

REGISTRATION OF DESIGNS,

IN ORDER

TO SECURE COPYRIGHTS

ACCORDING TO THE STATUTE, 5 & 6 VIC. c. 100.

BY

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LINCOLN'S INN.

FROM THE "REPERTORY OF PATENT INVENTIONS," &c.

LONDON:

PRINTED AND PUBLISHED BY

A. MACINTOSH, GREAT NEW STREET.

1843.

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REGISTRATION OF DESIGNS.

IN many branches of our manufactures much money is annually expended in the designing and producing patterns, for which, formerly, no legal protection could be obtained; and it constantly happened that when a pattern was brought out in any department of manufacture, which was approved of by the public, other persons, engaged in the same trade, quickly copied the successful pattern; and, having paid nothing for the design, the copyist could bring the articles into the market at a reduced price, thereby depriving the original proprietor of all reward. Thus the enterprising and talented manufacturer of integrity had less chance of success than those in the same trade who, employing no skill or taste, were willing to depend on copying the productions of others. To meet this state of things an Act was passed in 1839, entitled "An Act to Secure to Proprietors of Designs for Articles of manufacture the Copyright of such Designs for a limited time."

This statute has been repealed by the statute 5 and 6 Victoria, cap. 100,* but all designs registered according to the former Act, are to remain in force as if it had not been repealed, and such is the case in respect to all copyrights under other Acts which are now repealed. The

* See p. 13.

new statute is made more comprehensive, and the periods for which protection is granted have been extended for all articles of manufacture, other than those made of metal, which are still for three years. It is important that the manufacturer should well understand, that the protection offered by this Act applies only to the shape, configuration, or ornament of any article of manufacture, and that the protection offered by this statute does not in any way relate to mechanical instruments, nor to machines, nor to processes of manufacture. The words of the third section of the Act are as follows:—

“And with regard to any new and original design (except for sculpture and other things within the provisions of the several Acts mentioned in the schedule C, to this Act annexed), whether such design be applicable to the ornamenting of any article of manufacture, or of any substance, artificial or natural, or partly artificial and partly natural, and that whether such design be so applicable for the pattern, or for the shape or configuration, or for the ornament thereof, or for any two or more of such purposes, and by whatever means such design may be so applicable, whether by printing, or by painting, or by embroidery, or by weaving, or by sewing, or by modelling, or by casting, or by embossing, or by engraving, or by staining, or by any other means whatsoever, manual, mechanical, or chemical, separate or combined; be it enacted, That the proprietor of every such design, not previously published either within the United Kingdom of Great Britain and Ireland, or elsewhere, shall have the sole right to apply the same to any articles of manufacture, or to any such substances as aforesaid, provided the same be done within the United Kingdom of Great Britain and Ireland, for the respective terms hereinafter mentioned, such respective terms to be computed from the time of such design being registered according to this Act.”

Any new design applicable to the following classes of articles of manufacture, being registered according to the statute, will be protected for THREE YEARS:—

Articles in metal; articles in wood; articles in earthenware; articles in glass; paper-hangings; carpets; shawls (patterns not printed); woven fabrics, furnitures (patterns printed).

Any new design applicable to the following classes of

articles of manufacture, being registered according to the statute, are to be protected for NINE CALENDAR MONTHS:—

Shawls (patterns printed); yarn, thread or warp (printed); woven fabrics, not furnitures (patterns printed).

Any new design applicable to the following classes of articles of manufacture, being registered according to the statute, will be protected for TWELVE CALENDAR MONTHS:—

Woven fabrics (patterns not printed); lace, and all other articles.

In order to obtain protection for a design intended for any article of manufacture, it must be registered according to the statute; and care must be observed, first, that no publication by sale of articles produced according thereto be made before registration; second, that after the registration, every article manufactured according to the design must be marked or labelled with the name of the registered proprietor, and the number and date of the register.

The words of the fourth section are as follows:—

“ Provided always, and be it enacted, that no person shall be entitled to the benefit of this Act, with regard to any design in respect to the application thereof to ornamenting any article of manufacture, or any such substance, unless such design have before publication thereof been registered according to this Act, and unless at the time of such registration such design have been registered in respect of the application thereof to some or one of the articles of manufacture or substances comprised in the above-mentioned classes, by specifying the number of the class in respect of which such registration is made, and unless the name of such person shall be registered, according to this Act, as a proprietor of such design, and unless after publication of such design every such article of manufacture, or such substance to which the same shall be so applied, published by him, hath thereon, if the article of manufacture be a woven fabric for printing, at one end thereof, or, if of any other kind or such substance as aforesaid, at the end or edge thereof, or other convenient place thereon, the letters ‘R^d,’ together with such number or letter, or number and letter, and in such form as shall correspond with the date of the registration of such design according to the registry of designs in that

behalf; and such marks may be put on any such article of manufacture or such substance, either by making the same in or on the material itself of which such article or such substance shall consist, or by attaching thereto a label containing such marks."

The person registering a design according to the statute may be the author, if the work has not been produced for another, for a valuable consideration; in which latter case the person for whom the design has been produced may register as the proprietor; and any person purchasing a new design may register the same, and thus become the registered proprietor of such design.

The statute thus states who the proper person is to register a design:—

"And be it enacted, that the author of any such new and original design shall be considered the proprietor thereof, unless he have executed the work on behalf of another person for a good or a valuable consideration, in which case such person shall be considered the proprietor, and shall be entitled to be registered in the place of the author; and every person acquiring, for a good or a valuable consideration, a new and original design, or the right to apply the same to ornamenting any one or more articles of manufacture, or any one or more such substances as aforesaid, either exclusively of any other person or otherwise; and also every person upon whom the property in such design or such right to the application thereof shall devolve, shall be considered the proprietor of the design in the respect in which the same may have been so acquired, and to that extent, but not otherwise."

The object and intention of this Act of Parliament have been very much misunderstood; and it has been supposed by many that new inventions of a mechanical nature, such as weighing-machines, lamps, and machines of various kinds, may be secured for a short period; and, in fact, that this statute offers the same protection as a patent, and for the same class of cases, excepting as to the length of time. This is entirely erroneous; for it may be broadly stated, that an invention, for which a patent may be secured, can in no way be protected under the Registration Act; and, on the other hand, the invention of a design which can be protected under the Regis-

tration Act cannot be made the subject of a patent. The intention of the Registration Act is to secure to the author or proprietor of any new design, applicable to a manufactured article, the exclusive right in the making and selling of that article of manufacture, when made according to the configuration or contour or with the ornament proposed by the new design: whilst a patent secures to the inventor the exclusive right of any manner of new manufacture, whether the invention be for a new machine, or an improvement of a machine, or a new or improved process for producing known manufactures. We will suppose a case, which will make the distinction most clear. In registering any new design for a table-lamp, all that could be secured under such registration would be, some peculiarity of form in the stem or oil vessel, or in the glass shade, or some ornament applied thereto—no new mode of supplying oil to the wick, nor any new mode of raising the wick, nor any new apparatus for supplying air to support combustion, could become the subject matter of a registration. The simple configuration, or contour, or ornament of the lamp, or some particular part of the lamp, would be the only subject for registration; and any person might without infringing the registration make the same description of lamp, all parts acting mechanically in the same manner to produce the same end, so long as the outer configurations were not imitated. A patent, on the contrary, can scarcely ever be said to depend on shape; and supposing a patent be taken for any improved construction of lamp, such, for instance, as an improved means of raising the oil from the stem or pillar of a table-lamp, the patent will be equally infringed, whether the external figure or design be retained or not, so long as the means of raising the oil are preserved. Pursuing this error, many persons have registered weighing as well as other machines, which have for their object peculiar modes of working, without reference to the figure or shape of the whole or of the parts. A case may be given. When the Post-office regulations were first made, several weighing-machines were registered, amongst others were some in which the beam had a suitable scale or apparatus at one end for holding letters, the other end being provided with means of successively raising additional weights, and by the number of weights raised the weight of the letter was indicated; this

registration could simply secure the design of the stem and beam and weights, when all were kept in the same figure or configuration: any other person might have made the same weighing machine, by simply changing the shape of the stem or the beam or the weights; thus supposing in the registered design the fulcrum of the beam were supported by an Ionic column, and another person were to substitute a Corinthian column, the registered machine would not be infringed, though, for all practical purposes, the machine would be the same; it will, therefore, become very clear, that inventions which depend for their value on modes of action, and not on their external figure or ornament, are not proper subjects for registration, but for patents: and it is important that manufacturers should well understand this distinction; for there is no recalling a registration after it is once made, the act of registration is a publication, and no valid patent could afterwards be secured. The intention of the Registration Act is, to give protection to persons who introduce new designs into the market; and for this purpose the Act is very valuable. Heretofore, a manufacturer, bringing out a new pattern of stove, or fender, or coffee-pot, or urn, or lamp, or table, or candlestick, or tray, or bell-pull, or handles for doors, or new form of button, or for a new form of decanter, or other glass vessel, &c., was in no way protected; on the contrary, a pattern of any article of manufacture which became a favourite with the public, and which ought to have produced considerable profit to the party bringing it out, quickly became copied; and often such party, in place of profit, suffered a loss. In all such cases, the manufacturer may now protect himself by registration. At the same time, considerable care is requisite in the manner of registering a design according to the statute: in some cases the whole article may be of a new design; in other cases, only part of the article will be according to a new design; and it will be evident, that the simple showing of the article complete will not for both cases be a correct registration. This may be made more clear to the reader by again supposing the case to be a new design for the stem of a table-lamp; in such a case, if the whole table-lamp were to be shown and registered, without any statement of that portion to which the registration was intended to apply, the registration would in fact be

for the whole lamp, stem, oil-vessel, and glass-shade, and a change of figure being given to either of the parts, would take it out of the registration; but if the registration pointed out or specified correctly the extent of the pattern proposed to be secured, the alteration of other of the parts shown would not enable another person legally to use the new pattern or design of the part pointed out. Again, supposing the case to be a new design for a fender, and that the registration showed that the fender was supported by balls, if the registration did not define that it was the front surface of the fender, without reference to the means of supporting it, which was intended to be secured by the registration, another person placing the feet of an animal, or other device, as the supports, might not be considered to infringe the registration. In fact, it is clear, that in order to protect a new design for a manufacture, the nature of that design and its extent should be made clear to the public on the face of the document which is registered, in a somewhat similar manner to the specification of a patent. How, otherwise, is the public to know the precise point to which a registration lays claim, any more than if a patentee describes generally a machine or a process partly new and partly old. If the public, on reading the specification fairly, cannot ascertain what is new from what is old, the patent is bad. Is it not natural then to suppose, that a person making a registration, if he mix up old matter of design with new matter of design, (and without which in many cases he cannot show the new design correctly,) and does not point out what constitutes the new portion of design claimed under the registration, that he will be visited with a similar legal construction, and that he will lose the intended protection? The better way, in making registrations of designs under the statute, is, simply to show by drawings, and, if necessary, to describe only so much of any article of manufacture as relates to the novel design or pattern; but where other parts, and parts which may be varied, are considered necessary to be shown, then great care is requisite in pointing out to what extent the registration is intended to extend.

The sixth section of the Act relates to the sale and transfer of registrations, for the particulars of which see the statute itself in the appendix.

There are two classes of persons who may infringe a

registered article. *First*, any person who makes the same for sale, and *Secondly*, any person who sells or offers for sale an article similar to one protected by a registration. It will be found on reading the seventh section of the statute, that a person who only sells or offers for sale, and does not make the article, cannot be convicted of infringement of the registration, unless previously served with notice or otherwise informed of the registration. The words of the section are as follows:

“And for preventing the piracy of registered designs, be it enacted, that during the existence of any such right to the entire or partial use of any such design, no person shall either do or cause to be done any of the following acts with regard to any articles of manufacture, or substances, in respect of which the copyright of such design shall be in force, without the license or consent in writing of the registered proprietor thereof; (that is to say)

“No person shall apply any such design, or any fraudulent imitation thereof for the purpose of sale, to the ornamenting of any article of manufacture, or any substance, artificial or natural, or partly artificial and partly natural:

“No person shall publish, sell, or expose for sale, any article of manufacture, or any substance, to which such design, or any fraudulent imitation thereof, shall have been so applied, after having received, either verbally or in writing, or otherwise from any source other than the proprietor of such design, knowledge that his consent has not been given to such application, or after having been served with or had left at his premises a written notice signed by such proprietor or his agent to the same effect.”

In cases of infringement of any registered design, the proprietor may recover a penalty for every offence of a sum of not less than 5%, and not exceeding 30%; and such penalties may be recovered by action in any of the superior courts of law, or by summoning the offending party before two justices of the peace acting for the county, riding, division, city, or borough, where the offending party resides; and such justices, on hearing the case as directed by the Act, may award the damages.

The words of the eighth section of the statute are as follows:—

“And be it enacted, that if any person commit any

such act, he shall for every offence forfeit a sum not less than five pounds, and not exceeding thirty pounds, to the proprietor of such design in respect of whose right such offence has been committed; and such proprietor may recover such penalty as follows:—

“In *England*, either by an action of debt, or on the case against the party offending, or by summary proceeding before two justices having jurisdiction where the party offending resides; and if such proprietor proceed by such summary proceeding, any justice of the peace acting for the county, riding, division, city, or borough, where the party offending resides, and not being concerned either in the sale or manufacture of the article of manufacture, or in the design to which such summary proceeding relates, may issue a summons requiring such party to appear on a day and at a time and place to be named in such summons, such time not being less than eight days from the date thereof; and every such summons shall be served on the party offending, either in person or at his usual place of abode; and either upon the appearance, or upon the default to appear of the party offending, any two or more of such justices may proceed to the hearing of the complaint, and upon proof of the offence, either by the confession of the party offending, or upon the oath or affirmation, of one or more credible witnesses, which such justices are hereby authorized to administer, may convict the offender in a penalty of not less than five pounds, or more than thirty pounds, as aforesaid, for each offence, as to such justices doth seem fit; but the aggregate amount of penalties for offences in respect of any one design committed by any one person, up to the time at which any of the proceedings herein mentioned shall be instituted, shall not exceed the sum of one hundred pounds; and if the amount of such penalty or of such penalties, and the costs attending the conviction, so assessed by such justices, be not forthwith paid, the amount of the penalty or of the penalties, and of the costs, together with the costs of the distress and sale, shall be levied by distress and sale of the goods and chattels of the offender, wherever the same happen to be in *England*; and the justices before whom the party has been convicted, or, on proof of the conviction, any two justices acting for any county, riding, division, city, or borough in *England*, where goods and chattels of the

person offending happen to be, may grant a warrant for such distress and sale; and the overplus, if any, shall be returned to the owner of the goods and chattels, on demand; and every information and conviction which shall be respectively laid or made in such summary proceeding before two justices under this Act may be drawn or made out in the following forms respectively, or to the effect thereof, *mutatis mutandis*, as the case may require:—

Form of Information.

“ ‘ Be it remembered, that on the _____ at _____
 in the county of _____ *A. B.* of _____ in the
 county of _____ [or *C. D.* of _____ in the
 county of _____ at the instance and on the behalf of
A. B. of _____ in the county of _____] cometh
 before us _____ and _____ two of Her
 Majesty’s justices of the peace in and for the county of
 _____, and giveth us to understand that the said
A. B., before and at the time when the offence herein-
 after mentioned was committed, was the proprietor of a
 new and original design for [*here describe the design*], and
 that within twelve calendar months last past, to wit, on
 the _____ at _____ in the county of
 _____ *E. F.* of _____ in the county of
 _____ did [*here describe the offence*], contrary
 to the form of the Act passed in the _____ year of the
 reign of her present Majesty, intituled “ An Act to con-
 solidate and amend the Laws relating to the copyright
 of Designs for ornamenting Articles of Manufacture.” ’ ”

Form of Conviction.

“ ‘ Be it remembered, that on the _____ day of _____
 in the year of our Lord _____ at _____
 in the county of _____ *E. F.* _____ in the
 county aforesaid is convicted before us _____ and
 _____ two of Her Majesty’s justices of the peace
 for the said county, for that he the said *E. F.* on the
 _____ day of _____ in the year _____ at
 _____ in the county of _____ did [*here describe the offence*]
 contrary to the form of the statute in that case made and
 provided; and we the said justices do adjudge that the
 said *E. F.* for his offence aforesaid hath forfeited the sum
 of _____ to the said *A. B.* ’ ”

“ In *Scotland*, by action before the Court of Session in ordinary form, or by summary action before the sheriff of the county where the offence may be committed or the offender resides, who, upon proof of the offence or offences, either by confession of the party offending, or by the oath or affirmation of one or more credible witnesses, shall convict the offender and find him liable in the penalty or penalties aforesaid, as also in expenses; and it shall be lawful for the sheriff in pronouncing such judgment for the penalty or penalties and costs, to insert in such judgment a warrant, in the event of such penalty or penalties and costs not being paid, to levy and recover the amount of the same by poinding: provided always, that it shall be lawful to the sheriff, in the event of his dismissing the action and assoilzieing the defender, to find the complainer liable in expenses; and any judgment so to be pronounced by the sheriff in such summary application shall be final and conclusive, and not subject to review by advocacy, suspension, reduction, or otherwise.

“ In *Ireland*, either by action in a superior court of law at Dublin, or by civil bill in the Civil Bill Court of the county or place where the offence was committed.”

Lincoln's Inn, May 3, 1843.

ACT REFERRED TO IN THE FOREGOING.

5 & 6 VICTORIA.

CAP. C.—*An Act to consolidate and amend the Laws relating to the Copyright of Designs for ornamenting Articles of Manufacture.*

WHEREAS by the several Acts mentioned in the Schedule (A.) to this Act annexed, there was granted, in respect of the woven fabrics therein mentioned, the sole right to use any new and original pattern for printing the same during the period of three calendar months: and whereas by the Act mentioned in the Schedule (B.) to this Act annexed, there was granted, in respect of all articles, except lace, and except the articles within the meaning of the Acts hereinbefore referred to, the sole right of using any new and original design, for certain purposes, during the respective periods therein mentioned; but forasmuch as the protection afforded by the said Acts in respect of the application of designs to certain articles of manufacture is insufficient, it is expedient to extend the same, but upon the conditions herein-after expressed; now, for that purpose, and for the purpose of consolidating the provisions of the said Acts, be it enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of

the same, that this Act shall come into operation on the first day of September, one thousand eight hundred and forty-two, and that thereupon all the said Acts mentioned in the said Schedules (A.) and (B.) to this Act annexed shall be and they are hereby repealed.

II. Provided always, and be it enacted, that notwithstanding such repeal of the said Acts, every copyright in force under the same shall continue in force till the expiration of such copyright; and with regard to all offences or injuries committed against any such copyright before this Act shall come into operation, every penalty imposed and every remedy given by the said Acts, in relation to any such offence or injury, shall be applicable as if such Acts had not been repealed; but with regard to such offences or injuries committed against any such copyright after this Act shall come into operation, every penalty imposed and every remedy given by this Act in relation to any such offence or injury shall be applicable as if such copyright had been conferred by this Act.

III. And with regard to any new and original design (except for sculpture and other things within the provisions of the several Acts mentioned in the schedule (C.) to this Act annexed), whether such design be applicable to the ornamenting of any article of manufacture, or of any substance, artificial or natural, or partly artificial and partly natural, and that whether such design be so applicable for the pattern, or for the shape or configuration, or for the ornament thereof, or for any two or more of such purposes, and by whatever means such design may be so applicable, whether by printing, or by painting, or by embroidery, or by weaving, or by sewing, or by modelling, or by casting, or by embossing, or by engraving, or by staining, or by any other means whatsoever, manual, mechanical, or chemical, separate or combined; be it enacted, that the proprietor of every such design, not previously published either within the United Kingdom of Great Britain and Ireland, or elsewhere, shall have the sole right to apply the same to any articles of manufacture, or to any such substances as aforesaid, provided the same be done within the United Kingdom of Great Britain and Ireland, for the respective terms hereinafter mentioned, such respective terms to be computed from the time of such design being registered according to this Act; (that is to say,)

In respect of the application of any such design to ornamenting any article of manufacture contained in the first, second, third, fourth, fifth, sixth, eighth, or eleventh of the classes following, for the term of three years:

In respect of the application of any such design to ornamenting any article of manufacture contained in the seventh, ninth, or tenth of the classes following, for the term of nine calendar months:

In respect of the application of any such design to ornamenting any article of manufacture or substance contained in the twelfth or thirteenth of the classes following, for the term of twelve calendar months:

Class 1.—Articles of manufacture composed wholly or chiefly of any metal or mixed metals:

Class 2.—Articles of manufacture composed wholly or chiefly of wood:

Class 3.—Articles of manufacture composed wholly or chiefly of glass:

Class 4.—Articles of manufacture composed wholly or chiefly of earthenware:

Class 5.—Paper hangings :

Class 6.—Carpets :

Class 7.—Shawls, if the design be applied solely by printing, or by any other process by which colours are or may hereafter be produced upon tissue or textile fabrics :

Class 8.—Shawls not comprised in class 7 :

Class 9.—Yarn, thread, or warp, if the design be applied by printing, or by any other process by which colours are or may hereafter be produced :

Class 10.—Woven fabrics, composed of linen, cotton, wool, silk, or hair, or of any two or more of such materials, if the design be applied by printing, or by any other process by which colours are or may hereafter be produced upon tissue or textile fabrics; excepting the articles included in class 11 :

Class 11.—Woven fabrics, composed of linen, cotton, wool, silk, or hair, or of any two or more of such materials, if the design be applied by printing, or by any other process by which colours are or may hereafter be produced upon tissue or textile fabrics, such woven fabrics being or coming within the description technically called furnitures, and the repeat of the design whereof shall be more than twelve inches by eight inches :

Class 12.—Woven fabrics, not comprised in any preceding class :

Class 13.—Lace, and any article of manufacture or substance not comprised in any preceding class.

IV. Provided always, and be it enacted, that no person shall be entitled to the benefit of this Act, with regard to any design in respect of the application thereof to ornamenting any article of manufacture, or any such substance, unless such design have before publication thereof been registered according to this Act, and unless at the time of such registration such design have been registered in respect of the application thereof to some or one of the articles of manufacture or substances comprised in the above-mentioned classes, by specifying the number of the class in respect of which such registration is made, and unless the name of such person shall be registered according to this Act as a proprietor of such design, and unless after publication of such design every such article of manufacture, or such substance to which the same shall be so applied, published by him, hath thereon, if the article of manufacture be a woven fabric for printing, at one end thereof, or, if of any other kind or such substance as aforesaid, at the end or edge thereof, or other convenient place thereon, the letters "R^d," together with such number or letter, or number and letter, and in such form as shall correspond with the date of the registration of such design according to the registry of designs in that behalf; and such marks may be put on any such article of manufacture or such substance, either by making the same in or on the material itself of which such article or such substance shall consist, or by attaching thereto a label containing such marks.

V. And be it enacted, that the author of any such new and original design shall be considered the proprietor thereof, unless he have executed the work on behalf of another person for a good or a valuable consideration, in which case such person shall be considered the proprietor, and shall be entitled to be registered in the place of the author; and every person acquiring for a good or a valuable consideration a new and original design, or the right to apply the same to ornamenting any one or more articles of manufacture, or any one or more such substances

as aforesaid, either exclusively of any other person or otherwise, and also every person upon whom the property in such design or such right to the application thereof shall devolve, shall be considered the proprietor of the design in the respect in which the same may have been so acquired, and to that extent, but not otherwise.

VI. And be it enacted, that every person purchasing or otherwise acquiring the right to the entire or partial use of any such design may enter his title in the register hereby provided, and any writing purporting to be a transfer of such design, and signed by the proprietor thereof, shall operate as an effectual transfer; and the registrar shall, on request, and the production of such writing, or in the case of acquiring such right by any other mode than that of purchase, on the production of any evidence to the satisfaction of the registrar, insert the name of the new proprietor in the register; and the following may be the form of such transfer, and of such request to the registrar:—

Form of Transfer, and authority to register.

‘I A. B., author [or proprietor] of design, No. having transferred my right thereto, [or, if such transfer be partial,] so far as regards the ornamenting of [describe the articles of manufacture or substances, or the locality with respect to which the right is transferred,] to B. C. of do hereby authorize you to insert his name on the register of designs accordingly.’

Form of request to register.

‘I B. C., the person mentioned in the above transfer, do request you to register my name and property in the said design as entitled [if to the entire use] to the entire use of such design, [or, if to the partial use,] to the partial use of such design, so far as regards the application thereof [describe the articles of manufacture, or the locality in relation to which the right is transferred].’

But if such request to register be made by any person to whom any such design shall devolve otherwise than by transfer, such request may be in the following form:—

‘I C. D., in whom is vested by [state bankruptcy or otherwise] the design, No. [or if such devolution be of a partial right, so far as regards the application thereof] to [describe the articles of manufacture or substance, or the locality in relation to which the right has devolved].’

VII. And for preventing the piracy of registered designs, be it enacted, that during the existence of any such right to the entire or partial use of any such design no person shall either do or cause to be done any of the following acts with regard to any articles of manufacture, or substances, in respect of which the copyright of such design shall be in force, without the license or consent in writing of the registered proprietor thereof; (that is to say,)

No person shall apply any such design, or any fraudulent imitation thereof for the purpose of sale, to the ornamenting of any article of manufacture, or any substance, artificial or natural, or partly artificial and partly natural:

No person shall publish, sell, or expose for sale any article of manu-

facture, or any substance, to which such design, or any fraudulent imitation thereof, shall have been so applied, after having received, either verbally or in writing, or otherwise from any source other than the proprietor of such design, knowledge that his consent has not been given to such application, or after having been served with or had left at his premises a written notice signed by such proprietor or his agent to the same effect.

VIII. And be it enacted, that if any person commit any such act, he shall for every offence forfeit a sum not less than five pounds and not exceeding thirty pounds to the proprietor of the design in respect of whose right such offence has been committed; and such proprietor may recover such penalty as follows:—

In *England*, either by an action of debt or on the case against the party offending, or by summary proceeding before two justices having jurisdiction where the party offending resides; and if such proprietor proceed by such summary proceeding, any justice of the peace acting for the county, riding, division, city, or borough, where the party offending resides, and not being concerned either in the sale or manufacture of the article of manufacture, or in the design to which such summary proceeding relates, may issue a summons requiring such party to appear on a day and at a time and place to be named in such summons, such time not being less than eight days from the date thereof; and every such summons shall be served on the party offending, either in person or at his usual place of abode; and either upon the appearance or upon the default to appear of the party offending, any two or more of such justices may proceed to the hearing of the complaint, and upon proof of the offence, either by the confession of the party offending, or upon the oath or affirmation of one or more credible witnesses, which such justices are hereby authorized to administer, may convict the offender in a penalty of not less than five pounds or more than thirty pounds, as aforesaid, for each offence, as to such justices doth seem fit; but the aggregate amount of penalties for offences in respect of any one design committed by any one person, up to the time at which any of the proceedings herein mentioned shall be instituted, shall not exceed the sum of one hundred pounds; and if the amount of such penalty or of such penalties, and the costs attending the conviction, so assessed by such justices, be not forthwith paid, the amount of the penalty or of the penalties, and of the costs, together with the costs of the distress and sale, shall be levied by distress and sale of the goods and chattels of the offender, wherever the same happen to be in *England*; and the justices before whom the party has been convicted, or, on proof of the conviction, any two justices acting for any county, riding, division, city, or borough in *England*, where goods and chattels of the person offending happen to be, may grant a warrant for such distress and sale; and the overplus, if any, shall be returned to the owner of the goods and chattels, on demand: and every information and conviction which shall be respectively laid or made in such summary proceeding before two justices under this act may be drawn or made out in the following forms respectively, or to the effect thereof, *mutatis mutandis*, as the case may require:—

Form of Information.

' Be it remembered, that on the _____ at _____
 ' in the county of _____ *A. B.* of _____ in the county
 ' of _____ [*or C. D.* of _____ in the county of _____
 ' at the instance and on the behalf of *A. B.* of _____ in
 ' the county of _____] cometh before us _____ and
 ' two of Her Majesty's justices of the peace in and
 ' for the county of _____, and giveth us to understand that
 ' the said *A. B.*, before and at the time when the offence herein-
 ' after mentioned was committed, was the proprietor of a new and
 ' original design for [*here describe the design*], and that within
 ' twelve calendar months last past, to wit, on the _____ at
 ' _____ in the county of _____ *E. F.* of
 ' in the county of _____ did [*here describe the offence*],
 ' contrary to the form of the act passed in the _____ year
 ' of the reign of Her present Majesty, intituled, "*An Act to con-*
 ' *solidate and amend the Laws relating to the Copyright of Designs*
 ' *for ornamenting Articles of Manufacture.*"

Form of Conviction.

' Be it remembered, that on the _____ day of _____
 ' in the year of our Lord _____ at _____ in the
 ' county of _____ *E. F.* of _____ in the county afore-
 ' said is convicted before us _____ and _____ two of
 ' Her Majesty's justices of the peace for the said county, for that he
 ' the said *E. F.* on the _____ day of _____ in the year
 ' at _____ in the county of _____ did [*here describe*
 ' *the offence*] contrary to the form of the statute in that case made
 ' and provided; and we the said justices do adjudge that the said
 ' *E. F.* for his offence aforesaid hath forfeited the sum of
 ' to the said *A. B.*'

In *Scotland*, by action before the Court of Session in ordinary form,
 or by summary action before the sheriff of the county where the
 offence may be committed or the offender resides, who, upon proof
 of the offence or offences, either by confession of the party offend-
 ing or by the oath or affirmation of one or more credible witnesses,
 shall convict the offender and find him liable in the penalty or
 penalties aforesaid, as also in expenses; and it shall be lawful for
 the sheriff, in pronouncing such judgment for the penalty or
 penalties and costs, to insert in such judgment a warrant, in the
 event of such penalty or penalties and costs not being paid, to levy
 and recover the amount of the same by poinding: provided always,
 that it shall be lawful to the sheriff, in the event of his dismissing
 the action and assoilzieing the defender, to find the complainer
 liable in expenses; and any judgment so to be pronounced by the
 sheriff in such summary application shall be final and conclusive,
 and not subject to review by advocation, suspension, reduction, or
 otherwise:

In *Ireland*, either by action in a superior court of law at *Dublin* or by
 civil bill in the Civil Bill Court of the county or place where the
 offence was committed.

IX. Provided always, and be it enacted, that notwithstanding the
 remedies hereby given for the recovery of any such penalty as aforesaid,

it shall be lawful for the proprietor in respect of whose right such penalty shall have been incurred (if he shall elect to do so) to bring such action as he may be entitled to for the recovery of any damages which he shall have sustained, either by the application of any such design or of a fraudulent imitation thereof, for the purpose of sale, to any articles of manufacture or substances, or by the publication, sale, or exposure to sale, as aforesaid, by any person, of any article or substance to which such design or any fraudulent imitation thereof shall have been so applied, such person knowing that the proprietor of such design had not given his consent to such application.

X. And be it enacted, that in any suit in equity which may be instituted by the proprietor of any design or the person lawfully entitled thereto, relative to such design, if it shall appear to the satisfaction of the judge having cognizance of such suit that the design has been registered in the name of a person not being the proprietor or lawfully entitled thereto, it shall be competent for such judge, in his discretion, by a decree or order in such suit to direct either that such registration be cancelled (in which case the same shall thenceforth be wholly void), or that the name of the proprietor of such design, or other person lawfully entitled thereto, be substituted in the register for the name of such wrongful proprietor or claimant, in like manner as hereinbefore directed in case of the transfer of a design, and to make such order respecting the costs of such cancellation or substitution, and of all proceedings to procure and effect the same, as he shall think fit; and the registrar is hereby authorized and required, upon being served with an official copy of such decree or order, and upon payment of the proper fee, to comply with the tenour of such decree or order, and either cancel such registration or substitute such new name, as the case may be.

XI. And be it enacted, that unless a design applied to ornamenting any article of manufacture or any such substance as aforesaid, be so registered as aforesaid, and unless such design so registered shall have been applied to the ornamenting such article or substance within the United Kingdom of *Great Britain and Ireland*, and also after the copyright of such design in relation to such article or substance shall have expired, it shall be unlawful to put on any such article or such substance, in the manner hereinbefore required with respect to articles or substances whereto shall be applied a registered design, the marks hereinbefore required to be so applied, or any marks corresponding therewith or similar thereto; and if any person shall so unlawfully apply any such marks, or shall publish, sell, or expose for sale any article of manufacture, or any substance with any such marks so unlawfully applied, knowing that any such marks have been unlawfully applied, he shall forfeit for every such offence a sum not exceeding five pounds, which may be recovered by any person proceeding for the same by any of the ways hereinbefore directed with respect to penalties for pirating any such design.

XII. And be it enacted, that no action or other proceeding for any offence or injury under this Act shall be brought after the expiration of twelve calendar months from the commission of the offence; and in every such action or other proceeding of the party who shall prevail shall recover his full costs of suit or of such other proceeding.

XIII. And be it enacted, that in the case of any summary proceeding before any two justices in *England*, such justices are hereby authorized to award payment of costs to the party prevailing, and to grant a warrant for enforcing payment thereof against the summoning party if

unsuccessful, in the like manner as is hereinbefore provided for recovering any penalty with costs against any offender under this Act.

XIV. And for the purpose of registering designs for articles of manufacture, in order to obtain the protection of this Act, be it enacted, that the Lords of the Committee of Privy Council for the consideration of all matters of trade and plantations may appoint a person to be a registrar of designs for ornamenting articles of manufacture, and, if the Lords of the said Committee see fit, a deputy registrar, clerks, and other necessary officers and servants; and such registrar, deputy registrar, clerks, officers, and servants, shall hold their offices during the pleasure of the Lords of the said Committee; and the Commissioners of the Treasury may from time to time fix the salary or remuneration of such registrar, deputy registrar, clerks, officers, and servants; and, subject to the provisions of this Act, the Lords of the said Committee may make rules for regulating the execution of the duties of the office of the said registrar; and such registrar shall have a seal of office.

XV. And be it enacted, that the said registrar shall not register any design in respect of any application thereof to ornamenting any articles of manufacture or substances, unless he be furnished, in respect of each such application, with two copies, drawings, or prints of such design, accompanied with the name of every person who shall claim to be proprietor, or of the style or title of the firm under which such proprietor may be trading, with his place of abode or place of carrying on his business, or other place of address, and the number of the class in respect of which such registration is made; and the registrar shall register all such copies, drawings, or prints, from time to time successively, as they are received by him for that purpose; and on every such copy, drawing, or print he shall affix a number corresponding to such succession; and he shall retain one copy, drawing, or print, which he shall file in his office, and the other he shall return to the person by whom the same has been forwarded to him; and in order to give ready access to the copies of designs so registered, he shall class such copies of designs, and keep a proper index of each class.

