howard, page 62, the bearing of which on this class of cases had been largely lost sight of. In this case, altho the court held that Morse was the first to convey intelligence by electricity, it denied him a claim covering broadly "means" for so conveying intelligence while allowing him a claim for "electro magnetic means" for the purpose.

It is not believed that there is any conflict between the de-

cisions just considered and those of the Supreme Court which sustain certain claims for sets of mechanism. A claim for "means" for performing a particular function is certainly indistinguishable in scope from a claim for the function itself; while a claim involving sets of mechanism, even tho each clause be for "means, etc.," is not a claim for a result but rather for a series of steps for obtaining it, and the field is still left open for others who attain the same end by the use of more or fewer or different elements.

The essence of the Gardner decision would appear to be that an inventor is not entitled to a claim in which the whole novelty consists in a single statement of function, even if the clause is headed by the word "means" or some similar expression. There must be some hint as to the nature of the means, some suggestion of structure which will aid other inventors or the courts in applying the doctrine of equivalents.

Claims of this type are sometimes rejected as being "broader than the invention." The fundamental difficulty appears to rise from the fact that the patent law makes no provision for the patenting of a function or result, but only of the means whereby it is accomplished. Furthermore, an inventor is only entitled to protect the means which he actually discloses for the purpose *and substantial equivalents thereof.* He should not, therefore, be allowed a claim which appears to cover *all* means whereby the result may be accomplished, since to do so gives the public the impression that the whole field of invention in that particular line is closed, and also imposes an unnecessary burden on the courts by forcing them to read into the claim limitations which are not apparent on its face.

It would certainly be to the advantage of inventors of machines, and would perhaps result in more even justice, if our laws, like those of Germany, permitted functional claims. A discoverer of a new function often makes quite as valuable an invention as the discoverer of a new process, and it

would seem as though he was entitled to equally broad protection.

At present he must steer between the Scylla of a process claim, which the Examiner will probably reject as being for the function of the machine, and the Charybdis of an apparatus claim which, if as broad as the other, is likely to be opposed by such decisions as Gardner and O'Reilly *vs.* Morse.

The Supreme Court in Steinmetz *vs.* Allen, 109 O. G., page 549, called attention to the fact that process and apparatus may approach each other so nearly that it would be difficult to distinguish the process from the function of the machine and indicated that in such cases of close relationship both kinds of claims might be joined in a single application, altho the court did not go so far as to state that either set would be invalidated if applicant elected to patent them separately.

In doubtful cases of this kind it is probably best to allow the applicant both process and apparatus claims, providing they are presented in a single case. It would be manifestly improper to hold that the alleged method set forth merely the function of the machine and at the same time to require division, for the mere presence of the doubt is sufficient to show that but one invention is involved and that the sole question at issue is the manner in which it shall be expressed. If the applicant takes out a patent containing simply apparatus claims, there is considerable danger that he will not secure the measure of protection to which he is entitled, while if it contains only process claims he is liable to have the court invalidate them as being functional. If the two sets of claims are presented in separate patents, there is danger that one patent or the other will be invalidated as unlawfully extending the monopoly unless both patents issue on the same date. It would appear proper in copending applications of this kind for the Office to require a consolidation of the claims in a single case and, in the event of a failure to comply, to reject

one of them or the other as soon as that other was passed to allowance.

NOTE:—Near the end of his paper Examiner Reynolds treats interestingly the proposition of claims such as may cover "all means whereby the result may be accomplished." These are indicated as inhibited because the public may be given "the impression that the whole field of invention in that particular line is closed."

Much has been said upon the foregoing phase of our patent claims status, both by book writers and the courts. It is not clear from my view point what the *impressions of the public* have to do with the matter. The inventor is to be thought of at this stage, both in the Patent Office, and by the Court adjudicating his issued patent. The situation is not one where the first thought must be, how can we limit the inventor so he will disclose his whole invention, and yet fix his protection so that the public may, *after the disclosure*, achieve all that is accomplished by the inventor, but by modified means or methods. My view always has been that under our Constitution the "exclusive right" to the invention means what it says; i.e., *exclusive.* It is not in accord with the true spirit of the foregoing terminology to begin to place such restrictions upon the Constitutional wording as will make exclusive mean non-exclusive! Yet this is what has been and is now frequently attempted.

Of course, in the connection discussed, I am referring to broadly new inventions and patents therefor. The invention being totally new, certainly the inventor is privileged to claim it as broadly as the English language permits, by all sorts of "means" and "means claims," if desirable. And if this is done, who may fairly gainsay him by suggesting the limitation of *his protection* to *his particular means or their reasonable equivalents*, merely because to do otherwise would *close the particular line of invention.* The Constitution does not

say anything about so limiting the inventor; to the contrary, it expressly uses the term *exclusive*.

Everything should be done by the Patent Office and the courts to give effect to this term "exclusive." Whether the public is shut off for seventeen years is not material; that is the consideration, by way of deprivation, emanating from the public, for what the inventor gives up to the public after the period expires. Therefore, where the broad invention exists, is it not the true spirit of the law that no terms can be too broad to characterize that invention. For this reason it behooves the solicitor to exercise care and make his claims broad for the protection of the inventor. This done, no apologies for the accomplishment are necessary, either to the Patent Office or to a court to which the patent is taken to be sustained. A patent for an invention may and often does temporarily retard the working art; this is inherent to this class of monopoly. And the courts have been possessed of practical wisdom in giving recognition to this patent fact.

IV. PRACTISE RELATING TO DIVISION AS INDICATED BY DECISIONS OF THE BOARD OF EXAMINERS-IN-CHIEF

By Loren A. Sadler,
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The purpose of this paper is to outline briefly the principles which underlie the practise of the Office in the matter of division.

Widely different views have been held with regard to this question, depending upon the individual construction placed upon Section 4886 of the statutes which is as follows:

> Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor.

The question to be answered is, how much may a single patent cover? May more than one invention receive protection by a single instrument? Is it proper to join two or more inventions in a single patent, and if so, under what conditions?

Robinson, in his work on patents, inclines strongly to the belief that joinder of inventions is not contemplated by the statute. He says (vol. 11, p. 48):

> The joinder of several inventions in a single application is not altogether consistent with the principles or

policy of patent law, however nearly related to each other such inventions may be. A right to the exclusive use of one invention is entirely distinct from a right to the exclusive use of any other, and the monopolies created in favor of an inventor must, therefore, always be as numerous as the inventions upon which they are based.

That several monopolies *can* be created by one granting act, and *can* be witnessed by one instrument of grant is undeniable; but the symmetry of the law and the avoidance of unnecessary confusion would require that each invention be protected by a separate patent, in which the limits of the single monopoly conferred thereby might be clearly and perpetually defined.

And then bowing to the actual realities of things he adds:

A contrary practise, however, has arisen, and out of consideration for its convenience and its economy to applicants, has been sanctioned by the Patent Office and the courts.

In Ex parte Bancroft and Thorne, 20 O. G., 1893, Commissioner Marble said:

The fair construction, I think, of this statute is that an invention or discovery for which a person may receive a patent is a single invention or discovery, not several . . . My attention has been called to the fact that patents have been issued for a process and a product; a machine, process, and product; and a machine and product, and, as I think, in many cases, improperly. The fact that the courts will sustain patents in order to protect the rights of parties, or that patents have been improperly issued, furnishes no rule of action for this office. . . . I am unable to appreciate the suggestions made upon the argument about public policy or the policy of the law in connection with the issuing of patents. The law has no policy other than that expressed

in itself and that policy is to give every person, upon his complying with its terms, all the rights and privileges contemplated therein. It certainly is not the policy of the law to give to a person any more than is authorized. If there is any policy in the law it is to allow all persons whom the law recognizes as proper applicants for patents for inventions, the right to devise ways and means, mechanical or otherwise, for practising or producing anything useful and beneficial to man. This, I think, is best done when the particular thing invented or discovered is embraced in one patent.

In Wyeth *vs.* Stone, 1 Story, 273. the court emphasized this principle, calling attention to the exact wording of the statute in the following words:

> For if different inventions might be joined in the same patent for entirely different purposes and objects, the patentee would be at liberty to join as many as he might choose, at his own mere pleasure, in one patent, which seems to be inconsistent with the language of the patent acts which speak of the thing patented, and not of the things patented, and of a patent for an invention and not of a patent for inventions; and they direct a specific sum to be paid for each patent. . . . There is no ground, founded in public policy or in private right, which calls for any expanded meaning of the very words of the statute; and to construe them literally is to construe them well.

On the other hand, there have been those who have been extremely liberal in their views, and who would cover by a single instrument as many monopolies as might be described in a specification, just as a deed may give title to many different properties. As an illustration may be mentioned the case of Benjamin Electric Mfg. Co. *vs.* Dale Co., et al., 158 F., 617. The original application of Benjamin contained

claims to a number of modifications between which division had been required. The court said:

> The logical way would have been to include the genus and its varieties in the same patent, and half a dozen claims would have covered every possible combination which he was entitled to hold. But by the time the Patent Office got through with him, Benjamin was the holder of four separate patents granted upon divisional applications split off from the original one, the four patents containing together ninety-eight claims. It does not seem just that the patentee, who was powerless to obtain any modification of the rule for dividing applications, should be made to suffer from such misdirected energy.

The practise of the Office with reference to division has at times changed with the change of Commissioners. In 1884, the Commissioner referring to the language of the statute said in Ex parte Blythe, 30 O. G., 1321:

> I am compelled to hold that the plain provisions of the statute, as well as the weight of judicial opinion and the dictates of what seems to me common sense, require that arts, machines, manufactures, and compositions of matter should be made subjects of separate and independent patents except as indicated.

But a year and a half later the succeeding Commissioner stated in Ex parte Young, 33 O. G., 1390, that he had no hesitancy whatever in saying, generally, that the unqualified statement that claims for method, apparatus, etc., are prohibited by the statute from ever being joined or included in one patent was faulty, and, in his judgment could not be sustained.

Lying between such extreme views are found the principles which define the practise of the Office. While the matter of fees is not to be neglected which, during the years since the patent system was inaugurated, have created a surplus of

more than $7,000,000, nevertheless much latitude is afforded an applicant in the scope and character of the claims which shall protect him in the use of his invention. Where only a single invention is claimed the question of division naturally does not arise. For whether claimed generically or specifically the invention remains the same (Ex parte Lord, 50 O. G., 987). But where different, distinct inventions are involved, the question of proper joinder has to be considered. Two conditions are clearly stated in Rule 41, which says:

> Two or more independent inventions can not be claimed in one application; but where several distinct inventions are dependent upon each other and mutually cooperate to produce a single result, they may be claimed in one application.

Inventions thus fall into two groups—independent and dependent inventions, and it is the purpose of this paper to ascertain what is comprehended by each of these terms. It may be stated that the principles underlying the present practise of division are both few in number and general in character.

The independence of different species was long ago enunciated in Ex parte Eagle, 1870 C. D., 137, and has been affirmed in many later decisions.

Two devices, even tho they are classified in the same Office class, are independent inventions if independent in structure and operation. Ex parte Davidson, 101 O. G., 1371.

And if the claims cover inventions so independent that each requires an independent search to determine its novelty, division should be required. Ex parte Adams, 106 O. G., 541.

Independence between combination and subcombination, where the latter has acquired a distinct status in the arts, manufactures, and Office classification, and is useful in other relations, is affirmed in Ex parte Moriarty 99 O. G., 2549, and Ex parte Dyer, 15 Gour., 36-11. As stated in Ex parte Herr,

41 O. G., 463, and later in Wilcox and Borton, 45 O. G., 455, wherever the original invention is such that it could be the subject of a patent and the organism was not changed in its structure or identity, it is believed that several improvements on its parts may be embraced in one patent, providing they cooperate in affecting the whole organism, improving it as a whole, and provided, also, invention and art have not subsequently so advanced as to select the improved parts as distinct subjects of invention, art and manufacture.

If there is absence of any necessary relation between a process and the apparatus by which it is carried out, the inventions are independent. Ex parte Frasch, 117 O. G., 1166.

So, also, independence exists between a process and a product when the process can result in other products and the product be made by other processes (Ex parte McHale, 18 Gour., 41-26); or between a process and a product which may be made by other processes (Ex parte Schmidt, 100 O. G., 2602); or between a process and an article which is independent of any particular process (Ex parte Williams, 105 O. G., 1780); or between a process and product when the product has acquired a distinct status in the arts, manufactures, and Office classification (Ex parte Christensen, 105 O. G., 1261).

Independence exists between a composition and the process of using the same. Ex parte Tschirner, 97 O. G., 187.

Division can not be required in a reissue application. Ex parte Van Nostrand, 194 O. G., 1141.

These few simple statements substantially embody the general principles upon which the practise of the Office is based.

Prior to February, 1904, division was held to be a matter of form to be considered by the Commissioner on petition and, to unify the practise in a measure, Rule 41 had been formulated requiring that process and apparatus be claimed in separate applications. But the United States Supreme Court in Stinemetz *vs.* Allen, 109 O. G., 549, overruling the conclusions of all lower tribunals, not only declared this rule

at fault because making a hard and fast rule where discretion must be exercised, but declared that the question of division was a matter of merits appealable to the Board of Examiners-in-Chief. From February, 1904, until June, 1914, 175 appeals relating to division have been decided by the Examiners-in-Chief in accordance with the principles above mentioned.

These decisions being unpublished have not been available to the Examiners and it is a significant fact that in more than 60 per cent of all such appeals the Examiners have been reversed, this being largely due to the impossibility of ascertaining, except in isolated cases, the way in which these general principles were being applied by the Examiners-in-Chief to specific cases. It may not be amiss, therefore, to give a brief synopsis of a few representative decisions from applications which have now matured into patents, covering the various classes of questions which commonly arise, and which may outline what is to be considered the practise of the office.

UNRELATED DEVICES

Ex parte Bean, Patent 1,030,702:

In a shoe-blacking machine, three sets of claims covering (1) brushes and means to operate them; (2) the same brushes and means to apply blacking to them, and (3) the same brushes, a foot rest and means to raise and lower the rest, were held to be related in purpose and properly joined, while claims to a different set of brushes and operating means therefor to polish a different part of a shoe were held to cover an unrelated machine, tho mounted on the same base. The ultimate object of the two sets of brushes was the sum of their separate objects and not a unitary result. Each machine accomplished its own work completely, without being affected in any way by the operation of the other.

Ex parte Frasch, Patent 951,721:

Requirement for division was sustained between claims to the separating portion of an oil purifying apparatus, and a pump useful in other relations and a rectifier adapted for use in any place where a rectifier is needed, each having acquired a distinct status in the arts and manufactures.

Related Devices

Ex parte Morgan, Patent 975,563:

Two sets of claims covered respectively, means for inserting a bit, and means for removing a bit. Held, that altho the devices might be used separately or together, there is no practical reason why applicant should not be permitted to exercise the option of joining the two in one application since they have not acquired a distinct status in the arts and manufactures, and, except in the case of species, the office rarely, if ever, has gone ahead of the time when inventions have acquired such distinct status. Rules of joinder are interpreted as applying to inventions as they are found in the art and not as things apart from the art.

Ex parte Smith, Patent 1,026,714:

Several sets of claims relating to beet harvesters covered cutting and pulling mechanisms alone and in combination. The combination being old in the art, division had been required between the different mechanisms. Two patents were found showing one of the inventions claimed separately, but no separate Office classification had been established. It was contended that two patents indicate the independence of the inventions and the necessity of division as truly as a hundred, and Office classification should follow. Held, that division should not be required since two patents may indicate the existence of an invention, but that manufacture and sale are important factors in determining its status in the arts.

Ex parte Levi, Patent 968,245:

This application contained claims for an ornamental cover for a box, to act as a frame for the goods displayed in the box, and claims for a card to hold the article displayed in the bottom of the box. Either could be used without the other, and separate patents for each invention have been secured. Held, that division should not be required, since these inventions have not acquired a distinct status, they were intended to be used together and neither Office classification nor the work of examination could be especially facilitated by division, which is after all largely a matter of discretion.

Ex parte Wagner and Malocsay, Patent 920,698:

This application related to an improvement in a machine for applying bands to cigars, designed to gum the bands, wrap the same around the cigars, and secure the overlapping ends together. One set of claims relates to the mechanism for transferring a band from a stock of bands in a holder. Other sets of claims relate to the gumming of the bands, the delivery of the article, the closing of the band, and a delivery carrier for the finished article. The Examiner held that the band transferring claims should be divided out and classified with Pneumatic Separators under Printing, thus obviating the difficulty of classification and examination incident to the presence of such devices in many widely different arts. The decision of the Board is in part as follows:

> The rule as to joinder of inventions is that independent inventions can not be claimed in one application, but that where the inventions, though distinct, are dependent upon each other and mutually contribute to a single result, they may be claimed in one application. . . . The Office classification can not, of course, establish the fact of the independence of any given two or more inventions. The Office classification is only evidence to

show how the several subjects-matter are there classified. In short, the independence of invention is one thing and its classification another and different thing. Thus in the case of species, for example, their independence of invention is conclusive from the fact that they are species. And yet the several applications for the separate species are classified in the same art and in the same subclass. In any event the Office classification simply follows the art, accepting it as it finds it, and does not announce any opinion as to the independence of invention in any given case. . . . It can not be indubitably said that the claims for the transferring device and its combination with the holder are independent of the claims for the other combinations, the devices in both sets of claims, each and all, going to make up the organized machine for banding articles. The fact that the transferring device is similar to transfer devices in other arts, or might be used therein, is not conclusive evidence of the independence of the other inventions in the banding machine of which it constitutes a part. . . . There is no evidence that the transfer device claimed in this application has a sovereignty of its own, such for example, as a mechanical element has in the arts at large. Tho, perhaps, it might facilitate the examination of applications and inventions were all transfer mechanisms classified together and subclassified according to their character, such classification is more of a wish, and, as such, father to the thought for independence of invention than any real evidence establishing the fact that the transfer device herein and the other parts of the banding machine are, in fact, independent machines.

COMBINATIONS AND SUBCOMBINATIONS

(1) *Unrelated.*

Ex parte Howard & McKee, Patent 840,332:

Claims for a mail-carrying receptacle and a specific harness for carrying the same held improperly joined with claims for a specific receptacle, the latter having attained a distinct status in the arts and manufactures and capable of use with other forms of harness.

(2) *Related.*

Ex parte Johnston, Patent 837,475:

The claims were drawn to a sash cord guide comprising a pulley and casing having certain cooperating features, and to a pulley having certain of said features. Altho the Office classification has a class of pulleys, yet it was held that division should not be required since Office classification should not be followed in requiring division unless it appears that the reason for the existence of the separate class is the reason on which the requirement for division is based. The pulley as claimed had certain structural features which were designed with special reference to certain structural features of the casing, and therefore it was a dependent and related invention.

Ex parte Fessenden, Patent 857,985:

A claim for a key was held to be properly joined with claims for a watchman's time recorder, the key having both a locking edge and a ward to actuate the recorder, and being therefore a removable part thereof.

Ex parte Brown, Patent 922,385:

This application contained claims to a type-bar having inclined type faces, and claims to a platen having a certain move-

ment rendered necessary by the inclination of the type, and claims to the combination of the two. It was admitted that type-bars and platens have each acquired a distinct status in the arts and Office classification, yet joinder was permitted as related inventions because of the relation between the shape of the type and the movement of the platen.

Ex parte Clark, Patent 837,894:

A storage-battery has two terminals—one permanent, the other detachable. There were claims generic to both forms, claims specific to each, and claims specific to both. Altho they can be used independently or one substituted for the other, yet they may be joined because in the mind of the inventor they were intended to be used together, the construction being such as to afford permanent electrical connection between plates at one end and the detachable terminal permitting ready separation of one cell from another.

Ex parte Matthews, Patent 950,489:

Held, that claims to the combination of a coupler and specific form of uncoupler, were properly joined with specific claims to the coupler.

Ex parte Kelso & Kelso, Patent 1,024,083:

Held that division should not be required between a car-coupler and a knuckle, where the knuckle was limited by features particularly designed to cooperate with this coupler.

Ex parte Holson, Reissue Patent 7341 (before Ex parte Van Nostrand, supra).

Claims to a train of gears were properly joined with combination claims for an electric motor and gearing. It was held that gear-trains did not have a distinct status in the arts

as machines for separate manufacture and sale. Every manufacturer of machines makes such gear-trains as are necessary for his particular use. They may be joined as subcombinations in the same application with the combination claims, or may be claimed in a separate application. The fact that they are often separately applied for does not justify the requirement for division. The test is whether each device is, in industry, under a distinct name made and put on the market and sold for general use.

Genus and Species

Ex parte Christensen, Patent 940,673:

This invention related to a telephone exchange system. One set of claims was commensurate in scope with patents in a certain subclass. Other claims, by including the mechanism more specifically, were commensurate in scope with patents in another subclass. Held that the claims bore the relation of genus and species. The fact that they correspond to an arbitrary line of classification should not determine the question of joinder. It does not appear that the inventions set up in the two sets of claims have been made the subject of separate manufacture and sale.

Combination with Specific Elements

Ex parte Renstrom, Patent 897,491:

Certain claims covered a gas-generator broadly, and a gasometer specifically, while others included the gas generator specifically and the gasometer broadly. Held that division should not be required; both sets of claims being drawn to the same invention.

Ex parte Tyler, Patent 900,239:

Where each claim is drawn to a separate modification but all are generic to one certain modification, held division should not be required.

Modifications

Ex parte Sprotte, Patent 826,379:

Division was required between claims to a finger-board having transparent portions, and claims to a finger-board having sight openings therein, these being distinct modifications.

Compositions

Ex parte Ernst, Patent 1,019,443:

One claim was drawn to a composition consisting of two ingredients in definite proportions, and another to the two ingredients in combination with a restrainer. Held, that since the restrainer was not an essential element of the combination, and could be used or not, at will, division should not be required.

Compositions and Method of Using

Ex parte Betzer, Patent 968,528:

The claims covered a method of generating oxygen from a compound, and a compound for generating oxygen by the method. Held, that the composition has no other function, and the method could not be carried out by the use of any other composition, and since the field of search is the same, and no additional burden is placed upon the office, they may properly be joined.

Ex parte Knetsch, Patent 794,512:

Division was required between a catalytic agent and a process of manufacturing sulfuric anhydrid which used this agent, because catalytic agents have hitherto been employed in similar processes, and because this agent does not differ in its effect from other agents, and because this agent may be used wherever a catalytic agent is needed, and because the field of search is different for the agent and the process.

Apparatus and Product

Ex parte Hoefer and Strohhaecker, Patent 966,746:

Four groups of claims covered (1) a body of meat wrapped with cord which was looped together in stitches; (2) the specific stitch; (3) the machine for sewing the wrapping and (4) mechanism for handling the meat and advancing the package during the sewing. It was held that the stitch and the wrapping of which it was an element might be joined, but the machine by which the stitching was done was an independent invention and division should be required.

It was also held that the machine for handling the meat and feeding the package as the wrapping was being sewed, had not acquired a distinct status in the arts and was so related in its ultimate purpose to the sewing mechanism that these two inventions might be joined in one application.

Process and Apparatus

Ex parte Eggleston, Patent 1,018,040:

Division was required between a process of separating hydrogen sulfid from oil, and an apparatus for treating oil, because there was so little in common to the two inventions and because of absence of necessary relationship between them.

Ex parte Monnot, Patent 910,405:

In this case division was not required between a process and the apparatus by which it is carried out, because their relation was so close that their independence was not clear, and even tho the process might possibly be carried out by other apparatus, the field of search was the same.

Ex parte Pierce, Patent 914,303:

Held that division should not be required between the process of cutting marble with a wheel of carborundum, and a machine for cutting marble having a carborundum wheel, since there was only one novel idea involved.

Process and Product

Ex parte Beckwith, Patent 1,023,357:

Division was held to be proper between claims to the process of forming a filament, placing it on a frame and mounting the frame in a lamp bulb, and claims to an incandescent lamp having a filament in zigzag form, because the article was not limited in terms to a structure necessarily made by the process, and also because they have been recognized by inventors as distinct inventions to such an extent as to justify the Office in forming different subclasses for them.

Ex parte Hooper and Robertson, Patent 867,658:

Division was held to be proper between claims for a process of wire drawing and an electrical conductor made by the process, because the independence of particular electrical conductors and the process of wire drawing by which they are formed is so well established and so well recognized that they are separately classified in this Office, and are examinable in different divisions.

Ex parte Haefley, Patent 858,385:

The inventions here were insulating tubes and the method of making them.

The process claims were paralleled by the product claims in the sense that this particular article must necessarily result from the performance of the process as stated in the process claims. Whether the product could be practically produced in

any other way than by the execution of the specified process seemed to the Examiners-in-Chief extremely doubtful. A search for either of the alleged inventions would doubtless determine the patentable novelty of the other. Therefore, there is such close relationship between them that division should not be required.

