IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNIVERSITY OF ILLINOIS FOUNDATION, Plaintiff and Counterclaim Defendant, - v - BLONDER-TONGUE LABORATORIES, INC., Defendant and Counterclaimant, - v - JFD ELECTRONICS CORPORATION, Counterclaim Defendant.	)	Civil Action No. 66 C 567

DEFENDANT'S REPLY BRIEF
TO PLAINTIFF'S BRIEF AFTER TRIAL

I N D E X

INDEX OF CASES CITED

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INTRODUCTION

In this brief, defendant, Blonder-Tongue Laboratories, Inc. (referred to as "BT"), supports its defenses of invalidity, non-infringement and unenforceability and replies to the brief after trial of the plaintiff, The University of Illinois Foundation (referred to as the "Foundation") relating to the alleged infringement by BT of the Foundation Isbell patent (3,210,767) and Mayes and Carrel patent (Reissue 25,740).

At the outset, however, it is desired to point out that there is pending defendant's motion to dismiss the complaint

for failure to prove a prima facie case, which motion this Court stated (T.275) it would decide after "the close of all the evidence".

Defendant's Motion To Dismiss

In support of the motion, it was pointed out (T.255-275) that neither the Court nor defendant was apprised, in the so called prima facie proofs, of a single claim of either patent that was alleged to have been infringed; that the Court was not supplied with any technical explanation of the meaning of much of the highly scientific terminology used in the patents and in the claims; and that, apart from a generalization or ultimate conclusion of Mr. Harris that structural elements of the patents (not the actual elements of the claims) existed in BT's antennas, no testimony or explanation of the underlying facts necessary to show infringement of the claims was presented.

It has long been established that in highly scientific cases the Courts are not required to engage in guesswork or to try to decipher technical language for themselves; and certainly not to guess as to what claims might or might not be asserted as infringed.

This very Court has ably summarized the test of proof of infringement in Briggs v. M & J Diesel Locomotive

Filter Corp., 228 F. Supp. 26, 48-9, aff'd. 343 F.2d 573, cert. denied 383 U.S. 801:

> "It is well settled that in proving infringement, it must be established that the words of the claims find a response in the accused device, and also that a real identity exists with regard to means, operation, and result. Independent Pneumatic Tool Co. v. Chicago Pneumatic Tool Co., 194 F.2d 945, 947 (7th Cir. 1952)."

But plaintiff's prima facie case contained no such establishment "that the words" of any "claims find a response in the accused device".

It is not until the plaintiff's brief after trial (p. 22-34) that for the first time allegedly infringed claims are identified, and there is any purported showing that the "words of the claims find a response in the accused device".

But failure to prove a prima facie case cannot be cured by a brief after trial, and such brief cannot be used to establish underlying facts or evidence. Nor can the brief be used to rectify the failure of plaintiff to produce a record that explains the meaning of technical "words of the claims", particularly in a case such as this, involving

> ". . .a highly technical field of theoretical electronics far beyond the common knowledge of any layman uneducated in this area." Becker v. Webcor, Inc., 289 F.2d, 357, 360;

and where, as stated by the Court of Appeals for the 7th Circuit in Technograph Printed Circuits v. Methode Electronics, Inc.,

356 F.2d 442, 448 (1966):

> ". . .the patents in suit. . .are of such technical nature as to escape our understanding. They may 'speak for themselves' but we feel the need of expert translation and interpretation, screened for us by appearance and demonstration before a trial court."

The necessary "expert translation and interpretation" and "demonstration" as to infringement were wholly lacking in plaintiff's prima facie case.

Since the burden of proof of infringement rests with plaintiff and it did not make a prima facie showing, defendant's motion to dismiss as to both patents should be granted.

INVALIDITY OF THE ISBELL PATENT

The Isbell patent in suit is invalid for the following reasons:

1. The claimed invention is obvious in view of the prior art* cited by Judge Stephenson in University of Illinois Foundation v. Winegard Company, 271 F. Supp. 412, 35 USC 103.

2. The claimed invention is anticipated by the prior patent to DuHamel et al, 3,079,602 (D. Ex. 14) not before Judge Stephenson. 35 USC 102a, e.

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* Katzin - 2,192,532 (D. Ex. 3); (Koomans 1,964,189; Winegard 2,700,105; and White 2,105,569 are cumulative, 271 F. Supp. 417, Col. 1); Logarithmically Periodic Antenna Designs, by R. H. DuHamel and F. R. Ore (D. Ex. 6); Channel Master Antenna "K.O." Model 1023 (D. Ex. 4).