XVI. And be it enacted, that upon every copy, drawing, or print of an original design so returned to the person registering, as aforesaid, or attached thereto, and upon every copy, drawing, or print thereof received for the purpose of such registration, or of the transfer of such design being certified thereon, or attached thereto, the registrar shall certify under his hand that the design has been so registered, the date of such registration, and the name of the registered proprietor or the style or title of the firm under which such proprietor may be trading, with his place of abode or place of carrying on his business, or other place of address, and also the number of such design, together with such number or letter, or number and letter, and in such form as shall be employed by him to denote or correspond with the date of such registration; and such certificate made on every such original design, or on such copy thereof, and purporting to be signed by the registrar or deputy registrar, and purporting to have the seal of office of such registrar affixed thereto, shall, in the absence of evidence to the contrary, be sufficient proof, as follows,

Of the design, and of the name of the proprietor therein mentioned, having been duly registered; and

Of the commencement of the period of registry; and

Of the person named therein as proprietor being the proprietor; and

Of the originality of the design; and

Of the provisions of this Act, and of any rule under which the certificate appears to be made, having been complied with:

And any such writing purporting to be such certificate shall, in the absence of evidence to the contrary, be received as evidence, without proof of the handwriting of the signature thereto, or of the seal of office affixed thereto, or of the person signing the same being the registrar or deputy registrar.

XVII. And be it enacted, that every person shall be at liberty to inspect any design whereof the copyright shall have expired, paying only such fee as shall be appointed by virtue of this Act, in that behalf; but with regard to designs whereof the copyright shall not have expired, no such design shall be open to inspection, except by a proprietor of such design or by any person authorized by him in writing, or by any person specially authorized by the registrar, and then only in the presence of such registrar or in the presence of some person holding an appointment under this Act, and not so as to take a copy of any such design or of any part thereof, nor without paying for every such inspection such fee as aforesaid: provided always, that it shall be lawful for the said registrar to give to any person applying to him, and producing a particular design, together with the registration mark thereof, or producing such registration mark only, a certificate stating whether of such design there be any copyright existing, and if there be, in respect to what particular article of manufacture or substance such copyright exists, and the term of such copyright, and the date of registration, and also the name and address of the registered proprietor thereof.

XVIII. And be it enacted, that the Commissioners of the Treasury shall from time to time fix fees to be paid for the services to be performed by the registrar, as they shall deem requisite, to defray the expenses of the said office, and the salaries or other remuneration of the said registrar, and of any other persons employed under him, with the sanction of the Commissioners of the Treasury, in the execution of this Act; and the balance, if any, shall be carried to the Consolidated Fund of the United Kingdom, and be paid accordingly into the receipt of Her Majesty's Exchequer at Westminster; and the Commissioners of the Treasury may regulate the manner in which such fees are to be received, and in which they are to be kept, and in which they are to be accounted for, and they may also remit or dispense with the payment of such fees in any cases where they may think it expedient so to do: provided always, that the fee for registering a design to be applied to any woven fabric, mentioned or comprised in classes 7, 9, or 10, shall not exceed the sum of one shilling; that the fee for registering a design to be applied to a paper-hanging shall not exceed the sum of ten shillings; and that the fee to be received by the registrar for giving a certificate relative to the existence or expiration of any copyright in any design printed on any woven fabric, yarn, thread, or warp, or printed, embossed, or worked on any paper-hanging, to any person exhibiting a piece end of a registered pattern, with the registration mark thereon, shall not exceed the sum of two shillings and sixpence.

XIX. And be it enacted, that if either the registrar or any person employed under him either demand or receive any gratuity or reward, whether in money or otherwise, except the salary or remuneration authorized by the Commissioners of the Treasury, he shall forfeit for every such offence fifty pounds to any person suing for the same by

action of debt in the Court of Exchequer at Westminster; and he shall also be liable to be suspended or dismissed from his office, and rendered incapable of holding any situation in the said office, as the Commissioners of the Treasury see fit.

XX. And for the interpretation of this Act, be it enacted, that the following terms and expressions, so far as they are not repugnant to the context of this Act, shall be construed as follows; (that is to say,) the expression "Commissioners of the Treasury" shall mean the Lord High Treasurer for the time being, or the Commissioners of Her Majesty's Treasury for the time being, or any three or more of them; and the singular number shall include the plural as well as the singular number; and the masculine gender shall include the feminine gender as well as the masculine gender.

XXI. And be it enacted, that this Act may be amended or repealed by any Act to be passed in the present Session of Parliament.

Schedules referred to by the foregoing Act.

SCHEDULE (A.)

DATE OF ACTS.	TITLE.
27 Geo. 3. c. 38. (1787.)	An Act for the encouragement of the arts of designing and printing linens, cottons, calicoes, and muslins, by vesting the properties thereof in the designers, printers, and proprietors for a limited time.
29 Geo. 3. c. 19. (1789.)	An Act for continuing an Act for the encouragement of the arts of designing and printing linens, cottons, calicoes, and muslins, by vesting the properties thereof in the designers, printers, and proprietors for a limited time.
34 Geo. 3. c. 23. (1794.)	An Act for amending and making perpetual an Act for the encouragement of the arts of designing and printing linens, cottons, calicoes, and muslins, by vesting the properties thereof in the designers, printers, and proprietors for a limited time.
2 Vict. c. 13. (1839.)	An Act for extending the copyright of designs for calico printing to designs for printing other woven fabrics.

SCHEDULE (B.)

2 Vict. c. 17. (1839.)	An Act to secure to proprietors of designs for articles of manufacture the copyright of such designs for a limited time.
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SCHEDULE (C.)

38 Geo. 3. c. 71. (1798.)	An Act for encouraging the art of making new models and casts of busts and other things therein mentioned.
54 Geo. 3. c. 56. (1814.)	An Act to amend and render more effectual an Act for encouraging the art of making new models and casts of busts and other things therein mentioned, and for giving further encouragement to such arts.

Table of Fees, &c.

CLASS.	ARTICLE.	COPYRIGHT.	FEES.		
			£.	s.	d.
1.	Articles in metal	3 years	3	0	0
2.	Articles in wood	3 „	1	0	0
3.	Articles in earthenware	3 „	1	0	0
4.	Articles in glass	3 „	1	0	0
5.	Paper hangings	3 „	0	10	0
6.	Carpets	3 „	1	0	0
7.	Shawls (patterns printed)	9 months	0	1	0
8.	Shawls (patterns not printed)	3 years	1	0	0
9.	Yarn, thread or warp (printed)	9 months	0	1	0
10.	Woven fabrics, not furnitures (pat- terns printed)	9 „	0	1	0
11.	Woven fabrics, furnitures (patterns printed)	3 years	0	5	0
12.	Woven fabrics (patterns not printed)	12 months	0	5	0
13.	Lace and all other articles	12 „	0	5	0
	Certifying design same as registration fee, but for class 1		1	0	0
	Cancellation or substitution		1	0	0
	Search		0	2	6
	Inspection of designs of which the copyright has expired, each class		0	1	0

2012
1/1/12

ALEXANDER MACINTOSH,
PRINTER,
GREAT NEW STREET, LONDON.

ADDRESS.

THE main object of this publication is to give a regular abstract of all Specifications of Patents of Inventions enrolled. Hitherto, this most important desideratum has been but very partially attended to, whereby the nature of many patented Inventions is totally unknown, particularly such as have only been worked in private, or are altogether dormant; and manufacturers frequently find, after great outlay of capital, that they have been infringing upon some Patentee's right, entirely from ignorance of its existence. To remedy this evil is the object of the present work; which will contain copious Abstracts of every Specification, in the order in which they are enrolled during each month, commencing from the 1st August, thus affording the means of immediate information and ready reference,—the necessity and importance of which will be evident to every Inventor and intending Patentee. In addition to this, the "RECORD" will contain

ADDRESS.

Lists of all new Patents granted during each month, also
Law Reports of Patent Cases, and Scientific Notices.

It is therefore confidently hoped that a publication
embodying so much valuable information will meet with
the support of the great body of Inventors; the price,
moreover, being such as to place it within the reach of
the most humble mechanic.

ALEXANDER PRINCE.

OFFICE FOR PATENTS OF INVENTIONS,
14, Lincoln's-Inn Fields.

30th September, 1842.

JUL 12 1927

The Record
OF
PATENT INVENTIONS.

No. I.

SPECIFICATION enrolled 1st August, 1842, of a PATENT granted 2nd February, 1842, to HENRY FOWLER BROADWOOD, of No. 33, Great Pulteney Street, Golden Square, in the county of Middlesex, for
“an improvement in that part of a piano-forte, harpsichord, or other the like instrument, commonly called the name board.”

THIS improvement consists in that part of the piano-forte commonly called the name board, and which forms the back part of the key board, being divided into two parts, in the direction of its length. The upper part contains the maker's name and address; the lower part is fixed by means of a centre pin in each end, in such a manner as to revolve, thereby presenting either surface of such board to view. One of these surfaces may be made plain, so as to correspond with the upper part of the board; the other surface, which constitutes the improvement, is engraved with a gamut, or scale, extending throughout its whole length, and showing the names of all the notes. Below this scale, and on the lower edge of the board, is

shewn a continuation of all the black and white keys, so as to present, at one view, to the eye of the student, a complete scale and gamut, with the name of each key and note. The inventor states that this will be found a very useful improvement in school-room piano-fortes.

V

SPECIFICATION enrolled 3rd August, 1842, of a **PATENT** granted 8th February, 1842, to **ADDERLEY WILLCOCKS SLEIGH, K.T.S.**, of Manchester, in the county of Lancashire, captain in Her Most Faithful Majesty's service, for "*a certain method, or certain methods, of effecting and forming sheltered floating harbours of safety, by the employment of certain buoyant sea barriers applicable thereto; and which said improvements are also applicable to, and useful for, the formation of breakwaters, floating bridges, light-houses, and beacons, the protection of pier-heads or embankments, and for other similar purposes.*"

THE invention consists in the construction and adaptation of sloping or oblique platforms, mounted upon, or supported by, floating hollow vessels or caissons, by which the platforms are always maintained in sloping or oblique positions, and are enabled to rise and fall with the tide. These sloping platforms and floating vessels, when constructed, are to be so arranged as to form sea and wind barriers, for sheltering ships and other vessels, and also pier-heads, bridges, and other structures requiring such shelter, from the ordinary destructive effects of heavy seas and gales of wind.

A transverse section is shown of a floating breakwater constructed on the patentee's system. The hollow vessel or caisson is represented as made of ribs of timber, strongly planked on the outside, and made perfectly water-tight and buoyant; but it may be constructed of sheet iron or other suitable material. This caisson is made in the form of an oblong longitudinal wedge, the back part is rounded like the side of a vessel, and the bottom, or that part immersed in the water, is made perfectly flat, whilst the surface or deck rises at an acute angle from the extreme edge of the bottom, forming an inclined plane, which extends in a longitudinal direction the whole length of the structure. Through the centre of this caisson, and above its whole length, extends a strong timber beam or keel, which will be the centre of motion, on which the caisson floats. The top, bottom, and sides are supported by internal stays or bracings, abutting against the timber beam or keel. The whole structure is surmounted by a sloping platform, which is firmly secured to it by wooden or iron bracings or stays. Strong rings are attached for moving it securely in any desired place. The lower end of this platform is immersed in water, and its face or inclined plane rises at an angle of about 30 degrees (in imitation of the slope of a supposed beach) to a considerable distance beyond the top of the caisson or vessel, thereby offering a modified resistance to the violence of the winds and waves, by which means their destructive effects will be much lessened, and the water behind will be sheltered from the action of the tempest. These floating breakwaters may be made of any dimensions; and in order to form a sea and wind barrier or harbour of refuge, a suitable number may be moored side by side, either in a straight or curved line, as may be required, and be connected together by universal ball and socket

joints placed at the ends of the keel or beam, by which they will be allowed to roll upon their centres of gravity, or yield temporarily in any other way to the violence of the winds or waves.

The drawings also show the manner of arranging these sea barriers or floating breakwaters, connected together as above described, for the purpose of forming a harbour of refuge, and also the manner of mooring them to the bottom of the sea, by means of chains and cables attached at one end to the rings before stated, and at the other end to anchors fixed to the ground under water. Instead of the peculiar shaped caisson or floating vessel above described, a floating frame work, supported by a number of barrels or other hollow wooden or iron vessels may be used, and the sloping platform or inclined plane may be attached or connected thereon, or the inclined platform may be supported by a raft. The floating supports may even be dispensed with altogether, by connecting the platform at one end, by means of chains, cables, or in any other suitable manner, to the bottom of the sea, so that the upper edge of the platform may rise from the water in an inclined direction.

The inventor wishes it to be perfectly understood, that he does not intend to confine himself to the methods above described, of constructing and floating his improved sea and wind barrier; but he claims, as his invention, the employment, as breakwaters, of portable sloping platforms or inclined planes, partially immersed in the water, in whatever manner, or of whatsoever materials such inclined planes may be constructed, or in whatever way they may be floated or buoyed up, in or on the water, and held in the required situations, when such portable and buoyant inclined planes are employed for the purposes or objects above stated.

✓

SPECIFICATION enrolled 6th August, 1842, of a PATENT granted 15th February, 1842, to GEORGE HADEN, of Trowbridge, in the county of Wilts, engineer, for "*certain improvements in apparatus for warming and ventilating buildings.*"

THESE improvements consist in the application, to the external sides of stoves, grates, and other warming apparatus, of certain metallic plates, or zig-zag pieces, which being cast on to, or otherwise fixed to, the sides of the stove, or grate, increase the extent and effect of the heating surfaces, and also cause currents of air to pass with considerable rapidity in close contact with these heated surfaces, by which means the air becomes warmed, and such warmed air may then be conducted to any apartment that may require to have its temperature raised.

The method employed by the inventor of obtaining an increased extent of heating surface, is, by casting or affixing with hard solder, on the sides of rectangular stoves, a number of plates at right angles to the plane upon which they are affixed, and which may form either right or curved lines. These plates, which are represented in the drawing of a zig-zag form, may be of any breadth, from one to twelve inches, according to the size of the stoves, and may also be arranged in any direction, or at any angle, with reference to the sides of the stoves. The sides and top of the stove being furnished with any number of these plates, and arranged in any convenient manner, such stove is then provided with an external casing of any suitable material, which is made to touch the outer edges of the projecting plates, thereby forming, between the case and

the stove, a number of zig-zag channels, through which atmospheric air is conducted from below, through apertures made for that purpose. Metals being good conductors of heat, the projecting plates thus connected to the sides of the stoves become heated by the fire within, and the air being obliged to pass in narrow streams between these plates, acquires a considerable degree of heat, and on arriving at the top, may be conducted, through a pipe or flue, to other apartments, or may be allowed to pass at once into the room containing the apparatus. This stove may also be employed for diffusing heat, produced from hot water, or from steam or gas, which is effected by the application of a narrow water chamber surrounding the fire place, with the projecting plates affixed to the outer part, as before described. The inventor prefers such plates to be cast on the stoves, so as to form component parts thereof. Pure atmospheric air may be supplied to the apparatus, by means of pipes or flues leading from the outside of the building, and, by thus causing a constant draught, ventilate the apartments.

The patentee states that one of the principal advantages to be derived from this invention is the increased extent of heating surface obtained by the application of the projecting plates, whereby a small stove may be made to give out as much or more heat than one of larger dimensions, having plain sides, as at present made.

Claim.—The application of projecting plates, or pieces placed in zig-zag ranges, and at any angles on the sides or surfaces of stoves, or grates, or other apparatus for diffusing heat by radiation and rapid circulation of the atmospheric air.

SPECIFICATION enrolled 8th August, 1842, of a PATENT granted 8th February, 1842, to WILLIAM NEWTON, of Chancery Lane, in the county of Middlesex, civil engineer, for "*certain improved apparatus, to be adapted to lace-making machinery, for the production of a novel description of elastic fabric from silk, cotton, woollen, linen, and other fibrous materials.*" Being a communication from a foreigner residing abroad.

THIS improved apparatus consists in certain mechanism to be applied to lace-machinery, for producing a novel description of elastic fabric, by the introduction of threads of cotton or silk into the net lace, for the purpose of filling up the meshes and other open parts.

THIS apparatus, as stated in the Specification, will admit of several modifications, which will be necessary in order to apply it to different machines. The first description of this improvement shows the apparatus applied to a French machine, and consists of certain mechanical arrangements for communicating motion to a shuttle, whereby the silk or other material in the shuttle, intended to constitute the weft of the fabric, is carried across the machine whilst the presser is up, and being held in tension, in a proper situation to be acted upon by the evolutions of a lace-machine, becomes woven into the fabric, thereby closing the interstices and other open work, and forming a body to lace resembling a satin ground.

THE construction of this apparatus, as applied to lace-machinery of the ordinary construction used in England, is as follows:—On the left hand end of the cranked-formed shaft of a common warp lace-machine, is affixed a bevil wheel which takes into and drives another wheel affixed on the end of a transverse shaft, communicating

motion at its opposite end in the same manner (by bevelled wheels) to the "main shaft;" upon this shaft, and near the centre of the machine, are two cams, which impart motion to two levers, moving upon an axis affixed to each frame end, and extending to or near the centre of the machine; the ends of these levers are connected together by a band passing over a pulley affixed on the end of a transverse shaft placed above the machine; thus, by the action of the cams, a reciprocating rotary motion will be given to the said transverse shaft by the vibration of the levers. On the opposite end of this shaft is another pulley of larger diameter, communicating motion, by means of a band, to a small pulley affixed at the left hand end of the machine, on the axis of which is a second pulley, corresponding with, and equal in diameter to, a pulley affixed at the opposite end of the machine: over these two last mentioned pulleys passes an endless band, to which is attached the weft carrier, which is supplied from a bobbin affixed in any convenient manner above the machine. In place of this weft carrier, which in the present case moves upon a bar with a dovetailed slide, the inventor sometimes uses a shuttle. It will be seen, when we compare the driving pulleys with the driven, that, the to and fro motion of this weft carrier, by the action of the aforesaid levers, will be very rapid.

The weft thread being thrown along the machine, immediately after the ^{loops} have been put upon the needles, the presser bar comes down upon the beards of the needles, and the sinkers rise and come forward to force the work over the beards and heads of the needles in the usual manner; the sinkers then descend, and falling back, the nibs of the sinkers take the work, together with the weft threads, on to the shafts of the needles, when the machine laps again, and thereby incorporates the weft threads into

the work, and have the effect of filling up the meshes and other interstices of the lace.

The claim is for the application of carriers or shuttles, actuated by bands, as described, or by other mechanical agents, for conducting across the machine, longitudinally, weft thread or threads, independently of the ordinary carrying parts of such machine; by means of which, such independent weft thread or threads may be placed so as to be incorporated or worked into the meshes, or interstices of the lace, during the ordinary evolutions of the machine, by which the fabric is produced.

SPECIFICATION enrolled 8th August, 1842, of a PATENT granted 8th February, 1842, to CHARLES HANCOCK, of Grosvenor Place, in the county of Middlesex, artist, for "*certain improvements in printing cotton, silk, woollen, and other stuffs.*"

THESE improvements relate to printing such fabrics without the application of a mordant or sizes, for the purpose of preparing such goods previous to printing, also in printing them partly with oil colours and partly with water colours, or dischargeable resists. For this purpose, the patentee mixes linseed oil, or nut oil, or other oil of a drying nature, with burnt Turkey umber, in the proportion of one gallon of oil to one pound of umber, and boils the mixture over a slow fire. This boiling is continued until the mixture gives indication of having parted, or nearly so, with most of its evaporative constituents. Care must be taken to draw the fire, before any depositions of carbon take place, as they would have a discolouring effect. The substance thus prepared will resemble and have the consistence of dissolved India rubber, and will

be found to flow freely by the application of gentle heat or pressure, and will not soil on being brought into contact with textile fabrics, or paper. When it is desirable to have the medium of a more drying nature, or of a more adhesive quality, a little white vitriol, litharge, sugar of lead, or other dryer, may be added : the mixture may also be thinned down with oil of turpentine, if required. In order to combine the composition or medium above mentioned with any of the pigments or other matters suitable for the printing of cotton, silk, woollen, or other fabrics, the combination is to be effected in a vessel heated by steam, such as are employed by colour manufacturers. When the colours are to be applied to the stuffs, it may be done without the stuffs undergoing previous preparation with mordants, sizes, oils, or otherwise, by means of cylindrical printing machines or plates. If the preparation be previously thinned with oil of turpentine, the colour may be applied in a cold state ; if otherwise, the application of heat to the trough, as also to the cylinder or plate, will be necessary, which may be effected by steam in the usual manner. Should any smell be imparted to the stuffs by the use of turpentine, it may be removed by exposing them to the air. In some cases, instead of the figures being printed in oil, or oils, the inventor makes use of water colours which can be discharged, the oil being used for the ground only.

The claim is to the printing of cotton, silk, woollen, or other stuffs, with oil or oil colours, prepared or compounded, and without any previous preparation of the stuffs by mordant, sizes, or oils ; also the printing of stuffs with oils, compounded in the manner described, however differently applied ; together with the printing of stuffs, partly with oil colours and partly with water colours, termed by the inventor " dischargeable resists."

SPECIFICATION enrolled 8th August, 1842, of a PATENT granted 8th February, 1842, to BENJAMIN BIRAM, of Wentworth, in the county of York, colliery viewer, for "*certain improvements in the construction and application of rotary engines.*"

THE first part of these improvements consists in giving a better form to the vanes or floats of rotary machines, which are moved by currents of air or water, or some other fluid acting against such vanes or floats. The inventor has ascertained, by numerous experiments, that there is a certain curved form which may be given to floats or vanes, that is, a gradual reduction in the angles of obliquity, in which case a greater amount of useful effect will be obtained, the theory of which the inventor has illustrated by a number of geometrical problems.

The claim is for the employment of that class of rotary engines which are moved by the action of wind or water, or other fluids with surfaces of a curvilinear form, or with an obliquity gradually decreasing from the axles, such surfaces being of a peculiar form.

The second improvement consists in the application of rotary engines or wheels, with vanes or floats affixed at angles determined and set forth in the Specification, for the purpose of registering the velocities of bodies propelled through water. For this purpose, the patentee employs a wheel of the above description, on the side of a vessel, which is affixed on one end of a horizontal shaft; the other end, which passes through the ship's side, imparts motion, by means of a worm, to a train of multiplying wheels; the circumference of the wheel to be acted upon is made to form some integral part of a mile, and the floats are placed at such angles that the wheel will make one revolution, or a number of revolutions, in the same time that the vessel takes in going a certain distance.

By this arrangement, the number of revolutions are to indicate the speed of the vessel, which may be shown by an index hand connected with the train of wheel-work, as will be understood.

Claim is for the application of a rotary engine, or wheel, as described, for registering the velocities of bodies propelled through water or wind.

The third improvement relates to such rotary wheels, when employed as propellers of vessels, and which are caused to act upon the water by the means of an engine, or other motive power. For this purpose, the paddle wheels, which are placed at the stern, are partly enclosed at their sides by means of plates, riveted, or bolted, to the rings composing the wheel. And from repeated experiments, the inventor states, that paddle wheels constructed on his improved plan, with angular floats, such angles at their extremity not being less than 45 degrees, and gradually decreasing until they meet the axle, will be equal in propelling power, to paddles with double the amount of area of floats, of the ordinary construction; and in consequence of the oblique manner in which the paddles enter and leave the water, that tremulous motion so much complained of will entirely be obviated. He also employs these paddles, or rotary machines, for the purpose of ventilating mines and other places.

The claim is for the employment of such rotary wheels, or engines, as derive their motion from some motive power, having vanes or floats with angular surfaces, of the form described, and presenting, at their extremity, angles of not less than 45 degrees to their planes of motion, and enclosed more or less at the sides, or round their peripheries, according to the purposes to which they are to be applied.

SPECIFICATION enrolled 9th August, 1842, of a PATENT granted 9th February, 1842, to FREDERIC HARLOW, of Rotherhithe, in the county of Surrey, carpenter, for "*improvements in paving or covering roads, and other surfaces, and in machinery for cutting the materials to be used for these purposes.*"

THE first improvement consists in forming grooves or lateral openings in the blocks, into which is inserted a tongue, so as to project past the surface of the block for the purpose of being inserted into the next row of blocks, thereby connecting the blocks together in such a manner as to prevent the block, separately, from sinking below the surface of the road. The tongues may be inserted in one or more lengths, and are made to project or extend beyond the surface of the outer blocks forming the road into grooves made in the gutter blocks, such blocks being connected in the same manner by a tongue between them, and in a longitudinal direction of the road. The drawing also shows the footpath from the kerb stones covered in the same manner, with this exception, that the tongues, which are in a transverse situation, are made of strong sheet-iron.

The claim is for the mode of applying tongues and grooves to combine and sustain blocks of wood used for paving roads.

The second part of these improvements relates to certain apparatus for cutting such grooves, and also the angular nicks in the surfaces of blocks for the better footing of horses and other animals, and consists of a horizontal shaft affixed in a frame, and provided with two discs or plates of metal, to which is affixed, by means of bolts, a

series of cutters of the breadth and shape required for forming the grooves and angular nicks. These cutters, which are caused to revolve, project above the surface of the frame or bench, which is provided with a guide for the purpose of cutting the grooves an equal distance from the upper or lower surface of the blocks, in order that they may coincide with each other. It will be seen that the joints of such blocks may either be angular or vertical.

The claim is for a mode of combining rotary cutters, with suitable surfaces, for forming grooves to receive tongues, and also for forming the grooves or nicks in the upper surfaces of blocks used for wood pavement.

SPECIFICATION enrolled 9th August, 1842, of a PATENT granted 9th February, 1842, to ISHAM BAGGS, of King's Square, in the county of Middlesex, chemist, for "*improvements in obtaining motive power by means of carbonic acid; and also by a peculiar application of heated air.*"

THE Specification gives a description of certain apparatus for evolving and absorbing carbonic acid gas, after it has been used for moving the piston of an engine. The solutions employed by the patentee for generating carbonic acid, in the form of gas, are the super sulphate of ammonia, and carbonate of ammonia, which are contained in two separate vessels; these matters are constantly introduced in proper quantities into another vessel, by means of pipes, whereby the carbonic acid contained in the carbonate of ammonia becomes evolved, which may be seen by the application of a safety valve, or pressure gauge, applied to the generator. The gas evolved from

the combination of the two liquors, which are introduced by means of pumps worked by the engine, passes off by means of a pipe affixed to the upper part of the generator—this pipe, which, has a coil, is made to pass through a second vessel for the purpose of cooling the gas; the gas is subsequently heated in passing through the upper part of the vessel to the cylinder of an engine, having a suitable arrangement of valves for opening the parts, for the induction and eduction of the carbonic acid gas. This gas passes from the eduction way of the cylinder, by means of a pipe dipping into the liquor contained in the before mentioned vessel, through which the coil of pipe passes, which is partly filled with a solution of ammonia, and answers the purpose of a condensing medium by absorbing the carbonic acid, and consequently reducing the pressure of such gas on the eduction side of the piston. This vessel is also provided with a pipe in its upper surface, which dips into a second vessel containing a solution of ammonia, for the purpose of more completely absorbing the gas, which may remain in the upper part of the first vessel. These vessels are also provided with tubular connections to the first mentioned vessel, containing the carbonate of ammonia, into which the vessels are occasionally emptied, as they become charged with the liquor.

The ammonia for supplying the separate vessels is obtained by submitting sulphate of ammonia to heat in a vessel, provided with a tube connected with the first vessel, for the purpose of supplying it with the super sulphate of ammonia.

The inventor makes no claim to any of the above processes when separately considered, the object of the inventor being to combine the three processes together; *videlicet*, the evolving and absorbing of carbonic acid gas,

together with submitting sulphate of ammonia to heat, for the purpose of obtaining the said gas, to be applied to the piston of a suitable engine, so that the power of the gas may be exerted on the piston before the gas is absorbed, as above described, such gas being evolved and used as a motive power, and then absorbed; and the matters used for evolving and absorbing such gas are used over and over again.

The patentee has, by a disclaimer entered with the clerk of the patents, 9th August, 1842, disclaimed the following words, in the title of his patent, "and also by a peculiar application of heated air."

SPECIFICATION enrolled 10th August, 1842, of a PATENT granted 10th February, 1842, to CHRISTOPHER NICKELS, of York Road, Lambeth, in the county of Surrey, gentleman, for "*improvements in the manufacture of plaited fabrics.*"

THESE improvements consist in the application of two warp beams, with the threads of the warp divided into portions of one inch, or one inch and a half wide, so as to form alternate stripes of plain and plaited fabric in the manufacture of tabbies, twills, and other descriptions of goods. The inventor effects his improvements by weighting one warp beam more than the other, or by any other method whereby the warp beam forming the plaits will be caused to unwind at a greater speed than that which forms the plain part of the fabric: by this arrangement, the fabric may be plaited, so as to form various figures, according to the number of warp beams employed, and the taking up of the ends forming the warp, as will be well understood.

The claim is for the mode of weaving plaited fabrics, by dividing the warp into sets or parts, and causing the separate sets or parts to be delivered at different speeds in the weaving.

SPECIFICATION enrolled 10th August, 1842, of a PATENT granted 10th February, 1842, to WILLIAM BROOK ADDISON, of Bradford, in the county of York, manufacturer, for "*certain improvements in machinery for spinning worsted and woollen yarn.*"

IN common throstles, or spinning frames, used in the manufacture of worsted yarn, it is customary, in the process of spinning, to give an uniform perpendicular traversing motion to the whole length of the bobbin. In place of this uniform motion, the inventor has introduced a copping motion, whereby the cop is formed in the throstle, or spinning frame. By this arrangement, the machine usually employed in forming the cop is not required. On one end of the tin roller, which gives motion to the spindles, is affixed a pulley, which drives, by means of a band, another pulley placed above it, having a pinion, taking into a large wheel fixed on a shaft; this shaft communicates motion, by means of a worm fixed thereon, to a horizontal shaft, placed near the end of the frame: as the traverse or copping motion is the same for each side of the frame, it will be necessary to give a description of one side only. On one end of this horizontal shaft, which extends from side to side of the frame, is a heart wheel, acting upon a spring bar, one end of which is affixed to the frame, the other passes through a slot in the frame end, and carries a pulley at its extremity. Over this pulley passes a chain, one end of which is fastened to the periphery of a pulley, receiving its motion

from a worm affixed on the horizontal shaft; the other end is fastened to an inclined lever, moving on a stud, the lower end of which gives motion to the traverse rail. When the machine is set to work, the heart wheel imparts a reciprocating motion to the spring bar—this motion, by means of the chain, tends to draw the inclined lever into a vertical position—the lower end being connected with the traverse rail, depresses it, together with the bobbin, which is, for this purpose, without flanges; by this motion, the yarn will be wound on a portion of the bobbin, from its base upwards, in the same manner as in the first formation of the cop in the process of spinning, and will be continued as the heart wheel revolves, thereby causing the bar to reciprocate or move up and down through the slot: such motion would therefore only have the effect of winding the yarn on the bobbin a certain portion of its length; but this traversing motion is further obtained by means of the chain winding on the periphery of the pulley, which receives its motion, as before stated, from the horizontal shaft, by means of a worm, thereby raising the inclined lever and depressing the bobbin; and which combined motions, acting simultaneously, have the effect of forming the cop. There are other arrangements of mechanism by means of which the machine is stopped when the bobbin is full, and the pulley, on which the chain is wound, disconnected; and by placing a weight at the upper end of the inclined lever, the pulley, together with the lever, are brought into their original position, ready for commencing another cop.

The claim is for the mode of forming cops of worsted or woollen yarn, suitable for the shuttle, by causing the cops to be built up progressively, as above stated, as the yarn is spun in a throstle, or other spinning machine acting in a similar manner to the throstle.

SPECIFICATION enrolled 10th August, 1842, of a PATENT granted 13th June, 1842, to WILLIAM COTTON, of Leytonstone, in the county of Essex, esquire, for
✓ “*an improved weighing machine.*”

THIS machine is principally for the purpose of weighing coin and blanks, and also for separating the light coin from such as are of weight. The blanks, or pieces of coin for this purpose, are placed in a hopper of tubular form, which stands in a vertical position upon a plate forming the upper part of the machine. Underneath this plate is the beam, which supports at each end a pendant wire, moving freely upon a fulcrum; one of these wires supports the weight, and the other has a round plate or disc affixed to its upper end, and placed above the beam, for receiving the pieces of coin to be weighed. These pieces of coin are forced from the hopper, in a horizontal direction, on to the plate, by means of a sliding bar, moved by an eccentric; this plate is provided with two openings in its edge, to receive the ends of two flat hammers placed at right angles to each other, and acted upon by means of cranks affixed on a horizontal shaft: one of the hammers is placed about one-tenth of an inch above the other, which is the distance allowed for the vibration of the beam. Thus, by turning the handle of the machine, motion is communicated by means of wheels to two horizontal shafts, upon which are affixed eccentrics, &c., for effecting the various movements of the machine, the first of which is to force the piece of coin from the hopper to the scale. This being done, a pair of nippers, which have hitherto held the pendant wire with the scale attached, become released. If the piece of coin be of proper weight, the beam remains in a horizontal position, and the lowest hammer strikes against its edge, and forces the piece of

coin from the scale into an inclined channel provided for its reception; if on the other hand, the coin should be light, the scale will be elevated by means of the counterpoise at the opposite end of the beam; and the hammer which would have struck a heavier piece of coin, passes under the edge of the lighter coin, which is struck off by the other hammer, and driven in a direction at right angles to the first, into a similar channel, which conducts it into a separate receptacle: thus the weighing and separating of the coin is effected by the rotary motion of the handle. The whole of the mechanism may be enclosed in a case in such a manner that nothing is to be seen but the pieces of coin in the hopper; and when those pieces come out from the openings in the end of the case, they are weighed and assorted.

The claim is for the employment of machinery, or mechanical means, for supplying the balance from a hopper, or other receptacle, with one piece of coin or blank at a time, and for removing such pieces from the balance and separating the light from the heavy coin.

SPECIFICATION enrolled 13th August, 1842, of a PATENT granted 14th February, 1842, to GEORGE JARNAM, of Leeds, in the county of York, flax and cotton spinner; ROBERT COOK, of Heathersage, in the county of Derby, heckle and needle manufacturer; and JOSHUA WORDSWORTH, of Leeds, aforesaid, machine maker, for "*certain improvements in machinery for spinning flax.*"

THE drawing shows an elevation and transverse section of a machine for spinning flax, hemp, and tow; and consists in certain arrangements of drawing apparatus for flax

spinning machinery, whereby the drawing out or extension of the roving for yarns is performed by two or more sets of holding and drawing rollers, and not by a progressive series of drawing rollers as in cotton spinning machinery.