Ex parte Monnot, Patent 894,162:

Compound metal bodies and process of producing them. The process disclosed must result in the product, but the product is not necessarily produced by this process only. Held, that there is no knowing what the future may develop, but since at the time there was no other process known for making the product, division should not be required. The board further said:

> Rule 41 specifically provides for covering distinct inventions in one case where they are dependent on each other and mutually contribute to a single result. Here the process is ancillary to the article—the latter is the single result of the inventions stated in both sets of claims. There is nothing contrary to Rule 41 in the joinder of the process and product claims.
>
> It may be that separate patents covering respectively, the process and product would both be valid if granted. At the same time it is perfectly clear that a single patent covering both process and product would be valid. It is generally to the advantage of the public that two inventions, one of which is dependent on the other, be covered in a single application, as otherwise they may get into hostile hands and the public be deprived of the use of the dependent invention during the life of the dominant patent. Further, the poverty of the inventor may, in case of a requirement of division, cause a loss to the public of the invention eliminated from the application. Further, aside from the question of validity of the patents, if granted, the joinder in

a single case of two or more inventions means a saving of one or more fees to the applicant.

In our opinion applicant should be permitted to elect the protection to be afforded him in the absence of controlling reasons to the contrary. Where no question of validity arises, as in the present case, the only possible reasons assignable against joinder in one application are, first, the exigencies of Office classification, and, second, the fact that applicant obtains for one fee, that for which he should pay two fees. The second of these reasons is, in a case like the present, so unimportant as compared to the other considerations as to be negligible, especially as it would appear that a single search would cover both inventions, and there would, therefore, seem to be no reason for requiring two fees of applicant.

As to the first reason, the question of Office classification, while always to be considered, is by no means controlling in all cases. Where the inventions have been made, by workers in the art, separate subjects of invention to such an extent that separate subclasses have been created for the inventions, and that, therefore, they would be separately classified if presented in separate applications, division would, in general, be a proper requirement. In the present case, however, it does not appear that the process and article are separately classified, but even if such were the case, the relations between the process and the article are so close that we should hesitate to affirm a requirement for division.

SUMMARY

It is, therefore, apparent, as clearly set forth in Ex parte Lord (supra), that three conditions may exist: First, there may be claims which must be joined, such as claims to genus and species; second, claims which may or may not be joined, at the option of the applicant, viz., dependent and related inventions; and, third, claims which can not be joined, such as

claims to different species and claims for entirely distinct and unrelated inventions.

The test as to what constitutes independence of invention appears to be inherent in the ideas of the inventors themselves—whether the inventions were looked upon by those working along those lines as occupying different fields. Office classification is no test. Office classification, it is to be observed, arises from two considerations; viz., convenience in the work of searching and the existence of distinct fields of inventive effort. The latter only is a factor in the solution of the question. Subcombinations of a machine involving its various mechanical movements may be separately patented at the option of the inventor, but he can not be compelled to divide. The fact that such subclasses exist for the reception of subcombinations which inventors may see fit to divide out and cover by separate patents does not establish the fact that the idea covered by the mechanical movement is not a part of his larger invention and closely related thereto. It frequently happens that the larger invention is found not to be new with an applicant, and the claims are further and further limited until only a small fraction of the original invention is found to be patentable, and this after traveling from one division to another at last finds a resting place in the machine element class. This, however, under the consistent practise followed by the Examiner-in-Chief, would not constitute a valid ground for thereafter requiring every applicant to divide out claims to similar subcombinations. As set forth in the decisions cited, a few patents do not establish the independence of an invention. They may be the first faint movements toward a final declaration of independence, but they may, on the other hand, be simply the remains of a larger invention, which has run the gauntlet of the prior art, or the product of what has been before referred to as the misdirected energy of the Patent Office.

The truest and surest test of independence of invention is

the fact of separate manufacture and sale, and a distinct name in the trade. Failing in the possession of such a sure criterion, the Examiner must analyze the case to discern, if possible, whether or not the ideas underlying the different inventions are distinct or are related as component elements in the accomplishment of a definite, practical, and unitary purpose. In many instances, the lines which mark the boundaries of independent inventions are clear-cut, and occasion no doubt or question. In marginal cases, the Examiner can do no better than remember that discretion in the exercise of a public trust with which Congress invests the Commissioner, and those who represent him, and be guided in his actions by the general rule that related inventions may be joined unless the mind of that great body by whose genius the useful arts have been developed has seen them as distinct subjects for inventive consideration.

V. NEW MATTER

By Edward Collins,
Examiner, U. S. Patent Office

It was found very early in the development of the Patent System that provision must be made for the admission of amendments to applications for patents. The admission of amendments straightway involves the question how far such amendments should be allowed to change the application as originally filed.

On one hand, it is obvious that a meritorious invention may be made, but the application for patent may be prepared by persons not expert in such matters, and therefore filed in condition not fully complying with the technical requirements of the Patent Office. This consideration is of far greater importance at present than in the early history of the Patent Office, when applications were much fewer, and (in general) less complex in subject-matter.

On the other hand, it is equally obvious that limits must be put upon the right to amend. This would be true even if no rights of any sort were acquired until the actual issue of the patent, for otherwise an unlimited number of inventions might be successively introduced and patented on one application.

According to our present Patent Law, however, the applicant for patent *does* acquire an important right upon the date of his completed application, for he is given this date as that of constructive reduction to practise of the invention. Hence, in justice to the public and to other applicants, he should not be permitted, after filing, to change the application in any way such as to affect the nature of the invention, or as it is called, to introduce new matter.

In the Rules of Practise of the Patent Office, No. 32, Edition of 1870, it is stated that:

> All amendments of the model, drawings, or specifica-

> tion, in the case of original applications, must conform to at least one of them as they were at the time of filing of the application.

This was repeated in the edition of the following year, with the further statement that:

> Further changes than this can only be made by filing a new application. If the invention does not admit of illustration by drawing, amendment to the specification may be made upon proof satisfactory to the Commissioner, that the proposed amendment is part of the original invention.

In the edition of 1877 this rule was substantially repeated, except that the term "further changes than this" is amplified by "involving a departure from the original invention."

In 1879 this rule, now Rule 69, further states that "the affidavits prescribed in Rule 47 may or may not be sufficient" to prove that the proposed amendment was part of the original invention.

In the present Rules of Practise, of 1916, the rule, now No. 70, is as follows:

> In original applications all amendments of the drawings or specifications, and all additions thereto, must conform to at least one of them as it was at the time of filing of the application. Matter not found in either, involving a departure from the original invention, can not be added to the application even tho supported by a supplemental oath, and can be shown or claimed only in a separate application.

In the case of Ex parte Snyder, C. D., 1882, p. 22, the contention was made by applicant that amendments should be allowed at will before the application is taken up for examination. This was denied by the Commissioner, who said:

> This rule, then (Rule 69), attaches upon the filing of the application, which occurs when the applicant has completed his application, as provided in Rule 31. The application then receives its serial number, and is placed upon the files for examination. It is then an application in full standing, and thereafter amendments must conform with the rules governing the amendment of applications. The time when an application is taken up for examination is a variable and arbitrary date, and depends solely upon the state of business.

The reasons for the prohibition of new matter in an application were considered in decision of the Supreme Court of the United States in Railway Co. *vs.* Sayles C. D., 1879, p. 349. It was there stated:

> It will be observed that we have given particular attention to the original application, drawings and models filed in the Patent Office by Thompson and Bachelder. We have deemed it proper to do this, because, if the amended application and model filed by Tanner five years later embodied any material addition to, or variation from, the original—anything new that was not comprised in that—such addition or variance can not be sustained on the original application. The law does not permit such enlargement of an original specification, which would interfere with other inventors who have entered the field in the meantime, any more than it does in the case of reissues of patents previously granted. Courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once filed, or of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior to such alteration, or to appropriate that which has in the meantime gone into public use.

The subject of permissible changes to the application is treated in decision of the Court of Appeals of the District of

Columbia, Hulett *vs.* Long, C. D., 1899, p. 446. It is there stated:

> It is a well-settled and long-established practise in the Patent Office to allow amendments to be made under proper circumstances to supply omissions and defects in the original specification and claims as filed, which have occurred by mistake, oversight, or inadvertence, or even the want of requisite skill in the preparation and presentation of the case to the Office, and the making of such amendments should not be allowed to operate to the prejudice of the claim or claims of the applicant if made in due and reasonable time and in good faith. In many cases, the necessity for amendments to supply omissions and defects is not discovered until the application and specification have been subjected to the critical examinations of the experts of the Office, and both the statute law and the Rules of Practise contemplate the making of all necessary amendments and alterations to supply defects and omissions in the presentation of the case, and where amendments have been allowed it should be presumed that they were properly allowed and upon satisfactory showing to the Office that it was by mistake, oversight, or inadvertence, or want of sufficient skill in the preparation of the application that the omission or defects had occurred and not by design to present a new and essentially different claim to invention from that described in the original application made for the purpose of overreaching and defeating a rival invention.

In this decision reference was made to decision of Mr. Commissioner Marble in Ex parte Snyder, C. D., 1882, p. 22:

> He (the applicant) may be permitted, upon proper occasion, to supply suitable connections, to add a spring to a pawl, a handle to a crank, a belt to a pulley, teeth to a wheel, an outlet to a closed receptacle, or other manifest defects or omissions in features essential to the op-

eration of the invention or to the completeness of the disclosure, and which were caused by a clerical error of the draftsman, or the unfamiliarity of the inventor with official forms. These amendments, supplemental in their nature, may be made as completing the invention imperfectly shown and described. They add to the invention disclosed some part or feature which agrees with the construction and operation already presented.

This naturally leads to the question as to how far an applicant may be permitted to amend in order to remedy an inoperative disclosure. In practise, perhaps, this is the most perplexing and embarrassing question that is presented to the Examiner. Applications for really valuable inventions are sometimes filed in a very defective shape. On one hand, the inventor should, if possible, be allowed the benefit of his filing date. In many cases a new application would be barred by public use or foreign patent, and in other cases the inventor dies soon after the filing. Hence the whole invention is lost unless it can be predicated on the original disclosure. On the other hand, if the application clearly fails to show a reduction to practise of the invention, the inventor must take the consequences. He is clearly not entitled to complete his invention after filing, and yet have the benefit of the filing date.

This subject is treated in the decision of Mr. Commissioner Allen, Ex parte Willits, C. D., 1905, p. 107. In this case applicant wished to add to the disclosure "a small port or opening" in order to make the device operative. It was stated:

> There is nothing in Ex parte Snyder which warrants the conclusion that new matter may be inserted in a case whenever it is done for the purpose of making operative a supposedly inoperative device. New matter is no more admissible for that purpose than for any other purpose. It seems perfectly clear that if new matter

were admitted for that purpose, applicants could come to this Office with their applications before perfecting their inventions and before having a well-defined conception of an operative device, and by subsequent experiments and amendments based thereon so change their applications as to cover inventions made after the applications were filed. The law is well settled that the patent should include only the invention as disclosed in the application as filed. Subsequent discoveries and improvements can not be included therein, whether those improvements are intended to make the device operative or merely to make it perform its functions better.

Mere clerical or draftsman's errors may be corrected where the errors are clear from the application itself; but changes can not be made in the application based on allegations of fact not shown by the record.

In the present case it is by no means certain that the "small port or opening" referred to in the objectionable amendment is necessary to make the device operative. If that device is now inoperative, it could be made operative in other ways. The applicant should not be permitted to describe at this late date that specific construction, since if it would be perfectly obvious to one reading the original description there is no necessity for the specific description, and if it would not be obvious it clearly includes matter not suggested originally.

A test for new matter was given by the Board of Examiners-in-Chief in Interference No. 38,322, Alger *vs.* Bailey, July 6, 1915. Like all tests of legal questions, this test is more in the nature of a *statement* of the problem than a *solution* of it in any particular case. It is always a matter for individual judgment to determine how an abstract principle bears upon the concrete facts at hand. The quotation is as follows:

> The real test of new matter is believed to be whether those skilled in the art, reading the original application and drawing with reasonable care and attempting to give

> effect thereto would naturally make the device in the manner in question.

So far it has been assumed that the change to be made is that of addition or of substitution, which is, in fact, usually the case. It may happen, however, that even the *omission* of elements may involve a departure from the original invention. In Ex parte Cook, C. D., 1901, p. 19, claims were rejected on references and the Commissioner held that, by reason of a certain pipe shown, the operation of the device was not different from that of prior devices, and that it did not operate in the manner set forth in argument of the appellant. It was further said that if this pipe were not present, there might be force in applicant's contention as to difference in operation.

Applicant then sought to erase from the specification and drawing all reference to the pipe in question. It was held, however, that applicant had not shown a device omitting the pipe, and consequently had not shown a device which would operate in the manner set forth. To quote from the decision:

> That pipe completely neutralizes the tendency of the other parts and arrangement of parts to produce the operation and result now described. The omission of the pipe A4 from the device, therefore, would change entirely the function and operation of the other parts, and virtually produce a new device. In other words, the omission of that pipe from the case would produce a different invention and involve a departure from the original disclosure.

A contrary decision was reached in the case of Ex parte Smith and Hoyland, C. D., 1900, p. 176, when certain flanges were omitted in a substitute drawing. It was held:

> No claim is now made to these flanges, and they are not included as an element of any of the claims. The illustration of them is unnecessary since the device is

obviously operative without them. No useful purpose would be served by illustrating and describing them, and their omission does not change in any way the function and operation of the other parts of the device. They are merely additional and unnecessary elements which may or may not be used, and therefore their omission does not involve new matter.

An important consideration is the bearing of a supplemental oath on the subject of new matter. In decision Ex parte McDougal, C. D., 1882, p. 7, it was held:

> Under Rule 47 an applicant may introduce into his application by amendment a part of the invention originally made which was not incorporated into the application either as part of the specification or claim, if he swears that the matter which he desires to introduce into his application and make a part thereof was a part of his original invention. Under this practise, however, the Examiner will enter the date of the new oath on the face of the file wrapper and change the date of the completion of the filing of the application to agree therewith.

The practise above indicated is now obsolete. The tendency has been to restrict more and more the function of a supplemental oath, and it may in the future be abolished altogether. If admitted or required, it has no effect on the effective date of filing, and according to present Rule 70, it affords no ground for the introduction of new matter.

Hitherto it has been assumed that the disclosure is that of the description, drawing, and model, if any. It must further be considered what basis for disclosure is furnished by the *claims*. Judicial decisions upon both sides of the question may be found, as in the following instances:

In the case of Ex parte Gugler, O. G., 160, p. 775, an original claim was not objected to by the Examiner as indefinite, but was objected to on the ground that it suggested

a variation not disclosed in the original specification and drawings. It was held:

> Either the objection is unfounded or the claim is sufficient basis for an amendment to the showing to make it correspond with the modification suggested in the claim.

A different conclusion was expressed in decision of the Commissioner In re Heany, O. G., 171, p. 983. In that case the entire original specification was removed, except two claims and part of a third. It was held:

> A claim alone, disconnected from its specification, is a most uncertain thing, and can not constitute a just criterion for a specification or written description, and can not, therefore, be rightly used as a foundation upon which a specification can be erected.

Everything relating to new matter in an original application is equally applicable to a divisional application thereof, which depends upon the disclosure of the original, and has the benefit of the original filing date. This was formerly held to be true of continuing applications also, which were held to lose their right to be so considered if they contained anything technically involving new matter. A change of procedure in this respect was occasioned by decision of U. S. Court of Appeals, D. C., Field *vs.* Colman, O. G., 193, p. 221, where it was held:

> The right of an applicant, by substituted application, to relate back to the date of filing the first application for reduction to practise broadly depends upon whether the substituted application is for the same invention as that disclosed in the original application, not that the specific disclosure of the first and second applications may be different or even patentably different if generically they relate to the same invention.

The Office practise in regard to new matter differs according to whether it is sought to be introduced in the descrip-

tion, drawing, or claims. At one time it was common to refuse to admit such changes, or to suspend action on the case until they were cancelled. The present practise is based on decisions of the Commissioner in Ex parte Soley, O. G. 91, p. 1616, and in Ex parte Furness, O. G., 104, p. 1655. In the *description,* an amendment presenting new matter is entered, but applicant is required to cancel it. All claims whose interpretation is affected by the changed description should be rejected on this ground. In the drawing, the changes should *not* be made at first. The affected claims should be rejected, as in the previous case, subject to appeal. If applicant prevails upon appeal to any tribunal, then the changes may be made upon the drawing. If the desired change is in the *claims* it should be entered, but the claims rejected. Appeal may be taken as from rejection on other grounds.

It should be noted that new matter may not affect the claims already in the application, and yet may be made the basis of future claims in the application or in a division thereof. This is well brought out in the case of Brill and Brill *vs.* Hunter, O. G., 96, p. 641, decided by the Commissioner. In this case Hunter originally showed a single plate spring for a motor, and stated that a coil or other form of spring could be substituted for it. In a new application filed as a division, Hunter showed a special arrangement of coil springs. This was refused by the Examiner, but admitted by the Examiners-in-Chief on appeal, apparently on the ground that no claims were made to this feature, but that it was introduced only for purposes of illustration. Nevertheless, claims were afterwards made to this feature for interference with Brill and Brill, and Hunter sought the benefit of his original application as fixing the burden of proof of priority. The Commissioner held that the decision of the Examiners-in-Chief no longer applied to the changed conditions, now that the admissibility of the new showing had become of vital importance to the rights of the other party.

V

APPLICATION, PROCEDURE AND PARTS

Preparation of Application—Preliminaries: Complete Application. Parts: First Government Fee; Petition of Application; Discussion of Patent Specification: 1. The Preamble. 2. Preparation: General Suggestions. 3. The Statement of Invention. 4. General Description of Invention. 5. The Claim or Claims. 6. Oath. 7. Drawings: Correction of Drawings: Miscellaneous Matters.

Preparation of Application—Preliminaries

Inventorship

There are certain things which must be done before a proper and efficient drafting of the papers of the application may be performed.

It is highly advisable to exercise great care in arriving at conclusions regarding the matter of inventorship, for instance, as between employer and employee. Usually inventions are the result of sole effort, but occasionally the proposition of joint inventorship comes up and must be conclusively decided. It is not proposed herein to deal with the legal phases of sole or joint inventorship, for these are treated exhaustively in the text-books. When there is doubt as to whether parties shall be joined as inventors in the application, it is well to fall back upon the apparently sole inventor as the applicant. Joint inventorship always makes for complications not only for preparation and execution of papers, but in the event an issue of priority is raised difficulties frequently arise in regard to the joint inventorship proofs. In one case in the author's experience one of two joint inventors claimed to have performed all of the inventive acts leading from conception to completion of the invention, excluding only the filing of the applica-

tion. The Patent Office does not scrutinize the matter very closely, apparently giving much force to the inventors' joint oath. However, the validity of a patent may clearly depend on the decision as to sole or joint inventorship being involved. if this issue is raised and improper naming of the inventor or inventors proved.

If a mistake is made in this matter and an application wrongly filed, the effect heretofore has been to create an entire loss of the priority date of the misfiled application. But recently this condition has been rectified by the decision of the Court of Appeals of the District of Columbia in re Roberts, 273, O. G., 410. In this case the court held that:

> Where an application is filed by two parties as joint inventors, but during its pendency one of the joint applicants admitted that he had no part in the act of invention, and it appears that he was joined as a co-inventor through inadvertence and mistake and without fraudulent intent, a sole application afterward filed by the other joint applicant for the same subject matter is entitled to the benefit of the filing date of the joint application.

The foregoing is certainly the common sense viewpoint, for the reason that one application is deserving of credit for the priority date of another is based upon identity of subject matter and disclosure as of the prior date.

Careful consideration should be given, in the drawing of the application, to questions of division that may be involved. Are the claims to cover different mechanisms known to be separately classified and divisible according to established practise? Is the line of division unclear and therefore divisible claims possibly warranted to gain a decision on this point? Is it desirable to claim several inventions and obtain a general showing of the art to which the applicant is en-

titled? Is a complete filing, required to promptly obtain record dates, to be supplemented by later filings?

These matters must be determined by the solicitor and largely depend upon particular conditions.

Where the invention is of a certain nature, care must be exercised to ascertain whether the claims shall be drawn in terms of an apparatus or machine, or a method. Again, it is difficult occasionally to decide whether the real invention is a machine or a mechanical method, wherefore very close study, to enable the arrival at correct conclusions, must be given.

Frequently a showing of the prior art is desirable prior to electing which species of an invention to claim. This matter necessitates a decision to claim two or more species, for the time being, or the election according to circumstances.

Complete Application: Parts—First Government Fee

This fee is $20 and should accompany the complete application when filed at the Patent Office. An application unaccompanied by the fee is informal and incomplete and will not be given a filing date. In the event of rejection of an application after examination there is no refund of the filing fee.

Only under one condition of the practise is this filing fee returned to an applicant. This refund has to do with the filing of what are known as "perpetual motion" cases. It has never been the attitude of the Patent Office to encourage the filing of applications of this class. But it is recognized that there is a human nature element involved in these filings, namely, the desire for secretiveness and protection by the inventor during the period of building his invention.

In the view of the Patent Office, the building of the perpetual motor will convince the prospective applicant that the filing of an application would be worthless expenditure. So to deal with this peculiar situation the Commissioner has adopted the

practise of *receiving for filing* a perpetual motion application, along with the Government fee of $20. The application is held without assignment to the examining division, for one year during which the applicant may do either of three things. He may attempt to build a working motor and determine the inoperativeness of his machine, whereupon at his request the $20 Government fee will be refunded. Secondly, he may build a demonstrating working machine and prove its operativeness to the Patent Office. Thirdly, he may ask for an examination of his application and a regular rejection thereof, something to which he is entitled by law. Once examined, however, no refund of the first fee is obtainable. On examination the invariable requirement is a demonstrating working machine.

It is advisable, on the filing of a "perpetual motion" application, to present to the Commissioner a communication substantially as follows:

Hon. Commissioner of Patents,
Washington, D. C.

Sir:—

The complete application of ....., for Motor, is filed herewith accompanied by remittance of $20.

Attention is directed to the fact that the invention of this case purports to be perpetual motion; and it is requested that the examination be reserved for possible refund of the first Government fee.

Respectfully,

.....,
Attorney for Applicant.

Within the year allowed for the completion of the filing of the application the fee of $20 will be returned upon request. Otherwise the case goes into the abandoned incomplete files.

Petition of Application

In effect the petition which forms the opening formal paper of a patent application is largely a letter of request to the Commissioner of Patents soliciting the grant of patent protection to the applicant for the invention which is set forth in the specification, claims, and drawings, which, with the petition, usually form the complete application papers.

Petitions include the name (with full first name), and address of the inventor, or inventors, if there is a plural number filing as joint applicants. Nicknames or abbreviated names can not be used unless they are the only true names available; in the latter event the fact must be averred in the oath.

Where an application is to be prosecuted by an attorney, by almost universal tho not invariable custom, the power of attorney is incorporated at the end of the petition. A common form of petition including the power is found upon page 334.

As comment upon the power it is notable that legally a power signed in blank is invalid. Likewise, a power in proper form gives to the maker thereof full rights of revocation so that at any time he may withdraw the power given one attorney, in favor of another. The power of attorney usually includes the right of substitution to the duly constituted attorney, whereby he may within his discretion, or upon direction, substitute for himself another attorney without an actual revocation.

A petition may be signed by an executor or administrator of the estate of the inventor, where the latter is deceased, or by the guardian or legal representative of an inventor who is insane.

The petition is possibly the least important of the papers forming a part of the patent application, its form not being one necessarily fixed. The form used in practise is followed as most complete and consistent.

Where an applicant files his application in his own name the portion of the petition constituting the power of attorney should be omitted.

Discussion of the Patent Specification

The efficient preparation of a patent specification, addressed as it is to those versed in the art to which the invention relates, requires no small attainment. In the ordinary course of practise cases of widely diversified character are a matter of course, and require skilled knowledge of an endless number of different arts. Practical knowledge of mechanics, electricity, and chemistry, is highly desirable on the part of the attorney, and especially in respect to mechanics must he have a specialist's qualifications.

The practitioner who has had experience in the Federal Courts in sustaining and defeating patents, finds it well to prepare, or supervise the preparation of, specifications and claims for this particular class of monopoly, in the light of his learning regarding the interpretations which are placed upon these instruments by various adjudicating tribunals. Unfortunately, experience shows that the courts and the Patent Office view patents from angles of considerable variance; a condition which it is hoped will be rectified in time. This condition is not due to any lack of desire on the part of the courts to interpret patents equitably, for more conscientious effort to this end could not be desired; the difference is the result of little knowledge by the courts of many phases of the Patent Office practise, and the fact that those who examine patents are so out of touch with the court procedure and information.