3. The patent is invalid by reason of publication of the alleged invention in Quarterly Report No. 2 (D. Ex. 8) more than one year before Isbell's filing date. 35 USC 102b.

4. The claimed invention is anticipated by the Channel Master "K.O." antenna (D. Ex. 4). 35 USC 102a, b.

1. Obviousness in view of the prior art of Katzin, DuHamel, etc., cited by Judge Stephenson in University of Illinois v. Winegard.

Every major finding of fact of Judge Stephenson as to the Katzin patent 2,192,532 (D. Ex. 3), DuHamel and Ore article Logarithmically Periodic Antenna Design (D. Ex. 6) and "K.O." antenna (D. Ex. 4) was admitted to be correct by the Foundation's own witness, Mr. Harris:

Katzin - T. 168-174
DuHamel and Ore - T. 183-192
K.O. Antenna - T. 174-177, 180, 181.

Indeed, plaintiff's brief seems to reflect no disagreement with Judge Stephenson's basic findings of fact as distinguished from his conclusions of law as to obviousness.*

As for the matter of obviousness, plaintiff relies on the testimony of Dr. DuHamel and Dr. Mayes with regard to log periodic antennas shown in PX30-38 and 51 that allegedly did not work; and thus concludes that Isbell's structure was in the same category.

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* The so-called "generalized statements" of Judge Stephenson regarding the design of log periodic, frequency independent antennas which plaintiff asserts to be erroneous (plaintiff's brief, p. 4, 12) were admitted by Mr. Harris, T. 203-207.

But most of the structures of PX 30-32, 34, 36-38 and 51 are not Isbell's (or Katzin's) simple linear dipole antenna. Rather, many have esoteric shapes: spirals, cones, horns and ground planes. Dr. Mayes admitted that the dipole array of P. Ex. 36 was tried after Isbell's work when the concept of transposed feeders was known. Dr. DuHamel testified on cross-examination that he didn't even mathematically analyze some, and that others he actually did make work, T.506-522.

The only issue in this case, however, is the obviousness of the Isbell type structure; and as to that, Dr. Mayes conceded that "most of them operated satisfactorily" (T. 628).

If we look, indeed, into the contemporary documentation, the Antenna Laboratory's Quarterly Report No. 1, D. Ex. 7, we find that prior to Isbell's so-called invention and before he started to investigate his antenna, Dr. Mayes and the scientists at the Laboratory considered that

> "The experimental results which have been obtained for the multielement log periodic antennas are found to be predictable. . ." (p.2, emphasis added).

And the only distinction from known log periodic designs that Isbell was going to undertake was

> "An investigation of log periodic structures of thin linear elements (zero tooth width) is planned."* (p. 2; emphasis added)

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* As later shown, even this variant was anticipated by DuHamel.

Thus, contemporaneously, this was viewed as a minor variant - entirely "predictable" - with the only change being well known "thin" instead of thicker dipole elements or teeth. It is only now that this array has been recognized as "obvious" in the light of the prior art by Judge Stephenson, that the matter suddenly becomes esoteric, unpredictable and unobvious.*

2. Complete Anticipation by DuHamel Patent 3,079,602, D. Ex. 14.

This DuHamel patent was not before Judge Stephenson. It was admittedly filed before any date of conception of Isbell and completely in and of itself anticipates the alleged Isbell inventions.

In Fig. 5, a structure is shown having zigzag or triangular-wire dipole elements connected with each of two central conductors (46 and 29) that may be adjusted to any angle ψ between them "from 180° to 0°" (col. 2, line 53; col. 6, line 16 of the DuHamel patent, D. Ex. 14).

A model of this is in evidence as D. Ex. 24, and Dr. DuHamel conceded that this was a correct representation of Fig. 5 of his patent (T. 531).

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* Note, also, that each of Dr. Mayes' National Electronics Conference paper of October 1964 (D. Ex. 21, p. 4), and the Jasik Handbook, P. Ex. 55, p. 18-13 (1961) (DuHamel testimony T. 528-534), before this litigation, conceded that all that was necessary obviously to obtain the Isbell configuration from the prior art log periodic arrays, was to reduce the angle ψ (psi) between the booms to 0 and to make the antenna teeth thinner, approaching zero width - all earlier taught by DuHamel in his patent 3,079,602, D. Ex. 14, later described.