The arrangement will admit of several modifications, but, as described in the Specification, consists of three bottom and four top rollers, applied to a spinning frame or throstle, which are supported by stands affixed to the roller beam. The front and back roller have each one top roller pressing on their peripheries, and the middle roller two; which three last mentioned rollers, with their stands, remain stationary, as also the front pair of rollers; but the back or first pair have their axes mounted upon a stand having a slide and screw, by which means they are capable of being moved further from or nearer to the middle or second row of rollers, so as to increase or diminish the length of the reach or draft of the fibres, as may be required; the top rollers are weighted by saddle bars, having nicks on the upper side thereof, with lever bolts for adjusting the pressure between the first and second series of rollers, by placing the lever bolt in any of the aforesaid nicks. The opposite ends of these lever bolts are connected by joints to a swivel piece, which is also connected to the short arm of a bent lever; to the long arm is suspended a weight for the purpose of weighting the four top rollers,—motion being communicated from one set of rollers to another by pinions, or change wheels, affixed on their ends. The rovings, which are wound on a spool or bobbin, pass through a trough containing water, and from thence through guides to the first pair of rollers, through which they are conducted to the second series or three rollers, which revolve at a greater speed than the first pair, in consequence of

which, they (the first pair) will become partial holders or retainers, and the fibres will be drawn out; such fibres then pass from the middle series, or three rollers, (which have all the same speed) and are drawn through the third pair or front rollers, and are further elongated, owing to the speed of the front rollers being greater than the preceding or middle series, which will also become partial holders or retainers to the front rollers; the fibres thus drawn out pass to the flyer and are wound on the bobbin. The patentees have employed a disc of metal, with a bevelled edge above the bobbin, for the purpose of keeping the fibres of the thread from the edge of the bobbin,—the application of which they believe to be entirely new.

The patentees claim the introduction of a distinct retaining roller, or rollers, after the first reach of the drawing apparatus, instead of continuing uninterruptedly the process of progressive drawing, as by the old system of drawing rollers.

SPECIFICATION enrolled 13th August, 1842, of a PATENT granted 15th February, 1842, to JAMES ANDREW, junior, of Manchester, in the county of Lancashire, manufacturer, for “*certain improvements in the method or process of preparing or dressing yarns or warps for weaving.*”

THIS improvement consists in the mode of preparing or dressing yarns or warps for weaving, by substituting an article of commerce well known in cotton manufacture, called “farina,” which is prepared from potatoes and other vegetable matters. This article the patentee uses in the place of wheaten flour, which is now commonly employed

for the purpose of stiffening warps; and when in a fit state for use, called "sough" or "sow." It appears from the Specification, that farina has been tried as a stiffening medium for warps, but without success; in all probability, from having been mixed up in too large quantities, and been allowed to stand, whereby the farina loses its stiffening property. The method employed by the patentee, which constitutes the only feature or claim in the invention, is as follows:—

Instead of mixing farina in large quantities, and allowing it to stand so long that it loses its glutinous and stiffening quality, he causes it to be mixed in small portions when in a flour or pulverized state; each dresser mixing his own in a pail or bucket, and using it immediately in the dressing machine, whilst in a hot state; the vessel or trough for containing it in the machine should be lined with brass; he also states that he has found, from practice, that the use of farina, in the manner described in the manufacture of cloth, will alone be found to effect a saving of 70 per cent. in the cost of stiffening matters, besides the subsequent advantage arising from the superiority of the threads, and the facility of weaving, and other advantages which the cloth possesses. It also dispenses with a portion of hand labour, such as steepers, carriers, sough-makers, together with room and unnecessary apparatus, as it requires simply to be mixed in small quantities and to be instantly used, in order to preserve the peculiar stiffening quality it possesses.

SPECIFICATION enrolled 15th August, 1842, of a PATENT granted 15th February, 1842, to JOHN OSBALDESTON, of Blackburn, in the county of Lancashire, metal heald maker, for "*certain improvements in looms for weaving.*"

THESE improvements are twelve in number.

The first improvement consists in a mode of applying to the slay or lathe of a loom certain springs for the purpose of regulating the beat up. These springs are affixed to the back of each slay-sword in a vertical position, and may extend the whole length of the sword; the arrangement being, to affix the spring at its lower end to any part of the sword, thereby increasing or reducing the tension as may be required; the slay moves freely from front to back of the loom, so that the strength of the beat up of the weft will be governed by the springs.

The claim is for the mode of applying springs, as described, to the slay of a loom.

The second improvement consists in the application of springs to the connecting rods for the purpose (as above described) of giving elasticity to the beat up. One of the parts of such connecting rods is made to slide within the other: these parts have lateral openings, or slots, with two pins passing through them, for the purpose of keeping such parts in a right line, and also to allow them to slide freely in the direction of their length. These parts are acted upon by a spring placed between them, for the purpose of keeping them extended. The action of the beat against the cloth, owing to the flexibility of the spring, causes the connecting rods to be shortened.

Claim.—The application of springs to connecting rods, in order to give elasticity to the beat up.

The third improvement consists in the application of two horizontal levers, moving on vertical pins, affixed to the upper edge of each frame side, and underneath the shuttle box. These levers have each an inclined plane at one end, and are connected together by a rod extending across the loom, whereby the action of one lever will be governed by that of the other. Within the shuttle box are "bulges," having projecting fingers, which act on the inclined plane at the end of each lever: by this arrangement, if the shuttle be not thrown across into the box, such bulges will not be acted upon, and the front part of the lever will be brought against the frame, and thus prevent the beat up.

Claim.—The mode of stopping the beat up of a loom, when the shuttle is not thrown across into the shuttle box.

The fourth improvement consists in certain arrangements for stopping the loom, when the weft is not properly supplied. The method adopted by the inventor is, by affixing to the spring, which is connected with and moves the strap-guider, a horizontal projecting pin, which is actuated, in certain cases, by the slay. The upper end of this spring, when on the fast pulley, fits into a notch. In the event of the weft not being properly supplied, the movement of the slay will not be checked by the weft, and the slay will therefore strike against the projecting pin, and cause the spring to be forced from the notch in a lateral direction, and by that means the strap to be moved on to the loose pulley.

Claim.—The mode of stopping the loom, by combining the spring with the fork, and striking such spring with the slay, as described.

The fifth improvement relates to a mode of winding up the work on the cloth roller, technically called "the taking up motion." On the axis of the cloth roller, at one end, is affixed a double ratchet wheel, actuated by two vertical

levers, with wedge-like ends entering the teeth, or openings of each wheel at the underside. The lower parts of these levers are bent at right angles, and extend along the frame side, to a wheel having crank pins: this wheel receives its motion from a driving wheel affixed on the crank shaft. The motion is effected by the action of the pins on the ends of the levers, (which are weighted,) the vibration of which causes their opposite ends to enter the teeth of the ratchet wheel, and to impart a rotary motion to the cloth roller.

Claim.—The mode of taking up the cloth, by the application of the wheels and other parts described, for giving motion to the same.

The sixth improvement is a new mode of giving off the warp from the warp beam. An endless chain of teeth passes, at its upper end, over a roller affixed to a spring bar, and at its lower end, over a roller with a weight suspended to it. This endless chain of teeth also passes over and takes into a cog wheel affixed on the axis of the warp beam. The resistance, caused by the friction of the interior surface of the chain, together with the weight, will have the effect of giving off the warp with a regular tension.

The claim is for the application of an endless chain of teeth to the warp beam, for the purpose above described.

The seventh improvement consists in certain mechanical arrangements, for producing an effect similar to that above described (that is, of giving off the warp) by the application of two levers, and a double ratchet wheel affixed on the axis of the warp beam. These levers, which take into the teeth of the ratchet wheel, are successively acted upon by a wheel similar to that used in the taking up motion applied to the cloth roller,—with this difference, that the action of these levers is to retard the motion of the warp beam.

The inventor claims the mode of regulating the giving off of the warp, by means of a wheel and apparatus for moving the same.

The eighth improvement consists in the application of grooved rollers, for giving off the warp. These rollers are placed one above the other; the bottom roller having a wheel on its axis, taking into and receiving its motion from the crank shaft; the warp, in passing from the beam, is pressed, and held between the fluted rollers: by their evolutions, the giving off of the warp, as stated by the inventor, will be better regulated.

The claim is for the application of grooved rollers, for giving off the warp.

The ninth improvement relates to a mode of working the treadles of looms, by the application of a cog wheel having a number of pins or studs projecting from its sides. This wheel receives its motion from a driving wheel affixed on the axis of the main shaft; for which the inventor claims—a mode of applying a wheel, as above described, for giving motion to the treadles.

The tenth improvement relates to the construction of temples, and giving motion thereto. The construction of this apparatus consists of a small shaft (fixed in a frame) having two eccentric parts, which open and close two chaps. On one end of the shaft is a ratchet wheel, which is actuated, at every movement of the slay, by a rod: the motion of this shaft causes the chaps to be closed, and to take hold of the cloth, while at the same time they are moved by certain mechanical arrangements, endwise and sidewise. The chaps, when not acted upon by the eccentric shaft, are kept open by means of weights attached to their upper part, and will remain open when moving towards the cloth, and closed in the manner above described.

Claim.—A mode of giving motion to temples, in addition to opening and closing them.

The eleventh improvement is a peculiar arrangement of revolving temples, and consists of two spiked wheels; the spikes in the one wheel are fixed, while those in the other wheel are so placed as to slide with the cloth after they have taken it thereon; each of these sliding spikes is placed on a strong stem which slides through the boss of the wheel. This boss has a number of slots, through which the spikes protrude, and in which they slide, and by means of a roller acting against the stems, the spikes will successively approach the cloth, and having penetrated it, will move outwards: an inclined plane on the opposite end of the boss causes the spikes to be withdrawn.

Claim.—The mode of constructing revolving temples, by giving motion to the points.

The twelfth, and last, improvement relates to a mode of stopping the loom by means of the shuttle when the yarn sticks in the shed. The interior of the shuttle, which has a portion of its upper and lower edge removed, is provided with a lever extending in a right line past the lower opening in the edge of the shuttle, and is then bent upwards and extended in a line with its upper edge and past the opening. In the event of the warp sticking in the shed, such portions will act upon the lever which will cut the shuttle, and thus bring into action certain machinery for stopping the loom when the weft is not properly supplied.

Claim.—The application of certain apparatus to be acted on by the yarn sticking in the shed as above described.

V SPECIFICATION enrolled 15th August, 1842, for a PATENT granted 15th February, 1842, to ALEXANDER ROUSSEAU, of the Strand, in the county of Middlesex, manufacturer, for "*certain improvements in fire-arms.*" Being a communication.

THESE improvements consist in applying to fire-arms an apparatus containing a number of detonating caps, which will be simultaneously brought on the nipple of the gun, or other fire-arm, by the act of drawing back the hammer, in cocking the gun. By this arrangement, the gun may be repeatedly discharged, according to the number of caps contained in the apparatus, which is about fifty for a single barrelled gun.

The following is a description of the apparatus—On the inside of each hammer of a double barrelled gun, is affixed a tube about two inches long, provided with a projecting stud at one end, fitting into the upper plate of the lock. These tubes have a lateral motion, and are acted upon by a double spring placed underneath the upper plate of the lock in such a manner as to force the tubes outwards as the hammer is being drawn back in the act of cocking the gun; in which position, their ends (which are bent downwards), are brought in juxtaposition with the nipple, upon which the caps are placed. When the piece is discharged, the side of the hammer, in falling, comes in contact with a projection formed on the side of such tube, and moves it to its former position, and allows the hammer to strike the nipple. The chambers or tubes containing the caps are passed through holes made in the gun stock, and communicate at their ends with the moveable tubes; the end of the stock is provided with a plate, which can be removed

for the purpose of withdrawing the tubes, in order to supply them with caps; the interior of each of these tubes, at the bottom end, is provided with a spiral spring, which is compressed within the tubes; and the same being filled with caps, are placed within the gun stock; the action of the spiral spring forcing the caps into the moveable tube, which is a continuation of the chamber; a small projecting plate screwed to the lock near the opening of the moveable tube, prevents the caps from passing through when not required; by drawing back the hammer, as before stated, the moveable tube, by the action of the spring, causes its opening to be brought opposite the nipple, and past the projecting plate, and allows a cap to pass from the tube, and to be deposited on the nipple—the tube being replaced by the action of the hammer when the piece is discharged. The hammer of this gun has a portion of its side cut away for the purpose of facilitating the removal of such portions of the cap as may be left after the discharge of the gun.

SPECIFICATION enrolled 15th August, 1842, of a PATENT granted 15th February, 1842, to JOHN LEWTHWAITE, of East Street, Manchester Square, in the county of Middlesex, engineer, for “*improvements in steam engines and boilers.*”

THE first improvement relates to a new method of working the valves of steam engines. In place of the slide valve, the inventor introduces a rotary one, having six openings in its face, and which is, in form, similar to a ventilator. A piece is cast, or otherwise affixed, on the side of the cylinder, and provided with a plain smooth face and with

suitable openings for the induction and eduction of steam. This valve, which is made to fit the face perfectly tight, is affixed on the end of a shaft, and caused to revolve, thereby forming alternate communications with the induction and eduction ports of the cylinder. The shaft is geared to the main shaft of the engine, in such a manner as to receive a constant rotary motion, the speed being one-third of a revolution of such shaft, for one revolution of the crank shaft; the gearing being so arranged as to admit of the valve being reversed when required—the valve is enclosed in a hemispherical cover, having a steam-tight opening, through which the shaft passes.

Claim.—The mode of constructing and applying rotary slides or valves to reciprocating steam cylinders.

The second improvement relates to steam boilers. This steam boiler is of a quadrangular form, the four sides consisting of narrow water spaces or chambers, securely stayed by means of bolts; through the front part an opening is formed for the fire doors, and through the back part are formed holes, through which the products of combustion pass into the chimney. This chimney is composed of two tubes or parts; the interior tube, which is eccentric with the exterior, is provided with a fan, having vanes moving upon axes situated at the lower end thereof, so as to incline in either direction; the object of which is to cause a draft, in whichever direction the axis of the fan may be caused to revolve. The space made by the interior tube being situated in the chimney, is for the escape of steam from the cylinder. The interior of the boiler consists of a series of narrow water spaces, extending from front to back of the boiler, and from the fireplace in a vertical direction to the steam chamber, which is separated from the action of the fire by a horizontal plate, at the upper part of the water spaces, or chambers. A

number of plates in the form of brackets are placed between the spaces, such plates being perforated with holes to allow the heat to encompass the whole exterior of the water chambers. The tubular connections from one to the other, and which form one of the novelties of the invention, consist of a number of hollow screws, with right and left handed threads, perforated in the middle with a number of holes; these screws being passed through the plates forming the water spaces, are of such length as to project past the surface, and are so placed as to coincide with each other; a nut being screwed on the ends of such tubular bolts having right and left handed threads, holds the water chambers together, and also forms tubular connections from one to the other. The connections for steam are formed in the same manner, observing that larger perforations will be necessary; these water chambers are further held together by a number of bolts passing through strong cast iron plates at each end of the series of water chambers, so as to hold them firmly together.

The claim is for the mode of combining water spaces in the construction of steam boilers by means of hollow screws and nuts; also for the application of the plate for separating the heat of the furnace from the steam chamber, together with the mode of constructing a revolving apparatus with moveable vanes, so as to incline in either direction, and to act in whichever way the axis is driven.

SPECIFICATION enrolled 15th August, 1842, of a PATENT granted 15th February, 1842, to THOMAS RUSSELL CRAMPTON, late of Lisson Grove, but now of Southwark Square, in the borough of Southwark, in the county of Surrey, engineer; and JOHN COOPE HADDAN, late of Moorgate Street, in the city of London, but now of Liverpool Street, St. Pancras, in the county of Middlesex, civil engineer, for "*improvements in steam engines and railway carriages.*"

THE first of these improvements is an improved method, or improved methods, of reversing and varying, or altering, the cut off of the steam, by varying the position or inclination of the eccentric rod, to the cylinders of locomotive, stationary, and marine steam engines. The handle for shutting off and reversing the steam, in such engines, is bent at its lower part at right angles, and forms a lifting arm, the end of which is connected by a link to the end of the eccentric rod, in such a manner, that by moving the handle, the end of the eccentric rod will be raised or lowered in a slot made in a curved lever which moves on an axis at its centre, and at which place the slot is made wider; to the upper part of this slotted lever is attached the valve rod. The handle, which is in a vertical position, is furnished with a segment, having notches in it to indicate its position. When the engine is out of gear, the handle will be in a vertical position, and in the centre of the segment; and the eccentric will be worked backwards and forwards in the widest part of the grooved lever, without causing the same to vibrate; but when the handle is shifted to the first notch in the segment, the end

of the eccentric rod is forced upwards and into the narrow part of the groove, at which place the rod forms an angle of about 21 degrees with the line of the eccentric rod. The motion of the eccentric rod will now impart a reciprocating action to the grooved lever, and also to the valve rod and slide valve. When the eccentric rod makes an angle of 21 degrees, as described, the slide valve is arranged with a lap of about one inch, so as to cut off the steam at about seven-eighths of the stroke of the piston. By moving the handle back in the opposite direction, the end of the eccentric rod will be forced into the opposite end of the slotted lever, and the action of the slide reversed.

The second improvement is an improved method of altering the lead of admission, by giving various inclinations to the valve rods of locomotive and other engines. This is a modification of the foregoing, with the application of an additional lever, for the purpose of raising the end of the valve rod in the slot of the projecting arm or lever; whereby its radius will be increased, and cause a longer traverse of the slide valve, and thereby give a greater lead of admission to the steam through the openings into the cylinder.

The third improvement is in cutting off and varying the lead of admission (without increasing or diminishing the traverse of the slide valve), by varying the inclination of the eccentric rods of locomotive steam engines. On the end of the valve rod which works through a guide, is affixed, at right angles, a double fork, having "gab ends;" this double fork has a narrow groove, forming a portion of a circle, and is made to branch out at each extremity of the curvilinear groove, thereby forming the "gab ends;" the ends of the two eccentric rods are connected together by links; the opposite end of such links being

affixed by means of a stud passing through them to the end of the lifting arm of the handle; by forcing the handle on the segment in one direction, the lifting arm, or lever, will be depressed, and carry with it the end of the forward eccentric rod to the bottom of the groove. When in this position, the slide valve is so arranged as to cut off at about three-fourths of the stroke, and give *no* lead of admission. By shifting the handle in a contrary direction to the centre of the segment, the end of the connecting rod will leave the groove, and be equidistant with the other rod, from the centre of the double fork. The ends of the connecting rods, when in this position, are moving in the widened part, or "gab ends;" consequently, no action is produced on the double fork, and the engine is out of gear. By forcing the handle still further in the same direction, the end of the lower, or backward rod, will be raised into the bottom of the groove, and the action of the engine will be reversed.

The fourth improvement is in diminishing the friction of slide valves: the back of the valve is turned out for the reception of a ring of brass, or other metal, which is expanded and kept tight by means of a steel spring acting against a bar and wedge fitted into an opening in the ring; the upper edge works at right angles against the slide box cover, which is planed true, and forms an angle with the face of the slide; this ring is kept up and in contact with the inclined cover, by the application of a spring attached to the top of the slide valve, and presses against a plate affixed to the underside of the ring, which plate serves as a covering for the opening of the ring. By this arrangement, the motion of the slide valve will cause the ring to be depressed by the action of the inclined cover; and on its return, the spring will force the ring up again. By this contrivance, the steam will be

prevented from acting on the back of the valve, and the friction on the face of the slide will be diminished in proportion to the area of the ring from which the pressure of the steam is removed.

The fifth improvement is a mode of regulating or altering the admission of steam into the passage from the slide valve box to the inside of the cylinder of locomotive and other engines, independently of the action of the slide valves; and consists in the application of two regulators, or throttle valves, placed in two extra steam passages leading into the ordinary passages. These regulators, which are in the form of a cock, and placed on the outside of the ordinary passages, with openings communicating therewith, are connected together by levers, so as to be worked together; which may be done by the governor, or the man attending the engine. The action of the slide valve only permits the steam to enter through the extra passages, while it escapes through the ordinary passages in the usual way: the quantity of steam admitted can therefore be regulated by the engineer moving the lever which is connected to the two throttle valves.

The sixth improvement is an improved method of using steam expansively in steam engines, by increasing the size of the cylinders, and by applying a regulator or throttle valve to each cylinder; for this purpose, the patentees apply to the back of the valve box, or cover, an extra valve or slide, which communicates with the engine driver. In order to obtain a saving in the consumption of steam used expansively in cylinders, (each having a regulator or throttle valve,) the contents of the cylinders must be increased as compared with the size of the two cylinders worked by one regulator only. The regulator may be applied to the steam pipe of each cylinder, provided the admission of steam to one cylinder is quite independent,

and not influenced by the admission of steam into the other.

The seventh improvement relates to a mode of lowering the centre of gravity of locomotive engines. For this purpose, the leading and trailing wheels are placed at each end of the boiler, in order to admit of its being lowered; the axles of the driving wheels being placed above the boiler, which is so constructed as to allow such axle to be placed as short a distance as possible above the upper tubes leading from the fire box. This arrangement of boiler and wheels will, of course, require the cylinders to be placed outside. There are other modifications shown, whereby the centre of gravity is lowered by placing the driving and leading wheels beyond the ends of the boiler.

The eighth improvement relates to tubular boilers; and consists in lowering the position of the tubes; and also in the application of a bridge across the fire box. This bridge, which is placed in the fire box in a transverse direction, is filled with water from the boiler; the object being to prevent the fuel from filling up or choking the lower tubes leading from the fire box.

The ninth improvement consists in the application to locomotive steam engines and railway carriages, of cylindrical wheels, with outside flanches, fitted to axles, which will allow each wheel to run independent of the other. The drawings show a section of a compound axle, which consists of an axle fixed to one of the wheels, and revolving within a tubular axle, upon which is keyed the other wheel; for which axle, a patent was granted to one Edmund Taylor, on the 11th May, 1841. "Any other description of axle which will allow one wheel to travel at a different speed to the other, may be substituted for the one shown."

The tenth improvement relates to a mode of affording additional security to locomotive engines, by the applica-

tion thereto of extra safety wheels or sledges; for this purpose, smaller wheels are placed underneath the boiler, either with or without springs, the object being to take the weight of the engine should either of the leading or driving wheels break; in which case sledges may be substituted.

The eleventh improvement is the application to railway carriages of springs formed by levers, acting upon, and twisting bars of steel. Two iron levers, about two feet long; are firmly fixed, in an inclined position, on the ends of two steel bars, about 1½ in. diameter and 18 in. long; these bars are fastened at their opposite ends in a strong iron cross bar, affixed to the framing of the carriage; the ends upon which the levers are affixed move freely in plates bolted to the side of the carriage frame; the opposite ends of the inclined levers rest upon the top of the brass bearings of the axles: consequently, any depression of the carriage, or raising of the wheels, will elevate the ends of the inclined levers, and cause the steel bars to twist; on the wheels being restored to their original position, the bars, from their flexibility, will immediately untwist. This novel application of a steel bar, or bars, as a substitute for springs, is also applied to the draw bar and buffer in the following manner: the draw bar is formed in two parts, which work through the end and cross timbers, and are each furnished with a draw hook at one end, the other end being cottered into a cradle. When the bar is pulled, the cradle will move the end of a vertical lever, which is affixed on the end of a steel bar, as described, and cause it to twist. When the draw bar is moved in an opposite direction, it will move the end of a second lever in the same manner. The same effect can be obtained by the application of one bar, affixed at both ends, with the lever in the middle; in this case the bar will be twisted.

backward and forward. The shock of one carriage buffing against another is lessened by the following means: the buffers are fixed on the upper ends of inclined levers, the lower ends being firmly secured by keys, or any other means, to steel bars, in the manner before described; the levers of each carriage being kept in a right line with each other, by means of a cross bar, or stay, extending from one to the other. When the carriages, by sudden concussion, are brought against each other, the buffers, coming in contact, cause the levers upon which they are affixed to approach a vertical position, thereby twisting the steel bars upon which they are keyed.

The twelfth improvement consists in the application to railway carriages and locomotive steam engines of wheels with felloes of wood, papier machée, or other suitable material, tightened by a bevilled ring or circular wedge.

The tyre being placed over the wood felloe, which is round the centre, or boss, of the wheel, is tightened by an annular wedge, having a flanch corresponding with the flanch on the periphery of the boss; the wedge being forced between the boss and the wood felloe, and secured by bolts passing through the flanches—the wedge, when required, may be withdrawn, and packing introduced.

The thirteenth and last improvement consists in the application to railway carriages and locomotive steam engines, of wheels formed with wooden felloes, simultaneously compressed by being forced through a conical ring, or by an improved arrangement of screws, or by hydraulic presses. The wood, or other material forming the felloe, together with the boss, or ring, is forced, by pressure, through a conical ring, into the tyre of the wheel; the taper of this ring being about three-quarters of an inch to a foot, and its smallest internal diameter equal to the interior diameter of the tyre, this apparatus

being placed upon the tyre, the application of hydraulic pressure to the upper surface causes the felloe to be compressed, and at the same time to be placed within the tyre. There is another method shown, whereby the wood felloe is compressed, by placing it, together with the boss, on a strong plate of iron, fitted up with six slides, each of which is furnished with strong screws.

The inventors claim the several improvements above enumerated and described, and their use, either separately, or when connected with each other; but make no claim to such old and well-known means as may have been incidentally mentioned or referred to.

SPECIFICATION enrolled 15th August, 1842, of a PATENT granted 15th February, 1842, to ROBERT WORNUM, of Store Street, Bedford Square, in the county of Middlesex, piano-forte-maker, for "*improvements in the action of piano-fortes.*"

THE first improvement relates to the application of a spring to the hammer-but, the peculiarity of which improvement is to cause the spring to move upon an axis; the spring is affixed at one end to the hammer-but of a piano-forte having a downward stroke, and is then turned round, so as to form a coil; the other end is brought back in a line parallel with the hammer-but, and is bent at its extremity so as to form a hook. To this hooked end of the spring is fastened a piece of leather, or other flexible material, which passes through a mortice formed in the hammer, and is affixed to the rail. The effect of this arrangement is, that the hammer is instantly drawn from the springs, without producing any prejudicial effect upon the touch

of the key. There are several modifications wherein the same result is obtained.

The claim is for a mode of applying a spring to return the hammer of a piano-forte action, wherein such spring moves upon an axis.

The second improvement relates to a vertical lever mounted upon an axis at its lower end, and having a projecting piece or arm affixed to it at right angles, which is acted upon by the key. At the opposite side is another projecting arm, to which is affixed, by means of a centre pin, the "*hopper*," which extends and gives motion to the hammer, both of which are in a nearly horizontal position—the hammer in this case is also provided with a spring, which is applied in a similar manner to the preceding. Through the upper part of the vertical lever a wire passes in a horizontal direction; the opposite end being fixed to a block moving upon an axis, to which is attached a vertical wire extending to the strings, having the damper affixed to its end: consequently, when the key is acted upon so as to give motion to the hammer, the horizontal wire will be pushed in a direction of its length, and by its action on the block, the damper wire will be raised from the strings.

The patentee claims the mode of actuating the hammer of a piano-forte action, where the hammer strikes downwards.

The third improvement relates to a mode of connecting the damper to the hammer-but, in upright piano-fortes. The damper in this case is in a vertical position, and moves upon a centre near its lower end: below the centre is a spring, having a tendency to press the damper against the strings; the damper above its axis is connected by a piece of leather to the under part of the block, which holds the hammer. When the hammer is struck against

the strings, the tension of the leather, owing to the block moving upon an axis, draws the damper from the strings. There is also another method of working the damper, by affixing a vertical wire near the end of the key, and attaching the upper end to the damper, so that as the key is depressed the damper is withdrawn—the hammer in this case is also provided with a spring, which is affixed to the hammer-rail.

Claim is for a method of connecting the damper with the hammer-but.

SPECIFICATION enrolled 17th August, 1842, of a PATENT granted 21st February, 1842, to DANIEL GREENFIELD, the elder, of Birmingham, in the county of Warwick, brass-founder, for “*an improvement in the manufacture of hollow metal knobs, for the handles of door and other locks.*”

THE essential character of this improvement consists in applying to hollow metal knobs, for doors and other locks, an internal lining of sheet or rolled iron, in order to give greater support and firmness to the metal which constitutes the external surface.

The first process in carrying out the said improvement is, to prepare a hollow lining of iron for the ball part of the knob. For this purpose, a disc of sheet or rolled iron, of suitable dimensions for the knob intended, is to be cut out, by a fly press and suitable tools of the kind; this disc of metal, which is to be well annealed, is then placed in suitable dies and submitted to the action of a fly press, to render it concave or in form resembling a shallow saucer. It is then placed in another pair of dies resembling the former, but somewhat deeper, and again submitted to

a similar pressure; and in like manner, it is rendered more and more concave until it has assumed the form of a deep cup—this process being the same as is practised in manufacturing the ball part of brass knobs without iron, but on account of the latter being less ductile it requires to undergo a greater number of operations, and it will also be necessary to anneal it from time to time, to prevent fracture. A thin piece of brass, German silver, or other metal, intended for the external surface of the knob, is cut out, of suitable size, and placed in dies, and submitted to the operations before described, until it assumes the form of the iron cup, but so much larger, that the convexity of the latter will be equal to the concavity of the former. The iron cup, having its border edge clipped so as to remove any superfluous metal, is then placed within the brass or other metal cup, and the two corresponding cups together are forced through a circular hole formed in a piece of steel, whereby the sides of the two cups will be contracted into a cylindrical form, and the brass or other metal cup, by this last operation, will be caused to adhere firmly to the iron one. The border edge of the compound cup thus formed is to be cut with shears, so as to bring the edges of the two metals to an exact correspondence, and thus form a true border edge to the compound cup. The compound cup is then to be closed in, or so contracted at the border edge around the mouth and sides adjacent thereto, as to be of suitable size to receive the large part of the neck of the knob, the mode of closing in being the same as is practised in the manufacture of hollow metal knobs from brass plate,—viz. by a pair of closing tools and a fly press. The operation of closing and gathering in of the border edge being performed, it may in some cases be found necessary to cut the edge, which may not be quite true. This is done by

taking the ball part of the knob in the hand, and holding it against a countersink, which may be fixed in the revolving spindle of a lathe, which operation will have the effect of cutting the edge true and smooth, and also of a proper bevilled shape: but if the operation of cutting the border edge of the compound cup is truly performed with the shears, it will not be necessary to use the countersink, as the edge will retain its shape during the operation of the closing in of the knob. For preparing the neck part of the knob, the lining for such neck may be made of iron, cast into the intended shape, with a square hole through the centre, and a groove or nick round each end for the purpose of fastening the several parts which constitute the exterior surface. To prepare brass or other metal for this external surface, a piece of brass, or other metal corresponding with that used for the ball, is cut out of a square shape; after which it goes through the operation of stamping between dies,—the last pair being of the same shape as the larger part of the neck or surface which it is intended to cover. A hole is then punched through the centre of the piece of metal, so as to pass over and fit tight upon the neck part; this piece of metal is then forced over the neck part by suitable tools, so as to make it apply closely to the enlarged part of the neck,—the border edge of this piece being previously cut of such length as to leave a space between the end of the said casting and the edge of the metal piece, sufficient to allow the edge of the ball to pass between such parts into the groove.

The next process is to cover the plane part or surface of the neck; which is effected by cutting from a piece of brass, or other metal tubing, a hoop, or ferule, which is to be forced over the neck so as to apply the end of such hoop closely to the surface of the former piece, which covers the enlarged part of the neck. This ferule is of such

length as to leave the end of the casting uncovered, which, as has before been stated, has a nick, or groove, similar to that on the opposite end; upon this groove a collar of brass, or other metal, is to be cast; which is effected by placing the neck part in a mould of sand, with a pattern upon it, so as to leave (when drawn) a cavity in the sand of sufficient size for the collar or shoulder intended: when this process is completed, the three parts forming the external surface of the neck will be firmly affixed to the iron casting or lining.

The two parts being thus prepared (viz.), the ball and the neck part, such parts are then to be put together; which is effected by a pair of mounting tools. The neck part of the knob being placed in a die, with its enlarged part resting in a concavity in the upper surface of the die; the ball part is then placed over it; in which position, that part which is adjacent to the mouth will find a resting place in the concavity of the aforesaid die, and the border edge of the ball, will be opposite the groove formed in the neck part; into which it is forced by the action of a suitable concave tool, together with a fly press; thereby causing the mouth of the ball to be further contracted, so as to interlock its edge firmly into the groove; whereby the two parts become united firmly together, and in a fit state for the finishing process, such as dressing and burnishing the exterior surface, which is done in a lathe in the usual manner. The patentee states that the tools employed in the process before described, are of the ordinary kind, and such as are well known; and he does not make any claim in respect of such tools, nor in the mode of using the same. But the patentee declares that the new invention, (whereof the exclusive use is granted to him by the aforesaid letters patent), consists in the improvement hereinbefore described, and employed in manufacturing hollow metal knobs for the

handles of door and other locks; the essential character of such improvement being, that of forming and applying an interior lining of stamped iron plate to the hollow part of the knob, and (in case it is preferred) an interior lining of cast iron to the neck part of the knob, in order, by means of such stamped iron, and such cast iron (if the latter be used), to give support to the brass, German silver, or other metal whereof the exterior surface of such knobs is, or may be composed.

SPECIFICATION enrolled 21st August, 1842, of a PATENT granted 21st February, 1842, to MOSES POOLE, of Lincoln's-Inn, in the county of Middlesex, gentleman, for "*improvements in treating, refining, and purifying oils, and other similar substances.*" Being a communication by a foreigner residing abroad.

The following is a description of the operation:—The oil to be operated upon is allowed to remain in one place until the congealed parts have become melted, and the grosser parts deposited; these parts are then separated; and an alkaline solution, composed of from four to eight per cent. of soda or potash, according to the quality of the oil, is then added; and the whole well agitated and stirred up together for about an hour, by any of the well-known means. The inventor states that this solution may be rendered caustic by the addition of a certain quantity of lime. The oil, after being well stirred up together, is to be put into another vessel and allowed to stand for from twenty-four to thirty-six hours; at the end of which time a scum will appear on the surface, which scum is to be removed, and the oil will then be in a fit state for the next process. The inventor remarks, that if the oil is very impure, it will be necessary to subject it a second

time to the above process. The oil, after being thoroughly purified, is again to be well agitated, and about ten per cent. of water, containing from four to five per cent. of sulphuric acid is then added. This solution is to be heated to about 100 or 120 degrees Fahrenheit, and the whole is to be stirred up together for about a quarter of an hour; after which the oil is allowed to stand for about forty-eight hours, when it will be in a fit state for filtering or refining, which may be effected by any of the well-known means; the oil will then be in a fit state for use. The quantity of oil which the patentee prefers to operate upon, is about fifty gallons at one time. The temperature of the room during the operations above described, should not be less than from 70 to 80 degrees Fahrenheit.

The claim is for the mode of purifying animal and vegetable oils, and such like substances, by subjecting them to alkaline and acid solutions, as above described.

SPECIFICATION enrolled 22nd August, 1842, of a PATENT granted 7th March, 1842, to WILLIAM NEWTON, of Chancery Lane, for "*an improved machine or apparatus for weighing various kinds of articles or goods.*" Being a communication.