In evidencing the recognition by the courts of the difficulties incident to specification work under discussion the following passage is quoted from Litle *vs.* Armstrong, 232, O. G., 935:

The late Mr. Justice Brown, of the Supreme Court

of the United States, once called attention to the difficulty of drafting an application in the following words:

> The specification and claims of a patent, particularly if the invention be at all complicated, constitute one of the most difficult legal instruments to draw with accuracy, and in view of the fact that valuable inventions are often placed in the hands of inexperienced persons to prepare such specifications and claims, it is no matter of surprize that the latter frequently fail to describe with requisite certainty the exact invention of the patentee and err either in claiming that which the patentee had not in fact invented, or in omitting some element which was a valuable or essential part of his actual invention.

In the preparation of the specification the statutory requirement must be borne in mind that in order for the inventor or discoverer to receive a patent, he shall file in the Patent Office *a written description of his invention and of the manner and process of making, constructing, compounding and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it appertains to make, construct, compound and use the same; and in case of a machine, he shall explain the principle thereof, and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions.* Revised statutes, U. S., Sec. 4888.

There are different methods of construing the foregoing requirement, which is general in its nature, but the result of a practise established by over three-quarters of a century of active operation of the Patent Office is that the specification should preferably comprise these essential parts, namely, a preamble, a statement of invention including primarily its objects and scope, a brief description of the figures of the drawings (customarily annexed where the invention is of a mechanical nature), a complete description of the invention and

its operation, concluding claims, and the inventor's signature.

The claims of the patent specification are supplied in order to comply with the section of the statute requiring that the applicant for a patent shall particularly *point out and distinctly claim* the part, improvement, or combination, which he claims as his invention or discovery.

1. The Preamble

This portion of the specification is purely formal, consisting as it does in the mere recitation of the name of the applicant including his full first name, his citizenship, and place of residence. As a matter of fact, the preamble is an introduction to the specification and includes in addition to the above mentioned matter the name of the invention of the applicant. (See preamble of form specification on page 335.)

When the application is a division of another application, a statement to this effect should be embodied in the preamble, or in the body of the specification. The parent application should be identified by serial number and the date of filing. This method also should be followed where an application is a continuation of one copending.

2. Preparation: General Suggestions

It is appropriate to premise the discussion of the proper preparation of the patent specification by a few suggestions.

Intelligent preparation work requires complete understanding of the invention involved. It is safest to forego entirely the preparation of papers in the absence of adequate data and information. But once these are in hand the next step is to master the invention as regards those things which are claimed by the inventor as novel, and those which the draftsman proposes to claim according to his best understanding. An outline of the statement of invention and claims may well be devised for the same reason that an eminent practitioner and instructor in patent law always advised the preparation

of a brief, i.e., the outlining or briefing is the most effective mode of logically and intelligently preparing to present an invention or argument.

Without thorough planning, therefore, hodgepodge results are often obtained, and the records of the Patent Office are to-day filled with evidence of the ability of some solicitors to hide inventions in specifications and claims, rather than to disclose them. It must be evident that, like all things else, specifications of inventions improve with care, and the greater the preliminary study the better the final draft of this most important document.

The factor of novelty usually controls the method and form of preparation of the whole specification, not to mention the claims. To elucidate, with any degree of detail, features of an invention which affect little or not at all the essential novelty, is needless. This is waste of time and effort and makes for difficulty in presenting that which is the invention itself. In many instances, however, it is necessary to explain what has gone before in order clearly to show the nature of the improvement, to satisfactorily present the body on which to hang the limbs as to which alone the improvement may exist. Unless this be the situation it is a splendid rule, which the Patent Office approves in the interest of making the examining work less arduous, to stick closely to the presentation of only that essential to an intelligent disclosure of the points of inventive novelty.

When the prior art is before the solicitor, fair effort should be exerted to differentiate therefrom. At this stage of the proceedings, however, the major time should be devoted to submitting the inventive features, for it is seldom that the full state of the art is in front of the one drafting the specification. It is axiomatic that where doubt exists as to whether a part or feature of the invention is new, the same should be resolved in favor of the inventor, and novelty assumed, for the purposes of the specification and claims.

The preliminary study, therefore, stands in good stead to enable a determination of the scope of the claims, and upon this depends the whole framing of the specification, and especially the important statement of invention, which every specification should preferably include. The terms of the specification *for the purposes of proper claims* are thus predetermined. The author sometimes prepares his general line of claims before attempting to draw his specification, and the practise has some advantages in that the proper terms may readily be used in the specification to afford a fitting basis for those of the claims. Again, there is less likelihood of superfluous description. The opposite method is the more logical and effective in the general run of cases, however.

3. The Statement of Invention

The statement of invention in the patent specification is of importance and great care should therefore be exercised by the patent prosecutor in drafting this outline of the objects or purposes of the invention, and its scope. The reason is that it is customary for the courts in determining the scope of a patent, something ordinarily measured by careful reference to the claims forming the concluding part of the specification, to construe the terms of such claims in accordance with the patentee's own assertions relative to the scope of his invention, as found in the general description.

The methods of drawing up the statement referred to above are not entirely uniform, doubtless owing to the fact that patent prosecutors are not wholly in agreement as to the advantages and disadvantages incidental to a more or less complete development, in or at the outstart of the specification, of the objects and the scope of the invention. While originally the statement of invention of a patent specification was confined mainly to a mention of the art in which the invention purported to represent an improvement, and subsequently to mere presentation of the objects intended to be accomplished

by the invention, in later years this portion of the specification has been utilized by prosecutors also to prescribe the metes and bounds of the invention in so far as its claimable subject matter is concerned. This practise largely prevails to-day, and, if the approval of a large majority of patent experts is significant, the course of definitely reciting in the opening statements of the patent specification not only the object of the invention, but just how broadly new the inventor conceives his invention or certain features thereof to be, may wisely be pursued.

It is well invariably to draft the statement of invention having in view the prior art when the latter is available, and to state as clearly as possible at the time the differentiating breadth of the applicant's invention. But, as stated before, when the prior art is not in hand it is advisable to make all assumptions favorable to the inventor and state the invention's scope very broadly.

Apparently, the view of some patent practitioners, men of highest skill in the profession furthermore, is that the scope of a patent is intended to be determined by reference to the claims alone, and that there is a tendency to confuse when the descriptive portion of the specification, as distinguished from the claiming portion, is utilized after a manner for the purpose of presenting a claim. While there is possibility of conflict between these two portions, nevertheless at the present time the Patent Office is quite strict in its requirements that any descriptive statement of claim indicative of the breadth of invention, and forming a part of the patent specification, shall accord precisely with the scope of the formal concluding claims. In fact, it is a practise closely adhered to that no descriptive statement (virtually a claim) regarding the extent of novelty of the invention shall be broader than the terms of the concluding claims, which are the formal claiming part of the specification proper. Certainly the use of the statement offers a narrative method of measuring that which is new,

helpfully supplementing the precise and formal terms of the claims.

A consideration of thousands of specifications warrants the conclusion that it is helpful to the public, and to the courts, if the scope of the invention covered by a patent may be ascertained not only in view of the formal claims of the specification, but by reference to a clear-cut synopsis embodied in a statement of invention of the patentee, one in which he defines *narratively* the scope or breadth of his invention intended by him to be asserted, and maintained, when his patent is construed in view of the terms and substance of his final definite claims. (See specimen statement of invention, page 335.) Too often claims are so intricate in their terminology as to be almost unintelligible when standing alone, for reasons later treated.

In this connection attention is drawn to an instance of the importance which courts attach to an inventor's claim in his statement of invention when it comes to determining whether a mistake has been made in the formulation of the actual formal claims. See the case of Crown *vs.* Aluminum, 108 Fed. 845; 48 C. C. A. 72, from which the following is quoted:

> The case would be different if Painter had unreasonably delayed to assert his rights to reissue after such notice was brought home to him, and where his silence and inaction had misled other parties to their injury; *and the fact that the original patent contained a statement of his invention which covered the subject matter of the reissued claim,* and that a reissue to fully secure the invention disclosed was authorized by law, was sufficient notice that this patent was subject to such right of reissue, which right was liable to be exercised at any time at least within two years.

Here, had it not been for the saving statement of invention, it is doubtful whether Painter would have been able to establish the validity of his reissue.

4. General Description of Invention.

The description section of a patent specification should be commenced by what is known as the "brief descriptions" of the figures of the drawings, when drawings form a part of such specification. The proper place for this is well established and the preliminary references to the various figures of the drawings are helpful to afford knowledge of the general appearance of the invention as illustrated. It is open to question whether the brief description of figures could not well be dispensed with in favor of more references to the figures throughout the main description. Where sectional views are employed, however, it is almost necessary that the views be described as to the lines on which the sections are taken.

The general description of the invention should be a fairly exhaustive or complete detailing of the novel construction, and any old construction disclosed, to elucidate to best advantage the patentable features, speaking in reference to a mechanical organization of elements. The steps, and the order in which they are to be performed, should be described in detail if the invention be a process, and the ingredients, manner of compounding the same, and an actual typical formula, if the invention is a compound or composition. Offhand it might be considered that this portion of the patent specification requires not a great amount of skill or consideration. It is quite true that one who is gifted with a fairly comprehensive knowledge of mechanics or science is often capable of setting forth the manner and process of making, constructing, compounding and using an invention, in full, clear, concise and exact terms, such that a person skilled in the particular art to which the invention relates, may readily practise the invention. Engineers and persons mechanically inclined, and having a fairly complete vocabulary of mechanical terms, are not infrequently able to prepare admirable descriptions of inventions so far as completeness, clarity, and conciseness, are concerned. The difficulty, however, with such descriptions, re-

sides in a lack of cohesion, so to speak, between the different parts of the description and claims, and their relation to the statement of invention, whereby difficulties arise in construing the specification. It is a fact that patent specifications as viewed by the courts are consulted, having in mind, as in the case of contracts generally, the intention of the patentee. For this reason if for no other, too much care can not be exercised in maintaining a complete correspondence between the *statement of the invention*, which precedes the part of the specification now under discussion, the *main detailed description* of the invention to which we are now referring, and the claims, all formulated without ever losing sight of that which is patentably new. This last the engineer or technician usually does not know.

To maintain the correspondence between the essential parts of the specification, it is requisite in the first place that the prosecutor define the invention in the statement of objects and scope, in terms at least as comprehensive as those to be later used in the claims. In like manner, caution should be exercised in drafting the description of structural details so that terms applied to such details will form a basis for and be consistent with terms to be employed in the claims.

A common method resorted to, especially in regard to the main or descriptive portion of the specification, is to employ alternative terms, one broad, and one specific and particularly applicable, in defining the various parts of the invention. An example may be well cited in this connection. Supposing the invention comprises an organization of elements wherein an arm is mounted on a shaft and is adapted for actuation to operate certain mechanism. It is well in the specification to describe this element of the machine not only as an "arm" but as "an actuating member" or "actuating means" broadly, for it is often the case in respect to certain claims, that the recitation of this arm as an arm may not be necessary to lend patentability, and the broader term should be utilized in couch-

ing the essential or main claims for the general machine in terms of requisite breadth.

The general description of an invention not only should set forth the details of construction, but with the possible exception as to the most simple inventions, this description should by all means embody, preferably as it concludes, an explanation of the whole general operation of the machine and its advantages over prior machines. In the event that the invention is a process or method the complete method should be described as carried out in actual practise.

In relation to the general descriptive part of specifications for more complicated inventions it is a practise somewhat established, but not enforced as it should be, for the prosecutor to divide the description into sections, each directed to the explanation of the structure and operation of a certain mechanism which may be fairly complete of itself, and then the coaction of these mechanisms is given in a description of general operation. It is appropriate that when the above course is pursued headings should be employed to distinguish the particular mechanism described from others, all of which may be exemplified by a reference to the common type of adding machine. When the earlier patents were granted for adding and listing machines the general description of the patent specifications of such machines might well have been divided somewhat as follows:

General Description:

Keyboard Mechanism
Adding Devices or Accumulator
Transfer or Carry-Over Mechanism
Printing or Recording Mechanism
Main Actuator and General Control Devices
Ribbon Feed Mechanism
Platen Feed Devices
General Operation

In the course of the drafting of the specification for such a machine, necessarily as each mechanism is described its operability by parts of an adjacent mechanism, or any coaction between said mechanism and one or more of the other mechanisms, are frequently developed incidentally, to be later fully explained in the general combined operation of the machine. It would be a very proper practise for the Patent Office to make an absolute requirement that lengthy specifications for complicated machines be divided in this manner, and to go even so far as to make necessary the separation under appropriate headings of the sets of claims with which such specifications must conclude.

By the foregoing it is intended to say that the subdividing of patent descriptions of complicated inventions should not as now be left to the whim of the prosecutor but be made compulsory. Those who have pride in logically presenting an invention will observe this suggestion as to the specification at least; the proposition of placing headings to intermediate sets of claims on various really separable mechanisms has never been practised so far as the writer is aware. No reason is seen why the grouping of claims of different series should not be made under appropriate headings. All this makes for ease of comprehension of the invention and its novelty, and would be useful under the present system of claims *ad infinitum*.

In order to make clear all references in the specification, to drawings which invariably form a part of a mechanical patent specification, it is customary to employ reference characters designating the various parts of the invention shown by the drawings. The best reference characters to utilize are numbers preferably ranging from 1 upward. Occasionally it is advantageous to use numbers as reference characters for the details of the machine and capital letters each to denote a certain mechanism comprising many parts. As a general thing, the practise of describing more complicated inventions

by using reference letters should be discouraged if a personal preference might be suggested. In the illustration of complicated machines experience proves it far easier to locate parts by numbers than reference letters. A plan pursued by many prosecutors, however, should be cited, this being to use reference letters wholly, a capital letter designating a main element and lower case letters indicating various parts directly cooperating with such main element. An example of this is that the main lever shall be designated E, while rods, projections, cams, shafts, and similar parts directly associated or coacting with such lever, are indicated by reference characters such as e^1, e^2, e^3, e^4, e^5, etc. The latter plan, however, is believed to be the more confusing as compared with the straight consecutive number system of character designations.

A very helpful idea has been developed by a patent examiner of experience, along the lines of clear-cut disclosure of the subject matter of patent specifications and claims. Deserving as it does the thoughtful consideration of students of patent application procedure, the following extract from the Journal of the Patent Office Society, Vol. 2, No. 4, Page 190, is quoted:

PROPOSED AMENDMENT TO THE RULES OF PRACTISE CONCERNING THE STATEMENT OF INVENTION AND MODE OF OPERATION

It is suggested that the Rules of Practise be amended to the effect that the second paragraph of the specification shall comprise a concise statement of the nature of the invention and the mode of operation. This statement should not include reference characters or in any way depend upon another part of the specification or drawing. It is suggested that this statement be printed in the patent in display type so as to catch the eye. It is further suggested that it shall be the duty of the

Examiner to scrutinize this statement carefully the last thing before passing the case to issue to be certain that it relates to the subject matter then claimed.

Experience has shown that despite the efforts of the Office to enforce clearness and exactness, many of the specifications are either prolix or vague, the views of the drawings are either ill chosen or poorly executed, and the claims are often peculiarly worded. The statement of invention now required is frequently merely a title with a reference to the body of the specification for further information. The description of the mode of operation is often so long and encumbered with reference characters that it is exceedingly difficult to follow. Sometimes no mode of operation is presented, but merely a statement that the operation will be apparent from the description.

It is thought, therefore, that it will be better to have a certain very limited but definite part of the specification to which special consideration should always be given, and which should comprise a concise statement of the matter involved, in such language as will be intelligible to the average searcher and will not be subject to the artificial and arbitrary terms which applicant frequently desires to employ in the claims.

That this statement should be placed at the beginning of the specifications is believed to be important, as the mind of the reader will then be better able to grasp the more detailed and complex description following.

W L. THURBER,
Examiner.

Where an invention comprises an improvement upon an existing machine, device, process, or article of manufacture, already covered by U. S. Letters Patent, it is proper to confine as much as possible both illustration and description to the improvements. Under these conditions a reference is usually inserted at the beginning of the description to the particular patent or patents relied upon to disclose the general

features of the invention upon which the new application is based. Only so much of the patented disclosure as is necessary to make a full and logical disclosure of the improvements, should be given. This applies both to description and drawings.

It is notable that the Patent Office does not permit specifications to be wholly rewritten by way of amendment, save when a requirement to that effect is made by the Examiner. This rule is to prevent the considerable work of comparing original and rewritten specifications to as great a degree as practicable. Occasionally an original specification is in very bad condition indeed, and must be redrafted entirely. To allow promiscuous substitution of specifications opens the loophole for the insertion of new matter, and the prevention of the practise is commendable to a high degree.

The foregoing summarizes in a general way the salient things to be borne in mind in clearly and logically developing a patent specification. In many ways the prosecutor may be able to greatly improve his work by individual thought and original methods of expression and lay-out. But by following the lines herein specified the resulting patent will disclose, at least clearly and completely, the invention attempted to be covered. In the typical mechanical patent case presented on page 334 herein, the approved form treated above is graphically illustrated.

5. The Claim or Claims.

We now come to what is considered generally as the most important part of the specification. This importance is established for the reason that in construing the breadth of a patent, the claims submitted by the patentee in terms which he considers set forth properly the novelty and the breadth of his invention, are depended upon primarily for determining the protection to which he is entitled. In other words, it is es-

tablished conclusively by the authorities that the claims of a patent are the measure of protection afforded thereby. In the final analysis, however, it is questionable whether under practical conditions of construing patents the above idea that the claims alone determine the amount of protection to be given the invention is completely warranted. There are so many factors that must control a final adjudication by the courts of the breadth of a patent claim that it is difficult to concede that the claim must stand or fall absolutely on its own legs, so to speak.

The subject of patent claiming is so intricate that it deserves a treatise by itself. By and large, the claim or claims are the means of making or unmaking a patent when it reaches the test of the judiciary. The court may properly consult the specification and drawings in arriving at conclusions as to whether a patent is valid or invalid, but certainly it is hopeless to assume that where the claim is lacking, the patent will be construed to cover matter unclaimed, or where the claim is for more than the invention the court may be relied upon to change it to reduce its scope or contents and save it. Only in rare cases will the latter interpretation occur, as when the question is doubtful and there is a fair basis to make allowances for a doubtful error.

To preserve to the patentee the reasonable fruits of his inventive genius is happily always the objective of our Federal Courts, but no one can fairly ask that something which he himself delimits in his patent claim, shall be construed in a manner inconsistent with his own definite statement, for so to do would destroy the object of the patent system. Our patent law presumes to protect the public as well as patentees in the requirement for precise and definite setting forth of the invention in the claim or claims.

It should be added that a patent is *prima facie* evidence of its own validity, is given full weight as such by the courts, and that its claims are possessed of such strength on the face

thereof that proof of a preponderant nature is necessary to establish invalidity. Naturally, courts do not take kindly to the invalidating of a patent and this is as it should be. But inadequate and careless prosecution of patent applications, and latterly, careless allowances, are responsible for more patent invalidations, probably, than any other causes.

Invariably where doubt exists as to validity the doubt is resolved in favor of the patentee by the judiciary.

What is the basis for the claim of a patent in law? Reference is again made to Section 4888 of the U. S. Revised Statutes. Here we find the requirement that the applicant for a patent "*shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery.*" No mode of claiming is specified, but in the absence thereof the Commissioner of Patents is within the general powers given him by statutory authority when he requires certain forms to be followed in the interest of efficient administration of his office. It is in this way that the general forms of claims discussed herein have become those commonly required as proper and best practise.

The patent claim irrespective of other considerations, and referring to a previous comparison, is also somewhat in the same category with an ordinary contract in that it is as complete a disclosure as it is practicable to obtain of the intention of the patentee in defining the breadth of his invention. As to whether such intention is open to be construed in different ways is perhaps extraneous to the subject. Experience shows if a court wants to sustain a claim it may sometimes go a long way to do it; if the conclusion reached is that the claim should be invalidated similar effort is frequently present. But no one would reasonably contend that it is unwise to give a court the clearest possible idea of what the patentee wishes to claim, as the only safe mode of procedure.

The scientific drafting of patent claims is conducive to the elimination of doubt or confusion as to the intention of the

patentee in prescribing the breadth of his invention. If the claim or claims are couched in definite terms and afford a clean-cut, precise presentation of those features asserted to constitute the invention, the only other elements necessary to be considered in construing the measure of protection, are entirely apart from the claim or claims and would usually consist mainly of a consideration of the main description, and the bearing of the prior art upon the invention; also any concessions made by the patentee by way of disclaimer during the process of procurement of the patent. Even the description might be ignored in interpreting such claims.

Probably no better definition of the object and purpose of the claim is to be found than that given almost at the inception of patent decisions, in Evans *vs.* Eaton, 7 Wheat. 356.

> The specification has two objects: One is to make known the manner of construction so as to enable the artizans to make and use it, and thus to give the public the full benefit of the discovery after the expiration of the patent. The other is to put the public in possession of what the party claims as his invention, so as to ascertain if he claim anything that is in common use, or is already known, and to guard against prejudice or injury from the use of an invention, which the party may otherwise innocently suppose not to be patented. It is therefore, for the purpose of warning an innocent purchaser, or other persons using a machine, of his infringement of the patent; and at the same time taking from the inventor the means for practising upon the credulity, or the fears of other persons by pretending that his invention is for more than what it really is, or different from its ostensible objects.

(See general subject of THE SCIENCE OF DRAFTING PATENT CLAIMS.)

Oath.

The oath to a patent application is the final formal document thereof. It furnishes a sworn statement of the inventor from which the statutory requirements particularly recited in Section 4886 of the Revised Statutes may be seen to be complied with. As one instance alone, we might note that if an invention has been in public use more than two years prior to filing of the application a valid patent cannot be secured therefor. Thus the oath embodies a sworn statement to the effect that the invention has not been publicly used or on sale for a period of more than two years prior to the application. Other statements are made to show that other statutory requirements do not stand as a bar against the grant of protection under the statute within the knowledge of the inventor.

The oath is the most simple and dependable method by which the Commissioner of Patents may advise himself that the conditions affecting the grant of a patent to the particular applicant are probably such as to make the issue of Letters Patent valid.

In practise it is sometimes true that a person makes an oath in good faith, and the statements are not correct for reasons not within his knowledge. Thus a device may have been publicly sold more than two years before the application, unknown to the applicant. In such event the patent is invalid and would be so held upon proof adduced properly to substantiate the sale. (See in this connection chapter on VALIDITY OF PATENTS.)

It is a worth-while precaution to advise an applicant to read carefully the statements of his oath prior to swearing to the same.

The full first name and middle initial of an applicant are usually necessary for all the signatures to different parts of the application except the drawings. This is a rule applicable to the execution of practically all legal papers.

Where an inventor is dead this oath is made by the execu-

tor or administrator of his estate; in a case of insanity, the guardian or other legal representative of the inventor executes the oath.

The oath should be sworn to, preferably before a Notary Public or some official having a seal. If such official has no seal his official character has to be established by competent evidence, such as a certificate of a clerk of some court of record, or by another officer who has a seal.

Care must be taken in respect to applications the oaths of which are executed abroad. In such instances, the oath may be taken before a notary, judge, or magistrate, and the authority of the latter proved by a certificate of some diplomatic or consular officer of the United States. Where possible, the most simple method of accomplishing the execution abroad is to have the applicant appear in person and swear to the oath before the diplomatic officer, an ambassador or consul, and thus save the red tape and expense of the intermediate certificate.

All oaths make provision for the recitation of foreign patents when such have been applied for, and the inclusion of this feature is essential.

Ordinarily, in respect to patent applications executed in the United States, the oath becomes known as *"stale"* if the application is not filed within five weeks after its execution. The Commissioner requires in such cases a *fresh* oath. It would seem as if the original oath could not be held invalid in these circumstances, but the practise discourages undue withholding of filings after execution. Ex parte Branna, 97 O. G. 2533, ex parte Heinze, 756 O. G. 145. The term is three months in the case of applications executed abroad.

It is required that a venue be supplied on every oath in order to show the place where the oath is administered. Caution should be exercised, when a notary's seal indicates his place of authority, that the latter corresponds with the venue. If the two do not correspond, it is obvious that the oath is defective as showing on its face a lack of authority of the

authenticating officer to act in the particular jurisdiction set forth by the venue.

An oath which is administered by the attorney for the applicant is invalid and without legal effect for the purposes of a patent application. See case of Riegger *vs.* Beierl, 150 O. G., 826.

Where an oath, declaration, or affidavit, as subscribed by an applicant for patent used in connection with his application, is falsely made, the offense is perjury under the terms of Section 4392 R. S. As in respect to any ordinary case of perjury it must be shown, of course, that the applicant at the time of making his oath did not believe that the same set forth the truth as regards material matters stated therein. See the case of United States of America *vs.* Patterson 174 O. G. 287.