With the two central conductors 46 and 29 adjusted to parallelity (i.e., for the angle of "0°", above mentioned col. 2, line 53) an immediate resemblance to Fig. 2 of the Isbell patent will be evident; i.e., in the words of, for example, claim 1 of the Isbell patent in suit:

An array of parallel dipoles of a progressively increasing length and spacing in side-by-side relationship (the length of triangular dipole elements 51e, 51d, 51c, 51b, etc. of Fig. 5 progressively increases, as does spacing therebetween as shown and described and as conceded by Dr. DuHamel, T. 531, 532);

The ratio of lengths and the ratio of adjacent spacings each have a τ relationship (the same τ in equation (1) at col. 3, line 9 of the DuHamel patent; also admitted by Dr. DuHamel at T. 531, 532);

And alternate elements are crossed in connection 180° in feed (T. 532, 533)(and the antenna has the same coaxial-line feed to small end, as in Isbell Fig. 2, see col. 5, lines 36-40 and 51).

Mr. Harris conceded that triangular dipoles (as disclosed in DuHamel's Fig. 5) and thinner wire or cylindrical dipoles (as in Isbell Fig. 2) were both old and well known dipole antennas prior to Isbell's invention (T. 150) and that their performance, operation and current distributions were similar (D. Ex. 2, item 6, and D. Ex. 1, item 1; T. 178-180, 223, 224).

suit, of record herein by stipulation (T. 378, 379, D. Ex. 22) that the report was in her library accessible to any interested member of the public on April 30, 1959; and that copies were available to the public:

> "Q If I had come to your office on April 30th, the date indicated on that requisition document, and requested a copy of Report No. 2, would I have been likely to have been delivered a copy?
>
> "A Very likely.
>
> "Q Would you say then, Miss Johnson, that Quarterly Engineering Report No. 2 was available in your office on April 30th, 1959 to the same extent as any other publication or report was available in your office either as a library reference or as an extra copy?
>
> "A To my knowledge, yes."

The only question here is whether the availability of that document more than one year before the application for the Isbell patent in suit on May 3, 1960, constituted "publication" under the law.

The early decision in Cottier v. Stimson, 20 Fed. 906 (Cir. Ct., D. Ore., 1884) set forth the general requirements for a "publication". In that decision (p. 910), the Court said:

> "In Walk. Pat. 56, it is said that a 'printed publication is anything which is printed, and, without any injunction of secrecy, is distributed to any part of the public in any country. Indeed, it seems reasonable that no actual distribution need occur, but that exposure

> of printed matter for sale is enough to constitute a printed publication.'
>
> "But something besides printing is required. The statute goes upon the theory that the work has been made accessible to the public, and that the invention has thereby been given to the public, and is no longer patentable by any one. Publication means put into general circulation or on sale, where the work is accessible to the public. See Reeves v. Keystone Bridge Co., 5 Fisher, 467." (Emphasis added)

(a) Deposit in a Library

There is no requirement that members of the public actually used the printed copy contained within a library. It is merely necessary to establish that a copy of the publication was received by the library.

The Sixth Circuit Court of Appeals held in The Hamilton Laboratories, Inc. v. Massengill, 111 F.2d 584, 585, 45 USPQ 594, 595 (1940):

> ". . .the Weed thesis is in the prior art and marks a step in its development since it was put on file in the library of the college, available to students there and to other libraries having exchange arrangements with Iowa State. John Crossley and Sons v. Hogg, C. C., 83 Fed. 488, 490; Britton v. White Mfg. Co., C.C., 61 Fed. 93, 95. We think intent that the fruits of research be available to the public is determinative of publication under the statute . . ." (Emphasis added)

The sufficiency of the deposit in a library of a single copy of printed matter and the immateriality of the

obscurity of the library were commented on by the Court of Customs and Patent Appeals in the case of In re Tenney, Frank and Knox, 254 F. 2d 619, 627 (1958). In that case, the Court observed:

> "It is no doubt true that our present law is anomolous, as evidenced by our conclusion that a microfilm is not 'printed.' A foreign patent file, laid open for public inspection, is not a printed publication because typewritten, while a printed publication available to the public only in a Southern Rhodesian library would be."