THIS invention, which is a communication from Major André Weschniakoff, of the royal engineers of Russia, consists of certain improvements in a weighing machine, for which a former patent was granted to the patentee on behalf of the said André Weschniakoff, and dated at Westminster, the 12th September, 1839, the Specification of which was duly enrolled in Her Majesty's High Court of Chancery, on or before the 19th March, 1840, as re-

quired. In order that the present Specification may be more clearly understood, a description of the principal features of the former invention is given, as follows: The scale or plate upon which the goods to be weighed were placed, was suspended by a chain or cord attached to, and passed over, or round, a pulley; this pulley was mounted on, and firmly fixed to an axle, formed at its two extremities like wedges, or knife-edges, on which it rocked or oscillated; this pulley had also at its lower side a pendant arm, or lever, to the extremity of which an adjustable weight was attached, which, when raised, described the segment of a circle, as the pulley was drawn round on its axis by the weight of the goods placed in the scale. To the same axle as the pulley just described, was affixed the needle, or index, which, as the axle turned, pointed out on a graduated quadrant, indicator, or face-plate, the weight of any body placed in the scale. The graduations or divisions on the indicator gradually increased from the point zero; and the method of correctly setting off these divisions was fully explained. Having thus briefly described the nature of the former invention, we will point out the various improvements of the present machine, which is stated by the inventor to weigh more accurately, and to a greater extent. To the ceiling, beam, or roof, of a warehouse, in which a machine intended for heavy goods is to be used, is bolted a cross-head, having two ears or projections, from which the machine is suspended, by bolts passing through corresponding ears formed on the upper side of a metal entablature, to the underside of which are bolted metal bearings, having pieces of steel, of a wedge-like form, or knife-edges, on which the horizontal shaft or axle of the machine rocks or oscillates; at each end of this shaft, a cavity, or recess, is made by cutting away, in a longitudinal direction, about

one-third of the substance of the shaft, for the purpose of receiving the knife-edges; this shaft is maintained in its proper position by brackets, or projections, bolted on each side of the bearings, which prevent it from being displaced by any sudden concussion. In place of suspending the scale by means of a cord, or chain, as before stated, the improvement in this part consists in the application of a curved lever, which is formed on, or connected to a collar, having a hole therein to receive the shaft, and upon which it is firmly keyed. The outer end of this curved lever is provided with a knife-edge, from which is suspended a pendant frame, whose lower end is terminated by a swing joint; a pin passes through this joint, and supports a vertical rod, having at its lower end four hooks, from which is suspended the scale board. The pendant, or vibrating weight, which in the former construction was connected to the pulley, is connected to the lower end of a lever, the upper end of which is terminated by a collar, through which the axle passes, and upon which it is affixed. The needle, or pointer, is also connected to the axle in the same manner. The graduated plate is fastened by screws to a pendant open frame-work; and in order that the machine may weigh with accuracy, it is necessary that this open frame-work should hang in a perfectly vertical position; which is effected by turning the handle of a screw either to right or left, as may be required; the amount of alteration being shown by a level affixed to the lower part of the frame, and also a plumb line. The respective positions which the needle and weighted lever occupy on the axle, are regulated at first when making and setting the balance, and are afterwards maintained in their proper places by two bridle pieces, which connect their lower parts together; thus by placing a weight on the scale which is suspended from the curved lever, or arm, projecting from

the axle, the needle will move on the graduated scale, and thus give the amount of weight required. The graduations of the indicator, on the old construction, increased in size the farther they receded from the point zero; but in the present construction, by the peculiar arrangement of the mechanism, and other parts of the machine, the divisions are made to diminish, the farther they recede from the point zero. A further alteration in the graduations may be made, by elongating and elevating the curved lever, so as to raise the knife-edge thereof (when in a quiescent state), to an angle of 30 degrees from a horizontal line drawn through the centre of the axle. The inventor states, "when this alteration of parts is made, the divisions on the indicator will be symmetrical." There is also another method shown of connecting the needle to the lever, by forming the same with a projecting arm, to which the needle is fixed, and carried over the plate or indicator. The patentee lays no claim under this patent to such parts of the machine as have been described under the former patent, above mentioned; nor to any of those parts which are not new; but what he claims is, the arrangement of parts as shown and described, or any modification thereof, when employed for, or constituting a machine for weighing goods or merchandize.

SPECIFICATION enrolled 23rd August, 1842, of a PATENT granted 25th February, 1842, to WILLIAM NEWTON, of Chancery Lane, in the county of Middlesex, civil engineer, for "*certain improvements in regulating the flow of air and gaseous fluids.*" Being a communication.

THIS invention consists of a peculiar construction of appa-

ratus, in which, upon the slightest increase of pressure from the air or gas, which passes through the apparatus, the flow of the said air or gas is restricted in a novel manner until the extra pressure has ceased.

The working parts of this improved apparatus, whereby the supply or flow of air or gas to the burner is regulated, are contained within a cylindrical metal casing, which is provided with a moveable lid or cover. An annular moveable bell-shaped vessel is placed in the interior of the metal casing, covering an aperture by which the gas or air enters the bell-shaped vessel, and through which its flow or passage is regulated by means of the conical end of a hollow tube, which is suspended from the inside of the bell-shaped vessel by means of a metal rod or chain. The aperture for the admission of gas or air into the bell-shaped vessel is formed at the upper circular end of a metal cylinder, which is supported by an annular chamber or gallery, and when once in its proper situation, it remains stationary, and is prevented from moving laterally, or out of its position, by small blocks. The apparatus is supplied with water from above by removing the lid or cover, and its level is ascertained inside by means of a glass tube outside. All the different parts of the apparatus to be filled with water, are made to communicate with each other, the water passing from the upper or annular parts to the bottom of the outside casing, through holes made for that purpose; and at which place there is a screw-tap, which can be taken out when the vessel requires emptying. The bell-shaped vessel is suspended by chains from the ends of levers, and the weight of the vessel, together with the hollow tube, is counterbalanced by weights at the opposite end of the levers. Gas or air flows into the apparatus from a supply pipe, and passes up one annular passage into the upper part of the bell-shaped vessel,

whence it passes down another annular passage, and finally escapes from the apparatus through a pipe. If the pressure of the air or gas which enter into the apparatus is too great for the consumption, then it presses on the surface of water, and against the interior, or domed part of the bell-shaped vessel, thereby causing the latter to rise and draw the conical end of the hollow tube up into the aperture, and contract the same, and not allow so great a quantity of gas to pass through. When, by the issue of gas from the apparatus, the equilibrium or proper pressure is restored, the vessel sinks again, and allows the conical end of the tube to descend also from the aperture, and permit the gas to enter.

The patentee claims, first, the peculiar arrangement of apparatus herein shown and described, or any modification thereof; and, secondly, any apparatus for regulating the flow of air or gas, in which such regulation is effected by means of a conical plug, or the conical end of a tube, either hollow or solid, rising into the aperture through which the gas passes: thereby closing or partially closing the same, and preventing the air or gas from passing, as above described.

SPECIFICATION enrolled 28th August, 1842, of a PATENT granted 25th February, 1842, to JOHN BIRKBY, of Upper Rawfolds, in the county of York, card manufacturer, for "*improvements in the manufacture of wire cards.*"

THESE improvements consist, first, in the application of paper board, formed of several thicknesses of paper, as a substitute for leather, in the manufacture of fillets, and

sheet cards; and, secondly in the mode of manufacturing, or constructing, the backs of wire cards, by the application of a thin plate of metal, when combined with paper, leather, or woven, or hard felted fabrics, to the back thereof.

In the construction of this description of card, the inventor prefers a thin plate of iron, tinned, which is to be glued or cemented to a paper board back, this plate forming the upper surface; the two surfaces are then covered with a woven cotton fabric, which is cemented on the surface of the metal plate and paper board back, the object of which is to keep the whole together. In the process of pricking such substance, for the reception of the dents or teeth, the operation is similar to that of leather,—with this exception, the prickers have a guide, which moves on the surface of the plate, and also at the back, through which the prickers move, and which acts as a stay, thereby preventing them from bending when passing through the metal and other substances of which the back is formed. As the prickers are being withdrawn, the guide will press against the back of the paper, and prevent its surface from being injured by the adhesion of the prickers, and will also move with, and at the same time, as the prickers. The patentee remarks, “Although I prefer to use paper at the back of the metal plate, yet I do not confine myself thereto, as leather may be used, or a series of layers of cotton, or other woven or felted fabrics, pasted or cemented together;”—the object being to obtain the advantage of retaining the whole of the teeth regular, by the application of a thin plate of metal placed in front of the fillet or sheet constituting the back of the card. He also states that paper may be used without the application of a metal plate,—in which case, he generally makes use of that description of paper board used by pressers in finishing goods.

The claim is,—first, a mode of manufacturing wire cards

with a paper back, as the fillet or sheet in which the teeth or dents are received ; secondly, the forming of wire cards with thin sheets of metal, combined with paper board, or with woven or hard felted fabrics, or with leather at the back, as the sheet or fillet for receiving the teeth.

The third part of these improvements relates to giving to the crowns of the dents, or teeth, of wire cards, an additional bearing. In the present formation of wire cards, it is well known that the crown of such card forms a right line from one tooth to the other, and the bearing of such teeth depends upon the thickness of the wire employed. The mode of extending such bearing is by leaving a sufficient length of wire, and bending the crown backwards and forwards in a zig-zag form, thus presenting to the surface of the cylinder or roller upon which they are affixed, an extended bearing ; or, the teeth of such cards may be bent in the stem at a short distance from the crown, at right angles, to the lower part of the stem,—in which case, the bearing of the crown will be brought underneath the inclined part of the teeth. The practicability of carrying such improvements into effect will be readily seen by those acquainted with card machines.

Claim.—The extending the bearing surfaces of the crowns of wire teeth, or wire cards, as described.

SPECIFICATION enrolled 25th August, 1842, of a PATENT granted 25th February, 1842, to WILLIAM SAUNDERS, of Brighton, in the county of Sussex, gentleman, for "*improvements in apparatus employed in roasting and baking animal food.*"

THE improvements, which are the subject of this patent, consist, firstly, in a new mode of basting meat. At

the back of the hastner is a weight descending through a vertical pipe, and giving motion by means of a chain, passing over a pulley at the top, to a number of wheels connected to, and driving a horizontal shaft placed underneath the dripping-pan ; on the end of this shaft is a bevil wheel, which takes into and drives another wheel fixed on the axis of the spit ; the intermediate part of this shaft is provided with a crank, having a connecting rod which works a pump. The fatty matter flows from the dripping-pan into the vessel containing the pump, from which place it is pumped into a perforated dish placed above the meat.

The patentee claims the mode of basting meat, by causing the basting liquid to be raised or forced up by mechanical means, so as to be distributed over the meat when roasting.

Secondly.—The drawings of this part of the invention have reference to a rectangular kitchen range, to be placed in the centre of a room. A plan of this range shows the square divided into nine compartments, the four corners consisting of a number of ovens placed one above the other, and which may be used for various purposes, and the spaces between for four dripping-pans, with the fire in the centre, having four sides. The pans, which are made to run upon wheels, can be drawn out at pleasure, and are provided with pumps, as described ; with this difference, that they are driven, together with the spits, by a smoke-jack, placed in the chimney, having a vertical spindle, upon which are two pinions giving motion to four wheels for driving the four spits, together with the fat pumps.

Claim is for a mode of constructing a range for the centre of a kitchen, so as to make use of every side of the fire for roasting.

The third improvement relates to a range with the fire projecting into the room, and is covered with a plate

which forms a hot-hearth. The fire place is provided with a check-plate, moved by a winch, affixed on the end of a shaft, having a pinion taking into a rack, for increasing or diminishing the space occupied by the fire ; behind the fire-place, and above it, is placed an oven ; in a line with which, and on one side is a second hot-hearth, with two ovens below it. The smoke and hot air which pass from the fire are conducted through spaces formed by placing the ovens and other baking apparatus apart from each other. The inventor states that the fire in this case may be constructed with three heating surfaces, by removing the boiler, which occupies one side, together with the side-plate opposite, and substituting bars in their place.

The next arrangement shows the space made by the fire projecting into the room, filled up with ovens and other heating apparatus.

The claim respecting the first part of these improvements, is for the fire projecting into the room, and the general arrangement shown.

Second, the filling up of the space above the hot-hearths with ovens, and the arrangement described.

SPECIFICATION enrolled 22nd August, 1842, of a PATENT granted 25th February, 1842, to OSBORNE REYNOLDS, of Belfast, Ireland, clerk, for "*certain improvements in covering streets and roads, and other ways with wood, and also in the means of enabling horses and other animals to pass over such roads, and other slippery surfaces with greater safety than heretofore.*"

THE first part of the invention relates to various improvements upon a former patent granted to Mr. Rey-

nolds on the 27th of April, 1841, for "improvements in paving streets, roads, and ways;" and secondly, in the application of bars, ribs, or projections to the shoes of horses and other animals, to prevent them from slipping, by giving them a firmer hold of the pavement.

In order to form a firm, compact, and cheap pavement, the ground is, in the first place, levelled and rammed hard, and also covered with sand, if desirable. Upon this prepared surface are laid boards, planks, beams, laths, or slips of wood, either in close contact or with spaces between them; and upon the planks or boards so arranged are placed the blocks. The form preferred by the patentee are parallelopipedons or other figures, such as may be formed by one cut, either oblique or perpendicular to the grain of the wood, from a plank of any breadth, and of any thickness, not exceeding four inches; or blocks similarly formed from round or unhewn timber, may be used. If desirable, a second or even a third layer of boards may be placed on the first, imbedded wholly or partially in cement, and nailed or otherwise fastened together. Between the blocks, which are in contact with each other, may be interspersed a few grains of gravel or other hard substance, not smaller than spheres whose diameter is one-twentieth of an inch, so that these grains may be partially imbedded in each of the two adjacent sides, and thereby strengthen their mutual support.

To make the pavement water-tight, the blocks are surrounded with cement; and to unite the whole compactly together, the blocks are secured to the foundation planks, or to each other, or both, by nailing or pinning each block to the mass already formed. This method of fastening the blocks together, is stated by the patentee to be obviously different from any of the methods hitherto employed of securing a number together by pegs, pins, or

dowels. The surface of such pavement is made rough by scattering upon it, by hand or otherwise, gravel or broken stone, screened, so as to contain neither dust nor sand of any size less than that above described: such gravel may be scattered in any quantity not exceeding four pounds avoirdupoise to the square yard. This operation is repeated often enough to keep the surface constantly rough; this repetition, combined with the use of grains of a proper size, alone produces the whole effect desired, without the accumulation of mud or dust, which always accompanies the use of gravel as hitherto employed for this purpose. In order to prevent animals from slipping, the under-side of the shoe is provided with a number of bars or projections, beginning at the toe with three curvilinear projections, at the termination of which, a number of transverse or oblique bars, or projections, are continued to the caulk, resembling in form the teeth of a rack.

The inventor claims.—First, the method herein described of using boards for a foundation of wood pavement; also the use of blocks of the form described, together with the modes described of strengthening the whole by means of hard grains of gravel, and nails of iron, or pins of wood; and further, the method described of roughening the surface continually by gravel or broken stone.

Secondly, an improved method of constructing the shoes of horses and other animals, whereby they are prevented from slipping, as above described.

SPECIFICATION enrolled 26th August, 1842, of a PATENT granted 26th February, 1842, to SAMUEL MORAND, of Manchester, merchant, for "*improvements in machinery, or apparatus for stretching fabrics.*"

THE improvements, as described in the Specification, con-

sist, first, in the peculiar construction of an endless chain, with a continuous row of stretching pins, for holding the selvage of the fabric to be stretched; secondly, in a mode of cleansing the said stretching pins, by means of revolving brushes; and, thirdly, in a mode of affixing or pressing the fabric on to the stretching pins. The continuous row of stretching pins, attached to the chains, is formed by inserting between the links of the chain, which are of a peculiar form, a plate, provided with a groove in its upper surface. This plate receives a piece of brass equal in length to one of the links, containing a number of pins, so affixed as to incline a little from the perpendicular, for the purpose of holding the selvage more securely. These plates, which are affixed to the links by a pin passing through them, form an endless chain of teeth, and drive certain apparatus hereafter described.

The machine consists of two horizontal chains of the construction described. These chains pass through guides, and over pulleys at each end of the frame, and can, by means of two shafts, having at each end a right and left handed screw, and upon which the guides are affixed, be set at any distance required, according to the breadth of the fabric, before and after the stretching process. Above each chain, at that end of the machine where the fabric is introduced, is a wheel, having teeth corresponding with, and taking into, the spaces formed by the back part of the plates containing the stretching pins: these plates, by their movement, have the same effect as a rack driving a pinion. Upon the face of this wheel is affixed a pulley, with its periphery covered with bristles in the same manner as a brush. This apparatus, which is fixed in a frame with the bristles pressing on the points of the pins, will, as the edge of the fabric passes between such parts, cause it to be affixed on the pins, and the motion of the machine will carry the fabric forward. The chains at each end of the

machine are parallel to each other; but on setting the machine to work, they are at that end at which the fabric is introduced, set to the width of the fabric before it is stretched; but at the other end, they are set to the width at which the fabric is intended to be stretched. When the machine is set to work, such fabric will be progressively introduced, and will be carried endwise by the stretching pins, which move for a short distance parallel to each other; but having arrived at a certain point, the chains will gradually diverge from each other to the width required, and then again move parallel to the end of the machine, which is effected by guides moving upon one or more hinged joints, acted upon by right and left handed screws. The cleansing apparatus is as follows:—Underneath the chains is affixed a wheel, having teeth corresponding with the openings in the chain, in the manner before stated, and which gives motion to two circular brushes, revolving in opposite directions, and fixed in such a manner as to brush across the pieces of brass containing the pins.

The inventor claims.—First, the mode of combining the parts of the chain, as described; secondly, the cleansing of the stretching pins, by brushes; thirdly, and lastly, the mode of pressing the fabric on to the stretching pins.

SPECIFICATION enrolled 26th August, 1842, of a PATENT granted 26th February, 1842, to BENJAMIN GILLOTT, of Great Saffron Hill, in the county of Middlesex, cutler, for “*improvements in heating and ventilating.*”

THIS heating and ventilating apparatus, so far as regards the fireplace, is constructed in the same manner as an ordinary hot air stove; over which is placed a boiler,

made of copper, iron, earthenware, or glass, and containing a number of tubes surrounded by water; over the boiler, which may be placed in any position, is placed a cover, with a small opening for supplying it with water.

A fan, or blowing machine, of the ordinary construction, is placed with the opening of the box containing it, opposite the open spaces formed by the tubes in the boiler. The air thus heated, is forced, or driven by the action of the fan, to any room or apartment requiring to have its temperature raised; "such air, by passing through boiling water, is more particularly intended for respiration, though applicable to all purposes requiring heat of a moderate temperature." In cases where heat only is required, independent of its quality, the air is forced through a box having a number of plates, which are heated by the stove, or a number of metal tubes instead of the boiler, whereby greater heat will be obtained. The drawing also shows the case containing the fan, made double, with the fire placed underneath it, whereby the air contained in the space formed by the two parts of the case becomes heated, and passes off to the neck of the case containing the fan, and is afterwards forced, or driven, in the manner above described.

The claim is for a mode of heating or ventilating apartments, &c., by forcing air through a heating medium, by means of a fan or blower, as described.

SPECIFICATION enrolled 27th August, 1842, of a PATENT granted 1st March, 1842, to THOMAS SMITH, of Northampton, in the county of Northampton, plumber, for "*an improvement or improvements in water closets.*"

THE principal feature in this invention consists in the ap-

plication to water closets of a secondary service pipe. This pipe is connected with, and forms a branch at that part of the principal service pipe, where the bend takes place previous to entering the basin, and terminates at the back part of the trap. When the valve is opened, which may be effected by any of the well-known means, the water passing through the principal service pipe carries the soil into the trap, from whence it is forced by the stream of water from the secondary service pipe, into the delivery pipe, the trap by this means being more effectually cleansed. This latter service pipe may, if required, be connected to the cistern so as to be acted on at, or nearly at, the same time as the principal service pipe. The trap is represented in the drawing of a curved form, with the opening to the delivery pipe placed somewhat higher than the bottom of the trap: which arrangement of parts (as stated by the patentee) allows the apparatus to stand on the floor, without having to cut away so much of the boards, which is necessary in fixing water closets of the ordinary construction. For the purpose of removing any obstruction which may have accidentally got into the trap, the upper part, between the delivery pipe and the trap, is provided with a lid, which can be removed for that purpose.

The claim is for the manufacturing of water closets, constructed with a secondary service pipe, and trap of the description represented in the drawing, whether the said service pipe is connected with the cistern; or, whether the trap is of the form represented in the drawing, or of any other suitable form.

The SPECIFICATION of the PATENT granted 15th February, 1842, to CHARLES THOMAS HOLCOMBE, of Bankside, Southwark, iron merchant, for "*certain improvements in the manufacture of fuel, and in obtaining products in such manufacture,*" due 15th August last, has not been enrolled in that month.

Byrner's Improvements on Lamps.

Fig. 6.

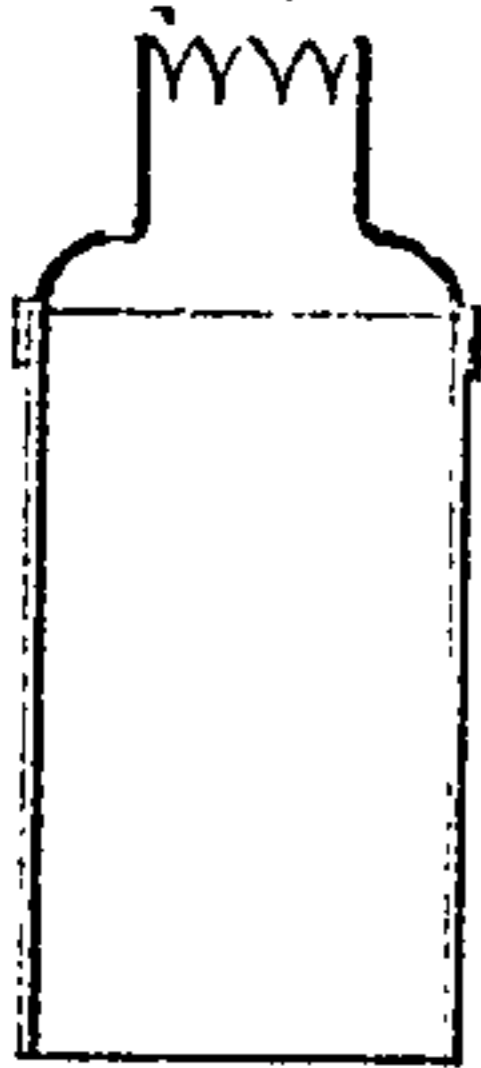


Fig. 5.

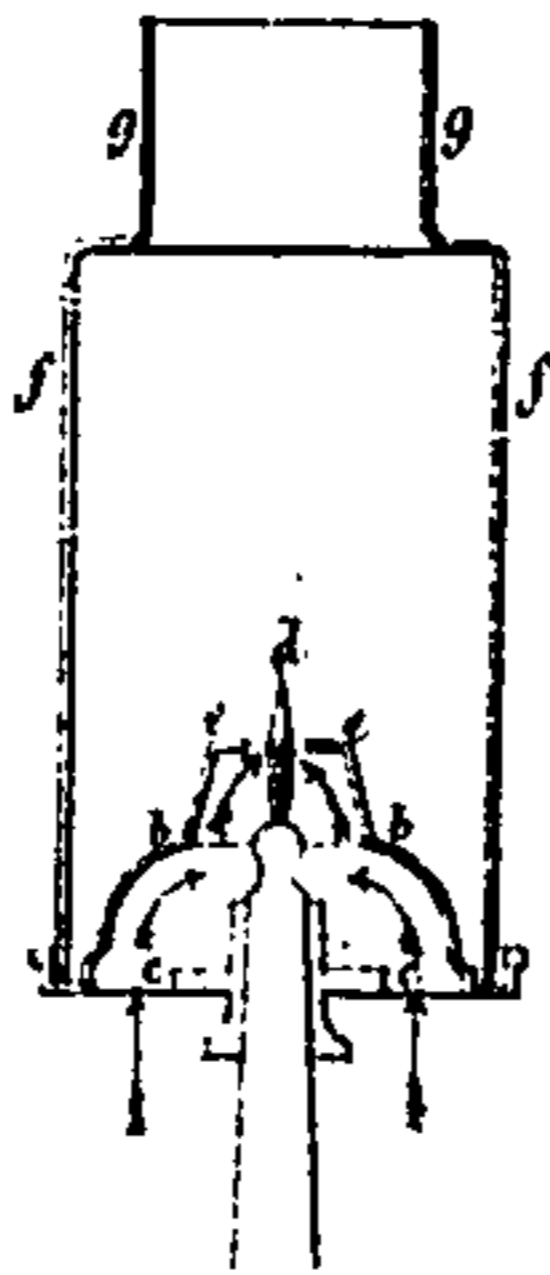


Fig. 4.

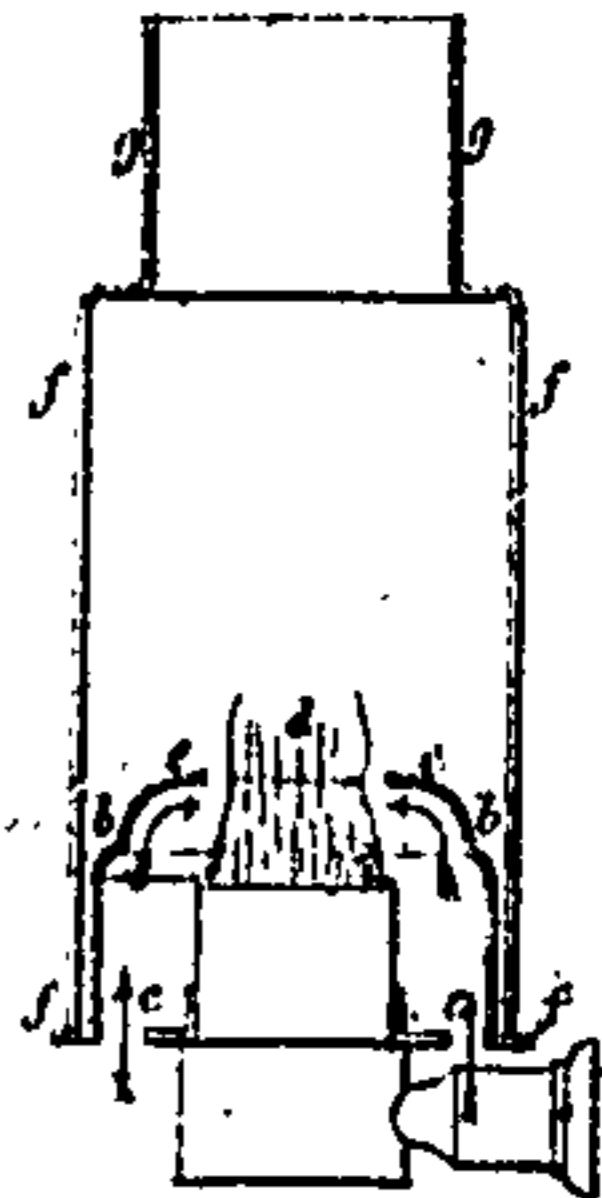


Fig. 2.

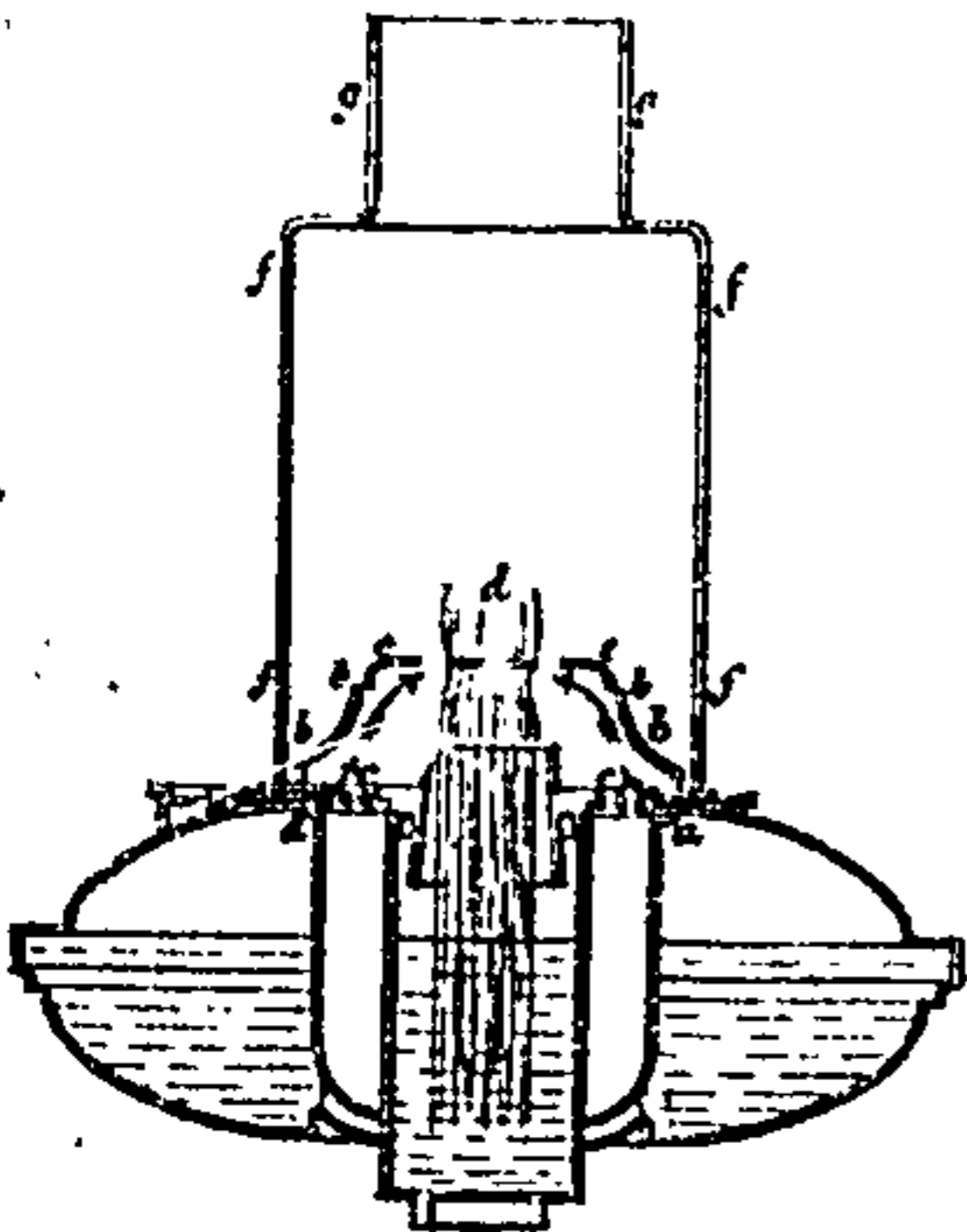


Fig. 1.

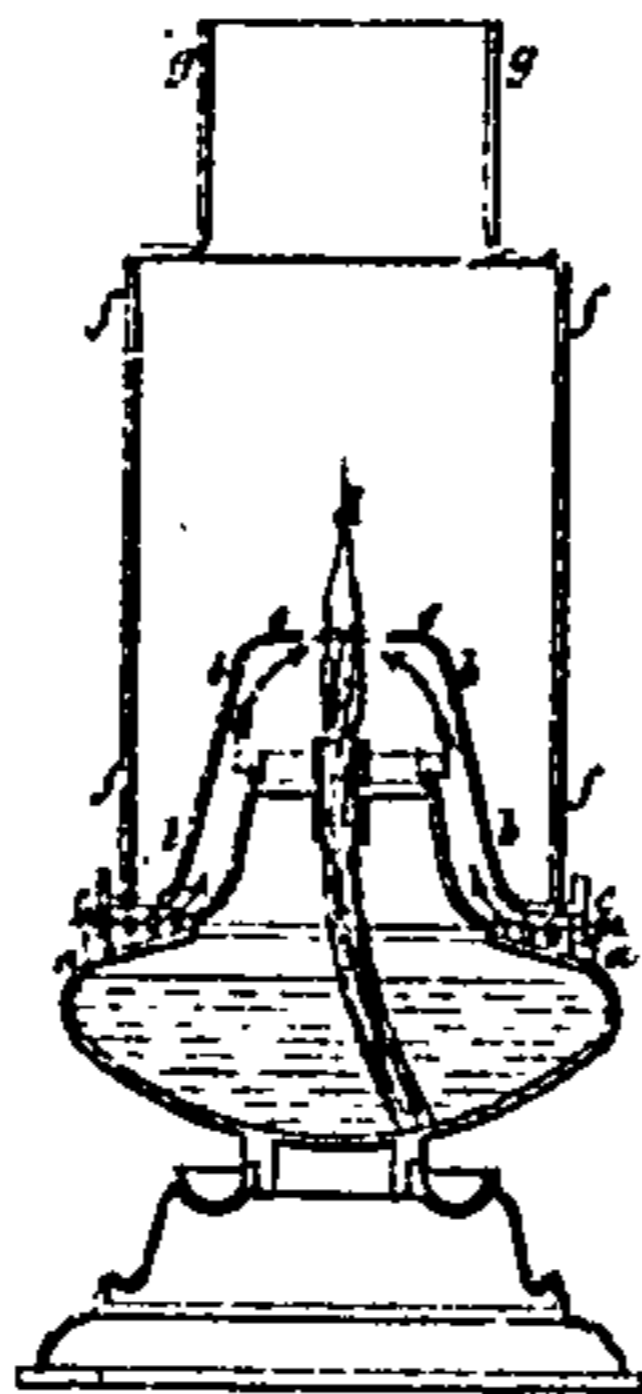
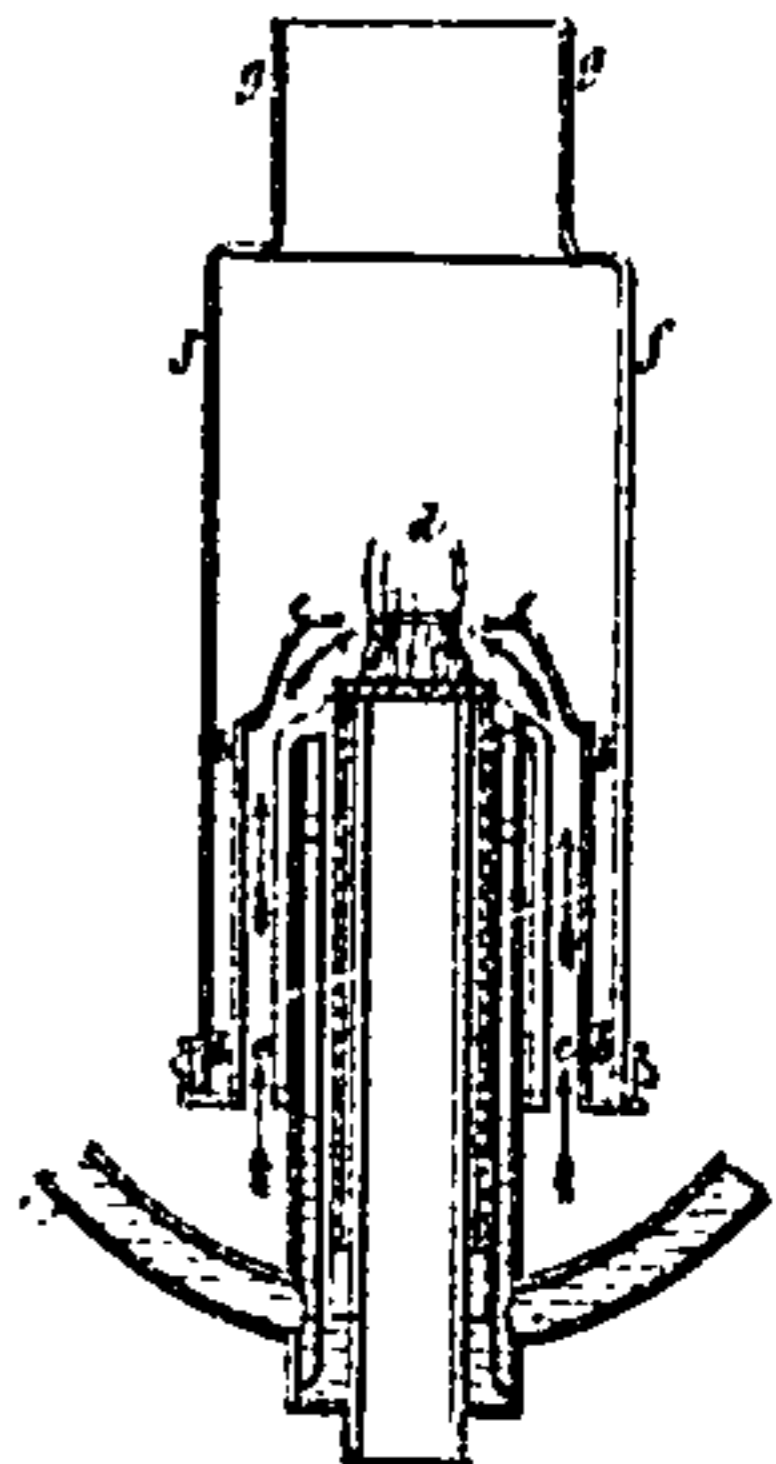


Fig. 3.