Necessarily an oath, as filed with an original patent application, affects the invention in respect to the particulars stated in the oath according to the disclosure of the invention in the application papers at the time of filing. Consistent with the terms and spirit of Section 4886 R. S., the practise has become universal in Patent Office procedure to allow an inventor to amend his application in respect to his disclosure of his invention whereby to conform with the requirement of the statute that the description shall be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains to make and use the invention. This exacting requirement is not always complied with at the filing of the application by reason either of informality or incompleteness of the description, or inexactness of the claims.

Very material amendments may be made in the original disclosure of an invention in an application and therefore care should be exercised to see whether the original oath covers the invention substantially as presented in the amended application. If not, the Patent Office rules make provision for filing a supplemental oath. (See Chapter on SUPPLE-

MENTAL OATHS.) An issued patent may become invalidated for failure to file such additional oath under circumstances where it is really necessary. In the case of Nathan Anklet Support Co. *vs.* Cammeyer, 256 F. R., page 970, the court held as follows:

> The entire description and claims of Nathan were canceled on October 19, 1906. The original description detailed the uses of the inner soles with their variously located pockets in which wedges were to be seated to increase the thickness of the sole. The new description described the insole as adapted for use without any insert, and the layers of the insole as being of approximately the same size, so as to lie smoothly upon each other when the inserts or filling members were removed. These characteristics were not developed in the original description. The idea of "means" by which this is accomplished is new, and was not contained in the original description. The original description provided for means whereby inequalities in the sole may be provided when needed. No new oath accompanies the new description, and for want of it a patent has been held to be void. Steward *vs.* American Lava Co., 215 U. S., 161, 30 Sup. Ct. 46, 54 L. Ed. 139.

Drawings.

Where an invention is susceptible of illustration, a drawing must always be supplied as an essential part of a complete application. When possible, the drawing should contain in a single figure or view the complete invention.

The number of sheets of drawings must be held down to the minimum necessary for complete illustration. This is desirable obviously to reduce the work of examination and multiplication of papers in an application, and also to reduce as much as practicable the work and expense of reproduction of the patent to supply copies for public sale.

A Patent Office drawing must comply with certain definite requirements as to size, mode of placing figures, and character of material used.

The regulation size is 10″ x 15″, and Bristol Board with glazed surface is the prescribed kind of paper that must be used. The figures must preferably be disposed vertically of the sheet of drawing. Where the illustration is especially long it may be placed lengthwise of the sheet. This makes the turning of the sheet necessary to read the figure, so the arrangement is prohibited except in the exigency stated. A blank space of one and one-fourth inches must be left at the top of the sheet to facilitate printing of the headings of the final patent.

The drawings should have the figures thereof consecutively numbered, and the parts should be designated in correspondence with the reference characters of the description in the specification; and reference is here made to the discussion of certain matters affecting the drawings as found on page 128.

No statement of dimensions or reference thereto is required or desired, in patent specifications, and hence the drawings are not made to scale if not convenient to so draft them. In fact, good draftsmen often much exaggerate details of construction for purposes of clearness. Shading is to be omitted except where very desirable to show rounded surfaces and other features to best advantage. Features extraneous to the invention itself should find no place on the drawings, unless necessary to a proper understanding of the invention.

The drawings must illustrate everything described in the specification, or claimed in the claims under the rules. A feature not worth illustrating is not worth describing, and *vice versa*.

Signatures are placed at the lower right-hand corner of each sheet, and witnesses on drawings are no longer necessary, tho not prohibited.

If the signature on the drawing is that of the applicant the

same alone is sufficient and an attorney's signature improper. The only purpose of the attorney's signature is to show that the inventor's name is signed by him, wherefore the following is the acceptable form:

INVENTOR
JOHN DOE
By
RICHARD ROE
His Attorney

The other special requirements for formal drawings are well given in the Rules of Practise of the Patent Office. Special modes of lining for showing materials such as glass, rubber, etc., are supplied; also peculiar signs or emblems are given for illustrating electrical parts, or the like. These should invariably be consulted.

The drawings of an application perform a most important function in assisting to fix definitely the extent of the disclosure of an invention in its original presentation in the application. In explanation of this it is notable that, in the course of procurement of a patent, the proposition frequently arises as to whether everything is illustrated in the drawings which is described in the specification or claimed in the claims. Additions to the drawings are often made under these conditions and in some instances questions arise as to whether additional illustration when presented is within the purview of the specification as originally filed in the Patent Office. Any attempt to inject into the drawings something not originally described or claimed would be an infraction of Rule 70 which reads as follows:

> 70. In original applications all amendments of the drawings or specifications, and all additions thereto, must conform to at least one of them as it was at the time of the filing of the application. Matter not found in either, involving a departure from the original in-

vention, can not be added to the application even tho supported by a supplemental oath, and can be shown or claimed only in a separate application.

Under the foregoing rule it is evident that matter not presented either in the original drawings or specifications may not be inserted by amendment in either one of these parts of the application.

Owing to the provisions of this rule it becomes impossible to modify a specification or the drawings of an application so as to include something therein constituting new matter (according to the legal expression used in this connection), and such as might form a basis for claims that could not be made upon the foundation of the original disclosure. The question of new matter is a difficult one at times to determine, especially where there is any looseness in the description in the specification. The proposition being largely one of fact, common sense may ordinarily be relied upon to determine that which is new matter and that which is not. The following authorities are cited in connection with this phase of amendments to drawings and descriptions:

New matter can not be introduced, whether or not the party had knowledge of it and intended to include it, where there was no obvious error and the device was operative as shown.

Taylor, 13 Gour. 22-17 (Mar., 1901).

Where an application as filed discloses several specific forms of the same generic invention, Held, that an amendment can not properly be made disclosing another specific form altho it embodies the generic invention.

Hoegh, 100 O. G. 453; 1902 C. D. 254.

Where the parts described will not operate as stated and it appears from the whole case that through a

clerical error the parts were misnamed, Held, that an amendment correcting the error does not involve new matter and that an additional view may be added to the drawing showing the construction more clearly.

Ex parte Larson, 101 O. G. 2568; 1902 C. D. 452.

Where an amendment is presented containing a new description and claims or descriptive matter affecting the claims which is regarded as a departure from the invention originally disclosed, Held, that the amendment should be entered in the application and the claims rejected on the ground of new matter.

Ex parte Furness, 104 O. G. 1655 (1903).

Where the original specification describing a process did not indicate the use of any reducing agent, an amendment describing as a part of the process "heating —— with a slight excess of coal, —— or other reducing agent" involves new matter.

Garibaldi, 19 Gour., 21-16 (Mar., 1907).

When an application was abandoned in favor of a later application, Held, that thereafter matter not originally shown in the second application cannot be entered therein by amendment, altho shown in the prior application.

Hagey, 173 O. G. 1081 (1911).

(C. C. Pa., 1911.) A claim for a patent is not invalid because its language was changed to meet the views of the examiner in the Patent Office, where the invention covered is the same described and claimed in the application.

(For other cases, see Patents, Cent. Dig. 244; Dec. Dig. 168). Phoenix Knitting Works et al., vs. Hygienic Fleeced Underwear Co., 194 F. 717, 720.

(C. C. A. 2nd Cir., 1917.) Where an applicant for

patent amended his claim, so as to include an element not theretofore stated therein, such amendment is valid, if the element was always a part of his invention; but, if it was a departure from the original invention, it was invalid, unless supported by the statutory oath.

(For other cases, see Patents, Cent. Dig. 152. Decree 230 F. 829 affirmed.) Kintner et al. vs. Atlantic Communication Co. et. al., 240 O. G. 339; 240 F. 716.

Amendments attempting to cover up practical devices brought into use after the filing of the application, Held, to be without foundation in the original disclosure.

Smith, 271 O. G. 155 (1918).

Correction of Drawings.

The correction of drawings is permitted under the present practise in accordance with Commissioner's Orders No. 1958 of February 3, 1912, and No. 2112 of March 13, 1914. In brief, the procedure which must be followed is to first supply the record of the file wrapper at the Patent Office with a black line photographic or lithographic copy of the drawings as originally filed. These copies become a permanent part of the record. The corrections which are proposed should be submitted to the Examiner by a black line sketch in permanent ink which also becomes a part of the permanent record. When such sketch is submitted, a request is made of the Examiner to give permission in writing for the making of the correction according to the proposed sketch. If the Examiner objects to the correction he will state his objections, but if the correction is allowable under the rules, he will grant permission in the record.

Thereafter, the applicant or his counsel must authorize the official draftsman of the Patent Office to make the corrections according to the permission extended by the Examiner. The

amount of the draftsman's charge must be advanced, and estimates will be furnished for making corrections on filing a request for the same.

Miscellaneous Matters.

As a general thing, it is customary to illustrate in an application the preferred form of the invention directed to the general combination of elements intended to be claimed. All claims of an application must read upon some single figure of the drawings.

Where differences arise between the Examiner and the applicant as to the permissibility of making an addition to a drawing, the questions may be taken to the Commissioner by a petition. Where new drawings are to be added to a case for purposes of additional illustration, permission must be requested to make the addition, tho it is customary to file the drawings at the time of making the request. Additional drawings cannot be filed at the whim of the applicant and will only be accepted when necessary for purposes of proper illustration of the invention.

It is desirable to make complete and full illustration of the invention in the drawings; inadequate drawings are in some cases the cause of issue of invalid patents. Recourse is best had to a skilled patent draftsman acquainted with the official procedure in the preparation of drawings for Patent Office purposes.

VI

THE SCIENCE OF DRAFTING PATENT CLAIMS

Classes of Patent Claims: Accidental; Abstract; Concrete.—Claims as Word Pictures (How Prepared).—Claims: Differentiating from Prior Art; Avoiding Effects of References Cited; Plural Claims.—Claims: Combination and Aggregation Claims; Subcombination Claims; Genus and Species Claims; Election.—Claim Formalities: Claims Sustained; Claims Held Void; Form of Claims; Classes of Claims in One Application; Testing the Claims When Completed; Repetition of Limitations; Multiplicity in Claims. Breadth-Controlling Phase.

Patent Claims

Previous to a discussion of claims coming within certain classes hereafter named for the purposes of this explanation, it is appropriate to dwell a little more in detail upon a very essential object of the patent claim. Truly, one purpose of the patentee in presenting his claim, and the examiner in allowing it, is to define the novelty of his invention in the broadest possible way. This is the function of a claim looking at the situation from a positive viewpoint. Negatively speaking, however, the object which must be maintained in the mind of the patent prosecutor in the drafting of the claim is that of characterizing the invention in such terms as to cover all like inventions equivalent in breadth or novelty; i.e., all similar or analogous elements if the invention is a mechanical one, steps or operations if the invention be a process, or ingredients and modes of compounding the same if the invention be a composition or product.

There is no question but that the drafting of patent claims is a science in itself, and while the preparation of a claim par-

takes tremendously of the individuality, viewpoint, and mentality of the solicitor, so far as the results are concerned, nevertheless there are definite and prescribable principles that may be followed in drawing such claims. In fact, these principles are so definite that by strict adherence thereto it is within the range of probability that several different solicitors might, and frequently do, draw claims of substantially the same scope and in practically the same terms, predicated on the same invention. On the other hand, experience counts heavily in ensuring a proper scientific preparation of patent claims, and, of greater importance, their procurement by skillful differentiation from the prior art, or logical and appropriate argument, or both, as required. That a knowledge of how courts view claims under the burden of attack, is an exceedingly valuable asset enabling a true comprehension by the solicitor of the approved forms of specifications and claims, is self-evident.

Classes of Patent Claims

There are three classes of patent claims, classes which have come under the observation of every patent solicitor of even inconsiderable experience, tho possibly not named as set forth herein, or in fact named at all.

Seeking some arbitrary but distinguishing classification, the first class might be said to comprise those claims which are accidentally formulated without any distinct idea or recognition of proper breadth, so far as the problems of differentiating the patentable novelty of the invention from the prior art and presenting such patentable novelty in the broadest terms are concerned. Those familiar with patent prosecution have time and again come across claims in this category, claims which constitute mere puzzles regarding possible appreciation or understanding of the reason for the inclusion of limitations therein, or the omission of limitations. Such claims, which are entirely formal and acceptable to the Pat-

ent Office, establish quite properly the cooperative relation of the elements defined thereby, but upon analysis in view of established principles of patent law, and especially in view of priorities bearing on the particular invention, they afford no basis whatever for a conclusion as to why their terms of limitation or nonlimitation were employed, or why the combination or combinations of elements recited therein were defined.

There is this comment to make in reference to claims of the above nature: Such claims are merely the result of the ability of the one drafting them to combine in a formal manner, meeting the terms but not the substance of the statute, novel elements or features of a machine or other invention. There is a total lack of comprehension as to the method of differentiation of the particular invention from the prior art, in terms defining the real invention in its novel and broadest phases. The drawing of claims which come in the class just referred to is equivalent to the production of a result, without a knowledge of how it is attained, and without knowing how such result might be made of greater or less efficiency. This class of claims, therefore, will be styled *accidental.*

Accidental claims are a most dangerous type because they resolve the matter of protection to a question of luck, rather than involve a really scientific and differentiating method of terminology. There is no invention so abstruse, or so complicated, but that its metes and bounds may be properly claimed.

In a recent patent interference cause, upon the decision of a motion for dissolution, a Law Examiner held to the effect that in a case such as at bar, involving certain complicated registering machines, it was difficult to say whether an applicant was entitled to make a claim for a certain combination, shown broadly to be old, or, for only certain details of the combination that were novel; if for the latter alone, the resulting patent would be of little value, etc.

The question of novelty appears secondary to one of value

in this view, when novelty is the primary and essential factor upon which to determine the basis of claims. The patentability of claims has to be settled in the light of protecting the public as well as the inventor. But, more important, there is no such thing as an undefinable invention. The rules of procedure and the law of novelty are such that a claim can be drawn to the essential novelty, if it exists, in terms of a proper combination, subcombination, or other class of claim. There may be doubt as to the novelty or patentability of an invention, but claims of patents would be on a most unscientific basis if there were no definite classes available for all possible forms of invention.

There are two other classes of claims which we shall call *concrete* and *abstract* for want of better appellations, having in view the methods of formulation thereof.

Such classification is based upon a recognition of the fact that in drawing patent claims two different mental attitudes may be assumed. Some draftsmen with an intimate knowledge of science, mechanics, chemistry, etc., deem themselves able to circumscribe by definite limits the exact degree of novelty of invention. What is meant may possibly be presented more clearly by saying that there are those who believe that, upon the study of an invention, it is possible to draw claims of greatest breadth, *having in mind* a certain limited number of modified adaptations (pictures) which the invention may take, all of which are thought out in advance by the claim draftsman. This may be possible, but it is highly improbable as to ninety per cent of all inventions patented, and in reference to the qualifications of perhaps a higher percentage of solicitors.

The tendency of the draftsman having the mental attitude above treated is to draw the broadest or generic claims covering the invention in terms which are concrete, or quite definite, formulating pictures very closely disclosing the invention. These claim pictures are consequently sometimes much more

specific than necessary, being based upon a fairly definite conclusion as to how many variations of the invention may exist, or how much modification may take place, without departing from the broad spirit or its scope of patentable novelty, more properly speaking. The conclusion is too often wrong!

On the other hand, many highly competent men are unwilling to assume a knowledge of all the present or future variations possible in respect to an invention, which variations should be comprehended within the scope or novelty to be covered. If experienced, a man of this type of mentality has had instances demonstrating that his present vision and foresight are unreliable, at times at least, to enable him to correctly diagnose, so to speak, the future possible adaptations an invention may take. At the risk of looseness and too much generalization of terminology, therefore, he proposes to use general, not concrete, terms in characterizing the novelty of the invention for purposes of his broadest patent claims. This course he believes most likely to cover the changes a possible infringer may make in endeavoring to usurp the invention, or its principal features. He will draw a larger number of such claims, too, for fear that, unless graduated pretty closely, his broader claims may fail to hold good for some statutory reason.

By reason of such a viewpoint, claims drawn by this solicitor will be general, or of the abstract class. They are more likely to be invalidated, but if valid, there are ten chances of holding the infringer, to one when the concrete claims are relied upon. Moreover, good abstract claims are usually supported by concrete claims. The point is the solicitor does not make his bed on the concrete claim alone.

Claims as Word Pictures—How Prepared

Having an invention before you with its objects understood and its scope clearly determined, along with a complete comprehension of the details of construction and operation,

the broadest claim which may be drawn to that invention is a word picture of the same which is complete with the recitation of the least number of parts, such parts represented by terms comprehending not only the invention as specifically disclosed in the patent specification, but such inventions as may be equivalent thereto. It is notable that to the mind of the layman the broadest patent claim is the one which contains the most words and embodies the most complete detailed description of the invention. Of course this is the opposite extreme of what is actually true.

Not only is the ideal mode of claiming an invention the creation of a single word picture of the complete invention in terms that are definite tho broad enough to cover equivalents of parts and cooperative relations, but additionally there should be the creation in proper sequence, of supplemental word pictures, each disclosing the invention more in detail than the preceding one, until the final picture may be said to be one replete with details.

But why is it necessary to employ more than one claim? It is not necessary to do so, but it is excellent precaution. In the early days of patent claims the custom was to draw one or two claims for the invention. Frequently a court would adjudicate them invalid. So the solicitor in the interest of precaution began to draw more than a few claims by refining his language and adopting a system of graduated claims, as they are termed in respect to breadth. This method offers the opportunity, on litigating a patent, of having an ample number of claims of varying breadth from which to choose one or more which may be viewed as safely valid, to be pressed on as infringed. This method has been carried to an extreme out of reason, as is fully demonstrated later.

The precautionary phase above presented is not the only basis for graduated claims, however. All of the elements of a structure are often not necessary to its utility. In fact, in most inventions, there exist certain parts essential to an op-

erative structure, to which may be added here and there other parts or detail features whereby to make other more complete operative structures. But the entire invention as a complete structure may not be essential to practical usefulness of the patentable novelty involved, so it would be fatal to depend upon a claim limited to the exact details of a structure when a small part could be omitted and the protection of the claim avoided. The assumption, of course, is that the invention is novel in more ways than the most limited word picture might depict. (See subject of PLURAL CLAIMS.)

Assuming the invention to be mechanical in nature and of broad novelty, the first word picture or claim should be one which is readable upon the largest possible number of different mechanical structures, without being anticipated and without being indefinite. The last or most specific claim is a picture of the invention, covering practically only the particular structure of the said invention as disclosed, and avoiding unnecessary limitations as to detail parts which add no patentable novelty to the claim.

Let us start with a picture, as a mode of illustrating the rudimentary principles of scientific claiming. (Refer to Figure 1.)

In this picture what are the large things which stand out—are seen first—and which constitute a complete operative structure, so to speak? They are a body or torso and a support for the same. These things we see prominently (broadly), when we dim our eyes and look only for the main elements. Examining more closely—opening the eyes a little more—we find the combination of a body of a human being and a seat on which the body is supported. Next, more specific, after closer examination, we find the body to comprise the complete whole of a man including trunk, head, legs, and arms, and a seat comprising a *horizontal member* and *spaced legs*, on which seat the man *sits*. Finally, we see all that is last character-

ized, together with the arrangement of the left hand on the right knee, and the right hand resting on the seat, or in other words, the knee and seat coacting to support the hands.

With the foregoing in mind here are claims properly drawn to this picture structure, assuming it to be a new invention:

1. In a statue, the combination of a figure comprising a body, and a support for said body.

2. In a statue, the combination of a figure comprising a human body, and a seat on which the body rests in a seated posture.

3. In a statue, the combination with a figure comprising a human body including a trunk, arms, legs, and head, of a seat comprising a horizontal member on which the figure is seated, and legs for said seat.

4. A statue substantially as claimed in claim 3, in which the hand of one of the arms rests upon a knee of a leg of the figure and the hand of the other arm upon the horizontal member of the seat.

These claims are couched in the abstract sense at least as to claims 1 and 2, the classifications concrete and abstract, primarily, tho not necessarily, comprehending broad or generic claims. Each claim is for a complete operative structure.

It may not be possible for the claimologist drawing concrete claims to see how the construction would be operative without arms. He would, therefore, be sure to include the arms. Supposing the inventor was the first to combine a body and a support in a statue; obviously a concrete claim including the arms would fail to cover the statue of Venus de Milo which lacks arms. By the same reasoning, the statue of Venus de Milo could be made, and infringement of the said concrete claim avoided owing to the inadequacy of such claim.

For the purposes of the description, the broad term "hu-

FIG. 1

man being" would also be used to characterize the figure. "Human being or body" includes man, woman, or child, and hence the claim using that term is broad to the human kind and not limited to a particular sex. The term "support" ought also to have proper basis in the description of the specification, for a support is more than a seat, obviously.

Claim 1 above would cover a statue composed of a lion mounted on a hill-like base; also, the claim would cover an inanimate figure of a prairie schooner the wheels of which rest on a base of some sort. Claim 2 covers the statue whether the body is one of a human of any sex or age, but having a seated posture. A head might not be visible or formed for the statue and still the structure would be covered by the first and second claims, tho not by the third and fourth.

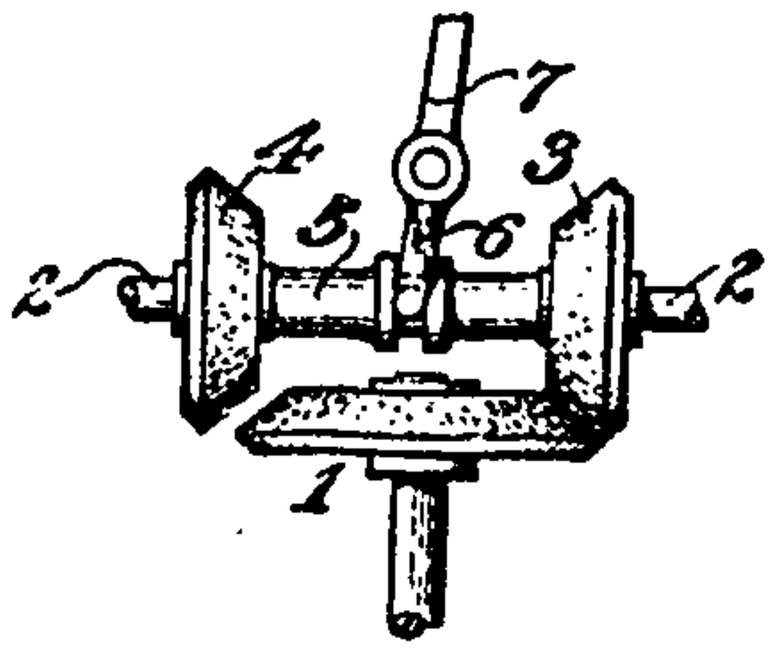


Fig. 2

If these suggestions are borne in mind, the proper approach to the right mental attitude for preparation of patent claims will be had. The same idea of broadly and then specifically developing an invention is useful for claims of mechanical, process, composition, and article of manufacture inventions.

We pass now to practical mechanics for a similar discussion. By way of example we may take the simple gear mechanism of Figure 2 above, and review the several types of claims, accidental, concrete, and abstract, following the form of claims most commonly used to-day.

In this illustration is a friction gearing consisting of a shaft carrying the driving element or gear 1, a second shaft 2 forming a driven element and carrying thereon the driven members or gears 3 and 4. The gears 3 and 4 are fixed on a sleeve 5 keyed to the shaft 2 and having a central grooved portion engaged by the fork 6 of a shifting lever 7. This

gearing is a common form of reverse gearing in which the lever 7, by movement in one direction, causes the gear 3 to engage the gear 1, whereby motion is transmitted from the driving element 1 to the shaft 2, rotating the latter in one direction. A shifting of the lever 7 in an opposite direction will engage the gear 4 with the gear 1 and the motion transmitted to the shaft 2 will be in a reverse direction. It is evident also that if the shaft 2 be the driving member, and the gear 1 the driven element, the motion of the latter may be reversed by cooperation of the gears 3 and 4 therewith. We shall assume that this mechanism is entirely new.

The claims draftsman with sufficient knowledge of the general form that patent claims must take, but without particular knowledge as to the rules governing scope, differentiation from prior art, and other factors controlling the scientific drawing of a claim, would probably cover the gear mechanism above described by a claim of this sort:

> In gear mechanism, in combination, a pair of shafts arranged at right angles to one another, one of the shafts having spaced beveled gears thereon to turn therewith, a third beveled gear intermediate said spaced beveled gears and adapted to engage with the latter, and means to shift the spaced beveled gears comprising a sleeve fitting about the shaft carrying the beveled gears and formed with a groove centrally between said beveled gears to receive a shifting fork, and a pivoted shifting fork extending between the gears and engaged in said groove.

The foregoing claim is a typical claim of the accidental class which does not involve the exercise of certain working rules of claim drafting. The draftsman has ignored the proposition of whether the gears 3 and 4 might be shifted by a lever engaged with the gears at the outer sides thereof. The fact that the groove of the sleeve 5 might not be centrally be-

tween the gears 3 and 4 seems not to have concerned him; likewise, whether the gears are beveled gears or not appears secondary and an unconsidered limitation; and the limitation as to the shafts being at right angles is obviously injected because that is the first thing that appears to be noted on looking at the invention.