Still more recently, the District Court for the Southern District of California held that the filing of a copy of a thesis in a college library on October 9, 1950, barred a patent applied for October 30, 1951 (21 days over the permissible one year). Indiana General Corp. v. Lockheed Aircraft Corp., 249 F. Supp. 809, 815, 816 (1966).

(b) Availability to the Public by Sale or Without Charge

The "publication" of a printed work also occurs when copies of the work are first accessible to the public, by purchase or without cost. In the above cited case of In re Tenney, Frank & Knox, in a concurring opinion, Judge Rich stated his view of the law to be that:

> "When a book has been printed and copies are available for delivery, an advertisement offering it for sale would bring about its 'publication' even before any copies are actually sold." (628)

Thus the Isbell invention was published more than a year before the Isbell patent application was filed (May 3, 1960), and there is a statutory bar to the Isbell patent, 35 USC 102b.

4. Anticipation by the Channel Master "K.O." Antenna, D. Ex. 4.

It is conceded that the "K.O." antenna was in public use more than a year before the filing date of the Isbell patent application (T. 174, 175).

From D. Ex. 4, it is evident that the three dipoles 87-1/8, 79-1/8 and 71-7/8 completely meet all the limitations of the Isbell claims and so-called invention. Referring to claim 1, for example, there is the progressively increasing length (from 71-3/8 inches to 87-1/8 inches); the progressively increasing spacing (from 16 inches to 22-1/2 inches); a τ ratio of lengths of $\frac{79-1/8}{87-1/8}$ (i.e., less than 1) and a τ ratio of spacings of $\frac{16}{22-1/2}$ (i.e., also less than 1); and the series feeder with alternating phase (the same crossed conductor feed at the center of the dipoles as in Isbell's Fig. 1).

The only difference is that instead of the very thin or zero-width cylindrical or rod dipoles of Isbell, the "K.O." antenna has another old and well-known type of dipole, the so-called "folded dipole" which Mr. Harris conceded had an operation and current distribution similar to that of the simple dipole rod without the fold (D. Ex. 2, item 7, and D. Ex. 1, item 1; T. 224).

But neither a single word of the Isbell specification nor a single claim of the Isbell patent excludes such other well-known dipoles.

As for the presence of other antenna elements in the "K.O." array, Dr. Mayes conceded that only three dipoles are needed to constitute a log periodic antenna (T.648) and that often additional elements are added, which do not, however, detract from the existence of the log periodic antenna portion (T. 650, 651).

While plaintiff states on page 14 of its brief that the "K.O." antenna was before the Patent Office, an inspection of P. Ex. 56 will show that this was not before the Patent Office for consideration as possible prior art against the Isbell patent; and, indeed, the Assistant Examiner handling that aspect of the case never even cited the "K.O." antenna. P. Ex. 1, Col. 6, lines 30-36.

Thus an antenna meeting all the limitations of the Isbell claims was in public use more than a year before the Isbell filing date - another statutory bar to the Isbell patent.

THE ISBELL PATENT, EVEN WERE IT VALID, IS NOT INFRINGED BY THE BT STRUCTURES

An invalid patent, of course, cannot be infringed. Even had the Isbell patent been valid, however, the BT DART and COLOR RANGER antennas clearly do not infringe the same.

The whole teaching of the Isbell patent is to locate the dipole elements as nearly coplanar as possible (col. 2, lines 24-28). While the construction thereof, as in Fig. 2, may be made with two tubes, these are physically closely spaced (col. 2, lines 10, 11).

Every single claim is restricted to such substantially coplanar configuration for all the dipoles. For example, claim 1 quoted by plaintiff in the chart between pages 22 and 23 of its brief, is specifically restricted to an "array of substantially coplanar and parallel dipoles". All of the other claims contain similar or equivalent limitations, i.e., claim 6 requires the "dipole elements on each of said conductors" to extend "in opposite directions", and other claims use the term "colinear".

On their face, the BT DART and COLOR RANGER antennas, P. Ex. 10 and 35, have dipole elements spaced in two distinct planes. In fact, this is one of the vitally different constructional and operational features that led the Patent Office to grant the Blonder-Schenfeld patent 3,259,904 covering these different BT antennas over the prior teachings of the Isbell patent itself (D. Ex. 26, col. 4, line 54). (See, also, pages 45-50 of brief of defendant and counterclaimant, Blonder-Tongue Laboratories, Inc., in support of Counts I, II and III of its counterclaim, where the different constructional and operational features of the BT antennas are discussed.)