Law Reports on Patent Cases.

BYNNER'S PATENT.

LETTERS PATENT granted to JEREMIAH BYNNER, of Birmingham, lamp manufacturer, 9th December, 1837, for "*improvements on lamps.*"

On the 9th of June, 1838, in pursuance of the proviso in the said letters patent, to that effect contained, the said Jeremiah Bynner did cause a particular description of the nature of his invention, and in what manner the same was to be performed, to be enrolled in Her Majesty's High Court of Chancery. The specification is as follows: "My invention relates to a mode of supplying air to the flames of lamps (whereby I am enabled to obtain greater length and steadiness of flame, and brilliancy of light from such flames), and consists in the application of certain deflecting surfaces in combination with peculiarly constructed chimneys, whereby currents of air are caused to act upon the flames at a position above the point of ignition; and such currents of air are so deflected as to have a tendency to impinge on the flames, and would, if only applied to one side of the flames, cause them to be blown down toward a horizontal position; but currents of air being deflected on to the flames of lamps, according to the invention, all round, or on all sides, a steadiness of flame and brilliancy of light is produced, not attainable by other modes of supplying the air thereto: and it is important to call particular attention to the circumstance of the currents of air (so deflected), and having a tendency to cross the flame at all points, being deflected, or striking above the point of ignition, because it is important that the flame should be formed below the point at which the currents of air strike or act.

Figure 1 represents the section of a lamp having a common

pipe wick burner, the construction of which is well understood (a), is a projecting ring round the upper surface, on which the deflectors rest, and are supported; (b) is the deflector, and consists of a conical metal surface, having a number of small holes (cc) for the passage of air from below the point of ignition upwards, and at the upper part there is an opening (d) for the flame to pass through; and it will be evident on the rush of air through at (cc), the currents of air will be guided by the deflector (b), and on the arrival of the currents upwards to the parts (eee) they will have obtained considerable velocity, and they will strike against the parts at (ee) and be bended and deflected therefrom in a direction across the flame (ff);—(gg) is the chimney, the lower portion being of a large diameter, and of greater length than the upper part (gg), and it is important that the chimney should be of such a figure in order to produce the fullest effect. Figure 2 represents part of the section of a lamp having a flat wick burner. Figure 3 is a section of part of a lamp having an argand burner. Figure 4 is an argand burner for burning gas, and figure 5 is a gas burner having a jet flame. In each of these figures the same letters indicate similar parts, and respectively show my invention as applied to those classes of burners for lamps. Figure 6 shews a glass chimney with a metal top, in order to produce a central current above the flame, in place of having the chimney wholly of glass; and it will be seen that there are no openings to admit air to the chimney, excepting that which comes through the deflector at (ee): and I would remark, that although the deflectors may be employed in combination with ordinary chimnies of glass, I prefer the using of chimnies as shown and described. (*See Drawing annexed.*)

I would remark that I do not make any claim to the various parts of lamps shown, nor do I confine myself to the precise figures or shapes thereof, as the same may be varied according to taste. And I would have it understood that I am aware that various modes of supplying and regulating air to the burners of lamps have been before resorted to. I do not, therefore, claim any mode for accomplishing that object other than where the cur-

rents of air are obtained at a point below the point of ignition, as at (cc), and conducted up, and deflected off, in a direction to cross the flame on all sides, and all around, at a point above the point of ignition, as above described.

And I also claim the combining deflectors as above explained, with chimnies of the construction shown and described.

In witness, &c.

THE QUEEN v. BYNNER.

This was a *scire facias* to repeal the preceding letters patent ; and the writ, after reciting the grant of the letters patent, further recites: "AND WHEREAS we are given to understand that our said grant was and is contrary to law, and was and is prejudicial to our subjects in general ; and also that the said supposed invention, at the time of the granting of the said letters patent, was not a new invention as to the public use and exercise thereof in that part of our United Kingdom of Great Britain and Ireland called England: *And further*, that the said pretended invention of the said Jeremiah Bynner was not invented and found out by the said Jeremiah Bynner, as in the said letters patent mentioned: *And further*, that the said Jeremiah Bynner was not nor is the first and true inventor of the said pretended invention of the said Jeremiah Bynner, as in the said letters patent mentioned: *And further*, that the said invention was before and at the time of the granting of the said letters patent, used by others in that part of our United Kingdom of Great Britain and Ireland called England, to wit, at Westminster: *And further*, that a part of the said supposed invention, pretended to be attained unto by the said Jeremiah Bynner, was before and at the time of the granting of the said letters patent, used by others in that part of our United Kingdom of Great Britain and Ireland called England, to wit, at Westminster aforesaid: *And further*, that the said supposed invention was not a manufacture within the intent and meaning of the Statute, made and passed in the twenty-first year of the reign of the late King James the First, intituled, "*An Act con-*

cerning Monopolies and Dispensations with the Penal Laws, and the forfeitures thereof." AND MOREOVER, that, although the said Jeremiah Bynner did cause a certain instrument in writing under his hand and seal, bearing date the 22nd day of February, in the year of our Lord 1838, to be enrolled in our High Court of Chancery at Westminster aforesaid, within six calendar months next and immediately after the date of the said letters patent, to wit, on the 9th day of June in the year last aforesaid, thereby pretending, in compliance with the said last-mentioned proviso, particularly to describe and ascertain the nature of the said invention, and the manner in which the same was to be performed, as by the said instrument in writing so enrolled in our High Court of Chancery, at Westminster, appears. Yet the said Jeremiah Bynner hath not in and by the said instrument in writing, so enrolled as aforesaid, or by any other instrument in writing, under his hand and seal, enrolled in our said High Court of Chancery, within the six calendar months next and immediately after the date of the said letters patent, particularly described and ascertained the nature of his said invention, and in what manner the same is to be performed, according to the true intent and meaning of the said proviso in that behalf in the said letters patent contained, but hath wholly neglected so to do, contrary to the form and effect of the said letters patent, and of the said last-mentioned proviso in that behalf contained: *By means of which said several premises,* the said letters patent so as aforesaid granted to the said Jeremiah Bynner, are and ought to be void, and of no force and effect in law." *And* the said writ then calls upon the said Jeremiah Bynner to shew cause why the said letters patent so granted to him as aforesaid, and the enrolment of the same, for the reasons aforesaid, ought not to be cancelled, vacated, and disallowed, and those letters patent restored into Her Majesty's said Chancery, there to be cancelled.

The defendant pleaded:—

1. That the said letters patent so granted to him as aforesaid, and the enrolment of the same by reason of anything in the said writ of *scire facias* alleged, ought not to be cancelled,

vacated, and disallowed, nor those letters patent restored into Her said Majesty's Chancery, there to be cancelled; because that Her Majesty's said grant was not nor is contrary to law, and was not nor is prejudicial to Her said Majesty's subjects in general.

2. That the said invention at the time of granting the said letters patent was a new invention, as to the public use and exercise thereof.

3. That the said invention was invented and found out by him, the said Jeremiah Bynner, as in the said letters patent mentioned.

4. That the said Jeremiah Bynner is the first and true inventor of the said invention, as in the said letters patent also mentioned.

5. That the said invention was not, before or at the time of the granting of the said letters patent and grant, used by others in that part of the United Kingdom called England.

6. That no part of the said invention was before, or at the time of the granting of the said letters patent, used by others in that part of the United Kingdom called England.

7. That the said invention was a manufacture within the intent and meaning of the said statute of 21st James I.

8. That he did by the said instrument in writing, under his hand and seal, so as aforesaid enrolled, particularly describe and ascertain the nature of his said invention, and in what manner the same was to be performed, according to the true intent and meaning of the proviso in that behalf in the said letters patent contained.

Issue having been joined on these traverses, the case came on for trial in the Court of Queen's Bench, at Westminster Hall, the 4th of July, 1842, before Mr. Justice Coleridge, and a special jury.

The Solicitor General, Mr. Fitzroy Kelly, Q. C., Mr. Hindmarch, and Mr. Hugh Hill, appeared as counsel on behalf of the Crown.

The Attorney-General, Mr. M. D. Hill, Q. C., Mr. Crompton, and Mr. Webster, conducted the case for the Defendants.

The following are the particulars of objections filed with the Declaration, and relied upon on the part of the prosecution :—

That the said invention, at the time of the granting of the said letters patent, was not a new invention as to the public use and exercise.

That the said Jeremiah Bynner was not the first and true inventor of the said alleged invention in the said letters patent mentioned.

That the said supposed invention was not, and is not, a manufacture within the intent and meaning of the said statute of 21st James I.

That the Specification of the said patent does not particularly and sufficiently describe and ascertain the nature of the said invention, and in what manner the same was or is to be performed, but is false, fraudulent, ambiguous, obscure, insufficient, repugnant, defective, and calculated to deceive.

That the said Specification is obscure, insufficient, defective, and calculated to deceive in this, that although the said Specification refers to certain drawings, yet it does not state, nor can it be inferred therefrom, that the relative proportions of the several parts of the said alleged invention are shown in the said drawings, or any of them, or whether deflectors or chimnies of the forms and proportions indicated by the said drawings are the best or only ones that can be advantageously adopted, or whether deflectors and chimnies, the several parts of which bear a different ratio to each other than those to be deduced from the said drawings, or some of them, may not be employed with equal benefit—that experiments are necessary to determine the relative proportions of the several parts of the deflector and chimney, so as to produce the greatest effect—that a person constructing a lamp according to the proportions indicated by the said drawings, would not construct so useful an article as if he were to make use of other proportions.

That by the said Specification, the said supposed invention is alleged to consist in the application of certain deflecting surfaces in combination with peculiarly constructed chimnies,

thereby meaning that the said peculiarly constructed chimnies were and are an essential part of the said alleged invention. Whereas, in truth, and in fact, the said peculiarly constructed chimnies were not, nor are they essential or even advantageous.

That, although by the Specification it is alleged to be essential that the currents of air should be deflected on the flame at a point above the point of ignition, yet, the said Specification is insufficient, obscure, and defective in this, that the said Specification does not give or suggest any mode of determining the point or distance above the point at which the flame is formed, at which the currents of air ought to be so deflected on the flame, which it was material to do; that if the Specification is to be understood as implying that such point or distance is immaterial, then the said Specification is false, and calculated to deceive; but if the Specification is to be understood as implying that the said point or distance is material, then it ought to give some rule or data by which the same might be ascertained.

That the said Specification falsely alleges that it is important that the chimney should be of the figure therein stated, in order to produce the fullest effect. Whereas, in truth, and in fact, chimnies of the figure in the said Specification mentioned, are not necessary to produce the fullest effect.

That the said Specification is also false, and calculated to deceive, in this to wit, that it is alleged in the said Specification that it is important that the chimney should be of the figure therein mentioned, in order to produce the fullest effect; whereas, in truth, and in fact, chimnies of the figure in the said Specification described, will not produce the fullest effect, but, on the contrary, much less effect than chimnies of other and different figures and shapes.

That the Specification is ambiguous, uncertain, insufficient, and calculated to deceive in this, that in the Specification it is said, that although the deflectors may be employed in combination with the ordinary chimnies of glass, the Patentee prefers using chimnies of other and different figures and shapes as shown and described, by which words the Patentee seems to imply, and a

person reading the Specification would be led to suppose, that chimnies of the form in the Specification described were not a material part of the said alleged invention; whereas the said alleged invention is in another part of the Specification said to consist in the application of "deflectors in combination with the peculiar constructed chimnies," thereby implying that the same were, and are, a material part of the said alleged invention.

That a lamp constructed according to the directions given in the said Specification, and in the drawings thereunto annexed, would not be of any use or advantage.

That in stating the invention to be applicable to gas burners, the Specification is defective, for no advantage is derived from the application of such contrivances as are described in Figures 4 and 5 to the consumption of gas.

That the said Specification does not contain sufficient information to satisfy the requirements of the proviso in the said letters patent.

Mr. *Hugh Hill* having opened the pleadings—

The *Solicitor-General* then addressed the jury on the part of the Crown: he began by stating that these proceedings were instituted in order to repeal a patent granted to one Jeremiah Bynner, for "improvements on lamps," upon the following grounds: 1st. That the invention was not new:—2ndly. That Mr. Bynner was not the inventor; and, 3rdly. That he had not complied with the proviso contained in the patent as to specifying, and that his Specification was obscure, inaccurate, insufficient, and delusive. Before entering upon the question of novelty, he would make a few preliminary observations. He begged the jury to bear in mind that Bynner was the nominal Patentee only; that the parties most interested, and the real defendants in this case (being the assignees of Bynner's patent) were Messrs. Smith and Sons, of Birmingham, in whose service Bynner was employed as a workman. The learned counsel then proceeded to make some remarks on the law of patents. He cited the Statute of Monopolies, 21st James I., and explained the origin of that statute, and stated that patents were granted to inventors upon certain con-

ditions, one of which was that the invention should be new, and not have been used or known before ;—that if it should be discovered that the patent, at the time of granting, was not new, and had been used and known before, that then the patent was invalid. That another condition of the patent was, that the patentee should enroll in the High Court of Chancery, within a certain period, a true and accurate description of the nature of his invention, and of the manner in which the same was to be performed, in such terms that a person of ordinary skill in the business might be enabled to make it therefrom. That the object the legislature had in view in imposing this latter condition was, that after the patentee had reaped the advantage of his invention during the term of his patent, the public might, after the expiration thereof, be benefited by it ; and, by means of the Specification so enrolled, be enabled to manufacture the same articles as the patentee, and without his assistance. That the lamps manufactured under Bynner's patent were not new in principle ; such lamps were well known and used before. That the prejudice resulting from a patent being granted for an old article was very great, as it not only restricted the right of the public, but also prevented improvements. The learned gentleman then read the Specification, and particularly pointed out to the jury, that Mr. Bynner claimed all those modes of supplying air to the flame of lamps, where “ the currents of air obtained at a point below the points of ignition are conducted up and deflected off by a conical metal surface, so as to impinge on the flame at a point above the point of ignition, no air being admitted to the chimney excepting through the centre aperture of the deflector.” He should prove that identically the same construction of lamp had been patented in 1828 by Messrs. Upton and Roberts, and applied to all kinds of pipe and flat wick lamps ; and that lamps under this patent had been extensively manufactured by Messrs. Smith and Sons, of Birmingham, by Mr. Guise, Mr. Hetherington, and others in London ; and most extensively, as applied to flat wick lamps, by Messrs. John and Charles Ratcliff, of Bir-

mingham ;—that the same invention, as applied to argand lamps, had been patented in 1812 by one Simpson, of Birmingham ; and that lamps under this patent had been manufactured under the name of “the economic lamp,” by Messrs. Palmer, and by Messrs. Wright and Salt, of Birmingham ; and by Mr. John Milner, and others, in London. That Mr. Bynner could not be the inventor, for he received instructions to manufacture the pipe wick deflecting lamps from the patentees, Messrs. Upton and Roberts, and that his employers, Messrs. H. and R. Smith, first as licencees, and afterwards as assignees of this patent right, manufactured and sold many hundreds of these lamps, and were fully aware of the application of the same invention to flat-wick lamps, the right to manufacture which latter was assigned to Messrs. J. and C. Ratcliff, of Birmingham, by Messrs. Upton and Roberts. That the Specification was inaccurate, in stating that deflectors could be advantageously applied to gas lamps ; insufficient, in not stating the proper height at which the deflectors should be placed, and in not describing the proper size of the aperture through which the flame passed ; and delusive, in stating that a peculiar shaped chimney therein described was essential to produce the fullest effect, and that the deflectors could be advantageously employed with ordinary chimnies of glass.

The learned gentleman, in the course of his address, exhibited various models of the different inventions alluded to, and explained them to the jury. He then proceeded to call evidence to prove the prior use of lamps, resembling, in all respects, the lamps claimed by Mr. Bynner as his invention.

Mr. A. Rawlingson produced copies of Bynner's patent and specification—also of Upton and Roberts', and of Simpson's.

Mr. George Upton, examined by Mr. Kelly, stated that he was a lamp dealer in George Street, Hanover Square, and in Basinghall Street ; that he had been in the trade above thirty years, and in partnership with Mr. Roberts, who is since deceased ; that he had seen Mr. Bynner's Specification, and a lamp made according to it ; that he was well acquainted with the principle of applying air to the flame of lamps, and had made many experiments on

the subject; that the principle of admitting air below the point of combustion was very old, as was also the principle of deflecting the current of air against the flame above the point of combustion; that in the year 1828 he and Roberts took out a patent for improvements in lamps, but confined themselves to flat wick and pipe wick lamps; that he has known such lamps to have been sold in considerable numbers before the date of Bynner's patent. Mr. Upton further stated, that in 1832 he and Mr. Roberts having had their attention called to the construction of safety lamps, they adopted that principle in the solid wick lamps under their patent. Two specimens were put into the witness's hands, which he stated had been made by himself and Roberts, and that hundreds had been manufactured and sold before the date of Bynner's patent; that in them the current of air was obtained below the point of ignition, and was conducted up and deflected off by a conical metal surface, and caused to impinge on the flame at a point above the point of ignition; but that no air was admitted to the chimney except through the aperture in the deflector. [One of the patent lamps was handed to the witness, which he stated was identically the same in principle.] That he had frequently given directions to Bynner thereon: he was Smith's foreman. Miller's lamp, Hetherington's lamp, and Guise's lamp, were then shown to Mr. Upton, and he stated that the principle of obtaining the air below the point of ignition and of impinging on the flame above was the same in all; that he had sold a portion of the patent to Messrs. Ratcliff: their lamp produced the same effects, except that it had holes in it, which made the air to impinge with less force, and it kept the glass cooler; that he had applied his invention to gas, and had made some of his lamps with "regulators," and some without,—the use of which was to proportion the quantity of air admitted; that he had given evidence before a Parliamentary Committee in 1835 on the subject of these lamps. Mr. Upton lastly stated, that Cox's lamp (Skelton's) and Bynner's were the same in prin-

[*To be continued.*]

List of New Patents.

PATENTS GRANTED IN ENGLAND IN THE MONTH OF AUGUST, 1842.

Six Months allowed for Enrolment of Specification, unless otherwise expressed.

JOHN STEPHEN WOOLRICH, of Birmingham, chemist, for "improvements in coating with metal the surface of articles formed of metal or metallic alloys." Sealed August 1.

ALFRED JOHN PHIPPS, of Blackfriars-road, gentleman, for "improvements in paving streets, roads, and ways." Sealed August 1.

JOSEPH WHITWORTH, of Manchester, engineer, for "improvements in machinery or apparatus for cleaning roads, and which machinery is also applicable to other similar purposes." Sealed August 2.

JOHN DRY, of Beverley, agricultural implement maker, for "improvements in thrashing machines." Sealed August 2.

SAMUEL CARSON, of Covent Garden, gentleman, for "improvements in purifying and preserving animal substances." Sealed August 3.

ARCHIBALD TURNER, of Leicester, manufacturer, for "improvements in the manufacture of muffs, tippets, ruffs, mantillas, cloaks, shawls, capes, pelerines, boas, cuffs, slippers, and shoes." Sealed August 3.

JOHN LEE, of Bermondsey, gentleman, for "improvements in wheels and axle-trees to be used on railways, and in machinery for stopping on, or preventing such carriages from running off railways, which improvements may also be applied to other carriages and machinery." Sealed August 3.

CHARLES HENRI PERRIN, of Lombard-street, London, for "improvements in the construction of certain parts of mechanism used in watches and chronometers, which improvements are also applicable to some kinds of clocks." Sealed August 8.

DAVID NAPIER, of Millwall, engineer, for "improvements in steam engines and steam boilers." Sealed August 9.

THOMAS WALKER, of Birmingham, stove maker, for "improvements in stoves." Sealed August 9.

RICHARD FORD STURGES, of Birmingham, manufacturer, for "an improvement in the manufacture of Britannia metal and plated wares." Sealed August 10.

DOMINIC FRICK ALBERT, of Cadishead, Doctor of Laws, manufacturing chemist, for "a new combination of materials for the purpose of manufacturing a manuring powder." Sealed August 10.

MOSES POOLE, of Lincoln's Inn, gentleman, for "improvements in paving or covering roads and other ways." Sealed August 11.

JOSEPH BETTELEY, of the Brunswick Anchor Works, Liverpool, chain cable manufacturer, for "improvements in windlasses and machinery for moving weights." Sealed August 11.

JOHN THOMAS BETTS, of Smithfield Bars, gentleman, for "improvements in covering and stoppering the necks of bottles." A communication. Sealed August 11.

GEORGE ROBERTS, of Liverpool-road, miner, for "improvements in the construction of lamps." Sealed August 15.

WILLIAM RAYBOULD, of Clerkenwell, brass founder, for "a new or improved soldering iron." Sealed August 18.

GEORGE JOHN NEWBERY, of Cripplegate-buildings, artist, for "improvements in producing damask and other surfaces on leather and other fibrous substances and fabrics." Sealed August 18.

NATHAN DEFRIES, of Fitzroy-square, engineer, and **NATHANIEL FORTESCUE TAYLOR**, of Mile-end, engineer, for "improvements in meters for gas and other fluids." Sealed August 18.

WILLIAM RIDOWAY, of Stafford, earthenware manufacturer, for "a new method of conveying and distributing heat in ovens used by manufacturers of china and earthenware, and brick, tile, and quarry makers." Sealed August 18.

GOLDSWORTHY GURNEY, of Great George-street, gentleman, for "improvements in apparatus for producing, regulating, and dispersing light and heat." Sealed August 18.

RICHARD ELSE, of Gray's Inn, Esq., for "improvements in machinery or apparatus for forcing and raising water and other fluids." Sealed August 18.

THOMAS HENDRY, of Glasgow, mechanic, for "improvements in machinery for preparing and combing wool, and other fibrous materials." Sealed August 25.

DAVID REDMUND, of City-road, engineer, for "improvements in hinges or apparatus applicable to suspending or closing doors and gates, and other purposes." Sealed August 25.

CHARLES FREDERICK GUITARD, of Birchin-lane, notary public, for "certain improvements in the construction of railways." Sealed August 31.

CHARLES THATCHER, of Midsomer Norton, Somerset, brewer, and **THOMAS THATCHER**, of Kilmersdon, in the said county, builder, for "certain improvements in drags or breaks to be applied to the wheels of carriages generally." Sealed August 31.

PATENTS GRANTED IN ENGLAND UP TO SEPTEMBER, 22, 1842, INCLUSIVE.

ROBERT HAZARD, of Clifton, near Bristol, for "improvements in ventilating carriages and cabins of steam-boats." Sealed September 3.

WILLIAM ROCHE, of Prince's-end, Stafford, mechanic and engineer, for "improvements in the manufacture of mineral colours." Sealed September 3.

WILLIAM WARBURTON, of Oxford-street, gentleman, for "improvements in the construction of carriages, and apparatus for retarding the progress of the same." Sealed September 8.

JOHN WORDSWORTH ROBSON, of Jamaica-terrace, Commercial-road, engineer, for "certain improvements in machinery and apparatus for raising, forcing, conveying, and drawing off liquids." Sealed September 8.

JAMES INSOLE, of Birmingham, saddlers' ironmonger, for "improvements in the manufacture of brushes." Sealed September 8.

JOSEPH HENRY TUCK, of Francis-place, New North-road, engineer, for "certain improvements in machinery or apparatus for making or manufacturing candles." Sealed September 8.

WILLIAM EDWARD NEWTON, of Chancery-lane, civil engineer, for "improvements in machinery or apparatus for making or manufacturing screws, screw-blanks, and rivets." Being a communication. Sealed September 8.

HERBERT GEORGE JAMES, of Great Tower-street, merchant, for "certain improvements in machines or apparatus for weighing various kinds of articles or goods." Being a communication from abroad. Sealed September 8.

WILLIAM FOTHERGILL COOKE, of Copthall-buildings, Esq., for "improvements in apparatus for transmitting electricity between distant places, which improvements can be applied, amongst other purposes, to apparatus for giving signals and sounding alarms at distant places by means of electric currents." Sealed September 8.

THOMAS THIRLWALL, of Low Felling, Durham, engine builder, for "certain improvements in lubricating the piston-rods of steam engines, and of other machinery." Sealed September 8.

WILLIAM CROFTS, of New Radford, Nottingham, lace-machine maker, for "improvements in the manufacture of figured or ornamental lace." Sealed September 8.

THOMAS MARSDEN, of Salford, Lancaster, machine maker, and **SOLOMON ROBINSON**, of the same place, flax dresser, for "improvements in machinery for dressing or hackling flax and hemp." Sealed September 8.

JAMES WAKE, JUN., of Goole, York, coal factor, for "certain improvements in propelling vessels." Sealed September 9.

JOHN ROLT, of Great Cumberland-place, Colonel in Her Majesty's army, for "certain improvements in saddles." Sealed September 15.

FREDERICK BOWLES, of Moorgate-street, London, for "a new method by machinery of preparing flour from all kinds of grain and potatoes, for making starch, bread, biscuits, and pastry." Being a communication from abroad. Sealed September 15.

CHRISTOPHER NICKELS, of York-road, Lambeth, gentleman, and **CALEB BLEDDELLS**, of Leicester, manufacturer, for "improvements in fabrics produced by lace machinery." Sealed September 15.

WILLIAM HENRY JAMES, of Martin's-lane, London, civil engineer, for "certain improvements in railways and carriage-ways, railway and other carriages, and in the mode of propelling the said carriages, parts of which improvements are applicable to the reduction of friction in other machines." Sealed September 16.

JOHN SANDERS, **WILLIAM WILLIAMS**, **SAMUEL LAWRENCE TAYLOR**, and **WILLIAM ATMSTRONG**, all of Bedford, agricultural implement makers, and **EVAN WILLIAM DAVID**, of Cardiff, for "improvements in machinery for ploughing, harrowing, and raking land, and for cutting food for animals." Sealed September 22.

PATRICK STEAD, of Halesworth, Suffolk, maltster, for "improvements in the manufacture of malt." Sealed September 22.

JOHN JUCKES, of Putney, gentleman, for "improvements in furnaces." Sealed September 22.

PATENTS GRANTED FOR SCOTLAND, FROM AUGUST 1, TO SEPTEMBER 26, 1842.

JOHN WOODCOCK, of Manchester, in the county of Lancaster, millwright, for "certain improvements in the construction of steam engines." Sealed August 1.

ALEXANDER JOHNSTON, of Hillhouse, in the county of Edinburgh, Esq., for "certain improvements on carriages, which may also be applied to ships, boats, and various other purposes, where locomotion is required." Sealed August 2.

JULIUS SEYBELL, of Golden-square, Westminster, in the county of Middlesex, manufacturing chemist, for "certain improvements in the manufacture of sulphate of soda and chlorine." Sealed August 11.

BENJAMIN BIRAM, of Wentworth, in the county of York, colliery viewer, for "certain improvements in the construction and application of rotary engines." Sealed August 11.

JOHN ANTHONY TIELENS, of Fenchurch-street, in the city of London, merchant, for "improvements in machinery or apparatus for knitting," being a communication from abroad. Sealed August 22.

JOB CUTLER, of Lady-pool-lane, in the borough of Birmingham, gentleman, for "improvements in the construction of tubular flues for steam boilers, and in the manufacture of tubes for such, and other purposes." Sealed August 23.

HENRY BARCLAY, of Bedford-row, in the county of Middlesex, dentist, for "a composition, or compositions, applicable as tools or instruments for cutting, grinding, or polishing glass, porcelain, stones, metals, and other hard substances." Sealed August 25.

WILLIAM EDWARD NEWTON, of 66, Chancery-lane, in the county of Middlesex, civil engineer, for "improvements in machinery or apparatus for making or manufacturing screws, screw-blanks, and rivets." Being a communication from abroad. Sealed August 31.

EUGENE DE VARROC, of Bryanston-street, Portman-square, in the county of Middlesex, gentleman, for "an apparatus to be applied to chimneys to prevent their taking fire, and for rendering sweeping of chimneys unnecessary." Sealed September 1.

THOMAS MARSDEN, of Salford, in the county of Lancaster, machine maker, and **SOLOMON ROBINSON**, of the same place, flax dresser, for "improvements in machinery for dressing or hackling flax and hemp." Sealed September 1.

SAMUEL MORAND, of Manchester, merchant, for "improvements in machinery or apparatus for stretching fabrics." Sealed September 1.

WILLIAM HENRY KEMPTON, of South-street, Pentonville, in the county of Middlesex, gentleman, for "improvements in the manufacture of candles." Sealed September 2.

JOHN GEORGE HUGHES, of No. 158, Strand, in the county of Middlesex, general agent, for "a new application of telegraphic signals, and the mode of applying the same." Sealed September 2.

JOSEPH WHITWORTH, of Manchester, in the county of Lancaster, engineer, for "certain improvements in machinery or apparatus for cleaning roads, and which machinery is also applicable to other similar purposes." Sealed September 2.

JOHN THOMAS BETTS, of Smithfield-bars, in the City of London, gentleman, for "improvements in covering and stoppering the necks of bottles and other vessels," being a communication from abroad. Sealed September 8.

ISHAM BAGGS, of Wharton-street, in the county of Middlesex, chemist, for "improvements in obtaining motive power by means of carbonic acid." Sealed September 8.

CHARLES WILLIAM FIRCHILD, Wesley-park, in the parish of Northfield, in the county of Worcester, farmer, for "an improved propelling apparatus for marine and other purposes." Sealed September 26.

PATENTS GRANTED, IN IRELAND, FROM AUGUST 6, TO SEPTEMBER 13, 1842.

ROBERT WARRINGTON, of South Lambeth, in the county of Surrey, gentleman, for "improvements in the operations of tanning." Sealed September 3.

JAMES WARREN, for "an improved machine for making screws." Sealed September 3.

THOMAS CUTHBERT COCKSON and **GEORGE BALL**, of the city of Dublin, merchants, for certain improved machines which facilitate the drying of malt, corn, and seeds; also the bolting, dressing, and separating of flour, meal, and all other substances requiring to be sifted." Sealed September 5.

WILLIAM HANDCOCK, the younger, of Amwell-street, in the county of Middlesex, gentleman, for "certain improvements in combs and brushes." Sealed September 5.

HENRY CLARKE, of Drogheda, in the county of Louth, linen merchant, for "improvements in machinery for lapping and folding all descriptions of fabrics, whether woven by hand or power." Sealed September 13.

WILLIAM NEWTON, 66, Chancery-lane, in the county of Middlesex, civil engineer, for "certain improved machinery for excavating and dredging earthy and stony matters, in the construction of railroads, canals, cleaning of rivers, harbours, and redeeming of marshy and alluvial soils; also for boring rocks, indurated clay, and other earthy matters, for the purpose of blasting and removing the same; the whole to be worked by steam or other power." Communicated by a foreigner. Sealed September 13.

LIST OF EXPIRED PATENTS IN AUGUST, 1842.

JOSEPH CLISILD DANIEL, of Lumphey, Stoke, Wiltshire, clothier, for "improvements applicable to the manufacturing and preparing of woollen cloth." Sealed August 5, 1828.

JOHN LANE HIGGINS, of Oxford-street, London, gentleman, for "improvements on wheel carriages." Sealed August 11, 1828.

WILLIAM MENECKE, of Park-place, Peckham, Surrey, gentleman, for "improvements in preparing materials for and in the making or manufacturing bricks." Sealed August 11, 1828.

LEWIS ROPER FITZMAURICE, of Jamaica-place, Commercial-road, master in the Royal Navy, for "improvements on ship and other pumps, which improvements are also applicable, by certain alterations, to turning lathes and other purposes." Sealed August 11, 1828.

WILLIAM GRISENTHWAITE, of Nottingham, Esquire, for "a new process of making sulphate of magnesia, commonly called Epsom salts." Sealed August 11, 1828.

HENRY MAXWELL, of No. 99, Pall-mall, London, spur maker, for an "improvement in spring spur sockets." Sealed August 13, 1828.

THOMAS STIRLING, of the Commercial-road, Lambeth, Surrey, for "improvements on filtering apparatus." Sealed August 16, 1828.

BENJAMIN MATTHEW PAYNE, of the Strand, London, scale maker, for "improvements on weighing machines." Sealed August 18, 1828.

EDWARD BARNARD, of Nailsworth, Gloucestershire, clothier, for "improvements in weaving and preparing cloth." Sealed August 19, 1828.

PHILIP FOXWELL, clothier, **WILLIAM CLARK**, cloth dresser, and **BENJAMIN CLARK**, cloth dresser, all of Dye-house-mill, in the parish of Minchinhampton, Gloucestershire, for "improvements on machinery for shearing, cropping, or cutting, and finishing woollen and other cloths, and cassameres." Sealed August 19, 1828.

WILLIAM SHARP, of Manchester, spinner, for "improvements in machines for spinning or roving of cloth, silk, wool, or other fibrous substances." Sealed August 19, 1828.

GEORGE STRATTON, of Frederick-place, Hampstead-road, in the county of middlesex, gentleman, for an "improvement in warming and ventilating churches, hot-houses, and all other buildings; which improvements may be applied to other purposes." Sealed August 28, 1828.

The Record
OF
PATENT INVENTIONS.

No. II.

SPECIFICATION enrolled 1st September, 1842, of a PATENT granted 1st March, 1842, to MARC LA RIVIERE, of London Fields, in the parish of Hackney, in the county of Middlesex, gentleman, for "*certain improvements in the machinery for figure weaving.*"

THESE improvements consist in a machine, or apparatus, for setting off the figures of designs, and transferring the same, or indicial points of the same, to a number of punches, which perforate in succession the cards employed in figure weaving.