Let us now assume the attitude of him by reason of whose mentality the concrete claim is the approved type. He, figuratively, approaches the construction of the mechanism about in this manner: "The gears must be beveled gears or this construction would not be practicable. It seems to me that there would have to be a sleeve connection between the gears 3 and 4, tho of course the gears could be shifted by some other device than the lever 7 engaging the middle of the sleeve 5." So with these and like observations this claim draftsman proceeds to draw up the following claims:

1. In transmission gearing, the combination of a driving beveled gear and a shaft for operating the same, driven beveled gears adapted to engage with said driving gear at opposite sides of the axis of the latter, a sleeve surrounding the shaft and connecting the driven beveled gears together, means connecting the sleeve to rotate with the shaft, and means for shifting said driven beveled gears to engage one or the other with the driving beveled gear.

2. In transmission gearing, the combination of a driving beveled gear and a shaft for operating the same, driven beveled gears adapted to engage with said driving gear at opposite sides of the axis of the latter, a sleeve surrounding the shaft and connecting the driven beveled gears together, and splined on the shaft, and a shifting device for the driven gears engaged with said sleeve.

In the first claim above, the claim draftsman has taken the view that the connection between the two gears 3 and 4 must

be a sleeve. Before he did that, however, he came to the conclusion that both gears 3 and 4 were necessary to the mechanism which we are assuming, of course, is absolutely novel. In the second claim, the same limitations are carried and the actuating lever defined in its specific relation to the sleeve.

We will assume now that someone builds a gearing like that of the illustration of Figure 2, in principle, but specifically like Figure 3, the driven gears being connected by rods 5 and the lever 7 having substituted therefor the operating sliding handle 8.

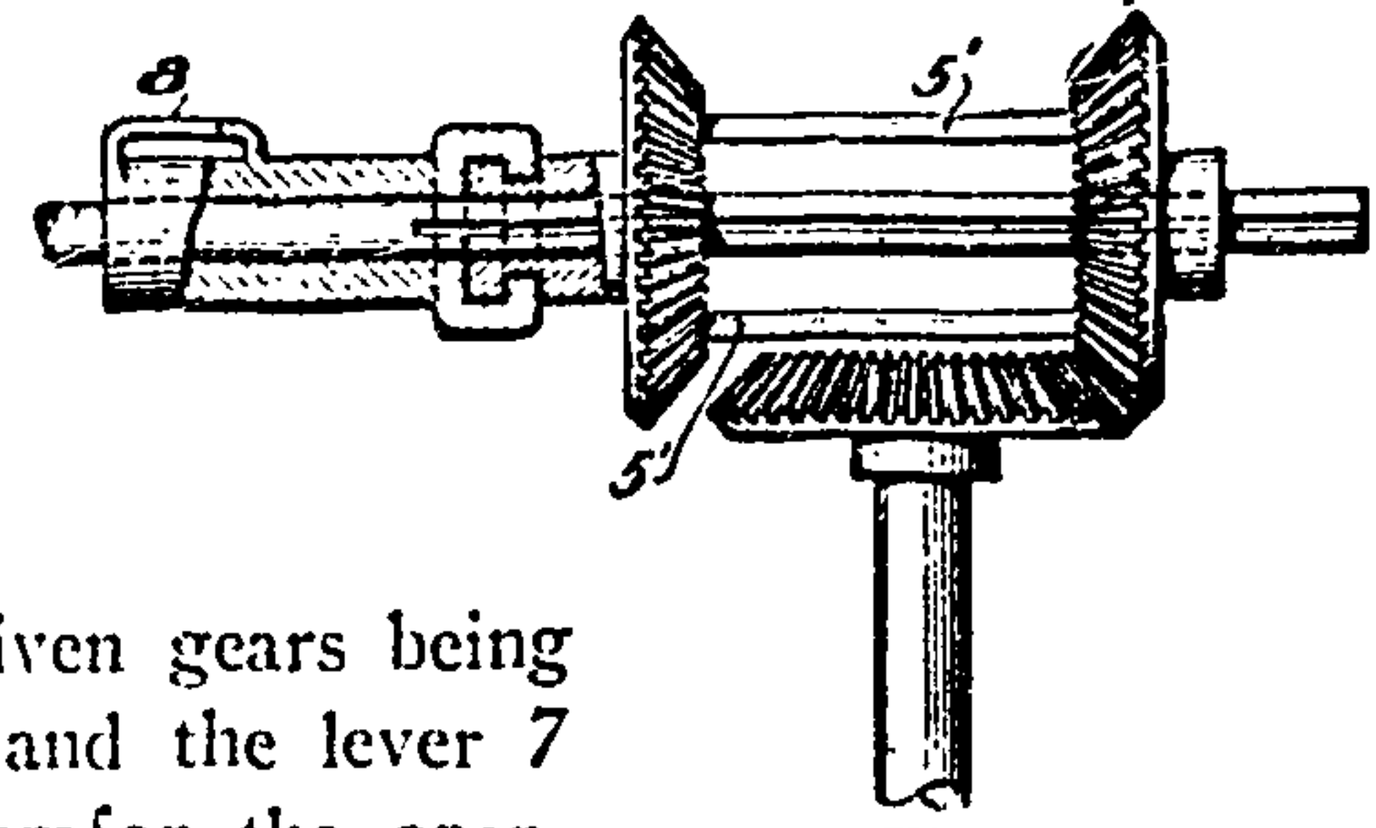


Fig 3

It will be quite evident that the claims of the first and second classes above will fail to cover the modified construction which is practically, in principle, the identical device of Figure 1. Nor would they cover a construction omitting the sleeve connection and operating the gears 3 and 4 by separate levers. Under these circumstances, the real invention might be usurped for failure of adequate protection of the originator of the construction in Figure 2.

Now let us adopt the attitude of the draftsman who is inclined to make his claims general, possibly a little indefinite, but primarily broad and comprehensive, as his essential object. He soliloquizes somewhat like this: "While I do not believe it practicable for many purposes, this gearing might be used to advantage even if one of the gears 3 and 4 is not employed. I think, therefore, I must claim this mechanism in my broadest claim comprehending the cooperation of the gear 1 and one of the other gears alone." With this in view, he draws the following claim as his broadest picture of the essential features of the mechanism:

1. In combination, a driving element, a driven element and means cooperating with the said elements to cause the driving element to transmit motion to the driven element.

The above claim covers largely the idea of transmitting motion from one element to the other and, since the construction is wholly new, that is the broadest phase of action and construction involved. It becomes evident on study of the mechanism that certain considerable advantage is derived from the use of gears 1 and 3 between the two shafts to facilitate transmission of movement, so the following is prepared as the second claim:

2. In combination, a driving element, a driven element and gears intermediate said elements, whereby motion may be transmitted from the driving element to the driven element.

But still the draftsman is not satisfied; he feels that there is still a very broad idea which he has not fully covered. This is, that by using the two gears 3 and 4 with their relation to the gear 1 we have the first reversed driving of the devices 3 and 4 which the claim draftsman has ever seen. So, to cover this idea broadly, he draws this as his third, tho it might have been his second claim, because the first two are pretty much the same:

3. In combination, a driving element, a driven element and means for transmitting motion in reverse directions to the driven element from the driving element.

Additional claims of the abstract type might be as follows:

4. In combination, driving and driven shafts, a driving gear on the driving shaft, driven gears on the driven shaft separately cooperable with the driving gear, and

means for establishing cooperation between either of the driven gears and the driving gear to transmit motion from the driving shaft to the driven shaft.

5. Gearing as claimed in claim 4, wherein the last-named means comprises a device for shifting the driven gears simultaneously, enabling one of the gears at a time to coact with the driving gear.

In a way, the terminology of this group of claims is somewhat loose. The broad term "element" is employed instead of "gear" in some instances. The engagement between the gears is defined in terms of "cooperation," not direct engagement. The mental attitude is presented by these words: "It may be that these parts have to engage one another in practise, but I am not sure about this; it might be done in some other way and I will take no chances of a better mechanic than I producing the result by a rearrangement which I cannot myself see at this time."

The foregoing is quite the view of the abstract claim theorist as against him who says, "These gears must mesh or engage one another. I cannot see how this would work otherwise." In this respect the concrete claim theorist may be correct, but it is this very mental attitude that leads him to limit his claim respecting the sleeve 5 when that sleeve is not necessary and, under some conditions, might not be desirable, if the mechanism should be used for certain purposes.

It is notable that when it comes to the construction of Figure 3, the improvement, we will say, on that of Figure 2, the claims of the third group are by no means avoided; they adequately cover the modified adaptation tho abstract in terms.

It is rare, moreover, that he who draws abstract claims fails to fall back on the concrete claims as secondary.

Of course the above examples are rather exaggerated, but they are typical of the schools of thought of the different classes of claim draftsmen. In the final test, the value of the claim depends upon its capability of protecting equivalent structures.

In the practise of prosecuting patent applications it is always best, upon the showing of the prior art, to make claims which are very general, more specific, to definitely cover the particular invention, for original, rather general, or indefinite terminology sometimes leads to conflict with other structures. If the claims comprehend in their scope such other structures, they will be anticipated thereby. In the absence of anticipations the abstract claim should safely afford the claimed protection.

Summarized, therefore, it is desired particularly to convey, by the foregoing references to the abstract type of claim, that as distinguished from the concrete claiming method two phases of claim limitation are avoided. In the first place, the abstract claim defines the relation of elements without reference to specific structures, as a primary phase. In the second place, the abstract claim is intended to eliminate the objectionable practise of too closely defining specific constructions of the elements themselves. These two special phases of claim limitation are those which are all too frequently indulged in, with the result of ultimate claim inadequacy, so far as the protective function of the claim is concerned. The concrete claim exemplifies an infringement of the rules laid down for modeling the abstract claim.

Differentiating From Prior Art

It is hardly necessary to state that thorough knowledge of claim definition for all purposes as well as that of distinguishing from the references in the prior art, depends largely upon thorough knowledge of the laws of novelty and patentability, so well treated by authors such as Walker, Robinson, and Hopkins, and not intended to be covered in this work. But as a rudimentary study in the example before us, some broad principles may be laid down that will assist a student to grasp in a way the method of the development of novelty, to distinguish the claims from prior constructions.

Reverting to the illustrations of Figures 2 and 3, we place these two constructions of gearing side by side and assume that the construction marked Figure 4 is an original development of the gearing in the prior art and that the construction marked Figure 5 is a refinement or improvement, for the purposes of this explanation.

On comparing these two Figures 4 and 5, it must be seen that a claim for the Figure 5 construction which emphasizes

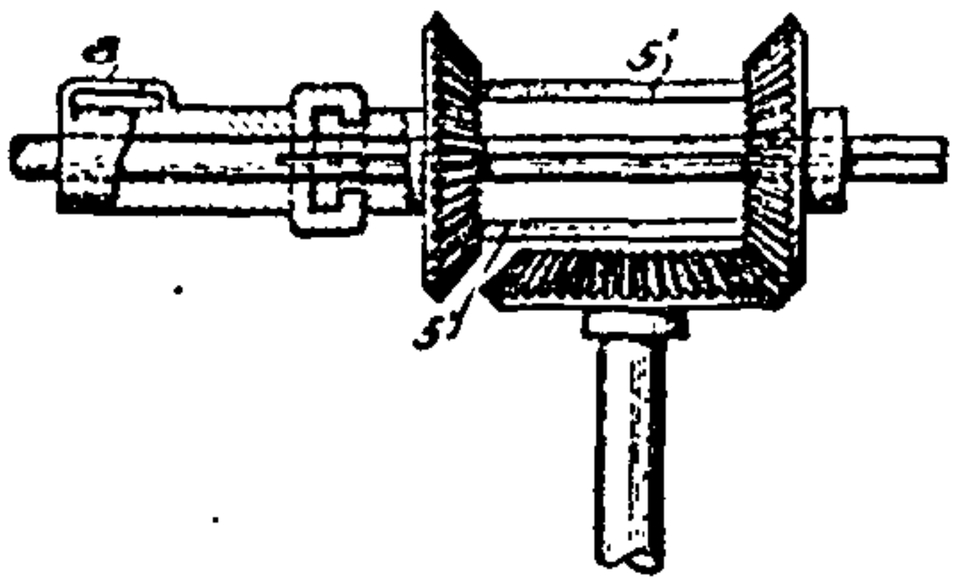


Fig. 4

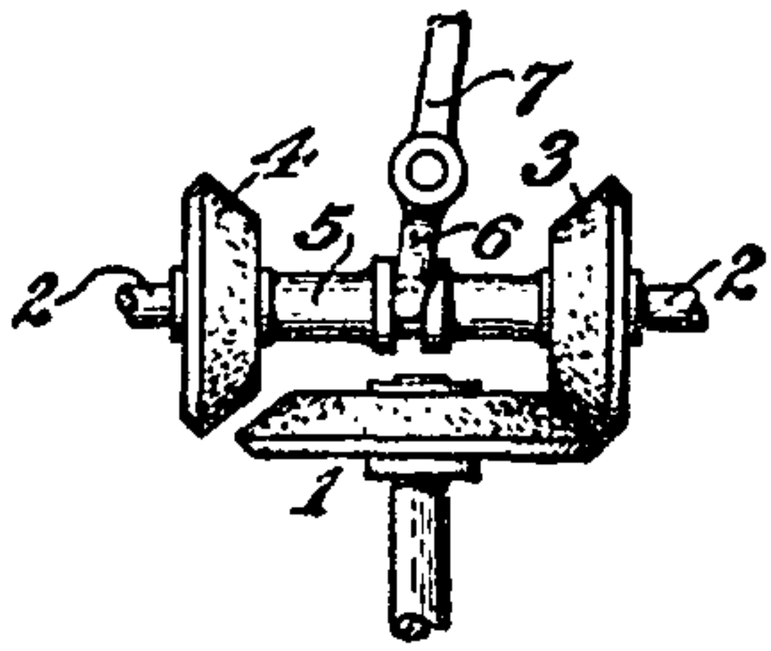


Fig. 5

that two of the gears are used would refer to a feature of construction negligible for the purposes of definition of invention of the construction of Figure 5. That is to say, the two mechanisms are the same as regards the arrangement and form of the gears. The student should, therefore, simply deal with these parts broadly in his claim and pass to some other feature that is really new upon which to lay emphasis. This feature, as a starter, might be the sleeve 5 which decidedly is a better mechanical structure than the rods 5′ of Figure 4. A claim, therefore, might be drafted, broadly defining the gears and their relation and definitely reciting the sleeve 5 and its mounting on the shaft 2, if only as a most convenient connecting means between the gears. Still another claim might be that drawn for the same subject matter, developing the connection of the lever or operating member 7, broadly, with the sleeve 5, because obviously with this construction there are advantages in not requiring an extra part such as the offstanding extension to which the handle 8 of

Figure 4 is attached, and obtaining an easier operating means.

To incorporate in the claims such limitation as the central location of the groove of the sleeve 5 is unnecessary and unduly limits, because there is really no advantage for such feature. To define that the lever or actuator 7 is opposite the shaft supporting the gear 1 is, likewise, wholly unessential and superfluous. Yet, it will be surprizing how many claims draftsmen in handling claim definition, for purposes of defining novelty, will include just such unessential and unimportant limitations, without due thought as to the possible consequences should the claim come to the consideration of a court, which takes the view that what you claim is what you deem essential and novel, and that you must be strictly held to your own delineation of your invention whether the limitations be necessary or not.

There has been given thus far but one very simple exposition of the mental processes by which claims may be outlined with a view of rendering their subject matter distinguished from what has gone before.

The number of methods to which recourse may be had in order to point out the patentable novelty in a claim or claims, depends largely upon the versatility of the claim draftsman, his practical knowledge of the pertinent law, the experience he has had, and last but not least, his knowledge of the way the courts treat patents when brought before them for interpretation. It is a revelation often to hear a competent court elucidate upon those things which impress themselves upon him as covered by claims upon which he passes. Even men of long experience in patent practise often feel much enlightened and broadened by experiences of this nature, not infrequently tending to disarrange their own set ideas of the proper construction of claims in controversy. Often, too, it is surprizing how little acquainted with Patent Office practise, and the examining viewpoint of the Office, are certain Federal judges. In the United States District Courts having extensive patent

litigation to dispose of, the judges are especially competent; their decisions have done much to place the protection of patents upon the dignified plane which it deserves.

There are many ways by which the differentiation of claims from prior art, and avoidance of other grounds of rejection, may be accomplished. Certain of these are noted in the following outlines:

Differentiating From Prior Art
(Summary of Methods)

Method:

1. By adding an element or elements.
2. By limiting the definition of an element or elements.
3. By injecting a limitation of function based on structure.
4. By limiting to a novel species when the genus is anticipated.
5. By the limitation "substantially as described."*
6. By the contention of non-analogous use.

Avoiding Effect of References Cited
(Summary of Methods)

Method:

1. By "swearing back" of filing date under Rule 75.
2. Showing that the invention of a prior patent is inoperative.
3. Obtaining an interference and proving priority.
4. Proving by affidavits the non-success of a prior art invention, and the success of the application invention.
5. Establishing references as irrelevant.

Plural Claims

The purpose and logic of permitting a number of claims to be directed to one invention in terms of greater and less

*Bisight Co. *vs.* Onepiece Bifocal Lens Co. 259 F. 275; 270 O.G. 479.

breadth has already been touched upon, but will be somewhat more apparent with added explanation.

Every invention embodies elements which go to make up a substantially perfected device according to the inventor's conception. It is almost invariably true, also, that in a perfected device there are certain elements or parts which are not absolutely necessary for operative purposes as regards the real or main inventive idea.

Thus, a simple thill-coupling may comprise an operative structure for connecting the shaft or thill, and an additional part, or handle contrivance, not necessary for the real connection, but desirable to enable quick operation to open the coupling. The main invention is the coupling, but there is an ancillary or subsidiary invention in the handle means employed. It is, therefore, proper to permit the inventor to claim the coupling as his main idea, and the coupling plus the parts facilitating opening, as a secondary idea or additional combination. The procedure in this connection is very well set forth in a decision by Commissioner Thatcher, referring to the subject of combinations complete and incomplete:

> It is not necessary that every element entering into the construction of a certain device should be mentioned, even though, as in this instance, the device be mentioned in the claim as a whole. If there are parts which may be optionally omitted in the construction of the device, they may be omitted in the claim. It is only necessary that such elements be named as will constitute an operative whole, unless the novelty of the device depends upon the presence of the additional elements. The part named in the present first claim constitutes an operative thill-coupling, and the said claim is, therefore, in proper form for examination.
>
> Ex parte Farrow, 1872, C. D., 148.

Combination and Aggregation Claims

Claims of the combination class are to some extent what their name implies, but generally, vastly more.

Combination claims are such as may cover the various parts of a complete single mechanism; less than all the said parts where the lesser number may represent a subsidiary but complete inventive thought, in which event the term "subcombination," meaning subordinate combination, is used; a combination of the steps of a method or process, or a subcombination of such steps according to the definition above outlined.

The terms "legitimate," "proper," and "patentable" combinations have sprung up in practise, so it is evident that all combination claims are not patentable. The question of whether a claim is for a *true* combination or not is sometimes the bone of utmost contention between an applicant and the Patent Office, and too much care may not be exercised in arriving at correct conclusions as to the "legitimacy" of a combination claim. In this connection, it is notable that in some cases applicants seeking patents for claimed combinations, have been persuaded by the Patent Office that their inventions do not lie in the combinations expressed. When they adopted a different class of claim, they had their claims invalidated because they failed to claim the combination rather than something else. The converse has likewise been true.*

Hence, upon the decision as to whether an invention resides in a combination of all elements, or in one of the elements, or in certain of said elements alone which coact so as to constitute the real thing invented, may rest the validity of the whole patent.

The basis for correct diagnosis of an invention, as regards the type of claim to adopt, is a thorough understanding of the principles of patent law, and comes from experience in that law and its practise. Largely, the rules of common sense will

*Langan vs. Warren Axe and Tool Co. 166 O.G. 986 (C. C. A.).

enable a proper conclusion as to the class of claims appropriate to be used, when the knowledge of the law is present.

To lay down any theory or set rule of diagnosis in this matter is as futile as to view it possible to intelligently prosecute a patent application after a perusal of this work. Any one of a hundred contingencies affecting the invention may control.

However, it is within range to outline some general principles that will be conducive to a fairly clear idea of what determines the existence of a patentable combination of elements.

A valid combination claim is one directed to a plurality of elements which, when brought together, create an interaction producing a new result, an old result with increased efficiency, or a new interaction by which an old result or increase in efficiency is obtained, the thing accomplished in each instance representing more than might naturally ensue from the exercise of mechanical skill.

This definition inherently implies novelty to exist as to interaction of parts, as to result whether different from that heretofore attained, and having to do with the degree of efficiency.

The elements may be old. The result may be old.

The interaction must be new but may involve only a portion of the elements, or all as the case may be.

To give concrete examples we will take Figure 6 (page 166) and study its construction:

The device is a pump combined with a pneumatic tire and is proposed at a time subsequent to the common use of pumps of the hand type for the customary inflation of such tires. Briefly describing this structure, we have the part *B* representative of the ordinary felly or rim of a wheel, said rim being equipped with a pneumatic tire *C*. Supported by the rim in any suitable way is the pump *A*, comprising a barrel or cylinder having the air inlet *D* controlled by the valve *F*, and the

air outlet communicating with the interior of the tire *C* and controlled by the valve *G*. Any suitable manipulative means such as the piston *H*, piston rod *J*, operating handle *K*, and spring *L*, are supplied for conveniently forcing the air into the tire through the felly or rim *B*. The pump means set forth is to be understood as a conventional type of pump, and likewise the rim and tire are of common construction. The pump construction itself, in other words, is such as is usually connected removably with the tire to inflate the latter, but here having provisions to permanently unite it to the rim *B*.

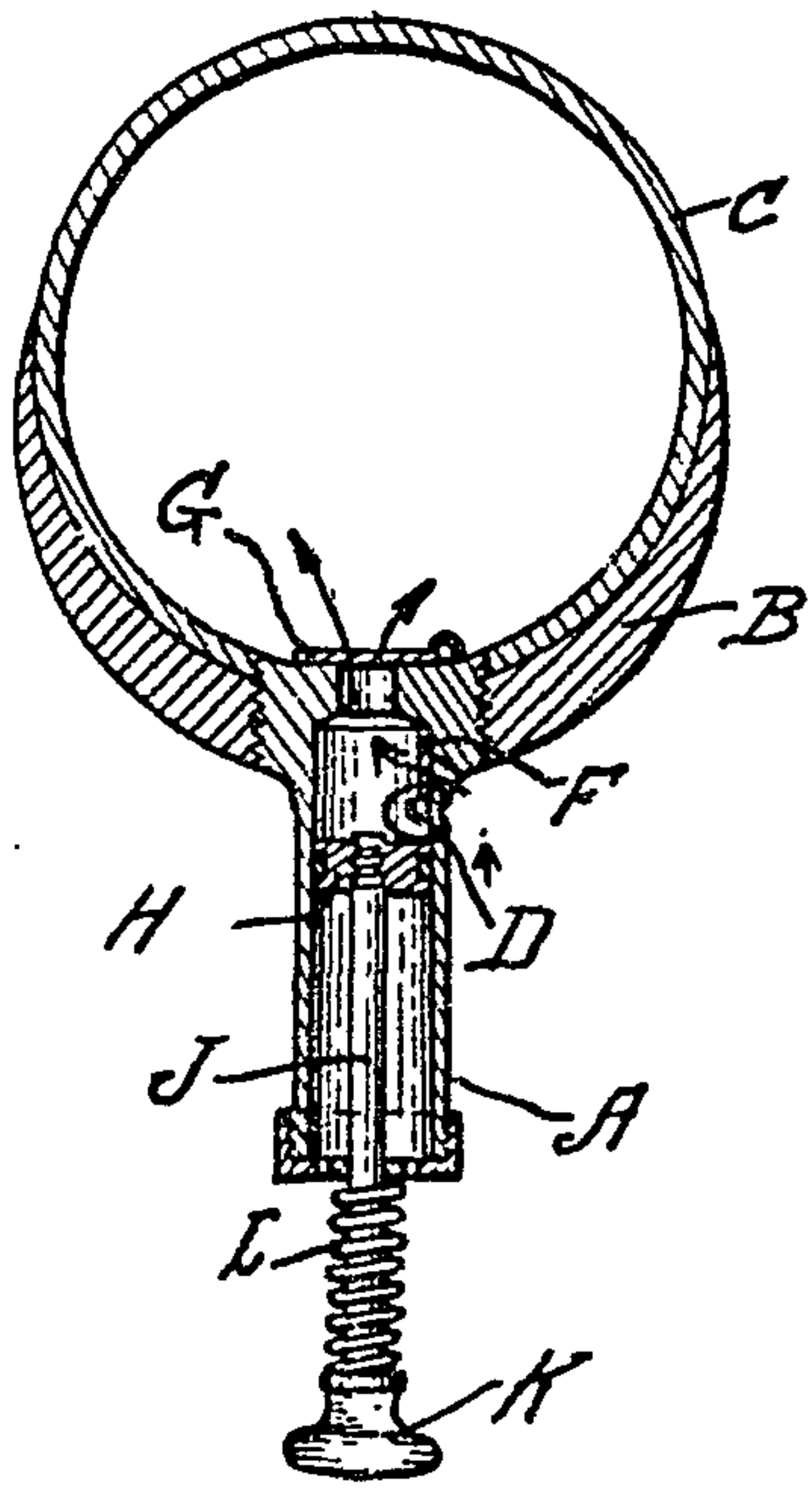


Fig. 6

The pump structure is all old as well as the tire and rim structure. Suppose now that we claim the device thus:

In combination, a rim equipped with an inflatable tire, and a pump permanently mounted on said rim in communication with the tire and comprising a cylinder, a plunger in the cylinder, valve means intermediate the cylinder and tire, and manual means to actuate the plunger.

Here is a simple combination. The elements are old. The result is old, the interaction (inflating function) between the pump and the tire is old. To connect the pump with the tire is old. To support the pump on the rim is new! This brings the situation down to one of invention and here comes into play general knowledge of things in the various arts, and well-recognized principles of patent law, i.e., experience. To mount one thing on another where no new result is attained,

or increased efficiency or new interaction, hardly ever involves more than mere mechanical skill. Often to do this thing is new; also, to unite things permanently that have previously been used together, but are separable, is something commonly done in many arts. The last named kind of effort ordinarily is not patentable, see subject *Invention vs. Mechanical Skill*, page 45.

We, therefore, reach the proper conclusion that this new

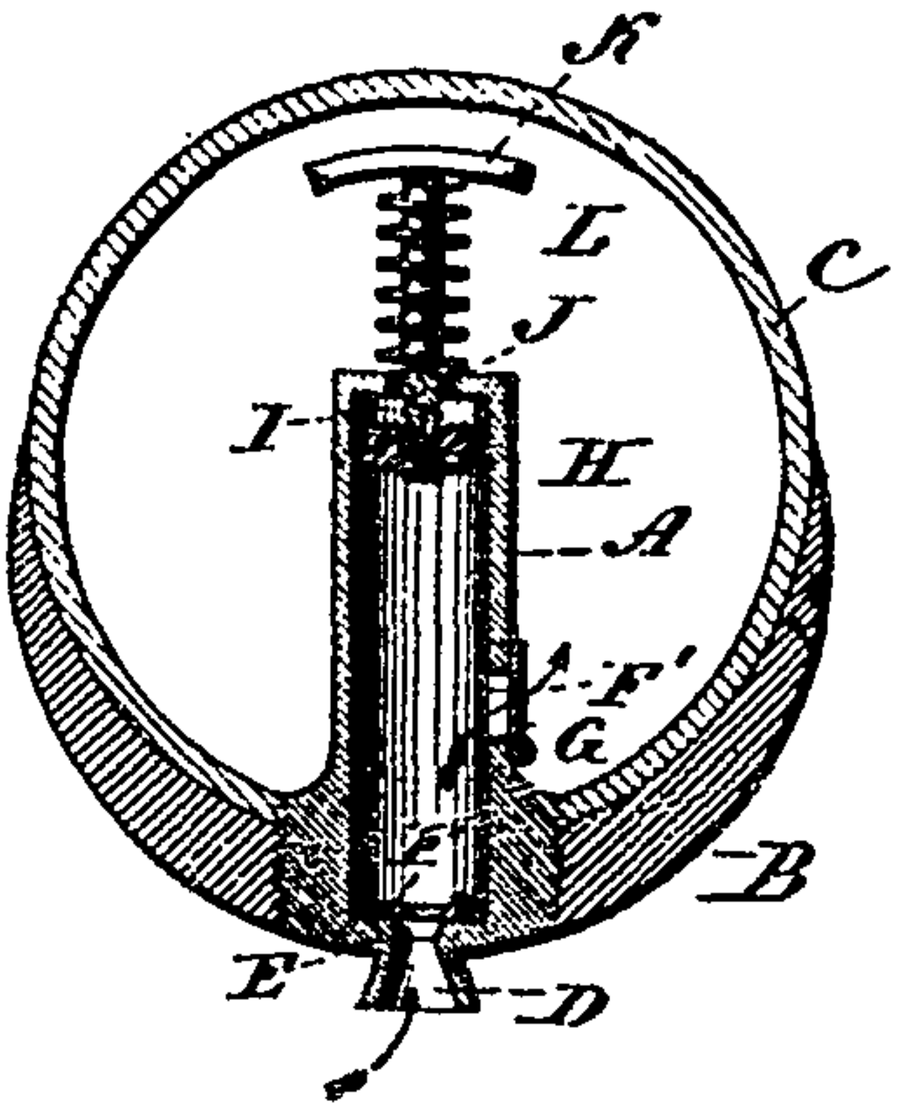


Fig. 7

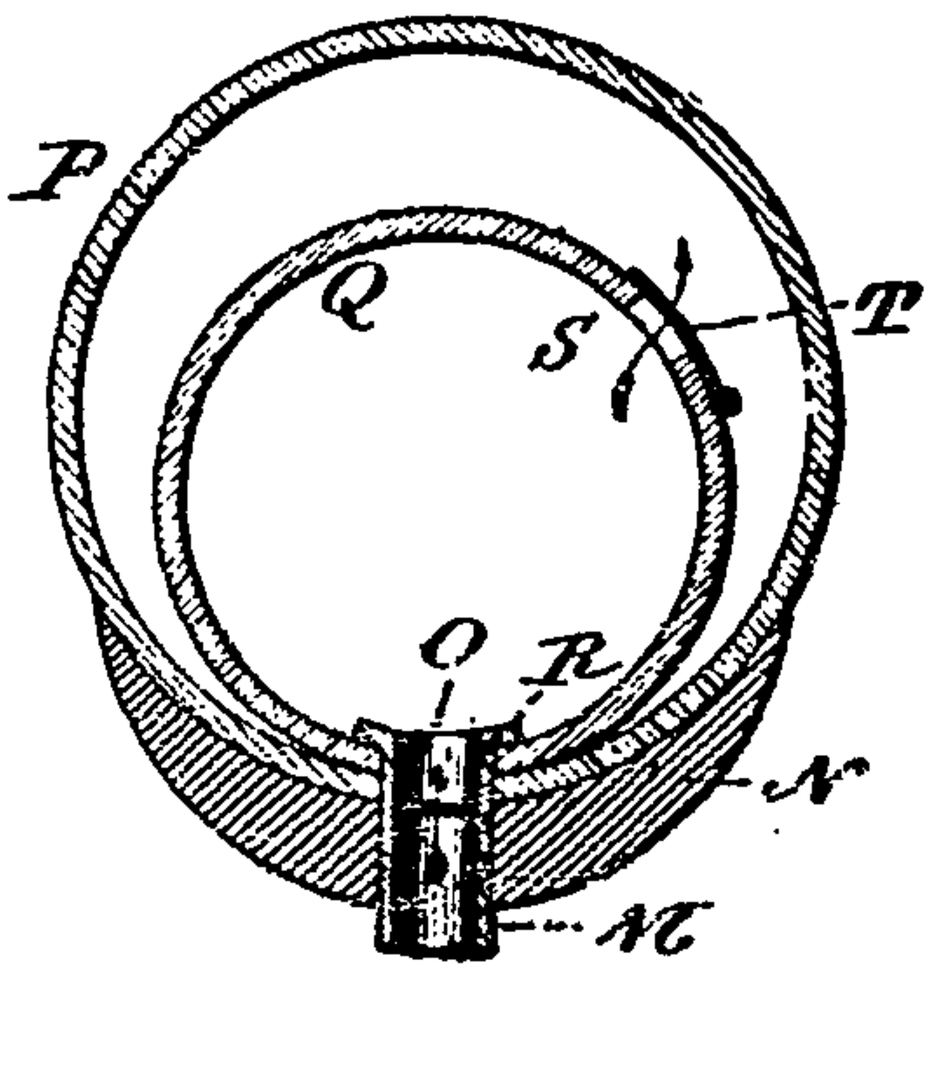


Fig. 8

combination is one of those which is not patentable. It lacks that calling forth the exercise of the inventive faculties.

But let us go further in this line of construction:

Figures 7 and 8 embody still another combination including a pump and inflatable tire. So far as each of the main features shown, namely wheel structure and pump structure are concerned, they comprise substantially the same parts as illustrated in Figure 6, but they have been disposed in a different relation in that the pump instead of projecting from the rim *B* in a direction opposite the tire *C*, extends from the rim into the tire and is so arranged that the operating part *K* is adjacent to the tread or outermost yielding portion of the tire. On account of the rearrangement represented in Figure 7, it is possible to utilize the resiliency of the tire

itself when the pressure therein reaches a predetermined minimum as a means whereby to enable inward displacement of the tread, and the force causing such displacement acts upon the operating member *K* of the pump to operate the pump to pump air into the tire. The piston-rod is made longitudinally adjustable by threading its inner end into the piston. This adjustment is such that the pump may be so set, or regulated, as to maintain the pressure within the tire at a high, or moderate, or even low, degree of inflation, according to the pleasure of the rider.

In Figure 8 the construction utilizes the pump *Q* in the form of a ball in the tire *P*, and valve *T*, valved inlet *O* comprising a hollow member *M* flanged at *R*; also the rim or felly *N*.

Proceeding to analyze the inventive phase of this construction we have, first, elements which are all old; the result attained is of course broadly old. There is, however, a new interaction of the elements. The actuating means *K*, which in Figure 6 could be manually operated, is so arranged that it is actuated by motion derived from inward displacement of the tire under pressure. The tire when pressed in, as when being deflated, permits of actuation of the pump during the rotation of the same with the rim, and thus an automatic operation of the pump to reinflate the tire takes place. The cooperation of the tire and means *K-H* is novel, also the peculiar relation of the two. The old result of inflation is attained, but a more specific new result, i.e., automatic inflation, is secured. The relation and cooperation of the parts *C* and *K* constitutes a novel inventive thought, and is therefore patentable broadly and specifically in the following terms as an exemplification:

1. The combination with a yielding hollow tire, of an air pump arranged to be automatically operated by motion derived from the inward displacement of the tire under pressure, substantially as described.

2. The combination with a yielding hollow tire of

> an air pump arranged to be automatically operated by motion derived from the inward displacement of the tire under pressure, and adapted to be regulated in its pumping action, substantially as described.

In Figure 7 we have a complete structure which operates differently from anything theretofore contemplated, as regards coacting pumps and tires. The idea that the turning of the tire would actuate a pump properly placed therein, was a distinctively new conception over any mere putting of a pump and tire into connection with each other, and required inventive genius to evolve.

Thus it is that a series of elements old and well known may in one disposition possess novelty without involving invention, whilst another disposition thereof may create a new functioning of the parts, a new result, or a condition of such increased efficiency as to represent a high degree of invention in the development of the same.

The following decisions upon the subject of combinations will assist the student in appreciating the refinements or distinctions to be made in concluding whether a combination is an "illegitimate" or "improper" one, as shown in the construction of Figure 6, or is what we term a "true" or "proper" or "valid" combination, as when covering a structure such as illustrated in Figure 7, and the equivalent structure of Figure 8.

In Hailes *vs.* Van Wormer, 87 U. S. 353, Mr. Justice Strong said:

> All the devices of which the alleged combination is made are confessedly old. No claim is made for any one of them singly as an independent invention. It must be conceded that a new combination, if it produces new and useful results, is patentable, tho all the constituents of the combination were well known and in common use before the combination was made.

But the results must be a product of the combination and not a mere aggregate of several results each the complete product of one of the combined elements. Combined results are not necessarily a novel result, nor are they an old result obtained in a new and improved manner. Merely bringing old devices into juxtaposition, and then allowing each to work out its own effect without the production of something novel is not invention.

It is true that each one of these missing elements can be found in some one of the prior patents; but this is not enough to negative invention. If the selection of elements from existing machines into a complete combination has, for the first time, produced, from a practical and commercial aspect, a new result, invention may well be predicated thereon; and if producing more of a woven fabric within a stated time was a "new result" within the meaning of this familiar rule (Loom Co. *vs.* Higgins, 105 U. S., 580; 26 L. Ed., 1177), so must be the additional mileage per gallon of gasoline, the saving of wear and the additional ease of riding, all of which the Cadillac Company so strongly attributed to the two-speed axle.

Cadillac Motor Car Co. *vs.* Austin, 225 Fed. Rep., 983.

It has been shown how claims may be framed to comprise combinations which are patentable and not patentable.

Not all unpatentable combinations are such as fall within the sphere of mere mechanical skill. At times, articles or machines are devised which seem rather beyond the scope of such skill; they appear to involve the bringing together of parts which never before were brought together, and yet when combined fail to produce any new result, or even increased ef-

ficiency over their previous independent use. But they may be more handy and of tremendously increased range of usefulness. Still, in most of such instances, they do not constitute patentable structures. No one questions the utility of employing a claw tool on the free end of the handle of a hammer, but who would seriously view that combination as patentable? The claw tool would operate as before and the hammer's use is unchanged. The two are merely aggregated and retain their separate entities, so to speak, without being interdependent in the performance of their respective functions. When a combination is an aggregation, for that is the common appellation of this class of combinations, it is not patentable. The most common example of aggregation is the ordinary lead pencil consisting of the body of wood, the lead enclosed thereby and the rubber tip forming an eraser. (See Figure 9 on page 173.) The specification of the patent covering this simple invention is brief and is also reproduced for clear comprehension of the decision discussed in connection therewith.

UNITED STATES PATENT OFFICE

HYMEN L. LIPMAN, OF PHILADELPHIA, PENNSYLVANIA

Combination of Lead Pencil and Eraser

Specification Forming Part of Letters Patent No. 19,783, Dated March 30, 1858

To all whom it may concern:

Be it known that I, HYMEN L. LIPMAN, of Philadelphia, in the County of Philadelphia, and State of Pennsylvania, have invented a new and useful Lead Pencil and Eraser; and I do hereby declare the following is a full, clear and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

I make a lead pencil in the usual manner, reserving about one-fourth of the length, in which I make a groove

of suitable size, A, and insert in this groove a piece of prepared India rubber (or other erasive substance), secured to said pencil by being glued at one edge. The pencil is then finished in the usual manner, so that on cutting one end thereof you have the lead B, and on cutting at the other end you expose a small piece of India rubber, C, ready for use, and particularly valuable for removing or erasing lines, figures, &c., and not subject to be soiled or mislaid on the table or desk.

In making mathematical, architectural, and many other kinds of drawings in which the lines are very near each other, the eraser is particularly useful, as it may be sharpened to a point to erase any marks between the lines, and should the point of the rubber become soiled or inoperative from any cause, such cause is easily removed by a renewed sharpening, as in the ordinary lead pencil.

I do not claim the use of a lead pencil with a piece of India rubber or other erasing material attached at one end for the purpose of erasing marks; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

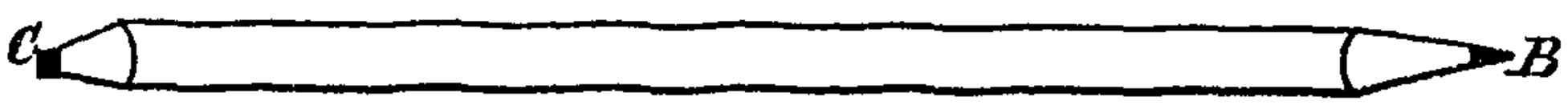
The combination of the lead and India rubber or other erasing substance in the holder of a drawing pencil, the whole being constructed and arranged substantially in the manner and for the purposes set forth.

Witnesses: HYMEN L. LIPMAN.

LEWIS A. LIPMAN,
JOHN P. CHARLTON.

In this structure, the body or wood of the pencil forms merely a carrier for the lead and the rubber tip. In the use of the article the lead is employed for writing, or as a marker, and when so employed is not affected in any way whatsoever by the rubber tip. The converse is true, speaking in regard to the rubber tip, the function of which is wholly separate and inde-

pendent of the lead; the two have no interdependence whatever in their use, notwithstanding that for ordinary purposes it is disadvantageous to use the pencil in the manner of its



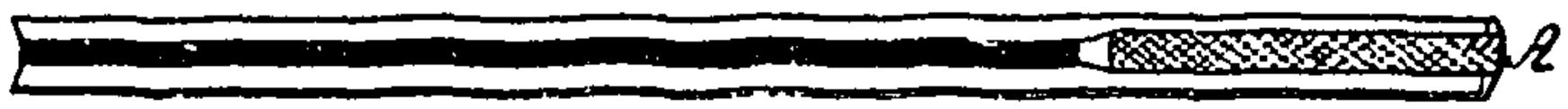


Fig. 9

intended use without the convenient assembly of the lead and rubber tip in a single structure.

The United States Supreme Court, in the celebrated case of Reckendorfer *vs.* Faber held

> that the patent for this pencil as illustrated herein was void for want of invention.*

The ground for the holding was due to the lack of patentable cooperation between the lead and the rubber. With a view to indicating the basis for the practise establishing that an aggregation of elements as understood according to the principles before presented at length is not invention, the following is an epitomized statement of the reasoning involved:

> What statutory basis then has a rejection of the claims on the ground of aggregation of elements? It is solely that of lack of invention. In other words one who has merely juxtaposed a plurality of elements which thereafter perform only the identical functions they performed before the assembling, has not displayed and did not need to display, any invention.†

As this work is more or less rudimentary, no attempt will be

*The author has often thought that a patentable claim might have been drawn for this pencil invention.

†See Groesbeck Paper before Examining Corps, U. S. Patent Office.

made to enter too deeply into the refinements of practise involving combination claims. It may be desirable to note, however, that while a most perfect patentable combination, in the true sense, is established as between novel elements which coact in such a way that each functions to modify the action of the other, or to be modified by the other in some active sense, a complete cooperation is susceptible of being established without mutual modifying action of parts. The essential patentability of the combination must needs only be based upon such a relation of the parts of the combination as produces the new and useful result on account of interfunctioning as a whole. The following well illustrates the practise intended to be elucidated:

> From these it is clear that the patentability of a group of elements does not depend upon their individual novelty but upon their unitedly producing a new and improved result, the product of their combined operation, not the mere sum of their individual effects.*

So it may be that the intermodifying action of a proper combination of elements may be present more particularly in relation to certain elements only. While they are included legitimately in the combination, they are needed primarily for presenting a complete operative construction, dependent, certainly, upon the action of the other elements, but not necessarily modified in action thereby.

Referring to diagram Fig. 10 we have a series of elements 1, 2, 3, 4 and 5. In this series, 1, 2, and 3 constitute a machine and 4 and 5 represent an auxiliary mechanism. The parts 2 and 3 coact with part 1, but do not modify its action. The part 5 coacts with part 3 to determine its action, and the part 5 in turn is governed by part 4 which in turn governs the part 2. In this combination there is really a modifying action between the parts 2, 3, 4 and 5. There likewise might be said

*See Maxson Paper before the Examining Corps, U. S. Patent Office.

to be a modifying action between the parts 1, 2 and 3, the functioning of these parts being essentially based upon mutual dependence. On the other hand, the part 1, as a legitimate and essential element of the combination, neither modifies the action of the part 4 in any way, nor of the part 5, though the

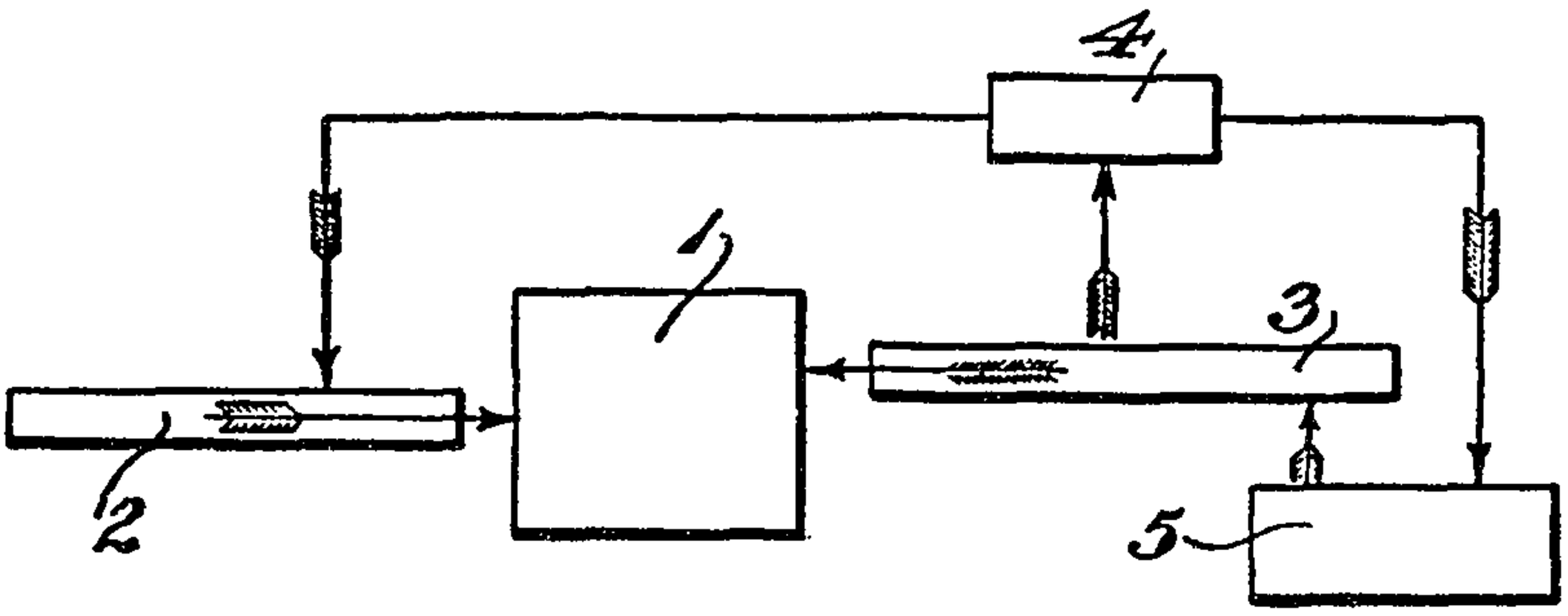


Fig. 10

latter parts may be said to modify the action of the part 1 through the intermediate controlled part 3. Yet this is a true combination.

Subcombination Claims

Claims of this type are nothing more or less than those directed to subordinate combinations of elements instead of to the main combination.

Thus we shall suppose the main combination to comprise elements 1, 2, 3, 4, 5, 6. Elements 4, 5, 6 are a mechanism in themselves, tho, of course, a part of the whole general machine embodying the six elements enumerated.

Under these conditions elements 4, 5 and 6 are claimable, broadly and specifically, separately from the main combination.

Let us pass to a practical example in mechanics. The invention is a milking-machine including a special type of pump, a series of teat-cups, a tube leading from the pump to the teat-

cups, and special connections involving wires embedded in the rubber bodies of the teat-cups and extending into the body of the tube, providing an extremely effective securing means between the parts.

Assuming the broad combination to be novel, the general combination claims would be directed to the whole machine. Claims covering the teat-cups and tube, and intermediate connections, would constitute a subcombination of the general combination. Such a subcombination really represents a subentity, considered as an inventive idea, subordinate to the larger entity consisting of the entire machine.

The teat-cup as an article of manufacture might embody its own detail novelty and as such be claimed by itself so that there might be drawn, in this instance, claims of the combination, subcombination, and article of manufacture classes, all together in a single case.

In the reissue claims found on pages 399 and 400, claim 2 is a general combination claim and claim 1 a subcombination type directed mainly to the boom-actuating contrivance.

This leads us to the natural thought that if these several things are claimable separately they might be improperly placed in a single application, or in other words, should these inventive ideas be divided and covered by independent applications?

The foregoing proposition is largely the question arising under the subject of division, and depends upon the evolution of a particular art. If the art has not become classified so as to render necessary a line of search directed to a connection between a teat-cup and a conveying tube attached thereto, which is distinct from the search for the general machine, the usual rule is for the Patent Office not to insist upon division. As an art develops the lines of division develop. Thus, in using milking-machines, we shall say that the main defect has been found to lie in the connection of teat-cups and the tube leading to the pump. Many inventors apply themselves to

this problem. Improvements for a period largely comprise novel ideas for this connection. Then the patents for the connections lead to classification, or need to classify this feature by itself, and the invention is no longer in the general combination but in the teat-cup connection alone, the tube alone, the connection to the pump, or the pump alone. When this stage is reached, that which was formerly a subcombination is a novel invention in its own entity, and, frequently, is then no longer claimable with the broad invention.