This machine or apparatus consists, firstly, of a rectangular wood framing, in the front of which, and near the top, are two brackets supporting a warp frame; this frame, which can be removed at pleasure for the purpose of having the figure or design set upon it, consists of a perforated board, through which are passed the warp ends, which extend in a vertical direction, and are passed through a similar board at or near the feet of the operator, and held in their places by knots tied to their ends, which press on the under side of the board, and prevent them

from being withdrawn: the upper ends of these warp threads, after passing through the lower part of the warp frame, as described, are hooked on, or tied to, an equal number of vertical leads, or pieces of metal, which are separated, or kept apart, by longitudinal bars of wood placed between each row, the two outside bars being of metal: these bars have a number of transverse tightening screws passed through them; and by turning their nuts, the leads will be tightened, or bound together, and will maintain their vertical position, so as to support the ends of the vertical warp threads. The upper ends of these leads have eyelet holes, through which an equal number of vertical leads, having hooks at their lower ends, are passed; these leads are also fixed in a frame, and can be acted upon by screws in the same manner as those already described; to the upper ends of these leads is attached another set of warp threads, which pass for a short distance in a vertical direction, and through a perforated board fixed in an angular position. From this board the ends are carried in a horizontal direction to the opposite side of the frame, and through a similar perforated board, from whence they proceed down the back side of the frame in a vertical position, where they are fastened to the ends of an equal number of solid metal rods, each having at its lower end a helical spring, to the end of which is fastened another set of warp ends, which pass through another angular perforated board, from which they extend in a sloping direction to the punching machine.

This punching machine consists of a screw similar to a fly-press; a strong cast-iron frame, containing the punches, is attached to the end of this screw, and moves in a vertical position between the cross-head of the machine and the bed plate upon which the cards to be punched are drawn. The upper part of this frame has a perforated

angular plate, similar to those described, through which the warp ends last mentioned, pass; and are finally attached to the punches. By this arrangement it will be seen that by pulling out the ends of the warps in the front of the warp frame, the punches so connected will be raised, the helical springs before described being for the purpose of keeping the ends at a proper tension; and in order to separate those punches which are raised from those left down, a comb is inserted between two horizontal plates through which the punches move, each punch having, a short distance from the upper end, a portion of its two sides cut away, sufficient to allow that part to pass between the teeth of the comb; consequently, if all the punches be down, and the comb inserted, it will embrace such parts of the punches, and prevent them from returning; and, if at this time a card be placed on the plate under the punches, and the screw turned round, such card will be perforated with holes equal in number to the punches; again, suppose a number of holes was required to be punched in a card: by elevating those punches that were not required, and inserting the comb, such punches would rest upon the comb, and consequently not be brought into action, and the card would be punched as required.

The mode of placing the cards on the bed plate is as follows: each side of the punching machine is provided with a square roller, and the cards are stitched together so as to form a chain of cards, the first card being placed ready for punching on the plate; the next, or next but one, succeeding, will rest upon one square of the revolving bar, which has at each end (to correspond with the holes in the cards), a conical pin; the cards, after being punched, pass over another bar at the opposite side of the machine; thus by the action of such bars, the cards will be successively brought under the punches.

Let us suppose the first card to be placed on the bed plate, and all the punches down, and the moveable warp frame described, to have its figure or design set on it by cross threads or sheds in the usual way; for which purpose, it may be sent to the artist: the warp frame being put in its place, and the punches all in readiness to act on the series of cards, the workman then proceeds to read off, as it is technically called, the figures or designs, by drawing together by the two ends such cross threads of the shute in succession, and passing between each lash of the warp thus separated from the rest, a tightening bar; this bar, when passed between the lash, is held by the ends of two levers, moving on axes, at each side of the frame, and connected together in front by a cross bar; by pulling this cross bar down, the opposite ends of the levers will be elevated, and the lash so separated will be pressed out; thus raising the punches attached to the end of each thread, and leaving down in each instance those punches which are required to be left down; the card is then punched by turning the screw, and the operation repeated. When it is required to take a number of copies of the cards, the inventor combines the punching machine with an ordinary jacquard machine. The claims are as follows: 1st, the general arrangement and combination of the setting and transferring apparatus as represented; 2nd, the moveable warp frame in which the figure or pattern is set; 3rd, the punching machine in its general arrangements and construction of parts; 4th, the forms of the punch as represented, whether applied to the improved punching machine, or to any other; 5th, the use of the comb of the form represented, or of any other analogous form to separate the punches which are raised from those which are left down, whether applied to the said punching machine or to any other; 6th, the combination of the setting

and transferring apparatus, with the punching apparatus, for the purpose of transferring the figure or design to the cards; 7th, the combination of the punching apparatus with an ordinary jacquard or recutting machine, in the manner described, for the multiplication of copies of such cards.

SPECIFICATION enrolled 3rd September, 1842, of a **PATENT** granted 3rd March, 1842, to **GEORGE CARTER HASELER**, of Birmingham, jeweller and toy maker, "*for improvements in the tops of scent bottles.*"

THESE improved tops of scent bottles can be made of any shape, and ornamented as fancy or taste may direct. The ornamented parts have a number of perforations, in order to allow the scent to pass through; a lid, or valve, acted on by a spring, is made to fit tight on the end of the bottle neck, and is attached to one end of a lever moving upon an axis, or fulcrum; and the other end projecting beyond the side of the cover. By pressing the finger on this part of the lever, the valve will be raised, and the scent will escape from the bottle, and through the perforations in the cover; when the finger is released, the action of the spring will cause the valve to return to its place. There is also another method shown, wherein the same effect is obtained, by substituting a rotary sliding valve in place of the one above described; and it consists of two perforated plates, or discs, similar to a ventilator, one of which is fixed, and the other moves upon an axis; the two plates are held in close contact by a spiral spring pressing on the bottom plate, to which a projecting pin is attached, passing through the side of the cover; therefore, by moving this pin in a lateral direction, the communication to the bottle can be opened and closed at pleasure.

The patentee claims, 1st, the combination or use of an open top or cover, with a lifting valve, as applied to scent bottles; and 2nd, the combining a sliding valve with an open top or cover, as applied to scent bottles.

SPECIFICATION enrolled 3rd September, 1842, of a PATENT granted 4th March, 1842, to EDWARD SLAUGHTER, of Bristol, engineer, for "*improvements in the construction of iron wheels for railway and other carriages.*"

IN constructing a wheel of four feet diameter, the inventor prefers to use eight spokes; these spokes are made of malleable iron, with a dovetailed projection on one side; the other side may be made flat, or of a curvilinear form, by bending the iron thus prepared, when hot, round a cast-iron block of any suitable form, and of such width that the spokes will collectively serve as an inner framing to the wheel. The spokes shown in the drawings are of a curvilinear form, each end of the spoke from the nave of the wheel, diverging from each other (about half their length) to the required width, and then approaching each other, leaving at the top a sufficient length for the bearing which is to be inserted into the tire, as hereinafter explained. The tire, or outer ring of the wheel, is also formed of malleable iron, with a dovetailed recess in its inner circumference, corresponding with the dovetailed projection on the spokes; or the form of these dovetails may be reversed, viz., the projection may be made on the inner circumference of the wheel, and the recess in the spoke. When the outer ring, or tire, has been welded so as to form a perfect hoop, a space is taken out on the face side of the wheel, at that part where the weld was taken,

sufficient to allow the end of the spokes to pass between, and be inserted into the dovetailed recess; the tire is then made hot, and one of the spokes introduced through the space made in the face into the dovetailed groove, and passed on the breadth of itself; another spoke is then introduced in like manner, and passed round in an opposite direction, until the curved part of such spoke comes in contact with the first; the whole of the spokes being introduced, a segment of iron is then fitted into the space through which the spokes were introduced, and being firmly secured by set screws, will have the effect of holding the last spoke in the framing of the wheel. After the operation of putting in the spokes, the wheel is perfected by placing it on an iron table of sufficient dimensions, and securing it by clamps and bolts; after which the nave is to be cast on the ends of the spokes, care being taken to have the spokes from the end to that part where they come in contact with each other, sufficiently curved to allow for the contraction of the iron.

Claim is for the forming of a wheel for railway and common roads, with an outer ring having a dovetailed groove, or recess, and spokes having a corresponding projection, or *vice versa*, so that the wheels shall be held together by means of dovetails to the spokes and rings, as described.

SPECIFICATION enrolled 3rd September, 1842, of a PATENT granted 4th March, 1842, to JAMES CLEMENTS, of Liverpool, for "*improvements in composition for ornamenting glass and picture frames, and articles for interior and other decorations; also for the manufacture of toys and other fancy articles.*"

THE following novel improvement relates to the applica-

tion of paste produced from potatoes, mixed with woody or fibrous matter, for forming ornaments for glass and picture frames, and other articles.

The mode of preparing this composition is as follows. The potatoes are to be cooked as if intended for the table, either by boiling, roasting, or steaming; and when so prepared, are to be pressed, and mixed with some pulverized article, such as fine saw dust, turf, or waste bark from tan pits, ground very fine, or any powder of a similar nature, which can be had at a small cost. The whole being worked into a paste, by rolling or beating, it is then fit for use, and may be cast in moulds commonly used for ornaments of that description, and applied in the same manner.

The patentee does not confine himself to the above named articles, as other matters mixed with the pulp of potatoes would have the same effect; the object being to apply the pulp, or paste, of potatoes, in combination with a suitable pulverized material, in order to make a composition for the purposes above described.

SPECIFICATION enrolled 3rd September, 1842, of a PATENT granted 4th March, 1842, to WILLIAM PALMER, of Sutton Street, Clerkenwell, in the county of Middlesex, manufacturer, for "*improvements in the construction of candle lamps.*"

THE first of these improvements relates to the construction of carriage lamps, with a distinct or separate tube to contain the candle. "It has," says the patentee, "been customary to make the tube of a carriage lamp to form a part of such lamp; and the mode of cleansing that part

of the lamp from such matter as the candle is composed of, is attended with some inconvenience. To obviate this, the tube is introduced into the lamp from below upwards; by which arrangement, the operation of placing the candle within the lamp, together with the cleansing of that part of the lamp, will be greatly facilitated." The tube of this improved lamp is provided with a spring in the ordinary manner, for keeping up the candle; and also with a nozzle, which may be screwed on, or otherwise fastened to the tube. This tube has two collars, equal in diameter to the interior diameter of another tube fixed in the lamp, and into which the candle holder slides; one of these collars, which is placed immediately below the nozzle, has two slots, one of which is cut through the collar, and the other only partially, so as to form a notch. The upper interior part of the large tube is provided with a small stud, or projection; so that when the tube or candle holder is to be inserted, the slot being brought opposite the projecting stud, the collar of such tube will be allowed to pass such projection, and on turning the tube so as to bring the notch opposite the stud, and drawing the tube back a little, the same will be held in its proper place; and, when required, such tubes can be taken out, for the purpose of cleansing from oil or other fatty matters.

The claim is for the mode of constructing candle lamps for carriages, by employing tubes for receiving the candle, which are separate from the other parts of the lamp.

The second part of these improvements relates to a mode of applying air to candle lamps, for the purpose of supporting combustion; and consists in the application of a cone, which surrounds the upper part of the tube and the nozzle. The apex of this cone the inventor prefers to be on a level with the upper part or edge of the nozzle; and the space between the cone and such part to be $\frac{3}{16}$ of

an inch ; although the position of the cone, and also the distance from the nozzle, may be altered without materially altering the effect of the light. This last improvement is shown in the drawings as applied to the carriage lamp before mentioned, and also to a lantern and table lamp ; in each case the lower edge, or base of the cone, is made with a projecting flanch, upon which the glass chimney rests, and by which it is supported. The air for supporting combustion is admitted through holes made in any convenient part of the vessel, so as to allow it to enter the lower part of the cone.

The claim is for the mode of introducing air to candle lamps, as described.

SPECIFICATION enrolled 3rd September, 1842, of a **PATENT** granted 4th March, 1842, to **WILLIAM PALMER**, of Sutton Street, Clerkenwell, in the county of Middlesex, manufacturer, for “ *improvements in vessels for making infusions or decoctions, and for culinary purposes ; and in apparatus for measuring or supplying from vessels.* ”

The first part of these improvements relates to the construction of vessels for making infusions or decoctions of coffee and other matter, and consists in dividing the vessel by a plate, having a small hole in its centre. The principal feature or novelty is, in making the hole of such diameter as to allow the fluid contained in the upper part of the vessel to pass through in any given time which may be found sufficient to make or prepare the coffee, or other matter contained in the upper vessel. About $\frac{1}{8}$ of an inch above the division plate is a strainer, upon which the coffee or other matter is placed ; this part of the vessel is

then filled with boiling water, which immediately begins to flow through the strainer, and through the small aperture, into the lower part of the vessel; the size of this aperture being such as to allow the decoction to pass through in the time required for making such decoction. The lower part of the vessel is provided with a spout in the usual way for pouring the liquor off. There is another modification of this improved coffee-pot given, which differs from the one above described, in this particular—that the hole in the division plate is made larger, the flow of the liquor being regulated by placing the strainer in close contact with the plate; in which case the filtering medium will be contracted to the size of the hole; but by raising the filter, which has a handle attached to it, the whole area of the filter will be brought into action; and in consequence of the hole in the plate being larger, the contents will pass into the lower vessel in much less time.

Claim.—The mode of making vessels for obtaining infusions and decoctions as described; where the time allowed the material to be soaked, is regulated by a small hole. Also the mode of regulating the speed of filtering when making infusions, by combining the filtering surface, which can be raised, with a small hole as described.

The second part relates to an improvement in vessels for cooking, and consists in the application of a vessel similar to those above described, for cooking eggs. The eggs are placed in a small basket in the upper part of the vessel, and such part is then filled with boiling water; the time of running through of the water, as in the former case, being regulated according to the time required for cooking the eggs.

Claim.—Is the mode of constructing apparatus for cooking, by regulating the time of the operation by a small hole, as described.

Third.—This part relates to an apparatus for measuring dry granulated matters, such as tea and coffee. This apparatus consists of a horizontal cylinder, fixed on the lid of the canister or other vessel containing the granulated matter; this cylinder is provided with an opening at its upper side, which can be covered with a lid; and also with an opening at its lower side leading into the vessel. Within this cylinder is placed a smaller cylinder, with but one opening in its side, and turning upon an axis. When it is required to measure a quantity of coffee, or other matter, the opening of the interior cylinder is to be turned opposite that opening in the outer cylinder leading into the vessel, and the vessel inverted, whereby the interior cylinder will be filled with coffee; in this position the interior cylinder is to be turned half-way round, and the coffee contained in the small cylinder will be allowed to escape through the opening in the outer cylinder. In the construction of the measure described, the patentee makes the cylinders of such diameter, that when put together a space will be left between them; for which he claims the mode of constructing two cylinders with a space between them, for measuring granulated matters, as described.

SPECIFICATION enrolled 3rd September, 1842, of a PATENT granted 7th July, 1842, to WILLIAM RICHARD, the elder, of Burley Mills, in the parish of Leeds, in the county of York, manufacturer, for “*an improved method of preventing or consuming smoke, and economising fuel in steam engine furnaces.*”

This invention relates to a peculiar mode of admitting and regulating a current of atmospheric air, which passes

through an air chamber, and meets, at right angles, the hot air and other vapours, as they pass from the fire. At the back part of the ash pit is an aperture which conducts the current of air through a number of holes formed in the brick-work at the back of the bridge; this aperture is provided with a door, which regulates the flow of air in the following manner:—At the front of the brick-work of the boiler is fixed a cylindrical vessel about 18 inches deep, and 8 inches in diameter, half filled with oil, water, or other fluid; a similar vessel, of less diameter, is suspended by a chain inside the first one, in an inverted position; the top of this vessel is provided with a valve, opening outwards, and also with a stop cock; the chain, by which it is suspended, passes over a pulley, and is attached at its opposite end to a lever connected with the fire doors, and also with the door leading to the air chamber, in such a manner, that, on opening the fire door, it will press against a projecting arm and actuate the levers so as to open, at the same time, the air chamber door, and also depress the suspended vessel; the air escaping from such vessel by means of the valve, a counterbalance weight is attached to one of the levers, so as to draw up the suspended vessel; the speed, or time of rising, being regulated by the stop cock which admits the air. The action of the apparatus is as follows: when the furnace door is opened for the purpose of feeding with coal, the suspended vessel will be depressed, and the air chamber door also opened; the coal being thrown on the fire, and the door closed, atmospheric air will be allowed to pass through the air chamber; but the door, or aperture, will be gradually closed as the vessel rises in the fluid, the time, as before stated, being regulated by partially opening the stop cock, so as to allow a certain quantity of air to flow into the vessel, and thus close the aperture, or door, of the air chamber, by the time the coals are consumed;

therefore, every time the furnace doors are opened for supplying the fire with coal, the door of the air chamber is opened for the supply of atmospheric air, and the time taken in closing such aperture can be prolonged or shortened as circumstances may require, in the manner above described.

The claims are, first, the mode of regulating or cutting off the supply of atmospheric air admitted into the furnace or air chamber; secondly, the mode of increasing or diminishing the supply of atmospheric air admitted into the furnace or air chamber; thirdly, the mode of diminishing the supply of atmospheric air gradually as the quantity of smoke from the furnace diminishes; fourthly, the mode of prolonging or shortening the supply of atmospheric air admitted into the furnace, air chamber, or flues, according as the quality of coal used, or other circumstances may require; fifthly, the mode of opening the air flue door, or doors, by opening the furnace door; sixthly, the use and application of the apparatus above described, separately or combined.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to THOMAS HEDLEY, of the town and borough of Newcastle-upon-Tyne, gentleman; and CUTHBERT RODHAM, of Gateshead, in the county of Durham, millwright, for “*an apparatus for purifying the smoke, gases, and noxious vapours arising from certain fires, stoves, and furnaces.*”

This improvement relates to a mode of constructing an apparatus for purifying, by washing the smoke, and other vapours arising from stoves, and other furnaces that emit

smoke greatly charged with unconsumed carbon, chemical minerals, or other metallic matters of a noxious and injurious character. By this new apparatus, smoke and vapours of a highly impure nature, are effectually purified, and the draught improved; and the deposit of matter and solid particles, when separated from the water employed in purifying such smoke, will be of value.

This apparatus consists of six vertical flues, three of which are ascending, and three descending; over the top of each of the descending flues is fixed a water box, with a perforated bottom; these boxes are connected with a horizontal main which supplies them with water. At the bottom of these descending flues are lateral openings, through which the water passes into a cistern; its level being somewhat higher than the lateral openings, so as to form a bottom to the flues, and prevent the vapours passing through such opening. The smoke from the furnace passes through an inclined flue, and up the first ascending flue, over an arch of narrow span, from the spring of which commences the passage leading to the descending flue, which is in an inclined or sloping direction; the smoke, in passing down this passage into the descending flue, is met by a stream or shower of water from the perforated box, and is thus carried to the bottom of the flue; it then passes into the next ascending flue, and in the same manner to the next descending flue, when it is again met with a stream or shower of water; and so on to the third, when the smoke will be effectually purified, and the draught, by the action of the water carrying the smoke down the descending flue, will be improved. In order to prevent any smoke escaping down the sides of the flue without being washed, a number of bevelled projections of slate, or other material, are placed round the descending flues, at intervals of about one yard and a half. The pa-

tentes also sometimes place a jet of water in a slanting position, in the inclined flue, previous to entering the first ascending flue; and they also introduce a jet of steam into the lower part of the ascending flues if required.

The claim is a mode of constructing an apparatus for purifying vapours, gases, and smoke, arising from certain fires; and by combining two or more ascending flues with descending flues, by inclined or sloping passages at their upper ends; and with streams or showers of water to fall down the descending flues.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to THOMAS HENRY RUSSELL, of Wednesbury, iron tube manufacturer, and CORNELIUS WHITEHOUSE, of the same place, for "*improvements in the manufacture of welded iron tubes.*"

THESE improvements relate to manufacturing welded iron tubes by internal pressure, when passing through suitable external dies, in the process of welding the joint or seam. The scalp of the tube being formed in the usual manner, is to be heated to a moderate welding heat, and drawn through a pair of tongs, or dies, with a bell-shaped mouth; the upper part of these dies have a recess, so that when the scalp of the tube is being drawn through, one edge will enter the recess so as to project above the other, which latter will touch the inner surface of the projecting edge, and thus prepare the parts for a lap joint, ready for welding. A cylindrical bar, or rod, is then introduced into the scalp, or partly formed tube, which is then placed into the fire and heated to a welding heat; and then, by means of a

draw bench, the tube, together with the bar, or rod, is drawn through another pair of dies of an oval shape; after which, and when at a welding heat, it is drawn through three pair of dies, of the same form, in succession, the direction of the pressure, or force applied, being altered from the direct, or centre line, to a line passed through the centre from each edge of the lap; by which process the tube will become perfectly welded; and in this state the bar, or rod, inside, will be held fast; but on passing the tube through another pair of dies, which are cylindrical, the tube will be brought to its proper shape or form, and the bar will become loose, and can be withdrawn. The patentees prefer the description of dies represented in the drawing, and which are in the shape of tongs, on account of their cheapness, and the facility with which they can be removed from the tube for the purpose of cooling them, which will be necessary during the process of welding. In place of the bar, or rod, for the internal support, the inventors employ a strong iron tube, which they prefer not to be cooled after being withdrawn from the tube under process of manufacture, but merely straightened, ready for inserting into another scalp. The patentees also state, that they do not confine themselves to the use of dies in the form of tongs, as grooved rollers, or other dies may be employed; they therefore do not claim the use of such dies when uncombined with the use of an internal support; neither do they claim the use of an internal support when using external pressure in welding iron tubes, unless the instrument for giving internal support be such as to pass through the hole, or dies used in offering internal support from end to end of the joint or seam; neither do they confine themselves to the precise details set forth, provided the peculiar mode of applying internal support, combined with external pressure, for

welding wrought iron tubes, be retained, together with the application of a rod, or bar, which is much smaller in diameter than the interior of the tube to be welded, and made to give internal support to the joint of the tube, when being welded by external pressure; and whereby such bar, or rod, is caused to pass under pressure with the tube, and is released by the subsequent shaping of the tube, as above described.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to HENRY BARRON RODWAY, of Birmingham, in the county of Warwick, wine merchant, "*for improvements in the manufacture of horse shoes.*"

THESE improvements consist in making bar iron for the manufacture of horse shoes, with a curvilinear groove throughout the length of the bar: this groove, which is, when the shoes are manufactured, on the underside, should not be less than $\frac{3}{8}$ of an inch wide, and the bar containing such groove should be at least $\frac{3}{4}$ of an inch wide; but such bars will, of course, vary in dimensions according to the size of the shoe to be made; the groove, in all cases, occupies about two-thirds of the breadth of the bar, and the curvilinear form is given to it in the usual manner by rolling. The thickness of the bar at that part which is to form the outer edge of the shoe, is greater than that of the edge forming the inner circle of the shoe. The bar so made can be manufactured into horse shoes, in the usual manner; the heels may be formed by what is called jumping, or knocking up the ends of such pieces as have been cut off of the length required; and the ends, after the shoe is bent, can be turned down, as will be understood by the

smith; the toes may also be steeled, if required. In order to form the heels solid, the inventor purposes to roll the iron between rollers, with intervals, or spaces, cut out of the projection formed on the roller for making the groove; so that in the bar there will be solid parts left, at proper distances, to be cut off, for the length of a shoe; which parts (as will be understood), will only require bending, in order to form the heel.

Claim.—The mode of manufacturing horse shoes, by making and employing bar iron, rolled with a groove therein, at least $\frac{3}{8}$ of an inch wide, and in a bar of at least $\frac{3}{4}$ of an inch wide, as described.

SPECIFICATION enrolled 7th September, 1842, for a PATENT granted 7th March, 1842, to JOHN GREEN, JUN., of Newtown, in the county of Worcester, farmer, for “*certain improvements in machinery, or apparatus, for cutting or reducing turnips, mangel wurzel, carrots, and other roots, for food for horned cattle, horses, and other animals.*”

THESE improvements consist, first, in constructing a machine for reducing or grinding into a pulp and small pieces, turnips and other vegetable matters used as food for cattle; and secondly, in combining this machine with other well-known machinery for cutting the said roots into slices; which combination of parts shall form one machine, and perform two operations. The first part of this compound machine consists of a cylinder, having its periphery for about one-third of the circumference, deflected; that is, such part of the circumference, (extending nearly across the cylinder), gradually approaches the axis, in the same man-

ner as a scroll, to such extent that the termination of the deflected part will be about $\frac{2}{3}$ of an inch from the upper edge, or periphery; thus forming an opening into the interior of the cylinder, which has its end open. The periphery, or projecting edge, is provided with a knife the length of the opening, and also with a number of knives placed at right angles to it, so as to divide the opening into a number of openings. Upon the axis of this cylinder is a fly wheel, with a handle for giving motion to the machine; there is also a large mitre, or bevil wheel taking into, and driving a smaller wheel, placed underneath the aforesaid shaft, and keyed on the axis of a vertical shaft, which gives motion to the second part of the machine. Upon the axis of the vertical shaft is a cone which revolves with it, and also within a cylinder; the periphery of this cone contains a number of rows of projecting pins, or studs, each row from the apex of the cone diminishing in length, and increasing in number; that is, the projecting pins in the bottom row are made shorter than those in the top row, and are also much closer together. The cylinder within which the cone revolves, is also provided with projecting studs, and arranged in the same manner; this cylinder, it will be observed, remains stationary; on the periphery of the revolving conical drum are affixed about eight knives, which pass between the projecting pins in the cylinder, for the purpose of clearing out the turnips and other vegetable matter. The lower part of the cylinder is provided with three lateral openings, each having a lid, or iron door, moving upon an axis, or hinge, at the upper end; the distance of these doors from the cylinder is regulated by a screw, and their object is to reduce (by turning the screw and partially closing the openings) the matter to be operated upon into a fine pulp, or smaller pieces, and *vice versa*, by opening such doors. The turnips, &c., intended to be

ground, are placed in a hopper above the revolving cylinder, and are cut into slices and small pieces by the aforesaid knives, some of which pieces pass through the openings, and into the interior of the cylinder, and others are carried down with the cylinder past the cutting edge; but all of which drop into the lower part of this machine; that is, between the cylinder and revolving conical drum, where they undergo the operation of grinding and reducing into a pulp and small pieces, and finally escape from the opening at the bottom, formed by the interior of the cylinder and exterior of the cone, into a suitable receptacle provided for the purpose.

Claim.—First, the combination of machinery described, as forming a reducing or grinding apparatus; and also the combination of mechanical parts for reducing or grinding previously cut pieces of vegetable matter into pulp and small pieces, and whereby such roots are operated upon by surfaces, part of which are moveable, and part of which are stationary; such surfaces having spikes, or studs, or any other similar projections which will produce the like effect; and secondly, the combination of such reducing or grinding apparatus, with other such machinery as has been described to have been previously used for cutting the roots into slices or strips.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to JOHN BODMER, of Manchester, engineer, for "*certain improvements in machinery, or apparatus, for cleaning, carding, roving, and spinning cotton, and other fibrous substances.*"

THESE improvements in machinery, or apparatus, for clean-

ing, carding, roving, and spinning cotton, and other fibrous substances, apply principally to such machines as have been fully detailed and described in the Specifications of Mr. Bodmer's former patents, but more particularly in the one granted on the 22nd of October, 1838.

The first part of these improvements consists in a mode of collecting the cotton from a beater of 36 inches, more or less, in lengths, into a wire cloth, which forms it into a narrow lap of 5 inches, more or less, as may be required. The drawings show a plan of a blower, in which the cotton is drawn by a current of air produced by a fan, through a pipe, or flue, and is collected in the usual manner upon the surface of a narrow wire cloth, from which it passes to an endless belt, and from thence to the delivery rollers, and press rollers of a lap machine.

Claim.—The forming of one single narrow lap of 5 inches, more or less, in width, from the produce of a beater and feeding apparatus, of the usual or any convenient width; and the arrangement of the different parts by which this effect is produced. The inventor also claims his improved lap machine as applied to the said blower.

The improvements in the lap machine consist in the application of a doffing knife and mechanism, by which it is worked. Instead of tearing the lap and laying it over an empty bobbin by hand, as described in the former Specification, the same in this case is performed by a self-acting doffing knife, which enters between the full bobbin and the empty one, at the very moment the latter takes its position upon the lap roller.

Claim is the mode of cutting the sliver, or lap, of a lap machine, by a self-acting tool, or knife, instead of separating it with the hand, and also the mechanism by which this is accomplished.

The next part relates to a mode of clearing or stripping

flats, or top cards; and in this part of the drawing is also shown the adaptation of a main cylinder clearer. The apparatus for stripping top cards consists of a crank motion, connected with the doffer, in such proportion as to perform one revolution in about four minutes; a connecting rod, affixed to this crank motion, actuates certain mechanical arrangements, whereby the end, or what we may term, for the sake of perspicuity, No. 1 flat, is lifted up; the crank motion still advancing, the flat is brought over a roller, and the cotton is stripped off the cards of the flat; the crank motion has now performed half a revolution, and the connecting rod of the crank, with other mechanical arrangement, in performing the other half revolution, brings the flat No. 1, which is still elevated, over the flats Nos. 2, 3, 4, &c., until it arrives immediately over the flat No. 8; the seven remaining flats are then caused to advance, so as to leave a space for the one suspended; and on the crank motion completing the revolution, the flat is deposited in the place which No. 8 occupied.

The claim is for the arrangement of mechanism by which the flats, or top cards, are shifted and stripped, and which the inventor considers a material improvement upon that described in his former patent.

The improved main cylinder clearer consists of a tube upon which a number of narrow brushes are fixed. The periphery of these brushes revolve from 10 to 20 per cent., more or less, as may be required, quicker than the periphery of the main cylinder of the carding engine, the wires of which are slightly touched, or nearly so, by the brushes, just enough to enable them to remove the cotton and dirt from the teeth of the main cylinder; in the very narrow space in which the brushes act, at one time, the cotton and dirt removed from the main cylinder are deposited on the teeth of a licker-in, and carried past the feeding knife, at

which place the dirt will drop on the floor, and the cotton will be carried forward, and again be taken up by the main cylinder. The clearer is also shown as being placed under the doffer, in front of the carding engine; in which case, a small clearing roller, covered with cards, is placed underneath the clearer, to receive what is stripped off the cylinder, which is afterwards taken up again from the roller, the dirt falling on the floor.

The claim is for a number of narrow brushes instead of one; and the mechanism by which the motions of the same are produced; and also the construction of a double inside wheel and clearing cylinder, with the mode of fixing the brushes.

This apparatus is also made applicable for grinding the cylinders, by placing on the tube brass rings instead of brushes, which are to be painted and then covered with emery, in the usual manner; or a number of segments may be employed in place of the rings, for the purpose of grinding the wire, card of cylinders, flats, &c.

The patentee claims the mechanism described in the drawings.

With respect to narrow laps, and the manner of feeding them, explained in the Specification, the object of the arrangement is to correct the inequality arising from the irregular spreading of the cotton at the lap machine, by reducing the width of the cotton, say to one-seventh; the velocity of the wire cloth being increased seven times, so that the carding engine will be fed by seven narrow laps placed side by side; thus extending any irregularity over seven times the length, and taking the chance also of compensation from the irregularities of the other six parts.

The improved lap machine is also shown applied to the drawing frame, and the manner of winding single ends, or any number of ends, separately from the drawing frame,

upon the bobbins or rollers, whether twisted or untwisted, is also shown; for which the patentee claims the mechanism of the machine, for the purpose of winding separate slivers, or rovings, coming from drawing frames, or other machinery, or only from coils or spools; and also the doffing knife applied to this machine.

The Specification in this part gives a description of an improved twist coil frame, of which the principal feature or novelty is the change of the direction of the roving, which in this instance forms the coil from below; for which he claims, the mode of forming coils with the sliver or roving coming from below, and the mechanism by which this is effected. The patentee also claims a spherical contact cone, for the purpose of varying the speeds of contact discs, used in coil and roving frames; and also the spherical contact cone, whether applied on one side of the disc or on both sides; and the mechanism by which the cones are acted upon.

For the purpose of feeding the spinning machines in a more economical manner, a number of rovings are wound from the coils upon a barrel, or bobbin, on the lap machine; the laps from this machine being placed behind the spinning frame. The inventor also applies the improved disc motion to a double coil frame applied to carding engines.

Claim.—The arrangement of the double coil frame, and the differential reversing screw for moving the friction pulley, or spherical cone, and the mechanism by which the guide tube is shifted from one coil to the other, and reversed. For certain improvements in a copping motion applied to spinning frames, the inventor claims the mechanism of the copping motion described. Another of these improvements consists in banding the spindles. Claim.—The mode of driving the spindles, as described.

The last improvement relates to an improved flyer, made of buffalo hide; after being cut out of a proper form, it is softened in water, and bent in a mould. The drawings also show a plan and elevation of a flyer, made of two pieces of whalebone, round which a wire is bent and secured by thread or silk, linen or cotton, or other suitable material, not only for the purpose of securing the whalebone, but also to prevent the same from rubbing against an iron or steel guide plate, which the patentee considers an improvement upon the box described in the Specification of his former patent.

Claim.—Is for an improved fly plate and flyer, as described.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to JAMES READMAN, of Islington, gentleman, for “*a certain improvement, or certain improvements in the barometer.*”

THESE improvements consist in applying an index, to be acted upon by the rising and falling of a balance; and also in employing a steelyard balance to indicate or register the barometrical pressure, as will be hereafter described, by which arrangement the following defects which exist in barometers of the ordinary construction, are said by the inventor to be entirely removed.

1st, the difficulty of ascertaining the proper allowance to be made for the expansive effect of changes in the temperature on the barometric column; 2ndly, the smallness of the range; and 3rdly, the disturbing influence of alterations in the level of the mercury in the cistern.

The inventor states that the pressure of the barometric column of mercury, added to the atmospheric pressure on the surface of the mercury in the cistern, is equal to the

atmospheric pressure on the exterior of the cistern; in which case it follows, that if a cistern with its contents be placed upon a spring or adjustable balance, the depression caused in the balance will be in proportion to the weight of the cistern and its contents, independently of the barometric column, on account of the weight of that column being counterbalanced by the atmospheric pressure on the exterior bottom of the cistern; but as the mercury in the cistern is the source whence the barometric column is derived, and as the quantity in the cistern is increased or diminished according to the height of that column, it follows also, that as the barometric column is caused to rise or fall by variations in the weight of the atmosphere, so the weight of the cistern will be increased or diminished, and the spring or balance on which it presses be to the same extent raised or lowered; and that by ascertaining how many inches, or parts of inches, are contained within the extreme range of the barometric column, and what the weight of so many inches, or parts of inches, of mercury is, and to what extent the addition of such weight to the cistern will cause the spring or balance to be depressed, the inventor, from these data, constructs an index, which being connected to the balance, shows on inspection the smallest changes in the height of the column. The construction of the barometer is as follows:—At the bottom of the frame is affixed a cylindrical vessel, containing mercury; and within this vessel, and floating on the mercury, is another cylindrical vessel or cistern, concentric with the first, into which the barometric tube is placed; it will be seen, that the weight of mercury in the floating cistern will be increased or diminished according to the height of the column, and such vessel will be raised or lowered. The object of the invention is, therefore, to register the alterations of this floating cistern; which the

patentee effects, by placing on the top a brass collar, having a flange made to project on the outer vessel ; on each side of the upper part of this flange are fixed vertical rods, which are connected together at the top by a cross bar, in the centre of which is affixed, in a vertical position, a rack, which takes into, and drives a wheel, having on its axis a pointer, or index ; the vertical position of this cistern, and other apparatus, is maintained by anti-friction rollers on each side, and an anti-friction roller also behind the rack. Thus by applying a fixed scale to the side of the tube of an instrument of the above construction, very minute changes in atmospheric pressure might be rendered perceptible ; for besides the actual lengthening and shortening of the column by changes of pressure, such a scale would indicate the rise and fall of the cistern, the amount of which would be added to the column. In order to render this instrument portable, the flange can be lowered on to the edge of the exterior vessel, so as to form a lid, and the tube can be released from its fastenings and pressed to the bottom of the cistern ; a cork or other soft substance is placed there for it to rest upon ; there is also a conical plug made to slide on the tube, which can be lowered so as to stop up the opening formed by the brass collar through which the tube passes.