The foregoing was the evolution of the adding machine. Applications now required to be directed each to a keyboard mechanism, a listing or printing mechanism, and a transfer or carry-over mechanism, etc., are simply by process of development in this art, the dividing up into different classes of certain subcombination sets of claims, which once could have been, and were included, in a general application for the whole machine and its subordinate mechanisms.

Early in the experience of the author the lines of division were being greatly developed. The Patent Office was busy with appeals on this subject and the requirements to divide were many and much contested, at that time by petition to the Commissioner. Now, division is contestable only by appeal; and the practise is so clearly defined by the many decided cases that scarcely 3 per cent. of cases prosecuted involve even contention on the point.

Frequently it is expeditious, and less costly, to comply with a ruling of division rather than dispute it, unless a possibility of double patenting arises.

Genus and Species Claims

Claims of these classes are very easy to understand once the reason for the rule governing their use is clearly comprehended.

It is not allowable to claim *specifically* in one patent appli-

cation more than a single form of any invention, as a general rule.

If this rule were not in operation it would be possible to embody in one application an endless number of modifications of an invention, which means in effect an endless number of specifically different inventions, and claim each of them fully. In this way, for a single government fee, one inventor might monopolize examining effort in the Patent Office almost to the exclusion of others.

But early in the practise Commissioner Fisher laid down the rule concerning *Genus* and *Species* claims in a celebrated case, ex parte Eagle C. D. 1870, page 137, and this rule, established half a century ago, was so largely based on common sense and necessity, that it remains as effective today as when promulgated.

Quoting from the Eagle decision we have this outline of what is a proper limit on the claims to be allowed in one application as regards claims (genus) which are general to all of the different forms of the invention disclosed, and claims (species) directed to one form:

> The applicant describes a new genus, to wit, a box provided with a follower. He may fairly describe several species of this genus, and may make any claim that is generic in its character and includes them all. In addition to this, as the genus can only be illustrated by at least one of its species, he may select one of the embodiments of his invention for specific claims but he can not found one claim on one species, and a second on another, a third on another, and so on.

Reverting to the two claims for the tire pump constructions in Figs. 7 and 8 (see page 167), we have claim 1 as a genus claim covering both forms shown. Claim 2, however, may be read only upon Fig. 7 for it covers the adjustable feature involving the specific form of the adjustable piston

rod, and that feature is not found in Fig. 8, so claim 1 is clearly a genus claim including the construction of Figs. 7 and 8, and claim 2 is directed to the species of Fig. 8 only.

Election

The quotation given from the Eagle decision is the basis for the Patent Office practise which is termed "election of species."

When all claims of an application cover all of several forms illustrated and described, they are genus claims and no election of species has been made. If along with the genus claims of the application, or inserted by amendment, there are one or more claims to one form or species disclosed, the applicant is held to have made his election to claim that form. He is estopped thereafter from shifting his species claims to a different form. Once he elects, he must stand or fall to final action or allowance on that election.

When an application is filed with a genus claim, and claims to two species, a requirement for election is in order. If filed with claims to two species of invention, a requirement for division is in order, and one species will have to be eliminated from the case.

To preserve descriptions or drawings, or both, of two species of invention in an application, *a patentable genus claim must be present.* The genus claim, or claims, will cover the different species of subject matter, and a claim or claims to one of the species are allowable at the same time.

Unless the doctrine of election exists, the rule against claiming different specific inventions could not be enforced, for the moment the applicant is advised that one form of his invention is anticipated, he might shift his claims to a different form and thus secure many examinations of his different inventions, and indefinite delay in terminating his application.

In many instances, the experienced attorney will reserve his election of species until the most pertinent prior art is cited by

the Patent Office. Thereupon he may elect intelligently, on behalf of the applicant, so as to avoid anticipation of a particular species.

Claim Formalities

A Patent Claim Should—

a BE DRAWN IN TERMS CORRESPONDING TO OR CONSISTENT WITH THOSE USED IN THE DETAILED DESCRIPTION.

b BE DEFINITE IN PHRASEOLOGY AND MAKE POSITIVE RECITATION OF ALL TANGIBLE ELEMENTS.

c SET FORTH AN INTANGIBLE ELEMENT WITHOUT INCLUDING IT POSITIVELY.

d CONTAIN FUNCTIONAL LIMITATIONS PREFERABLY ONLY WHEN SUCH ARE REQUISITE TO ESTABLISH PATENTABLE NOVELTY OR CLEARNESS.

e BE DIRECTED TO ONE FORM ALONE AND NOT TO ALTERNATIVE FORMS.

f COVER SUBJECT MATTER NOT DUPLICATIVE OF THAT OF OTHER CLAIMS.

g COVER A COMPLETE OPERATIVE CONSTRUCTION.

h COVER A COMPLETELY ILLUSTRATED INVENTION, NOT FEATURES MERELY SUGGESTED OR DESCRIBED ONLY.

i DISTINGUISH IN A SUBSTANTIAL INVENTIVE MANNER FROM THE PRIOR ART.

a A PATENT CLAIM SHOULD BE DRAWN IN TERMS CORRESPONDING OR CONSISTENT WITH THOSE USED IN THE DETAILED DESCRIPTION.

The purpose of this requirement is probably obvious, but, notwithstanding, it is surprizing how frequently infractions of the rule occur. Without doubt, properly drafted claims should embody terminology having a complete basis in the main description of the structure and operation of the invention; otherwise it is most difficult to appreciate truly just what is intended to be covered by the claims. Thus, if the term "lever" is used in the description, to characterize this member by the words "pivoted bar" in the claim or *vice versa,* is liable to lead to confusion or mistaken interpretation. Especially would this be true when other pivoted members happen to be comprised in the matter claimed, as *pivoted rods, pivoted arms,* or the like.

The exact and most limited terms employed in the description need not be used in the claims, however. The prosecutor may not wish to limit his broader claims to the employment of a lever, we shall say, or the obvious equivalent of a lever. Thus, a wedge or similar member might be functionally as effective as the lever, and the careful prosecutor, therefore, rather than have recourse only to the applicability of the *doctrine of equivalents,* will adopt in his description some appropriate term, such as "operating member" or "actuating device," as a broad mode of characterizing his "lever" member, and then utilize such term in the broader claims. Later, in his more specific claims, he may adhere to the distinctive term "lever" and it is well that this should be done, for the limitation established by such term might save the claim (and therefore the patent itself) against being invalidated. An instance of this would be where the lever inherently performs some function, as a lever, that does not inhere to the use of an "actuating device" or "operating member" broadly defined.

Correspondence of terminology as between claims and the

descriptive disclosure is not a fatal defect when lacking. Many a patent, however, has failed to receive the most liberal interpretation to which it has been entitled, owing to such absence of complete consistency.

b A PATENT CLAIM SHOULD BE DEFINITE IN PHRASEOLOGY AND MAKE POSITIVE RECITATION OF ALL TANGIBLE ELEMENTS.

Here again we come to consider a necessary requisite of a properly composed claim, but one from which fatal results can hardly follow. In regard to the approved mode of preparation of claims it must always be borne in mind that the reason for certain formality lies in the fact that the ultimate object is to make quite clear to the public the metes and bounds of the protection afforded. With the foregoing duly appreciated, the definiteness in phraseology and inclusion in a positive manner in the claims, of all the tangible elements, is intended primarily to facilitate a correct understanding of the substance of the claims.

Below are given specimens of claims complying and not complying with the foregoing rule:

INCORRECT	CORRECT
An excavating machine comprising a main frame mounted upon traction wheels and having a rotary digger supported thereon upon a pivoted frame, said pivoted frame carrying said rotary digger and the mechanism for conveying the material away from the machine, and means for operating said digger and raising and lowering said frame.*	An excavating machine comprising a main wheeled frame, a frame pivoted to said main frame, a rotary digger supported upon the pivoted frame, material conveying mechanism to carry material away from the machine also mounted on said pivoted frame, and means for operating said digger and for raising and lowering said *pivoted* frame.

*This claim is quoted from a patent issued in 1906 and the Patent Examiner erred in passing it as to form.

One but starts a reading of the incorrect claim when he begins to get confused as to whether certain elements have been recited before, and mixed as to the frame elements, all owing to indirectness with which the parts are set forth. The fact that practitioners of long standing draw claims of this sort is no reason for assuming them to be in the most acceptable form to present clearly the matter attempted to be covered. The elements of the claim being tangible should all be positively and separately included, and not run into one another, and narrative expressions should not be resorted to.

c A PATENT CLAIM SHOULD SET FORTH AN INTANGIBLE ELEMENT WITHOUT INCLUDING IT POSITIVELY.

The foregoing is a simple requirement, but one which in the interest of complete correctness of statement and diction should always be observed. When, therefore, the invention resides in a combination of elements, by which we ordinarily mean tangible elements, it is improper to set forth intangible elements positively. Thus we say, "In combination, an oscillating arm, a dog carried thereby *provided with a slot*, and a control member engaging in said slot to determine the operativeness," etc. To define as a distinct element or clause "*a slot in said dog*" is obviously objectionable since the slot can not be a positive element of the combination. The most common instances of the application of this rule are in relation to the limitation of structure as to provision of openings, slots, recesses, kerfs or grooves, notches, and the like. None of these is an element, intangible or otherwise, in a most strict sense, but rather a characteristic formation of a tangible element.

d A PATENT CLAIM SHOULD CONTAIN FUNCTIONAL LIMITATIONS PREFERABLY ONLY WHEN SUCH ARE REQUISITE TO ESTABLISH PATENTABLE NOVELTY OR CLEARNESS.

The subject of the use of functional limitations in claims is one calculated indeed to try the patience of students of claims procedure. In fact, experienced practitioners are frequently confronted with many complex questions in regard to the desirability of incorporating function in one way or another in the composition of a claim. The lack of a full comprehension of how and when to employ functional claims is entirely excusable in early practice. After a manner, functionalism of claims may be considered from the solicitor's viewpoint a sort of weapon with which to establish patentability, when no other recourse seems available. By this is meant that occasionally it seems almost impossible to differentiate an invention properly from priorities, unless the function of an element or elements is developed in the claim. The foregoing may, furthermore, seem an anomaly when it is recalled that as a general rule a claim must not depend wholly for patentability upon mere function of a part or parts.

Again, the skill possessed in dealing with functions of structural features not infrequently comes in good stead for the drafting of basic or very broad claims. In the face of most earnest effort to avoid functionalism, the solicitor is often bound to conclude that claims of greatest breadth will be such as contain reference, more or less, to the mode of action or function of elements of the combination, *and actually rely upon the latter as related to specified structure to establish patentable novelty.*

Where it is possible to do so in claiming a mechanism or construction, it is good practise to omit statements of function. Especially as to claims for mechanical combinations is the above practise established as most approved. The reason is that the law primarily aims to protect the actual concrete

structure and there is no authority of law for the grant of a patent for a function, principle or result.*

Only when the construction and function are so interrelated, so to speak, as to require joint recitation to develop an essential feature of novelty should functionalism be resorted to.

From time to time the prosecutor is confronted with a rejection on the sole stated ground that the claim presented is functional. Occasionally, this ground of rejection is advanced by an Examiner who is somewhat of a novice himself in regard to the practise as to functionalism. However, in most cases, the intention is to refuse the claim because it is *merely functional,* depending on function alone to differentiate from the prior art. Or, perhaps, the structure upon which the function recited is predicated is omitted from the claim, an inadvertence to which even experienced prosecutors are subject.† Again, a claim may be so devoted to the presentation of functions of elements, rather than to structural characteristics, as to be quite indefinite,§ under which conditions it should not be allowed, and if granted, is liable to be invalidated by the courts.

The subject of functional claims may well be concluded by giving a simple example elucidating the reasonableness of the prohibition against granting a monopoly for a function, principle, or result. Had Edison at the time of his invention of the well-known filament incandescent electric light been permitted to claim this invention in terms of its function, even as limited to the art of electricity alone, such function involving as it does a *novel mode of supplying light,* no other form of light derived from electricity would have escaped the domination of his patent. So it is that any claim, fairly interpreted owing to its functionalism, as covering any and all means for accomplishing the particular result, is invalid. This rule as interpreted by the courts is often nullified, and properly so.

*Tyden *vs.* Ohio Table Co. et al., 152 F. 183. Queen & Co. *vs.* Friedlander & Co. 149 F. 771.

†Ex parte Bitner 140 O.G. 256; 1909.

§Ex parte Kotler 95 O.G. 2684; 1901. In re Perlman 186 O.G. 560; (App. D.C. 1912).

The following instances of claims sustained despite functional limitations, and held not valid on the ground of functionalism, are cited as instructive of the practise, not in approval of the holdings:

Claims Sustained

In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for intermittently feeding a plurality of stay-wires simultaneously and transversely of the strand-wires, mechanism for cutting off suitable lengths of the stay-wires to span the space between the strand-wires, and mechanism for simultaneously coiling the adjacent ends of the lengths of the stay-wires around the strand-wires.

Denning Wire & Fence Co. *vs.* American Steel & Wire Co.; 169 F. 793, 799.

A claim for a sound-producing apparatus consisting of a traveling tablet having a sound-record formed thereon and a reproducing stylus shaped for engagement with said record and free to be vibrated and propelled by the same is not for the function of the machine, but sets forth a valid combination.

Leeds & Catlin Co. *vs.* Victor Talking Machine Co. and United States Gramophone Co., 114 O. G. 1089.

Claims Held Void

In a machine for packing explosive gelatin the combination with a packing screw and its case of a hopper, means within the hopper for forcing material therefrom to said screw, and means whereby the pressure upon the material in the hopper will remain constant during the operation of the machine, regardless of the quantity consumed by said screw, substantially as described.

Eastern Dynamite Co. *vs.* Keystone Powder Mfg. Co., 164, F. 47, 58 (Pa., 1908).

A pedestal extension table, in combination with a vertically divided pedestal and the two separate parts of the table top attached to the respective parts of the pedestal, means for binding the pedestai parts together, comprising an element on each part at a substantial distance below the top of the pedestal, and means whereby they are adapted to be connected when the pedestal parts approach; means for operating on said elements after they are connected to cause them to bind the pedestal parts together, extending from said elements upward, and thence under the table top toward the margin thereof.

Tyden *vs.* Ohio Table Co., et al., 152 F. 183, (6th Cir., 1917).

It should also be noted that it is proper to use the broad term "means" limited by function for the purpose of covering structure for performing such function. This is well established by the authorities.*

Another condition frequently is present, making desirable the use of functional expressions in claims. It is often hard to define a part independently of its function. Thus "a lever for controlling the adjustment of the trigger," is a part defined by its operative function. "An operating member acting on the trip lever, whereby the record table is released after a predetermined period of rotation" is another and more extended use of limitation by functionalism. The novelty may depend upon the "whereby" clause and be properly predicated thereon, if the expression of the mere structure is insufficient to carry the claim as to patentability. Much must be left to common sense judgment in this matter of functional claims. No hard and fast rule may be adopted to advantage. In fact, functional expressions are conducive to clarity in a large proportion of cases where a proper foundation in structure is present.

*Corrington et al. *vs.* Westinghouse Air Brake Co., 173 F. 69. Continental Automobile Co. *vs.* Spalding & Bros., 177 F. 693. Electro-Dynamic Co. *vs.* Westinghouse Electric & Mfg. Co. 191 F. 506. Lacroix *vs.* Tyberg, 150 O.G. 267.

c A PATENT CLAIM SHOULD BE DIRECTED TO ONE FORM ALONE AND NOT TO ALTERNATIVE FORMS.

This rule is undoubtedly in the interest of definiteness of claims terminology. It is always to be remembered that a claim ultimately is that which establishes the extent of the monopoly of the patent. All reasonable restrictions, therefore, as to the form of a claim, are conducive merely to complete definition of patentable novelty.

To permit a claim to be couched in language setting up alternative structures is obviously highly objectionable, owing to liability of resultant confusion as to what is covered, and the attempt to cover different constructions. The proper course where the prosecutor is of the belief that his claim should be of sufficient scope to protect alternative forms, is to employ terms broad enough to cover the two or more forms, as the case may be.

"Asbestos or its equivalent" has been held objectionable,* as has also the expression "brake or locking device."† In the first instance objection lies principally because an equivalent is always covered by a claim without including it as in the illustration.

Clearly, while a brake may have a locking function and usually does, a locking device may operate without the slightest braking action. The terms are not equivalent—equally applicable. This is a clear case of alternativeness of structure.

"Button or hand wheel" was held unobjectionable as applied to the same element in Ex parte Leon,* in view of Phillips *vs.* Sensenich, 132 O. G. 677. However, there is little real warrant for a holding of the above kind, seemingly merely *in accord* with the whim of a particular Commissioner. Alternativeness of structure, or substance, in claims is to be heartily discouraged as not best form, and the practitioner is not advised to quibble over this objection when raised; the better

*Ex parte Phillips 135 O.G. 1801 (1908).
*Ex parte Leon, 164 O.G. 250 (1911).

course is the use of a term common to the various forms to be covered for one is always available.*

But alternativeness of structure and alternativeness in terms are not the same thing, necessarily. Thus, the expression "means whereby to produce one movement of the reproducer, or both movements" is alternative in its terms. But such an expression is quite permissible as the structure defined is a definite single mechanism. And the structure to be covered must inevitably be delineated by terms in themselves alternative. Alternativeness in terms as distinguished from substance is frequently confused on the examination by the Patent Office and the objection of the Examiner should be closely scrutinized to determine its merit.

f A PATENT CLAIM SHOULD COVER SUBJECT MATTER NOT DUPLICATIVE OF THAT OF OTHER CLAIMS.

This subject is to a certain extent explained by its title. A claim which in effect covers the same thing or things as another is obviously an unnecessary adjunct of the specification; not only is it surplusage, but it is prejudicial to the interests of the patentee or patent owner when it reaches the consideration of the courts. Naturally, such evidence of a patentee's intention not to differentiate his claims in a substantial way, is rather convincing that the court is not asked to exercise a reasonable degree of leniency in its work of construing the grant.

The case of Ex parte Duncan, 276 O. G. 207, gives an excellent discussion of this subject of duplicative claiming, in a well-advised decision of the late Assistant Commissioner Clay. The following words of this learned Commissioner will partially develop, at least, the theory of the law, and the proper practise:

*Ex parte Caldwell & Barr, 120 O.G. 2125 (1905).

The essence of my decision was that while several other claims also were erroneously held to be for aggregations and, so far as that ground alone was concerned, should be allowed, yet as to all the claims they should be rejected for another reason. That other reason was explained rather fully, and it was concluded that the several claims must be on their face obviously different in substance.

The Examiners-in-Chief allowed, for example, claims 19 and 20, which as a matter of fact are two claims identically the same substantial thing and by their very presence together interfere with the pointing out of the invention.

Undoubtedly a patentee may claim his invention in several scopes—that is, in its broad aspect and also in its narrow aspect—and he may also separately claim several related inventions; but there is no authority for the Commissioner to issue a patent with several claims to the same thing. It is the primary duty of the Commissioner to see that the patentee delimitates his invention and each of his inventions distinctly. This for the guidance of others and in order to definitely fix the patentee's rights.

g A PATENT CLAIM SHOULD COVER A COMPLETE OPERATIVE CONSTRUCTION.

The foregoing rule of claim preparation is one, infraction of which is not frequent. Most claims are complete in the respect of operativeness of the subjects matter thereof, when prepared by capable solicitors. The tendency, perhaps, is to make them too complete as to operative details.

The difficult phase of practise in connection with presenting operative constructions, etc., in claims, arises where scientific effort is being put forth to cover the subject rather broadly. The breadth should not go beyond the requirement that the elements should be set forth in a properly connected manner, with reference to features of cooperative relation. Likewise,

the rule applies to subcombinations, which often do not constitute complete devices or mechanisms, commercially speaking, though they may be for patenting purposes. Nevertheless, claims for this kind of combinations may and must be complete for them as such.

h A PATENT CLAIM SHOULD COVER A COMPLETELY ILLUSTRATED INVENTION, NOT FEATURES MERELY SUGGESTED OR DESCRIBED ONLY.

Elsewhere herein, the suggestion has been made that what is worth claiming must be illustrated, and perhaps it might be said that it is not very necessary to illustrate what is not claimable, in many cases. The exigencies of the particular invention control the latter phase, however.

It is worth while to bear in mind that features of an invention are frequently claimed when not described fully, and not at all illustrated. In such cases the claim is required to be canceled, or the feature illustrated if there is proper basis laid for the illustration. In some interesting recent litigation, an attorney defended a patent, the claims of which did not include certain elements, and contended first that they should be read into the claim. But the drawings did not show them. He secondly contended that the drawings of a copending application still held secret in the Patent Office amply showed said features, however. There was a reference to said application in the patent, but not suggestive of reliance upon it for proper illustration. There is no basis under the Rules of Practise for any such method of illustration, or claim interpretation. The importance of properly conforming with the rules, therefore, is evident.

Rule 50 of the Patent Office is in point in this discussion:

> The drawing may be signed by the inventor or one of the persons indicated in Rule 25, or the name of the applicant may be signed on the drawing by his attorney in fact. The drawing *must show every feature of the*

invention covered by the claims, and the figures should be consecutively numbered, if possible. When the invention consists of an improvement on an old machine the drawings must exhibit, in one or more views, the invention itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

The foregoing rule has the effect of a statute.

i A PATENT CLAIM SHOULD DISTINGUISH IN A SUBSTANTIAL INVENTIVE MANNER FROM THE PRIOR ART.

The lengthy discussion heretofore of the different prerequisites of patent claims renders unnecessary any exhaustive explanation of the proper mode of distinguishing claims from prior art references.

Let us suppose that an invention may fairly be said to be anticipated by the prior art, except in reference to a member that is adjustable in its length. Save under exceptional conditions, to define this point of novelty will not avail to secure a patent; it is not usually "an inventive distinction." Again, the novelty in another instance depends upon the feature of making a three-part member in one casting. Here, also, we have a commercially meritorious distinction that fails to present an inventive idea, under customary conditions. Often, the test of inventive, and non-inventive distinctions, may be satisfied by the answers to these questions: "Is a new result obtained other than obvious to one skilled in the art? Does a new coaction of parts spring up owing to the particular change, giving rise to a generally novel operating subject matter?"

As a matter of fact there is, however, no absolute rule by which to determine the precise line between patentable and non-patentable distinctions!

Form of Claims

In the foregoing treatment of classes of claims, as indicated at the outstart thereof, the claims formulated were drawn after the most common method of terminology, namely, each complete in itself. The method of claiming by a distinct claim was first required by the law of 1836, at the same time that the provision for making examinations as to novelty was enacted; and by custom the form suggested has become almost universal in our practise, with some variation.

For many years the author has advocated a more simple method of claim drafting, like that of the English system,* whereby much of the repetition of terms of claims might be avoided. In 1917 the Patent Office by the decision of Ex parte Brown, 235 O. G. 1355, opened the way for this new practise and to some extent the new type of claims has come into use.

Assistant Commissioner Clay in deciding Ex parte Brown made the following instructive observation:

> Attorneys in preparing a patent, Examiners in examining claims, and the court in construing claims, always proceed on the principle of concentrating attention on one particular idea, which is the essence of the invention, and subordinating everything else. When a court analyzes and distinguishes a set of claims, I think it must always, either consciously or unconsciously, employ the method of analysis of which an example is found in Loggie *vs.* Puget Sound Mills & Timber Co. (194 Fed. Rep. 158, p. 162). If the court there found it convenient to say that claim 2 is the same as claim 1, "with the addition" of some other element which is the essence of claim 2, no reason appears to me why the patentee should not have been allowed to make exactly the same analysis and statement in writing his claim.

*See article *Scientific American*, Nov. 6, 1915.

Reasoning according to the foregoing, the Commissioner held that it is proper to utilize the form of claim after the English method noted below:

1. In a railway-car, the combination of a car-body, a car-roof including carlines, sheet-metal roof-plates, and carline braces substantially rigidly connected together without capability of substantial bodily movement relatively to one another, and loose connections between said carline braces and car-body permitting movement of the roof relative to the car-body, substantially as described.

2. A structure as specified in claim 1 in combination with carline cap-strips rigidly connected to said braces, substantially as described.

3. A structure as specified in claim 2 in which the braces are slotted in combination with bolts accommodated in said slots and securing the braces to the car-body, such slots and bolts permitting the movement specified between the roof and car-body, substantially as described.

Certainly this type of claim conduces to simplicity of presentation of the particular phase of novelty intended to be covered. It is much easier to determine whether the additional limitation constitutes the new thing in the combination, when stated alone as combined with the base combination of a preceding claim, than to fathom out a claim requiring devotion of one-half of the time to ascertaining wherein it differs from one preceding.

Some precautions should be observed by the solicitor in handling claims by this procedure, however. There is a tendency to carry the limitations of the first or base claim into all the following claims, and such is a dangerous thing. Great care must be taken to redraft the ground claim at intervals when the inventive idea of a subsequent claim does not

necessarily require the inclusion of certain features of such claim.