In order to apply the steelyard balances, the cistern, which is placed within another vessel, in the same manner as the preceding, is provided with a brass collar round its upper edge ; the steelyard balance is mounted upon an axis, fixed in the framing ; the short arm of the steelyard is made semi-circular, so as to encompass the ring of the cistern, which is attached to the end of the short arm by centre pins ; the long arm is provided with a sliding weight and graduated scale, in the usual manner ; and in order to ascertain the height of the column, the

lever is brought to a horizontal position, which is determined by a projecting stud, placed over the arm of the lever; the sliding weight is then moved towards the fulcrum, and the height of the column is thus ascertained. The adaption of this plan to the barometer, says the patentee, will not interfere with the ordinary scale, which may be retained with it. There is also a recess formed in the frame to receive the steelyard, when not required to be used.

The last part of these improvements relates to a self-acting apparatus, for registering the indications of a barometer, constructed in the manner hereinbefore described. For this purpose, the inventor places at the back of the cistern a circular plate of metal, covered in front with photogenic paper, of the same size as the dial plate, and makes the centres of the two plates to coincide exactly betwixt the circumference of the dial plate, and the graduated circle on the face of it; a border or margin is left of about an inch and a half in breadth, and across the margin, directly over or under the centre of the plate, he makes a narrow slit; behind the plate, and before the slit, is placed a slip of metal, attached to the cistern balance, the bottom of which, when the mercurial balance is at its highest point, is on a level with the upper end of the slit; therefore the rising and falling of the cistern increases or diminishes the line of light admitted on the photogenic paper; and by causing the registering plate to revolve by a weight, or other means, a circular border is formed on the photogenic paper, the outer edge of which represents correctly the fluctuations of the atmospheric pressure; but as the process only answers for the day time, the inventor proposes to cause the plate to revolve as aforesaid, and to have the point of a black lead pencil acted on in such a manner by a spring, as to trace the

lines on the disc or plate, by which arrangement the fluctuations will be taken during the night.

Claim.—First, the placing of the cistern of a barometer on a spring, or other suitable balance, by the elevation or depression of which balance, the height of the barometer is ascertained, as well as the range of the cistern; secondly, the placing the cistern of the barometer on mercury contained in a cylinder, which mercury serves the purpose of a spring or other balance; thirdly, the application of the steelyard balance to ascertain the height of the barometric column; fourthly, the application of photography in the manner before described, for registering the indications of barometers.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to JOHN DUNCAN, of Great George Street, in the city of Westminster, gentleman, for "*improvements in machinery for excavating soil.*" Being a communication.

THIS invention may be divided into two parts, and consists, first, in certain arrangements and combinations of machinery, whereby earthy matter may be cut away, or excavated, for the purpose of constructing or forming railways, canals, harbours, and other similar works; and secondly, in certain variations in the arrangement of some parts of the machinery, whereby such invention may be applied to dredging or deepening rivers.

The apparatus, as applied to land excavations, consists, first, of a strong rectangular frame of wood, or other material, mounted upon wheels, which are supported, together

with the machine, on a temporary railroad ; at one end of this frame is a strong crane, consisting of a vertical shaft or pillar, with the jib supported in the ordinary manner by diagonal stays, or arms ; to the end of the chain tackle is suspended a scoop, shovel, or scraper, made of strong boiler plate iron, and consisting of two sides, end, and bottom, the edge of which latter is provided with four or more projecting points, or cutters, and between these, and at their roots, is a steel edge well tempered, so as to resist stone, or other hard substance with which it may come in contact ; the chain tackle is attached to the sides of the shovel, and passes over a pulley at the end of the jib, and over another pulley fixed on the top of the pillar or support of the crane, and from thence to the barrel, upon which it is made to coil ; the periphery of the last mentioned pulley is formed with indentations to receive the links of the chain, for the purpose of giving motion to the pulley, which has on its axis a bevil wheel, taking into, and driving a similar wheel, upon the end of an inclined shaft, which shaft actuates certain machinery, fixed to, and supported by, the diagonal arms of the crane. This machinery consists of a barrel, with other appurtenances, round which is passed a chain, with its ends attached to the opposite ends of a beam or arm, which is also fixed to the shovel or scraper. The crane is capable of being moved round, so as to turn the scoop, when elevated, either to the right or left, in a horizontal direction ; for this purpose, a " horse shoe pulley," having a groove in its periphery, is affixed to the upper part of the crane ; a chain, attached at each end to a transverse bar, passes round this pulley, and over certain horizontal and vertical guide pullies, to a barrel, in such a manner that, by reversing the motion of the barrel, the jib of the crane can be turned either to the right or left. A steam engine is erected at one end of the rectan-

gular frame, or platform, for the purpose of giving motion to the various parts of the apparatus. When commencing operation, the shovel, or scraper, is suspended by the chain tackle, in a nearly vertical position, with the steel points towards the ground; by releasing the clicks, or catches, of the chain barrel, and applying the break, the shovel will be lowered, and force itself, by its own weight, into the ground; then by communicating motion to the chain barrel, the tackle will be raised, and by means of the indented grooved pulley, motion will be given to the shaft, which actuates the machinery on the diagonal arms, which in its turn will force forward the shovel into the ground; at the same time that this motion is going forward, the shovel, or scraper, is being raised or lifted up by the tackle, by which means the shovel has a double motion—a thrusting forward motion, and a lifting motion. When the shovel has become filled, and attained its proper altitude, these motions stop; and the shovel being prevented from returning by the clicks or catches, the other barrel is thrown into gear by means of a coupling or clutch box, and the crane turned round so as to bring the shovel over the cart, or other place of deposit, and by certain arrangements it is turned up so as to empty itself; in which position it is again ready for another operation.

The second improvement relates to a similar arrangement of parts, with some variations, to be fixed in a vessel, and applied to dredging and deepening rivers. The mode of turning round the crane when applied to this purpose, is by fixing on the lower part of the pillar, or axis, a large bevil wheel, which is below deck; a small bevil wheel, keyed on the end of a shaft, takes into and drives the first in either direction. The whole of the apparatus in this part is also driven by a steam engine.

What the patentee claims as his invention is, such con-

struction and arrangement of parts, as will effect the object of digging, taking up, and removing in the manner described, (that is to say) by means of a pendulous scoop attached to a crane or elevated beam, capable of turning horizontally such scoop, and its appendages being worked in the manner before stated; by chains and toothed gear, actuated by a steam engine.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to FRANCIS KANE, of Cumberland Street, in the county of Middlesex, for "*improvements in the construction of fastenings for the posts of bedsteads, and other frames.*"

THE bedstead is put together, so far as regards the joints, in the usual manner, but the method of fastening, or holding such joints, is different, which part constitutes the improvements. The mode of holding such joints or parts together on the old construction, is by two screws, or bed bolts, passing at right angles to each other, through the post, and into the ends of the framing, or bed-sides; but by the patentee's improved method, the bed-sides and ends have a hole bored in them, about one and a half inch, or two inches from the end, in the inside of the bed framing; after the parts have been put together, viz., one bed-side and end together with the bed-post; the two ends of an iron clamp, with a hole in the middle, are inserted into the two holes made in the bed-side and end, and a bed bolt passes through the hole in the middle of the iron clamp, and into a hole formed at the interior corner of the bed-post, at the bottom of which is a nut; thus, by screwing

up this bolt, the ends of the clamp will be brought towards the bed-post, and being inserted into the holes aforesaid, will bind the side end and post together. The inventor prefers to let a plate into the wood, having a hole to receive the ends of the clamp, which will prevent the wood giving way.

The claim is the mode of combining the parts together, as described, with a suitable nut for the screw, when fastening the parts of bedsteads to the rails or framing; and also when fastening the parts of other framings, where three parts are combined together, in a manner similar to that above described.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to Sir FRANCIS DESANGES, of Upper Seymour Street, Portman Square, Knight; and ANGUISH HONOR AUGUSTUS DURANT, of Long Castle, Shropshire, esquire, for “*improvements in apparatus for sweeping and cleaning chimneys or flues, and extinguishing fires therein, which they intend to call ‘Ramoneur.’*”

THESE improvements for sweeping and cleaning chimnies, and also for extinguishing fires therein, consist, first, in a mode of constructing the joints of the rod for moving the cleansing apparatus. On one end of each of the rods to be joined together, are portions of a tube, the outer ends of which respectively form an universal joint, having concave and convex parts fitting into each other; through the centre of the concave part is a hole leading into the tubular part, which is provided with a spiral spring, connected by a hook, or pin joint, to the ball, or convex joint,

in such a manner, that the tension of the spring may always have a tendency to keep the rods in a straight line; the upper part of this joint is connected to the rod by a link and two pin joints, the object of which is to allow the rod to be folded up when stowing it away; this part of the joint is held in a straight line by a sliding tube, which extends from that part forming the joint on to the rod, and is held by a catch, or stop, when the rod is in use; just below the bend, or joint of the rod, is a ring having two projecting arms, or axes, at right angles to the rod, and upon which are two pulleys of a conical form, for the purpose of assisting the rod over the uneven parts of the flue or chimney.

Claim.—The mode of constructing an universal joint, as described; also the mode of constructing the folding joints, as described.

The second improvement relates to another mode of constructing a joint, which the patentees term a flexible joint. For this purpose, the two ends of the rod are connected together by a flat link, twisted in the middle, so that one end of the flat part is at right angles to the other; this link is fastened to each end of a portion of the rod by pin joints, and the joint of the rod so connected is covered with a spiral spring, having an external covering of leather, or other flexible material, bound firmly round it; which is stated by the patentees to be sufficient, when the parts of the rod are bent so as to form angles with each other, to draw them into a straight line.

Claim.—The mode of constructing the flexible joint to parts of a rod used for moving apparatus for sweeping and cleansing chimnies.

The third improvement consists in a mode of applying arms and rollers, and of constructing the joints of such arms. Above the brushes, when in a position for entering the flue

or chimney, are three arms, provided with pulleys, or rollers, at their extremities; two of these arms branch out or extend from the middle arm, which is in a vertical position, and only about half the length of the other two; which two have also joints, acted upon by the spiral springs in a similar manner to those first described, with this exception, that the joint is not universal. These arms are intended to guide the brush through the bended parts of the flue or chimney into which it is introduced; the jointed arms, with their rollers, when approaching such parts, give way, and thus facilitate the introduction of the apparatus into the flue. For the purpose of assisting the brushes to pass over sharp corners in the flue, there are two iron guides screwed on the face, or that part of the brushes containing the bristles, and extending in a sloping direction above and below the head of the brush, and terminating in projecting arms, having a nick, through which the aforesaid guides pass, and are held by a pin passing through them; these guides have a slot at their ends, through which the pin passes, to allow the brushes, as will be hereafter described, to contract; the ends of these guides below the brush or brushes, are also provided with rollers or pulleys, for the purpose before described.

Claim.—The mode of applying arms and rollers, also a mode of constructing joints of such arms when used therewith, or for combining the parts of the rod, for the purpose of moving the apparatus for the sweeping and cleansing of flues.

The fourth improvement relates to expanding brushes. The brushes for a rectangular flue are fewer in number, each brush has two tubes, one at each end, fixed to its back part; these tubes slide into other tubes; at the opposite ends of which, two other tubes, supporting a similar brush, are inserted; and in the inside of this com-

combination of sliding tubes is placed a spiral spring, which extends through the centre or connecting tube, to the bottom or ends of the tubes supporting the brush heads. It will be seen by this arrangement, that the two brushes so affixed, will, by the action of the spiral spring, be held in an extended position; and that upon any pressure being applied by passing through a contracted opening, the brushes will give way. The other two brushes for completing the rectangle are fixed in the same manner, by tubes being placed across the others, and the brushes inserted in the same manner. These tubes have a slot and a stop, to prevent them from getting out of their place. There is also another description of this brush given, whereby the same effect is obtained, and which is shewn, applied to a circular brush.

Claim.—The modes of constructing brushes for sweeping, whereby they are caused to act by means of coiled springs, as described.

The fifth improvement relates to brushes with moveable arms. The ends of the arms, in this case, move upon a joint, and are acted upon by a spring, in a similar manner to the joints of the rods; by this arrangement, the brush, in passing through contracted openings, will bend and give way to such parts.

Claim.—The mode of constructing an apparatus for sweeping chimnies, as described.

The sixth improvement relates to an apparatus for extinguishing fires in chimnies; and consists in a combination of tubes and springs, in the same manner as those described with regard to the expanding brush in the fourth improvement, with this exception, that in the place of brushes, solid plates of iron are used. This apparatus, says the patentee, introduced into a chimney with a suitable instrument, will effectually stop the draught, by the

expanding plates closing up the aperture, and thus extinguish the fire.

Claim.—The mode of constructing an apparatus for extinguishing fires in chimnies and flues, as described.

SPECIFICATION enrolled 7th September, 1842, of a PATENT granted 7th March, 1842, to ROBERT FRAMPTON, of Cleveland Street, Fitzroy Square, in the county of Middlesex, coachmaker, for "*improvements in the construction of hinges.*"

THESE improvements relate to such hinges as require the doors or flaps upon which they are fixed to be covered, though they may be used for connecting flaps of doors that do not require covering. The plates of these hinges have each projecting ears, or lugs, between which the two ends of a bent lever or link are placed, and are connected together by pins passing through them, upon which the curved lever or connecting link moves. In fixing this description of hinge to certain flaps which require to be opened, the plates of the hinge are sunk level with the face of the flap, which can be covered if required, so that no appearance of hinge is seen; and the flaps, when opened, can be brought back to back. There are two other modifications of this hinge shown in the Specification, wherein the mode of connecting the plates is the same, viz., by connecting links, the form of which differs somewhat from the first, one of them having projections at each end of the link, so as to allow the door or flap to open at, or nearly at, right angles.

The inventor claims the mode of combining the parts described, and shown in the Specification, into a hinge; and also the mode of combining the parts described with a hinge.

SPECIFICATION enrolled 8th September, 1842, of a **PATENT** granted 8th March, 1842, to **WILLIAM CATFORD**, of Chard, in the county of Somerset, mechanic, for "*certain improvements in machinery for making or manufacturing lace or other netted fabrics.*"

THESE improvements consist, first, in certain peculiar adaptations of the principle of the jacquard, for the purpose of working, longitudinally, the guide bars of lace machinery, by means of which a great variety of figures can be introduced into the fabric of the lace.

This apparatus is shown in the drawings as being affixed to the left hand end of the machine. Near the end of the main shaft, which in this machine requires to be elongated, are two cams, which impart motion to two rectangular frames moving in a vertical position in slides. These frames carry, at their upper end, a square barrel or roller, turning upon an axis; each of which is provided with an endless chain composed of a number of plates, jointed together in such a manner as to form a chain of plates: each of these plates is perforated with a number of holes, into which are screwed, or otherwise fixed, studs or projecting pins of different heights. These plates and projecting pins, when elevated by the cams, come in contact with the underside of right angle levers moving on an axis, the opposite or vertical ends of which are connected to the ends of the horizontal guide bars of the ordinary lace making machine. Therefore, as the main shaft revolves, the barrels, or square rollers with the plates containing projecting studs resting on the top side or square of the roller, will be brought alternately against the respective cranked levers, which will be raised by the projecting studs: after the plates have lifted up the levers, so as to move the guides,

they fall by their own weight. It will be necessary, in forming the pattern, to give motion to the barrels, so as to bring the different plates, in succession, under the ends of the levers; for this purpose, a third cam is keyed on the main shaft, which also gives motion to a rectangular frame supporting a vertical rod, having on its upper end a rack, taking into and giving a reciprocating motion to a wheel. On the axis of each of the square rollers is fixed a wheel, which, as the frame falls, drops into gear with the reciprocating wheel, and moves the barrel one-fourth of a turn, or revolution, and thus brings on another plate,—and in like manner with the other barrel. By this arrangement of parts, the plates will be brought, in succession, under the horizontal arms of the right angled levers, and will be raised, and the vertical arms will be drawn, and thereby shog, longitudinally, certain of the guide bars, and give such movements to the warp threads as are required for making patterns in lace fabrics. The object of making the studs of different heights is to move the guide bars different distances, according to the pattern of lace required to be produced, as will be understood.

The second improvement consists in adopting similar contrivances, in connection with certain levers and cams, for the purpose of working, both longitudinally and transversely, extra bars, upon which are fixed a series of bent pins or hooks, called stump points, so as to be introduced between the warp threads; by means of which, the situations of such threads are shifted during the ordinary operations of the machine, for producing different patterns or figures in the fabric. The object in introducing these stump points between the warp threads, is, that when so introduced, a shogging or longitudinal movement given to the bars upon which they are fixed, by means of the jacquard, will cause the points to draw certain of the warp

threads sideways, or out of their perpendicular position, and thereby effect such alterations in the course or direction of the threads as will produce patterns or ornaments in the lace fabric.

The third improvement consists in the peculiar adaptation of the jacquard apparatus, or principle, to lace machinery, for moving transversely the situations of the guides carrying the warp threads, their longitudinal or shogging movement being effected either by cam wheels, as usual, or by the application of the jacquard apparatus. The jacquard, in this part of the invention, is shown as applied to the back part of the machine; and in place of the metal plates with projecting pins, the patentee employs cards perforated in the same manner as the ordinary cards used in figure weaving. The square roller over which they pass, as in the foregoing, moves in a vertical position, by means of cams fixed on an auxiliary shaft; by this means, the cards are forced against the ends of a number of vertical pins of different lengths: those pins which are not to be acted upon, pass through the holes or perforations in the card.

The claims are—1st, the peculiar construction of endless series of plates of metal, or other suitable material, connected together by joints, each plate having a series of studs of different lengths or elevations, for the purposes hereinbefore described; 2ndly, the application, or adaptation, of double jacquard barrels to lace machines, which barrels are for bringing successive plates or cards into operation at the end or other suitable part of the machine; 3rdly, the giving alternate action to such barrels, by means of racks, as described; 4thly, the means of giving sliding movements, through the agency of jacquard series, directly to levers connected to the longitudinal bars, and also to levers by which the stump points are worked; 5thly, vibrat-

ing the guides to and fro, transversely, between the series of stump points, by means of the jacquard apparatus; and also the several parts of the improvements, in connection with lace machinery.

SPECIFICATION enrolled 10th September, 1842, of a PATENT granted 10th March, 1842, to HENRY SMITH, of Liverpool, engineer, for "*improvements in the construction of wheels and breaks for carriages.*"

THESE improvements relate, in the first place, to the construction of railway wheels with cast-iron centres, wood felloes, and wrought iron tires, combined with steel, so as to present a steel face to the line of rail; and secondly, to a mode of connecting together all the breaks of railway carriages of a train in such a manner, that they may all be acted upon when desired by the man attending the engine. The nave of the wheel, together with the spokes and ring, are made of cast-iron, and in one casting. A screw-bolt is passed through the tire and middle of each of the pieces forming the wood felloe, and also through the cast-iron ring, in which place they are held by nuts. A portion of each corner of the pieces of the wood felloe is cut away, so as to form at the corners adjacent to the cast-iron ring, a triangular cavity or recess, into which is introduced an inverted V (Λ), or triangular piece of iron, whose exterior surface is caused to press against the corners of the parts forming the wood felloe, by a corresponding triangular wedge, forced by means of a screw, between the aforesaid wedge piece and the periphery of the ring; thus causing the wedge piece, together with two of the parts forming the felloe, to be forced outwards, in a direction from the centre of the wheel, against the interior surface of the tire.

There is also another mode of holding the tire by a similar application of the V wedge pieces; in which case, such wedge piece is divided in two parts, by a line drawn from the centre of the wheel, and is therefore caused, by the force applied to the triangular wedge, to separate, each part acting simultaneously on the parts of the wood felloe. The underside, or base of the triangular wedge, is provided with a square hole, which receives the head of a screw-bolt; the screw part of these bolts passes, or is received into, a cylindrical recess or hole formed in the spokes of the wheel; thus by screwing down a nut of each bolt, which rests on the edge of the hole, the bolt will be forced outward, and thus cause the wedge pieces, together with the wood felloes, to separate, and press against the interior surface of the tire; for which the inventor claims, first, the mode of separating the parts of the wood felloes of railway wheels, by means of wedges forced outwards in radial lines in a direction from the centre of the wheel; and, secondly, the mode of separating the parts of the wood felloes, by means of two wedge pieces being caused to separate by a wedge, as described.

The next part of these improvements relates to a mode of applying steel to railway tires, so as to present a steel face to the line of rail. The bars for forming the tire are rolled with a groove throughout their length, into which is to be inserted a steel bar with bevilled edges. The form of the tire, previous to introducing the steel, is somewhat hollow, or concave, on the opposite side to the groove, that is, in a transverse direction, so as to make the groove sufficiently wide to receive the steel, which is then to be placed in the groove; the tire, together with the steel bar, is then passed through other rollers, with grooves suitable for giving it a proper shape; during which process, the edges of the groove become pressed over the

bevelled edges of the steel bar, and the two parts firmly united or bound together.

The claim is for the mode of applying steel to railway tires, whereby the sides of the groove formed therein are pressed over bevelled edges introduced into such groove.

Lastly, a mode of connecting breaks. Under each carriage, and between the leading and driving wheels, is a transverse shaft, having at its end an arm, firmly keyed thereon; to each end of this arm, which is in a vertical position, is attached, by pin joints, two connecting rods, connected at their opposite ends to breaks, having a socket, sliding on a horizontal bar, which is in a line with the centre of the wheels. There is another vertical arm, or lever, keyed on to the horizontal shaft, about the middle; to the end of this arm is attached, by a pin joint, another connecting rod, extending to the end of the carriage, and fixed by a stud to a segment of a wheel moving upon an axis bolted to the cross timbers, or framing of the carriage; by this arrangement it will be observed, that on imparting a backward and forward motion to the segment, the transverse shaft will, by means of the aforesaid connecting rod, have a reciprocating motion, and the breaks will be brought into action; or, otherwise, by reversing the movement of the segment, which is effected in the following manner:—A line of shafts extends the whole length of the train, coupled together by socket-joints, each carriage having a shaft working on bearings bolted to the underside of the framing, which shafts have at one end a socket for receiving the next; through these sockets are slots, with a key passing through them for the purpose of coupling the same and giving the shafts a little play longitudinally; each of these shafts has a worm-wheel taking into and giving motion to the segmental wheel; thus, by

giving motion to the line of shafts, the breaks of each carriage will be acted upon simultaneously. On one end of this line of shafts is a bevelled friction wheel, which can be alternately acted upon by two similar friction wheels, between which the former is placed; the latter are keyed on to each end of a hollow axle, through which passes one of the axles of the tender, or the axle of that particular carriage which is intended to give motion to the breaks: the hollow axle is caused to revolve by a fixed key in the axle of the tender, or other particular carriage, upon which the hollow axle moves in a lateral direction so as to bring either of the bevelled friction wheels into action, by means of a lever communicating with the engine driver; it will therefore be seen by this arrangement of parts, that on moving the lever in one direction, the line of shafts will be acted upon by the friction wheel, and give motion to the segments, and bring all the breaks into action; and by moving the lever in an opposite direction, the motion of the shafts will be reversed, and the breaks withdrawn from the wheels.

There is another method shown, whereby the breaks of a train are acted upon simultaneously, by means of a friction chain passing over a pulley fixed on the axis of the tender; the friction chain is brought into action, or close contact with the periphery of the pulley, by means of a lever; the opposite end of the chain is connected by a pin-joint to the end of a line of rods connected with the breaks of each carriage; these rods are also connected to each other at the ends of the carriage, by a combination of levers, which allow the carriages to approach each other without affecting the breaks; on moving the handle of the lever, the friction chain will be brought to bear on the pulley, and the line of rods will be pulled in a direction of their length, and thus bring into action all the breaks.

The mode of connecting this line of rods to the breaks is such, that each break can be acted upon separately and independently of the rest.

Claim.—The mode of working the breaks by putting them into action by means of one of the axles of the wheels of a locomotive engine, or of the tender, whereby the engineer may, when required, cause the breaks to act on the wheels of the railway carriages of a train.

SPECIFICATION enrolled 10th September, 1842, of a PATENT granted 10th March, 1842, to RICHARD BEARD, of Earl Street, Blackfriars, in the city of London, gentleman, for "*improvements in the means of obtaining likenesses and representations of nature.*"
Being a communication.

THE invention relates to certain modes of colouring pictures produced by the daguerreotype; whereby likenesses and representations of nature will be obtained in a more finished style than from the simple process of Daguerre. This improvement consists in the deposition of certain colours on the different parts of the picture in succession, the outline of each colour being regulated by a screen or pattern. After the picture is prepared, it is placed in a rectangular frame with a projecting edge of about $\frac{1}{8}$ of an inch, a piece of glass or mica is placed on the frame, so as to completely cover the picture; a tracing is then made on the glass with a little colouring matter corresponding with the part of the picture which it is intended to colour. A light rectangular frame, covered with tracing paper, is to rest accurately upon the original frame, which is to be placed upon the glass, and the original tracing copied on the tracing paper; the paper between the lines

so traced is then cut out with any convenient instrument. By this means, when the glass, which previously covered the picture, is removed, it will be found, on applying the tracing paper screen, that all parts of the picture which are cut out between the lines of the tracing, and exposed, are ready to receive the colour. A number of patterns or screens of different parts of the picture being prepared in the same manner, each having a part or parts cut out, are to be used in succession for the picture to be coloured, each screen allowing the colour to be deposited at those parts where the screen is cut away.

In preparing the colours, the dry colours such as are employed in the arts, are to be ground to an impalpable powder with a weak solution of gum arabic, starch, or other adhesive matter. When gum arabic is used, the patentee employs about thirty grains to one quart of water; after the operation of grinding with the above solution, the colours are then to be dried in a stove, the temperature of which must be less than 212° Fahrenheit. The colours are then to be sifted through fine sieves and kept from moisture. A number of boxes are then provided, the base of which should be somewhat larger than the frame of the picture; a small quantity of colouring matter, about fifty grains, is placed in each of these boxes, which are then ready for use: a dust is then made in the box by rubbing the inside of the box with a large fine brush, and when the colouring particles are held as it were in suspension in the box, the picture, together with the screen, is inserted, and such particles are allowed to settle on the frame, which is afterwards taken out and the colour removed from the shaded parts with a pair of small bellows, and by breathing on the picture, the colour will attach itself with sufficient firmness as not to be easily removed, such colours being prepared with gum as before described for that purpose.

By the above it will be seen that the colours are used singly, and in succession, over the different parts of the picture, the form and extent of the deposition being regulated by patterns traced from the picture.

Another mode of colouring such pictures is by using transparent water with gum, and in place of actually putting such colour on the surface of the picture, it is laid on the glass. The glass for this purpose is placed over the picture, and a tracing taken from the picture in the manner before described; the glass is then removed, and the colour laid on the underside or opposite side to which the tracing was taken by an artist, with small hair pencils; the glass is afterwards placed in its exact position with the picture, and as close to it as possible without coming in contact, in which position, it will be observed, that the picture is seen through the colours, which produces an effect similar to that of a coloured picture.

Another mode is by laying the colours, prepared as above, on to the picture, in a dry or pulverized state, with small brushes, which is done by dotting; and by breathing on the picture, the colours will adhere in the manner described.

SPECIFICATION enrolled 10th September, 1842, of a PATENT granted 10th March, 1842, to WILLIAM EDWARD NEWTON, of Chancery Lane, civil engineer, for "*certain improvements in boilers, furnaces, and steam engines.*" Being a communication.

THIS invention consists in the peculiar construction of the parts of a steam boiler for generating steam, whereby the heat given out from the fire is said to be more effectually applied than in boilers of the ordinary construction; and also a perfect circulation of fluid is kept up.

This improved apparatus for generating steam consists of a cylindrical vessel, which the patentee calls the reservoir, and one, two, or more conical tubes called boilers; these conical tubes may be made of boiler plate iron, and elongated at the end with copper; such elongated part being fixed to the iron tube by means of a bolt passing up the interior, and fixed in such manner as to draw the two parts together. The end of the copper tube consists of a hemispherical cup, brazed so as to form the bottom of the boiler;—one or more of these tubes are rivetted or otherwise affixed to the underside of the reservoir. This reservoir is to be built round with brickwork, when it is required to be stationary; if otherwise, it should be inclosed in a case, and the space between filled with water. The conical tubes are therefore suspended from the underside of the reservoir in the flue, with their ends in contact with the fire. A communication is made between the two vessels by means of pipes passing from the reservoir nearly to the bottom of the conical boiler for the supply of water, from the reservoir to the boiler; there is also another pipe, which passes from the upper part of the boiler or conical tube, through the water in the reservoir for the escape of steam from the boiler—over the top of this tube is a cap. Therefore, by the application of heat from the furnace to the ends of the conical tubes or boilers, and also the exterior surface of such tubes being exposed to the action of the hot air passing up the flue, the steam generated, in escaping from the boiler by means of the aforesaid pipe into the reservoir, will be directed downwards by means of the cap placed above the end of the tube on to the surface of the water, and by its elastic force will cause the water to descend through the pipe and supply the place of that portion which has been evaporated; by this means a continual circulation is kept up, and the bottom of the

boiler protected from burning; but, if by accident or inattention of the engine driver, the boiler should become empty, the brazing will melt and the hemispherical cap will be blown out and the fire extinguished.

Claim.—The peculiar construction of a boiler or apparatus for generating steam by combining a reservoir for containing water and steam, with one or more vertical tubes, arranged in any convenient manner so as to expose an extensive surface to the action of the fire, such vertical tubes being supplied internally by a pipe or pipes, for the purpose of injecting water from the reservoir on to the bottom of the vertical tubes, thereby keeping up a continuous flow or circulation of water through the boiler, and preventing it from becoming injured by the action of the fire.

SPECIFICATION enrolled 13th September, 1842, of a PATENT granted 21st March, 1842, to EDWIN WARD TRENT, of Old Ford, Bow, in the county of Middlesex, rope maker, for “*an improved mode of preparing oakum and other fibrous substances for caulking ships and other vessels.*”

THESE improvements consist in preparing new or picked oakum, or other fibrous substances to be used as oakum, for caulking ships and other vessels, by forming them into even and soft rovings or slivers of suitable dimensions for caulking. This is stated by the inventor to be a great improvement over the present mode of rolling the oakum on the thigh and knee of the caulker, whilst in the act of caulking.

The mode of preparing oakum composed of new hemp, hemp, tow, or of old or second-hand ropes, or rope yarns, picked in the ordinary manner, is stated by the patentee

to be as follows :—If new hemp is used and the fibres are found to be too long, they are, in the first place, passed through a breaking machine to reduce their length (in order that they may not clog or hinder the working of the carding machine); the fibres are then passed through an ordinary carding machine, which delivers them in continuous bands or slivers of sufficient thickness for caulking purposes. When the fibrous substances have never been tarred, a number of slivers, produced as aforesaid, are spun or formed into a stout strand or haul of yarn, of sufficient thickness to pass properly through a rope nipper, and this strand is afterwards tarred by passing it through tar, tar and tallow, tar and oil, or other suitable mixture, kept at or nearly at, a boiling heat, so as to render the oakum impervious to moisture, the operation being similar to that of tarring yarns for making ropes. After the yarns or haul of yarns have been tarred, they must be separated into the original slivers and hung up to dry; while they are drying they are to be opened out to prevent them from adhering too closely together. With regard to ordinary picked oakum, or what is called second-hand oakum, the same process may be followed in preparing it into slivers of uniform size and substance for the caulker.

Claim is for the preparing of oakum, whether from new hemp, or from old second-hand stuffs, or from ordinary picked oakum, or any other suitable fibrous substances, to be used for caulking ships and other vessels, by passing them through suitable machinery, and then forming them into even and soft rovings or slivers of uniform size throughout their length. For fibrous substances which have never been tarred before, the patentee further claims the tarring and opening process, when applied to such substances and for the purposes aforesaid.

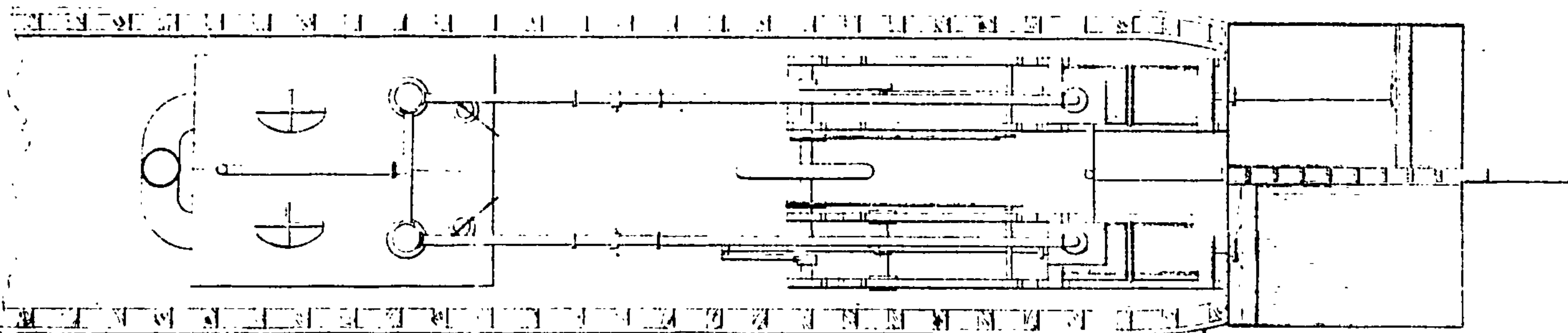
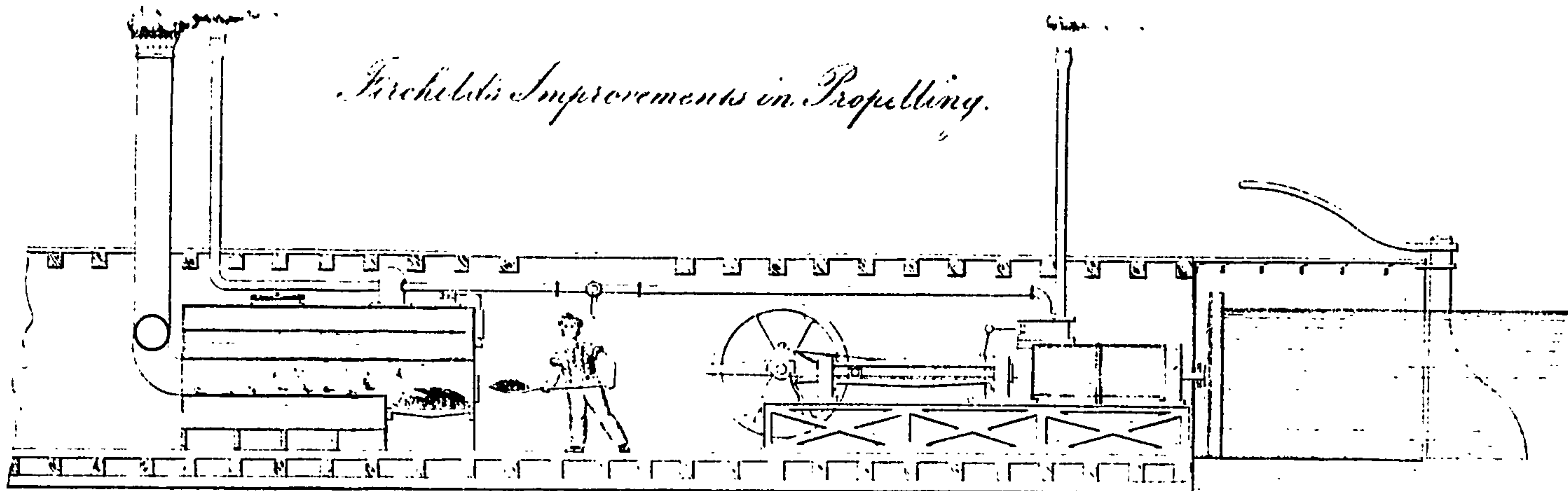
SPECIFICATION enrolled 14th September, 1842, of a **PATENT** granted 14th March, 1842, to **CHARLES WILLIAM FIRCHILD**, of Wesley Park, in the county of Worcester, farmer, for "*an improved propelling apparatus for marine and other purposes.*"

THIS improvement relates to the application of two square pistons to act upon water admitted into chambers in which they move, for the purpose of propelling the vessel, and consists of a pair of engines with a boiler or boilers, and other apparatus for working the same.

The cylinders of the engine are horizontal, and are fixed at the stern of the vessel; the pistons are continued through the bottom or opposite ends to which the crank shaft is situated, and are also continued through the stern of the vessel; upon this latter end of each of the pistons is fixed a square piston, working in a square box or chamber, open at the end. These pistons are made to fit tight by packing on the two sides and bottom, so as to prevent water from getting behind, the top of the chamber being open, or so as not to touch the pistons. Thus, on setting the engine to work, the pistons will alternately move backwards and forwards in the chambers, which have been stated to be open at the outer ends, and thus act or press against the body of water admitted at each stroke.—(*See the Drawing.*)

Claim.—The improved propelling of pistons acting upon water admitted into chambers at the stern of the boat or vessel.

Fitch's Improvements in Propelling.



SPECIFICATION enrolled 14th September, 1842, of a PATENT granted 14th March, 1842, to REUBEN PARTRIDGE, of Cowper Street, Finsbury, in the county of Middlesex, engineer, for "*certain improvements in machinery or apparatus for splitting and shaping wood into splints, for the manufacture of matches and other similar forms.*"

THESE improvements in machinery, or apparatus, for splitting and shaping wood into splints, for the manufacture of matches and other similar forms, consist in the employment of a perforated metal plate, through which blocks of wood are to be passed by means of pressure, the perforations in such plates being so shaped and situate as to cause the block of wood, when pressed against its face, to be divided or split into a multitude of small rods or splints; and these splints protrude through the perforations of the plate in regular formed rods, either of a cylindrical, square, polygonal, or other figure, according to the shapes or dimensions of the perforations in the plate.

The drawing represents the plan and section of one of these plates, having a multitude of circular holes pierced through it. The forms of the perforations are cylindrical throughout, except at their openings on the face, where they are slightly countersunk, for the purpose of presenting sharp cutting edges to the wood when pressed upon it, and in order to afford more easy entrance. The size of the perforations in the plate must depend upon that of the required splints or matches to be produced; but it is to be observed, that they must be as close together as possible, allowing sufficient substance of metal to afford strength and resistance to the pressure when the wood is forced through. The reason why the apertures must be so closely contiguous is, that there may be as small a space of

surface or blank between the holes as possible, in order that resistance to the passage of the wood may be avoided, and that indeed the whole area of the block of wood may be compressed, laterally, into the countersunk openings, and forced through the cylindrical perforations. Though it is intended generally to split the wood, and form the splints into cylindrical rods, yet the patentee does not confine himself to that form, as the perforations in the plate may be made of any other figure, and thereby enable splints of other forms to be produced by forcing wood through them. The plate shewn in the drawing has a steel face, strengthened by a bell-metal back. The patentee does not limit himself to any particular kind of metal, or compounds or combinations of metals, nor to any precise dimensions; but that which is shewn in the drawing being about three inches wide, by six inches long, and nearly an inch thick, he has found to answer the purpose: this plate may be employed in connexion with any suitable pressing apparatus. The mode which has been found to answer is, by fixing the back of the plate against a firm resisting block, having an aperture equal to the area of the perforations in the plate, and then placing the end of the piece or pieces of wood, in the direction of the grain, against the face of the plate, within the area of the perforated parts. A plunger or lever, or any other suitable mechanical agent, being then applied to the back or reverse end of the piece of wood, it may be forced through the perforations in the plate, being first split as it advances, by the cutting edges of the holes, and afterwards compressed and driven through the perforations in the plate, and coming out on the opposite side or back of the plate in the form of a multitude of distinct splints, according to the shapes and dimensions of the perforations.

SPECIFICATION enrolled 15th September, 1842, of a **PATENT** granted 15th March, 1842, to **ALFRED GREEN**, of Sheffield, in the county of York, surgical instrument maker, for "*improvements in trusses, or surgical bandages.*"

THESE improvements consist in a mode of constructing trusses, whereby they are rendered more compact, and also made to sit more closely on the part affected, and are not liable to shift after being properly applied.

This improved truss consists of a concave plate of metal, with the convex side padded, the concave side being covered with a stout piece of leather; to this side is fixed a vertical ogee steel spring, attached at its upper end to the body-belt, by an eyelet. The ogee spring, when the truss is put on, sinks into the concavity of the plate, and thus renders the plate less bulky. The spring is connected to the plate by an eyelet; but it is also shown connected to the plate by a strap or loop, made of leather or other suitable material, through which the spring, which is also covered with leather, passes; by this arrangement, the plate can be slid on the spring, so as to raise or lower it as may be required.

The patentee claims, first, the mode of constructing trusses, or bandages, with a perpendicular spring and steel plate; secondly, the mode of fastening the perpendicular spring to the body-belt of trusses and other surgical bandages; thirdly, the mode of fastening or connecting the various parts of trusses and other surgical bandages, by means of eyelet-holes instead of buttons, studs, and other means heretofore used; fourthly, the mode of connecting the perpendicular spring to the pad, or cushion, by a loop or slide of leather or other suitable material, by means of which the pad, or cushion, may be raised or lowered as may be required.

SPECIFICATION enrolled 17th September, 1842, of a PATENT granted 19th May, 1842, to WILLIAM BRUNTON, of Neath, in the county of Glamorgan, engineer, for
“ *an improved method, or means, of dressing and separating metals or minerals from other substances.*”

THE first part of the invention relates to a novel mode of separating the various qualities of ores, by letting them fall by their own gravity through water; and in proportion to their weight, and the time they are in descending, the metallic particles will be conducted into separate vessels provided for their reception. The apparatus for this purpose consists in a cylindrical tank, either constructed to stand on the ground, or excavated, and from ten to twenty feet deep; another vessel, concentric with this tank, extends to within a few feet of the bottom, through which the mineral ore is precipitated; a shaft passes down the centre of this chamber, carrying at its lower end, and just below the bottom of the chamber, a board, at an angle of about 60 degrees, which conducts the ore into a number of inclined radial troughs, and from thence into tubs or buckets; these are six in number, and are, for the sake of perspicuity, designated Nos. 1, 2, 3, &c. By turning a handle fixed on the upper part of the shaft, the inclined table can be brought successively opposite the troughs leading into any of the aforesaid buckets which are placed round the bottom of the tank, and which can, by means of chains, be drawn up between the tank and concentric chamber. The lid, or cover, of the concentric chamber, is constructed of two parts, and consists, first, of a circular board, about three inches thick, with radial slots cut through, about six inches wide at the outer circumference; underneath this board is a corresponding piece of wood, perforated in the same manner, and moving upon an axis, both of which

are covered with sheet copper; therefore, by bringing the solid parts of the bottom revolving cover opposite the perforated parts, in the top, such parts will form boxes, or cavities, for containing the ore; and by turning the bottom cover so as to bring its opening opposite the top cover, the mineral contained in the cavities will simultaneously pass through, and drop on the inclined board, and be conducted by one of the inclined troughs into a tub or bucket. The ore, previous to going through the process of separation, is to be passed through sieves, having holes not larger than $\frac{3}{8}$ of an inch in diameter; the tank, and also the precipitation chamber, being filled with water so as to cover the lids, which are about two inches below the surface. The ore, being placed in the radial cavities, is precipitated into the water, and those particles which descend through the water in the first 10 seconds, are conducted into No. 1 tub, or bucket, and those which fall through from 10 to 20 seconds, are conducted into No. 2, and from 20 to 30 seconds, into No. 3, &c.; the operator stands on the cover of the cylindrical tank, and by the aid of a stop watch, or pendulum, sees the time to move the handle; which time can be varied according to circumstances. There is another mode of effecting the same by a different arrangement of inclined troughs, and also of giving motion to the handle, by weights; and in the application of what the inventor terms a chronometric barrel; for which he claims, the free precipitation of the ores or materials in water, and the separation of them according to the time of their falling, as described.

Secondly—For the purpose of separating ores and materials containing metals or minerals, into classes of the same bulk, the patentee constructs a series of square or oblong sieves, fixed one above another, and about $1\frac{1}{2}$ inch apart, and varying in length, and also in the meshes, the

top sieve being the longest and coarsest; the whole of these sieves are contained in a cistern, and immersed in water, the metals, or minerals, being placed on the series of sieves, a vertical, and also a horizontal motion is given to them, by which contrivance the water, when the sieves are being lowered, will pass through the reticulate work, and the lighter parts of the ore will be, as it were, suspended: at this moment the sieves move backward, in a direction of their length, and the particles will be carried, or caused to approach the end of each sieve, where they fall off, and are received into separate compartments provided for their reception.

Claim is the mode of discharging the classified ores, or materials, from the respective sieves into separate compartments by the motions described, in conjunction with the action of the water.

Thirdly—for the purpose of separating ores and minerals by washing, the inventor employs a square or oblong cistern, filled with water, in which is an oblong table, supported in an inclined position by four chains. This table is provided with longitudinal grooves, down which the mineral passes; it has also deep grooves for receiving the earthy matter, which is conducted into a separate receptacle; a percutient motion is given to the table, for the purpose of agitating and driving the minerals forward. The principal novelty in this apparatus is to drive, by means of a paddle wheel, a stream across the table, which is conducted from the wheel race, and through a trough across the table, the velocity of which can be regulated by the motion of the wheel; and what the inventor claims as new, with respect to the washing machine, is, the application of the cross stream of water.

SPECIFICATION enrolled 21st September, 1842, of a **PATENT** granted 21st March, 1842, to **SYDNEY JESSOP**, of Sheffield, in the county of York, merchant and steel manufacturer, for “*an improved mode of preparing wrought iron intended for wheel tires, rails, and certain other articles.*”

AFTER the iron has been prepared, or manufactured into the shape intended for wheel tires, rails, &c., it is placed in a furnace for the purpose of carbonizing, or hardening it. For this purpose the inventor uses a furnace of the ordinary construction; and in piling up, or placing the tires or rails in the furnace, a layer of charcoal, or other carbonizing fuel, is laid between those surfaces only which are intended to be hardened; in hardening the rims [after being formed into a hoop for the wheel, they are piled one upon another, and the charcoal placed between the outer surface and the sides of the oven; by which arrangement the interior surface will be protected from the action of the fuel. After the process of hardening, the rims are placed between two iron rollers fixed in a frame, the top roller having a groove to receive the tire, which is to be submitted to the pressure of the rollers, for the purpose of laying the blisters and uneven parts which are raised by the hardening process.

Claim is for the preparing of such wrought iron as is intended for wheel tires, rails, tram-plates, “switches,” &c., in a carbonizing furnace, in such manner as to expose what are intended to be their wearing surfaces only to the process of carbonization, and protecting their other surface therefrom by the arrangement of position and fuel; and afterwards rolling, hammering, swaging, or otherwise consolidating the metal so as to make it hard, compact, and even.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to ZACHARIAH PARKES, of Birmingham, in the county of Warwick, manufacturer, for "*certain improvements in apparatus for grinding and dressing wheat and other grain.*"

THESE improvements relate to apparatus for grinding wheat and other grain, and consist in the application and combination of a "steel mill," denominated a domestic mill, with a dressing apparatus, by which the various products of grain are separated. The steel mill employed for this purpose is of the ordinary construction, consisting of a conical barrel, revolving within a cylinder, the surfaces of which are cut so as to form teeth, and are case-hardened; on the axis of the revolving barrel is a fly wheel, with a handle fixed to one of its arms for giving motion to the machine. Underneath the steel mill is the dressing apparatus, which consists of a reticulate cylinder fixed in an inclined position; this cylinder is composed of an iron frame, covered with wire gauze, in three lengths, and of different degrees of fineness; below this cylinder is the drawer, divided into compartments, each division board or plate being placed opposite the joinings of the wire gauze; within this cylinder is a shaft, carrying three brushes, placed equidistant from each other, and extending nearly the length of the cylinder, and fixed at such a distance from the axis as to press lightly on the interior surface of the cylinder; motion is given to these brushes by a band working in a nick in the periphery of the fly wheel, and passing round a pulley fixed on the end of the shaft. Motion being given to the machine, and the hopper, which is placed above the steel mill, being supplied with

grain, such grain, in passing through the mill, will be reduced to powder, and pass through a channel or passage to the upper end of the inclined cylinder, and the revolving brushes will carry the same round, and cause the particles to move in a gentle stream towards the lower part of the cylinder. Such particles as pass through the meshes into the first compartment, if wheat be used, will be fine flour; and the particles which fall into the next compartment constitute second flour; and the pollard, or sharps, will pass through the meshes into the third compartment; the bran passes through a hole in the end of the cylinder, and is conducted into a fourth compartment.

The inventor claims, first, the construction of a domestic mill, by combining a steel mill with a dressing apparatus; and secondly, the general arrangement of parts of the domestic mill described, whether such mill consists of a steel mill combined with a dressing apparatus, or of any other kind of mill combined with a dressing apparatus.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to WILLIAM PALMER, of Sutton Street, Clerkenwell, in the county of Middlesex, for "*improvements in the manufacture and preparation of pills, and some other articles of a medicinal and remedial nature.*"

THIS invention consists, first, in a mode of covering pills, by cementing them between two pieces of thin paper, or other suitable material, the covering of which is effected by two hollow hemispheres. In order to cover the surface of pills, the inventor takes a piece of paper and pastes the surface; the pills are then put upon it, at convenient distances from each other, and a second piece of paper,

pasted in the same manner, is laid on the top ; the pills, together with the paper, are then placed upon a small machine, composed of a rectangular frame with a plate in the middle, having a hollow hemisphere, above which is an instrument in a vertical position, moving in a guide, and having a corresponding cavity in its end. The apparatus has also a number of little rollers the whole length of the frame, over which the pills and paper are drawn, and successively brought under the hemispherical cavities ; and by pressing the sliding instrument down as the pills are brought underneath, the paper will be pressed on their surface so as to cover them ; after the paper is dry, the superfluous part is cut off, by putting them separately in an instrument similar to that for pressing on the paper, but having a cutting edge ; the pills are then rolled between the hands or a board, to lay the edges of the paper.

Claim.—The mode of covering pills, by pasting or cementing two surfaces of paper, or suitable material, as above described.

The second part of these improvements relates to the employment of charcoal as the principal ingredient in lozenges, pills, and other remedial articles.

In making lozenges, the patentee uses one-half charcoal and one-half sugar. The charcoal should be as fine as possible, and also fresh ; and a little benzoin, or other water, may be mixed with it to flavour it.

The charcoal pills are to be made, by mixing large quantities of charcoal with any other matter that may be required or deemed best, and formed into pills in the usual way. The use of it, in all cases, is to purify the breath.

Claim.—The application of charcoal in the making of pills and lozenges.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to ROBERT HAZARD, of Clifton, in the county of Somerset, confectioner, for "*certain improvements in apparatus for heating public and private buildings.*"

THIS improved apparatus consists of a fire-proof, or hot air chamber, with a number of iron pipes, or flues, communicating with a furnace, or fire-box, at one end of the chamber, and passing backwards and forwards one row above another—the top row or series leading into the chimney; the fire-box is made of iron, lined with fire-brick; the smoke and hot air pass from the fire-box, and through the series of tubes, or flues, each series being provided with a lid, or cover, at the end, which can be removed for cleaning the same. The fresh air is admitted by a passage leading from outside the building to the bottom of the air chamber; and in passing through the chambers containing the series of iron tubes, becomes heated, and escapes through an aperture at the top into such rooms as require heating.

The inventor states, that by these improvements, a building of any size may be effectually warmed by a mild and genial heat, (without the intervention of steam, or hot water), passing through tubes, in order to obtain a large radiating surface, at a low temperature; and that he is also enabled to burn the coals at a slow combustion, so that attention to the fire is not required more than once in six or twelve hours.

Claim is the mode of arranging a series of metal flues in connection with a furnace, such flues having common openings for cleansing the same.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to WILLIAM BROCKEDON, of Queen Square, in the county of Middlesex, gentleman, for “*improvements in manufacturing fibrous materials for the cores of stoppers to be coated with india rubber, and used for stopping bottles and other vessels.*”

This improvement relates to a mode of manufacturing stoppers, used as a substitute for corks, in corking bottles and other vessels, by preparing a fibrous core, and afterwards coating it with india rubber. The mode hitherto practised by the inventor has been to provide a number of coarse threads of wool, and lay them in a straight line; these threads were tied at one end, and twisted at the other, so as to form a rope, which was afterwards put into a fulling mill, and beaten until the fibres were felted into a rope sufficiently strong for the purpose required; this rope, after being dried, was coated with a sheet of india rubber, and cut into lengths for stoppers; after which, the ends were covered in the same manner; or such stoppers might be covered with a solution of india rubber. The present improvements consist in preparing the cores from fibrous materials: for this purpose, he takes a sufficient number of threads, rovings, or slivers of cotton, or wool, or other fibrous substance, to form the core, of the size required, and instead of felting them, as in the former patent, they are drawn through a frame, and bound together so as to form a core, in the following manner: The threads, or slivers, in the form of strands, are passed through two holes, or bosses, one end of which is caused to revolve by means of a wheel, or pulley, being keyed upon it, and carrying with it a stud, upon which is a bobbin of binding thread; thus as the two strands are being drawn

through, the wheels are caused to revolve; by this means, the separate strands are bound with the thread; the strands pass after being lapped, through a similar boss, upon which is the driving pulley of the machine, where they are both bound together so as to form a core, which is afterwards covered with india rubber in the manner described; it will be seen that three or more strands can, by this process, be formed into a core.

Claim is the mode of preparing fibrous cores, to be covered with india rubber, by drawing the several strands, or collection of threads, rovings, or slivers, of which they are composed, through a series of holes, and binding the strands separately, and afterwards binding them together, as described.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to JOHN DENT, of No. 82, Strand, and No. 33, Cockspur Street, in the county of Middlesex, chronometer maker, for "*certain improvements in chronometers and other time keepers.*"

THE inventor states that the rates of the best constructed chronometers show a losing rate at the two extremes of temperature, which defect he attributes to the compensation weights of the balance of an ordinary chronometer not sufficiently approaching the centre of motion on an increase of temperature, and thereby causing the rate to be a losing one; and on the other hand, they are brought out too far from the centre of motion by a decrease of temperature. To obviate this defect, the patentee constructs what he terms a primary compensation, in combination with a secondary compensation, whereby the

distance of the weights from the centre of motion is increased or diminished, according as the temperature is greater or less; there are two modifications of this improvement shown; the compensation pieces in both cases being composed of brass and steel. The first is the peculiar arrangement and construction of the primary and secondary pieces, which are in two parts. The second modification gives a description of a continuous secondary compensation, formed of one piece, or compound bar, curved in such a manner as to answer the purpose of the two; for which the patentee claims, the combination of a primary compensation, with a continuous secondary compensation, in all forms and positions which shall augment the distance between the centre of gravity of the compensation weights, and the junction of the primary compensation pieces with the bar, by an increase of temperature, and which shall diminish that distance by a decrease, as described.

There is another application of the secondary compensation pieces, which are erected on the two ends of a diameter-compensation-bar. The compensation pieces, as well as the diameter-bar, are composed of brass and steel; the former are bent in the form of a staple; one of these compensation pieces, or staples, is fixed by its end to a block at the end of the diameter bar, the bow or bent part approaching the axis of the diameter-bar; on the opposite, or upper end of the staple, is another block, to which is affixed a second staple, with its bow or bent part in an opposite direction; and upon its opposite end is fixed a vertical pillar, supporting a weight, which can be raised or lowered by a screw on the pillar. The opposite end of the diameter-bar is provided in like manner with a weight and compensation pieces; thus by an increase of heat, a curvature upwards takes place in the diameter-

compensation-bar, and the weights are simultaneously raised, and depressed by the decrease of temperature.

The claim for this part is, the application of secondary compensation pieces, erected upon the ends of a diameter-compensation-bar, whereby the compensation weights are raised by means of heat, from the points of junction with the ends of the compensation bar, and depressed by cold, and thus the weights will be simultaneously raised or lowered; and by the secondary compensation, they move quicker, and over a greater space, towards the centre of motion, which the patentee states could not be effected by the curvature of the diameter-bar alone.

The second part consists in the introduction of a remontoire escapement into chronometers, or other portable timekeepers; the remontoire spring being wound up at regular intervals by the main spring through the train of wheels, gives an invariable impulse to the balance by means of the impulse escape wheel; in order to accomplish this, the inventor introduces a second escape wheel, which he terms the train escape wheel, and which revolves concentrically with the impulse escape wheel.

There is also a mode of locking the escape wheels by one locking spring, for which the patentee claims the simultaneous locking of two escape wheels by one locking spring, in a chronometer or other portable timekeeper; and also for the same purpose, the combination of parts of a duplex escapement, in conjunction with the ordinary detached escapement.

And lastly, in a chronometer or other portable timekeeper, the arrangement of the impulse escape wheel, in which there is no lateral pressure on the pivots beyond the pressure of the remontoire spring, which is connected with the two escape wheels.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to JOHN HAUGHTON, of Liverpool, in the county of Lancashire, M.A., for "*improvements in the method of affixing certain labels.*"

THIS invention is an improvement on a former patent granted to the said JOHN HAUGHTON, 19th June, 1841, and consists in giving a certain motion to a machine, whereby the label is damped, and by applying a certain pressure becomes fixed on the letter, which is not required to be damped, as in the former patent.

This apparatus consists of a rectangular box, divided into two compartments, one of which is equal in size to the penny stamps used for letters and is provided with a round pin, moving in a collar, or guide, and having at its end a square piston made of hard wood, and covered with india rubber about $\frac{1}{6}$ of an inch thick; this piston is also made to fit the inside of the rectangular compartment. The bottom of this box is provided with a slide, equal to the area of both compartments; that part of the slide which is under the labels, is about one-eighth of an inch thick; the remaining part which is considerably thinner, carries a damp sponge, projecting a little above the surface of the thickest part of the slide, so as to press slightly on the labels, which are put in the box with the gummed side downwards. The letters to be stamped are placed on a sort of table of the apparatus, which is held in the left hand, in an inverted position; the slide being withdrawn, the sponge is brought over the surface of the gummed side of the label, and on pressing on the

end of the pin connected with the piston, the stamp is affixed on the letter; the letter being withdrawn, and the slide replaced, the apparatus can then be turned up again ready for another operation.

The inventor states that he does not limit himself to any particular mechanical means of carrying out this improvement, it being manifest that the same may be effected in a variety of ways; but what he claims is, the improved principle of the operation developed in this machine.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to MARK FREEMAN, of Sutton Common, in the county of Surrey, gentleman, for “*improvements in the construction of inkstands.*”

THE first description of inkstand consists of a rectangular vessel, divided into two compartments, but of unequal depths. The deepest vessel is provided with a loose cover, for introducing a float made of cork, covered with coach-makers's japan paint, or sealing-wax, and made to fit the sides of the vessel; the dipping cup is fixed to the front part of this vessel, and is above the cover of the other vessel, which forms the second compartment; this cover is provided with a screw-lid, or top, for supplying the vessel with ink; and the lid, or cover, of the dipping cup, has a projecting finger, which passes through the sides of the deeper vessel, and takes into a rack, formed of pins, in the cork float. This float is also made with a groove cut in its side, leading to the dipping cup. In order to put the inkstand in operation, the screw-cover is removed and the ink poured in, and allowed to flow into the adjoining compartment through an aperture made at the

bottom of the division plate; by these means the float will be raised until the surface of the fluid is at the same level in both vessels. The air-tight screw-cover is then put on, and it will be seen, that on raising the lid of the dipping cup, the float, by means of the projecting finger, will be depressed, and the ink will, consequently, be forced up the groove into the dipping cup; and on shutting the lid, the float will rise, and the ink will return into the vessel.

Claim.—The mode of constructing inkstands, by combining two compartments opening into each other, with a float in one compartment, and a dipping cup, which may open into either compartment.

The second description of inkstand consists of a cylindrical vessel, formed of two compartments, provided with a cover, upon which is fixed the dipping cup, with a tube leading into the vessel, and which can be removed for supplying the vessel with ink. The second compartment consists of a tube, or cylinder, concentric with, and projecting above the other, and having an aperture at the bottom, so as to connect the two compartments. A plunger is fitted into the concentric tube, or cylinder, with a screw attached to it, passing through the cover of the cylinder; by turning the screw in one direction, the plunger will be forced down, and cause the ink to ascend into the dipping cup. As the ink is used, and the plunger descends to the bottom, it will be necessary to raise the plunger, and also to take off the air-tight cover, to admit air, when the ink will again flow into the concentric vessel, or compartment; the cover may then be screwed on again, which will prevent the ink from flowing back into the compartment; but, by the action of the plunger, it will be forced into the dipping cup.

Claim.—The mode of constructing inkstands by combining two compartments, opening into each other; one

of which has a plunger working within it; and either compartment having a dipping cup applied thereto.

The third improvement consists of a similar arrangement of parts, and is also applied to the first description of inkstands, by which arrangement it is not necessary to take off the cover to admit air; in this case, the plunger is not made to fit the sides of the vessel tight, and is also allowed to pass the hole which connects the two compartments; for which the patentee claims, the mode of arranging a communicating hole between the two compartments of an inkstand, in one of which a plunger or float works, so that the lower part of the float may pass below the hole.

The fourth improvement relates to a mode of connecting the ink vessel and the dipping cup, by means of a syphon. A tube, having a screw cut on one end, passes through a female screw formed in the cover of the vessel containing the supply of ink; this tube, which forms a part of the handle of the inkstand, rises in a vertical direction, with a bend at the top, and is brought down below the cover of the ink vessel to the dipping cup; the vessel being supplied with ink, and the syphon filled, which may be done by inserting a long tube, having a funnel at the top, into the dipping cup, the ink will flow through the syphon into the dipping cup, the height of which is regulated by turning round the ink vessel on the screw, which will cause such vessel to be raised or lowered, as may be required; and will have the effect of filling, or emptying, the dipping cup. It will be seen that the tube and dipping cup may be made to move, and the ink vessel remain stationary.

Claim.—The mode of constructing inkstands, by combining a dipping cup with an ink vessel, by means of a syphon, in such a manner that the positions of the vessel and of the dipping cup may be varied.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to JOHN CLAY, of Cottingham, in the county of York, gentleman, and FREDERICK ROSENBERG, of Sculcoates, in the county of York, gentleman, for "*improvements in arranging and setting up types for printing.*"

THESE improvements consist of two parts; first, in a peculiar combination of mechanism for arranging types, commonly called "*distributing,*" so that they are arranged for the second operation. The several letters of any "*composition,*" after they have been used for printing, are separated and arranged according to their several characters, in distinct columns, ready for inserting into the rack of the second composing, or setting-up, machine. The peculiar construction of this machine constitutes the second part of the improvement: the several types are first arranged, and then selected and formed into words, lines, and sentences.

Firstly.—The distributing machine consists of a frame supporting a grooved plate, into which the several letters or characters are deposited in rows or columns; at one end of these grooves, and in a transverse direction, is affixed a sliding carriage, which moves from one end of the series of grooves to the other; in front of the machine, and just below the sliding carriage, is a row of keys marked with the letters A, B, C, &c., corresponding with an equal number of vertical channels; these channels are covered in front by a face-plate, but so as to leave an open space at the bottom of each channel, which receives a cam or eccentric, mounted on a shaft fixed in suitable bearings, in front of the face-plate, and receiving a rapid rotary motion from some first mover; thus, as the types are dropped down the vertical channels, they are forced for-

ward by the revolving cams into the grooved plate. It will be seen by this arrangement, that the channels might be placed in an inclined position and the types fed into the same by hand, when by the motion of the shaft they would be forced into the respective grooves of the grooved plate. At the left-hand end of the machine is supported by a bracket, in a horizontal position, the galley containing a page of type, to be assorted or arranged; at the end of the galley is a slot, to allow one line of the page to pass through at a time; which is effected by a vertical slide, covered at its lower edge with soft leather, so as not to injure the type. The page of type being pressed up against the end of the galley, and over the slot, by lowering the vertical slide a line of the page is forced through the slot into a groove of the sliding carriage, and is pressed against the front or end of this groove by an endless chain, worked by a convolute spring contained in a case; the arrangement being such, that on lifting up the vertical slide for the purpose of forcing through a line of type, the convolute spring is wound up ready to act on the same. Supposing a line of type to be in the groove of the sliding carriage, the operator moves the carriage to the right, and commences reading off the letters contained in the line; and supposing F to be the first letter, he places a finger of the left hand under the key marked F, and elevates the same; on moving the sliding carriage back, it is arrested by the elevated key, which acts upon a bent lever, and actuates a slide that pushes out the first or end letter of the line—a recess of sufficient width for the thickness of the type being made by an indented bar elevating a spring, which moves another slide forming the recess; the type thus forced out from the line, is allowed to drop into the vertical channel, and is forced, as before stated, into the corresponding channel of

the grooved plate, the operation being the same for the other letters of the remaining part of the line.

The patentees claim, first, the peculiar arrangement of mechanism, constituting a machine for "*distributing*" the types, commonly called arranging; secondly, the use of the grooved plates in which the type are arranged in rows or columns; thirdly, the mode of lowering the types, line by line, from the galley into the travelling carriage; fourthly, the use of the travelling carriage, by means of which each type is consecutively brought over the proper opening, or vertical channel, through which it descends to the grooved plate; fifthly, the indented rib, and those parts which form a recess of the proper width to suit the type, and into which the type is pushed; sixthly, the use of the bent levers or keys, whereby the sliding carriage is stopped over the proper aperture, or vertical channel, and which keys at the same time act upon a lever, which by means of a slide or pusher of the carriage, forces out the last type of the line into a recess, formed of a proper width by the indented rib acting upon a spring lever; seventhly, the method of forcing the types along the grooves by means of cams or eccentrics; eighthly, the method described in which the sliding carriage and keys are dispensed with, and the types deposited by hand.

Secondly.—The composing or setting-up machine consists of two sets of keys, arranged one above the other, and actuated and mounted upon an axis, in a similar manner to those of a piano-forte; these keys actuate by means of a connecting rod, a T-formed lever, which moves a slide at the bottom end of a rack-frame, in which the columns of type are arranged; this frame is supported by two plates, fixed on their edge in a vertical position; between these plates, at the upper edge, is a longitudinal bar of wood or metal, having a groove. Below the key-board

of the machine is a transverse shaft, having a wheel keyed thereon, round which is passed an endless band, conducted by guide pulleys at each end of the machine, through the longitudinal groove, on each side of which are arranged the columns of type, as before stated, in the rack-frame; therefore, on pressing the finger on one of the keys, in the lower line or set, the T-formed lever will be acted upon, so as to press its slide against the lowest type of that column against which it is opposite, and force it out into the longitudinal groove; and presuming that motion has been given to the shaft, such type will be carried forward towards the left-hand end of the machine, and into a receiver; on pressing the finger on one of the keys of the upper line, a type will in the same manner be forced from a corresponding column on the opposite side of the groove. The receiver into which they are carried by the endless chain, consists of a vertical slide, upon which the types are consecutively laid; above this slide is fixed an endless chain, cam, or eccentric, for the purpose of forcing or lowering the slide every time it receives a type, until a line is completed, which can be seen by a dial-plate connected with the slide, and graduated with inches and parts of inches. When the line is completed, and the slide lowered to the bottom, by pressing on the end of a lever near the hand of the operator, the types are forced from the slide into a frame, or composing-stick, mounted upon an axis at the lower end, and capable of being turned down in an horizontal position, in which position it is immediately above the galley, which can, by an assistant compositor, be raised; and on removing a slide, which forms the bottom of the composing-stick, the line is lowered into the galley: the assistant, during the time another line is being composed, corrects that which has just been placed in the galley.

Claims.—First, the general arrangement of mechanism described; secondly, the peculiar mode of pushing out one single type from a column in the rack frame, as described, so as to force out the type on to the endless chain which runs in the longitudinal groove at the back of the column of type, and on which the type is carried to the receiver; thirdly, the construction of the rack frame, in which columns of type are arranged on both sides of the channel or groove; fourthly, the mode in which the types are forced down in the line after they are brought to the receiver, by an endless belt, or by a cam or eccentric; fifthly, the manner in which the line of types is lowered from the receiver into the galley, and the manner in which the galley is mounted in the machine.

SPECIFICATION enrolled 21st September, 1842, of a PATENT granted 21st March, 1842, to WILLIAM HANCOCK, junior, of Amwell Street, in the county of Middlesex, gentleman, for “*certain improvements in combs and brushes.*”

THE first improvement consists in making curry-combs, used in grooming horses, with flexible stocks or backs, instead of stiff and unyielding backs, as heretofore. This is effected by applying to the back of a wire card, such as is used for carding machines, two or three coats of a solution of caoutchouc, or other strong flexible cement; a piece of leather, felt, or thin veneer of wood, is to be prepared in the same manner, and when in an adhesive or sticky state, the two surfaces are to be firmly pressed together. When the cement is set, there is inserted, for greater security, a number of small pins round the edges, or the