Again, under practical conditions the author has not found it expedient to employ this method of claimology for complicated inventions, except where accurate knowledge of the state of the prior art exists. Absence of such knowledge makes needful the claiming of everything not known to be old. Thus, when there are groups of claims running up to seventy-five or a hundred in number, each group covering a particular mechanism or subcombination and having its base claim or claims, every time the base claim is anticipated on the examination, the remaining or reference claims fall with it and must either be amended or wholly redrawn unless the base claim may be revised satisfactorily to avoid the rejection. This last is rather hard to do where nicely graduated reference claims exist. (The base claim is number 1 in the example given and the reference claims are numbers 2 and 3.)

For more simple cases, the base and reference claim method is most excellent and there is likely to be a time when it will be required to be followed in the interest of reducing the work of the Patent Office examination and court interpretation. Experience shows, tho, that unless the Patent Office insists upon a revision of our present antiquated methods of claiming, the legal fraternity will inflict upon the Office, and the public, a system of claims wholly inadequate to meet the needs of modern inventions. This difficulty is not met with so much in England because there claims are sensibly limited to a reasonable number; likewise in Germany.

Another phase in which the above method offers disadvantage, especially in larger cases, resides in the fact that every time earlier claims are canceled the base and reference claim numbers must be adjusted, and also the numbers in the reference claims denoting a particular base claim. This latter seems to be overlooked at times and results in an invalid claim or claims in the issued patent.

Classes of Claims in One Application

Certain claims of different classes may be obtained in a single application under the practise. While to some extent the inclusion of these different classes is arbitrary, and varies as to different cases, there is sufficient basis upon which to outline a general table applicable to this subject respecting those classes of claims which are combinable, and those which are not.

CLASSES OF CLAIMS

A.	Combination, Subcombination (one or more)	Combinable
B.	Class A and Article of Manufacture	Combinable
C.	Class A and Genus and Species (one species)	Combinable
D.	Class B and Genus and Species . .	Combinable
E.	Genus and Species	Combinable
F.	Class E and Article of Manufacture	Combinable
G.	Process and Product (when intimately related)	Combinable
H.	Process and Apparatus (when intimately related)	Combinable
I.	Apparatus and Product (when intimately related)	Combinable
J.	Species and Different Species .	Not Combinable
K.	General Combination and General Combination (two separate broad inventions) . .	Not Combinable
L.	Genus and a Species not included in the Genus	Not Combinable

Testing the Claims When Completed

The solicitor's task is not a finished one when, after careful and thorough study of the inventive subject, he painstakingly draws the claim or claims definitive of the scope of patentable novelty. He is erring if, at this seemingly appropriate time,

he views his work well done even if conscientiously performed; but it is just at this point that many attorneys stop. An essential thing to ensure the protective scope of the claims has been omitted, and this is the subjecting of the claims to the important test of *determining what is required in order to avoid them.*

In the application of the test spoken of, the attorney should assume for the time being the attitude of one who desires to use the essence of the invention without liability of infringement of the claims, assuming them to be contained in an issued patent.

The claims are compulsorily analyzed, by employing the above test, in such a way that one is bound to inform himself regarding their probable interpretation, as to terms and substance, in order to appreciate the probable range of equivalents to which the inventor would be entitled under a fair construction of the claims. In this manner are the claims weighed in the balance, so to speak, having in mind the modifications or variations in the invention which might be resorted to in an effort to use the same illegitimately. Then, if it is found that there exists a way by which the *essence of the invention might be adopted* without infringement, it is clear that the claims are inadequate to fulfil their intended purpose which is to constitute any one who makes, uses, or sells the inventive subject matter, an infringer.

Thus it is that an attorney must always bear fully in mind that his problem and his duty are not only to cover the real invention before him, but to cover that invention in such divers forms as it may reasonably take in the course of natural commercial development. And the experience of all practitioners is that the variations, or different forms, almost every invention possessing a fair degree of novelty may take in practising the same, are many indeed.

Obviously, the greater the liability of infringement of the claims, the more effective and broad may the patent protec-

tion be deemed, so that it is to the end of causing everything approaching the essence of the invention to be equitably regarded as infringing the patent claims, that the solicitor should direct his efforts.

Repetition of Limitations

The question of necessary and unnecessary limitations in claims is worthy of special treatment, even in the face of the recognition that experience, and experience alone, will finally make the solicitor adept at deciding when a limitation is required or superfluous. Naturally, in most cases, this proposition depends primarily upon the state of the art prior to the invention in hand, and the requirements of differentiation. Nevertheless, too much care can not be taken to avoid the unnecessary use of limitations both as to function and structure. By subjecting the claims to the test discussed in the preceding paragraphs many unrequired limitations will be deleted, or should be.

It is desired to refer especially to a common mistake made by attorneys, even those of no small experience, in drawing patent specifications and claims. The error lies in employing a limitation of structure used in one claim, for the purpose of broad differentiation from priorities perhaps, in subsequent claims which themselves contain particular differentiating limitations establishing their patentable novelty independently of that first mentioned.

We may take, for instance, a claim to a scraper comprising a dirt receptacle, an end closure, means to move the end closure to empty the receptacle, and means to tilt the receptacle to assist in the emptying operation. We will assume that the above claim is allowable; that the tilting action is not needed for the *operativeness* of the invention, though desired; and that there are details of novelty as to the receptacle and as to the tilting means. Under these conditions, having drawn the claim suggested and perhaps one of a more specific form

it is unnecessary and unwise to carry into all other claims, such as those for details of the receptacle, by way of repetition, the limitation as to the tilting even though this is seemingly essential. By so doing, one who omits the tilting feature alone *avoids infringement.*

Too much care can not be exercised not to carry through a series of claims a limitation of structure not required in every claim *to maintain its patentability.* By lack of observance of this rule the chances of successful infringement, or rather avoiding infringement, are wonderfully promoted. The limitation should be carried only so long as it of itself, or as an element of the combination (if the invention be such), is depended on to render the claim allowable. A study of many thousands of patents is convincing that a breach of proper practise on this score is an occurrence too common to-day.

Multiplicity in Claims

We now approach a subject of interest to all patent claims students. In the claiming of an invention how many shall be the claims considered fair and adequate to allow? To-day the practise definitely requires that each claim must patentably differentiate from all others. That is, there must be a substantial difference amounting in itself to patentable novelty. But how does this work out under actual conditions? Patents are regularly granted containing fifty to two hundred claims. The files show here and there instances of unpardonable claiming, as the Gubelman U. S. patent No. 1,160,071, issued November 9, 1915, for a Calculating Machine, containing seven hundred ninety-seven claims. This is a patent on an application which was pending in the Patent Office twenty-six years! Can any satisfactory basis be urged for a grant of this sort? The Patent Act requires the patentee to "point out and *distinctly* claim" the thing which is his invention. And usually, where several claims exist, a comparison between

them is conducive to an understanding of just what is being covered as to the whole invention and component parts. But who is so daring as to assume the capability of analyzing seven hundred and ninety-seven different claims? The average court will not undertake intimate study of ten claims, let alone make such an effort, and feel that in good conscience he is doing his duty to the public; the court would be devoting his entire service for an indefinite period to an individual patent owner in this instance, and then fail to accomplish the desired end, in all probability.

Take United States patent No. 1,028,133 of June 4, 1912, as an example. There is nothing basic or tremendously broad in the improvements described, and yet a total of one hundred and ninety-five claims have been granted to the patentee. A reading of the first three claims of the patent shows that the second differentiates from the first claim by the words "the movement of such" and the third claim differentiates from the first by the words "without interfering with the printing mechanism." Claim 1 would seem to cover the patentable inventive thought.

Claim 9 is a claim not substantially different from claim 4. Read claims 11 and 12 and an expert must be constrained to believe that claim 12 is almost identical with claim 11. Claim 13 uses the word "adjustably" to differentiate patentably over claim 11. Adjustability is rarely, if ever, more than a mechanical expedient. Claim 19 uses the words "arranged on the paper carriage" to differentiate from claim 18, and claim 20 differentiates from claim 18 by the words "adjustably arranged on." Claims 24 to 27 inclusive are differentiated from each other by limitations of little or no materiality and are already worked to death in previous claims. Claim 35 uses the word "lever" instead of "means" to distinguish from claim 34!

In the thirty-five claims of this patent which have been considered, over one-third or less probably define a really differentiating inventive thought over other claims. These claims

may differentiate patentably from one another, but the differences are not likely to be held by any court as separate inventions.

Patent No. 1,043,882, November 12, 1912, purports to cover improvements in mechanisms of an adding machine and the improvements may possess fairly broad novelty. The patentee describes them in *six and one-half printed pages* and uses *thirty-nine printed pages* for the two hundred and seventy-seven claims which he deems necessary to protect his invention. These claims may be patentably distinguished, but it is doubtful whether any unprejudiced body looking at the question of the proper protection for the patentee's invention, from the standpoint of the practical efficiency and economy of examination of patent applications, would say that the above enormous number of claims is necessary to cover the novelty of the improvements. The grant of the claims of this patent in the number stated is a very close approach to the ridiculous.

The exceedingly complicated inventions examined by the Patent Office probably represent between 25 and 40 percent of the entire burden of work placed upon the Office. If the practise in relation to such applications may be simplified, therefore, and the issuance of patents thereon accelerated, much would be accomplished toward a reduction of the total amount of work of the Office. It needs but a comparatively small amount of experience for an attorney to recognize that a greater amount of work must often be done on a single complicated patent application, both by counsel and the examining force, than incident to the issuance of from fifty to a hundred simple patents.

The time has come in patent claimology for new thought upon the question of multiplied claims. In the early days of our patent history, one and two claims were used to cover what it now takes ten to twenty claims to protect, and it is not clear that the patentee formerly suffered a great deal from lack of more numerous claims.

There are two responsible causes. The attorney using un-

duly multiplied claims is too fearful of failing to cover the invention properly, and resorts to too great refinement of terminology. He fails to give due weight to the fact that the courts exist to give effect to the protection of the patent for all real invention present. The Patent Office is at fault for failing to sit hard and fast upon the logical and required position that there must be some end to word-pictures of an invention, and less mere refinement of language in making distinctions.

That patentable distinctions can be drawn indefinitely between claims by a skillful draftsman is quite clear. Therefore, some other basis must exist to enable this gross abuse of practise to be consigned to oblivion, and an arbitrary rule must be set, or arbitrary power assumed. Real and substantial differences, and distances metaphorically speaking, should be compelled.

The Primary Examiner should be empowered to draw the line on the number of claims allowable, and required strictly to enforce brevity respecting the number, necessitating an appeal if more claims are pressed for.

The basis in law for revision of the practise outlined is ample. The view of the courts has been sufficiently expressed.

In Brush Electric Co. *vs.* The Electrical Accumulator Co. et al. (56 C. G. 1334; 47 Fed. Rep. 48), the court condemns prolix claims and says that making several claims to the same matter is "calculated to embarrass the inventor and mislead the public." In Carlton *vs.* Bokee, (17 Wall., 463-371) the Supreme Court condemns such indistinct claims and intimates that if they were intentionally made obscure they would invalidate the patent. It says:

> Where a specification by ambiguity and a needless multiplication of nebulous claims is calculated to deceive and mislead the public, the patent is void.

In Benjamin *vs.* Dale (141 Fed. Rep., 981) Judge Holt complains of supernumerary claims, saying they "simply make

burdensome the investigation of the claims." In re Perlman (186 O. G. 560; 39 App. D. C. 447) the claims were rejected because they were supernumerary, as well as because they were functional.

In Green Felt Shoe Co. *vs.* Dolgeville Felt Shoe Co. (210 Fed. Rep. 164), Judge Lacombe intimates that claims which even by construction are duplicates of others "must be struck out as superfluous." The same in Weber Electric Co. *vs.* National Gas & Electric Co., (212 Fed. Rep. 950).

In the English courts this question has come up and the doctrine of Carlton *vs.* Bokee, supra, approved in the recent case of Linotype and Machinery Ld. *vs.* Hopkins, (Vol. XVII Reports of Patent Cases No. 5) wherein Lord Loreburn, Lord Chancellor, said:

> The appellant has filed a specification which resembles a treatise in its length; it contains no less than sixty claims; there is infinite redundancy and repetition and constant reference to illustrations which are not very easy to follow. Altogether it is a document which needs the most prolonged and penetrating study in order that anyone who wishes to work out problems of invention in this class of industry, may know where they stand and how they may be free from the danger of infringing former patents.
>
> The point whether this patent is good or not does not arise in this case, but I think it is my duty to state explicitly that those who file and secure specifications must take the risk of having the whole thing declared void for ambiguity. I have had occasion to observe that there is a tendency to frame specifications and claims so as to puzzle a student, and to frighten men of business into taking out a license for fear that their interpretation may be held erroneous and they be found guilty of infringment. That is an abuse of the law and will be checked, if occasion should require, by the simple process of declaring the patent invalid.

In the case of Victor Talking Machine Co. *vs.* Thomas A. Edison, Inc., 221 O. G., 351, two patents were treated by the court, namely No. 814,786 having forty-two claims, and No. 1,060,550 having forty-eight claims.

As to the former patent we have this indication of strict interpretation where the patentee attempts to leave nothing for the court to construe:

> Therefore, claim 23 may be disregarded at once; because where so many claims are put into a patent, each element in a given claim may be supposed to be especially necessary to the combination. In such a patent, there is little room for latitude of interpretation.

As to the later patent this condemnation was handed down:

> Whether this be true or not, the practise is so obviously mischievous that the courts should discourage it as much as possible, as well as the practise which permits forty-eight claims upon a simple and perfectly obvious machine like this. Such claims violate the very purpose of any claims at all, which is to define the forbidden field. In such a waste of abstract verbiage it is quite impossible to find any guide. It takes the scholastic ingenuity of a St. Thomas with the patience of a yogi to decipher their meaning as they stand.

With a view to supplying something by way of constructive suggestion for a new type of claim, the following claims from an issued patent are each revamped into a new model of claim. The reader is left to his own conclusions as to whether this new phraseology would have a weak or strong appeal to the efficient patent examiner, who wants to know as quickly and fully as practicable what the inventor is claiming, and of possibly greater importance to an efficient court desirous of arriving at a quick and fair adjudication of the scope of an alleged infringed claim, and an understanding of the inventive idea for comparison with the alleged infringement.

PRESENT TYPE

1. In combination, a cash register comprising keys, a cash drawer therefor, paying mechanism in said drawer and carried by the drawer, and means controlled by the keys of the register controlling the operation of the paying mechanism by said actuator, the paying mechanism including ejectors, and the said controlling means embodying selectors to predetermine the ejectors for operation.

2. In combination, a cash register comprising sales keys, a paying-out mechanism associated with said register whereby the paying out of money by said mechanism is controlled by the sales keys of the register and special keys for controlling the paying-out mechanism, said paying-out mechanism including electrically controlled devices, and an electric circuit including said sales and special keys whereby one set, or both sets, of said keys may be caused to control the paying-out action of the paying-out mechanism.

SUGGESTED FORM

1. The construction such as disclosed, wherein the keys of the register control the paying mechanism which includes predetermining selectors.

2. The construction such as disclosed where the sales keys control the paying-out mechanism, and the special keys as well as sales keys are in the electric circuit to control paying-out by either set of keys.

3. In a paying-out machine, a coin tray, means tending to normally hold the tray elevated, a compartment to receive the tray, means to deposit a coin in the tray and move it from the compartment, and means to cause a coin delivery action of the tray as it reenters the compartment.

3. The feature of my invention comprises the normally elevated tray adapted to have a coin delivery action as it reenters the compartment.

As to the reframed claim 1, less than a third of the words depicting the invented construction directly cover it just as well and much more plainly than the approved type. Yet this claim may not be tolerated under the present office practise.* The same applies to claims 2 and 3; the original in each instance is a patented claim.

In the present approved type of claim the object seems to be to set forth as many features or elements which are old and known, as possible, and hide *inside* the claim, so to speak, the invented feature that is new and intended to be covered by the patent. *Direct statement of the meat of the invention seems the last thing a patent claim of the general combination type presents.* On account of inadvertent inclusion of some immaterial feature of a combination (by repetition of unnecessary limitations, for instance, see page 198) many a patent has failed to deliver to the inventor the protection to which he is justly entitled. By indicating precisely the feature of novelty, claiming it directly as in the suggested new form, unsurrounded with superfluous verbiage, there is gained a method of claiming superior to anything at this time utilized in the practise of this or any foreign country.

*Note: The author now has some labor-saving claims of this class under rejection in the Patent Office because indefinite. What method of claiming could be more definite? In another case claims of this form have been allowed!

In making the observations herein, the author has not ignored the conditions of patenting modern complicated machinery. Engaged constantly for many years upon work involving most intricate machines he has had ample opportunity to appreciate the uses of claims of many kinds to protect adequately inventions of this sort, and to recognize the abuses of multiplying claims as well. The very multiplicity itself is the reason for the grant of invalid claims in numberless instances. It is the basis for preventing the concentration of the examination of the Patent Office upon that which really is new, because of the physical impossibility of efficiently passing upon an endless number of claims having endless refinements of language rather than invention.

Claims: Breadth-Controlling Phase

When it comes to claim definition, if the student will bear in mind the rule to cover the substance rather than the mere form, and couch the language of the claim accordingly, one of the greatest obstacles to proper claim formulation, namely, the inclusion of unnecessary limitations, will be avoided. A thorough knowledge of what are ordinary mechanical expedients, and mechanical skill, is very helpful in avoiding undue limitations in claims. Of course, upon an adjudication of a claim, the courts make allowance for patentable equivalents being used, but the effort should be to avoid the need of straining the courts' liberality beyond the point of reason. Courts are human and feel that when the inventor is given the opportunity to prescribe in his claim those things essential to his invention, they should not be called upon to modify, and even ignore, plain terms to cure limitations which may not have been proper and necessary.

VII

PRACTICAL OPERATION OF IMPORTANT PATENT OFFICE RULES

A. Rule 31. Application, Execution, Alteration After Signing, and Completing. B. Rule 42. Requirement of Division in Applications Containing Two or More Inventions. C. Rule 48. Requirement of Supplemental Oath for Covering Subject-matter Originally Shown or Described in an Application, but Not Originally Presented as a Part of the Invention. D. Rule 63. (Sections *b* and *f*) Certain Cases Having Preference at Every Stage of Their Examination Over Others. E. Rule 66. Requirement that Examiner Cite Best References at His Command and Explain the Pertinency of a Reference the Application of Which is Not Obvious. F. Rules 68 and 69. Duty of Applicant in Forwarding the Prosecution of Application. G. Rule 70. New Matter May Not Be Added to an Application Subsequent to its Filing. H. Rule 75. "Swearing Back" of References. The Law of Rejection by Combining Prior Art and Prior Invention.

A. Rule 31—Application, Execution, Alteration After Signing and Completing

All parts of an application must actually be filed at the Patent Office before the case will be assigned for examination.

If an application is sworn to in blank it is invalid; the changing or altering of the application in any material way after signing will render it invalid, and it will be taken from the files for this reason.

An application filed incompletely, as, for instance, one lacking an oath, a petition, or drawings where required, must be completed within one year from the date of filing of the original papers. If the completion of the filing is not effected in the time stated the case becomes automatically abandoned.

Only by showing that the delay in completing was unavoidable may such an abandoned application be revived. Adequate showings of this nature are among the most difficult to supply, however.

B. Rule 42—Requirement of Division

The provisions of Rule 42 are designed to prevent the inclusion in a single application of two or more independent inventions. Where the claims of the application are drawn to more than one invention and the independence of the inventions as commercially made is clear, there can be no controversy in regard to the propriety of a divisional requirement. Furthermore, it should be noted that under a practise commenced very recently, and established by the rules as revised to January 1st, 1916, it is proper to give to a divisional requirement, finally insisted upon in the examination of an application, more weight than said requirement was previously entitled to. The reason for this is that new Rule 42 makes it necessary that the Primary Examiner obtain the written approval of a Law Examiner before repeating a divisional requirement previously made.

Under present conditions, a Law Examiner devotes considerable time to the study and determination of questions involving division of inventions in applications as they are submitted by the various primary examiners. The Patent Office practise is quite uniform as a result of the foregoing system of reviewing divisional requirements. Previous to the commencement of the practise just referred to, statistics show that in a high percentage of all cases wherein divisional requirements were made, such requirements were reversed on appeal to the Board of Examiners-in-Chief.

The splitting up of an application for patent for an invention by the dividing out and filing of a number of other applications is often necessary owing to the advances made in

the various arts, resulting in improvements, for instance, in detail mechanisms of a machine having no necessary interdependence or coaction with respect to the particular related mechanisms of the same machine. Often, so many improvements have been made in such detail mechanisms that the latter are classified separately in the Patent Office.

By way of example, we have in the art of printing machines such related mechanisms as the rotary platen and its attachments, the feed mechanism, and the delivery devices. No printing machine is complete, obviously, without all of these, but they are not in the ordinary sense interdependent. In other words, while all of the stated mechanisms are driven by a common motor, no one is really *interwoven*, so to speak, in its functioning, with the other, their operations having a time relation solely. Of course, here I am speaking of a conventional machine, for it would be possible to have a construction wherein the interdependence might exist.

The common adding machine typifies a somewhat different condition as already discussed under heading of Subcombination Claims. Here we have a keyboard, an accumulating mechanism (adding wheels, etc.), a listing or printing mechanism, and platen feed means. To a large extent these various mechanisms are interdependent in their functioning. The keyboard is absolutely necessary as a controller for the accumulator and the listing mechanism, certain actuating members are common to the two latter mechanisms, and the platen is fed by being actuated by the main actuator (handle or motor) which in turn also operates on the accumulator and the listing mechanism. Nevertheless, it is customary to-day, even in the absence of any separation of these various mechanisms in actual manufacture, that improvements in the keyboard, accumulator, listing and motor drive means be separately patented. Such improvements are separately classified.

Where the lines of classification are clearly established, the

practitioner will be greatly assisted in determining upon the reasonableness of divisional requirements on reference to the classification. Nevertheless, Rule 42 is subject to be construed in the light of Rule 41 which makes provision for the claiming in a single application of several distinct inventions, when the latter are dependent upon each other and mutually contribute to produce a single result.

It is difficult to lay down any hard and fast rule of division. Sometimes classification of the Patent Office controls largely. Again, the separate manufacture of parts or mechanisms in commercial practise may determine the legitimacy of the requirement of division. Not infrequently, both of the above considerations affect a particular case. A review of authorities is always helpful in arriving at a decision where doubt may exist, and many examiners follow the excellent course of indicating the various factors controlling them in ruling a separating out of an application of an invention which may be classed as truly independent upon one ground or another. It is advisable to consider a case carefully in arriving at conclusions. It seems rather sensible at times to divide when, as heretofore suggested, we bear in mind that to contest by appeal often costs the inventor or client nearly as much as the filing of a divisional case. Where the counselor is firm in his belief of the inequity of the requirement, in justice to his client and to himself he should argue the point and, if necessary, raise an appeal. Furthermore, while in a number of instances the courts have deprecated the action of the Patent Office in requiring that an invention be covered by a large number of divisional applications, in no case which can be brought to mind has a patent been held invalid because it covered more than one invention.

It is only in one case out of five, perhaps, that a conclusion as to the applicability of a divisional requirement is difficult to reach, but occasionally almost as great a degree of good judgment is required to determine when distinct inven-

tions are dependent upon one another and mutually contribute to a single result, as is incident to a determination of the line between patentable novelty and mechanical skill.

With a view to advising in regard to actual cases in point, a careful study should be made of the selections of related and unrelated claims as adjudicated in appeals to the Board of Examiners-in-Chief. Excellent grouping of such claims is found in the paper by L. A. Sadler, Patent Examiner, page 83, which constitutes a more detailed treatment of divisional practise than is intended to be presented hereby.

C. Rule 48—Requirement of Supplemental Oath

Too much care can not be exercised in the strict observance of this particular rule. It is not infrequent that a patent presented to the courts for adjudication is held to be invalid, owing to the fact that a claim or claims on which a complainant presses for infringement are found to include a feature of construction, or other matter introduced by way of amendment, which matter the inventor at the time of making application for patent cannot be said to have fairly presented as a part of his invention, tho it may have been shown, or properly described. Introduced matter of this character obviously is not sworn to as a part of the invention by the oath accompanying the application.

It is the duty of the Patent Office to insist upon a strict compliance with Rule 48; but there are times when the examiners, hard pressed with their work, inadvertently overlook the fact that the applicant has presented matter in his specification, or claims, which is not substantially embraced in his original statement of invention or claim. It is under such conditions as these that the practitioner must safeguard the applicant by careful analysis of the claims sought for in the applications to ascertain whether a condition exists that warrants the applicant in availing himself of the real protection afforded by provisions of Rule 48.