In the annexed photograph, D. Ex. 24, the structure of Fig. 5 of DuHamel patent 3,079,602, D. Ex. 14, is shown alongside the BT DART antenna, P. Ex. 10. Except for the greater spacing of the two planes of dipoles in the BT DART, the two structures are similarly non coplanar.

Exhibit 10
above

Exhibit 14
below

It was admitted by Dr. Harris, indeed, that the DuHamel structure was not coplanar (T. 196, 197). This was also positively stated by Dr. DuHamel himself (T. 539).

If the DuHamel structure is not "coplanar", then, of course, neither is the BT antenna structure; and the Isbell patent is clearly not infringed.

More than this, Dr. Mayes was forced on cross-examination to admit (T. 625, 626) that if the BT antennas

were modified to make them "coplanar", they would no longer operate properly!

There is thus no infringement of the Isbell patent, even assuming its validity.

THE MAYES AND CARREL PATENT IS INVALID

1. The Purported Invention Was Made by Another.

Dr. Mayes admitted that the only structural difference between the antenna of this patent and that of the Isbell patent is the bending of the dipoles into V-shape, whereupon a higher order frequency operation automatically results :

> "Q Is it not the fact that the structural difference between the antennas of your Mayes and Carrel Patent in suit, Plaintiff's Exhibit 20, and the antenna of the Isbell Patent, Plaintiff's Exhibit 1, is the bending of the straight Isbell dipoles into V's?
>
> "A Yes." (T.650)

But, contrary to plaintiff's assertion on page 19 of its brief that the only proof that Mayes and Carrel did not conceive of this bending of the Isbell dipoles into V's is Exhibit DX-10, Dr. Mayes admitted on cross-examination that the very V construction of the BT COLOR RANGER antenna, P. Ex. 35, with its precise V angles was suggested to him by Mr. Turner of Wright Air Development Center.

"Q Is there an angle suggested by Mr. Turner illustrated by Exhibit No. 35?

"A Exhibit 35 has a particular angle which is the same as that suggested by Mr. Turner." (T. 362-3)

Thus, Mayes and Carrel were not the inventors of the only alleged novelty of this patent.

Since the very angles used in the BT COLOR RANGER V dipoles were admittedly suggested by another, it is probably unnecessary to point out Dr. Mayes' further admission (T. 642-644) that the very angles set forth in his claims were anticipated by the specific teachings of the Carter patent 1,974,-387, D. Ex. 15, more than thirty years ago!

2. Invalidity Residing in Fraud in the Procurement of the Patent.

We reproduce here for the convenience of the Court the statements in our main brief bearing on this issue:

"4. THE PROCURING OF THE MAYES AND CARREL PATENT

"It will be recalled that JFD in its earlier '63 ads had mis-marked its Mayes and Carrel type LPV-11 and other similar antennas with wrong patents, presumably because the Mayes and Carrel patent had not issued.

"It was the Foundation, however, that was prosecuting the Mayes and Carrel patent application (D. Ex. 12, center of cover page).

"During the prosecution of the Mayes and Carrel application, the Examiner (D. Ex. 12, p. 30) took the position that 'V-shaped dipoles' were well-known before this application, there was no invention in modifying the Isbell antenna (as taught in an Isbell IRE paper of May, 1960) to use this old V dipole.

"Counsel for the Foundation thereupon prepared an affidavit (D. Ex. 12, p.31 and 32) in which they had Dr. Mayes (and not Mr. Carrel) swear that he had made the invention before the May, 1960 publication date of this IRE Isbell paper.

"The effect of this was to force the Patent Examiner, who only knew about this May, 1960 paper describing Isbell's work and did not know of prior papers, such as the University of Illinois published reports, to withdraw the Isbell paper as a reference. Without Isbell as a reference, the Patent Examiner had to withdraw 'the rejection on the Isbell reference' (p. 44); and the patent was allowed.

"But the record shows that at the time of execution of this affidavit on May 18, 1964, Dr. Mayes had been thoroughly familiar with prior reports published more than one year before his September 30, 1960, application filing date, which prior reports showed this same Isbell disclosure of the May, 1960 article that had been cited by the Examiner.

"In fact, Mayes had signed the publication, Research Studies on Problems Related to ecm Antennas, Report No. 2 of the Antenna Laboratory of the University of Illinois (D. Ex. 8), March 21, 1959, admittedly disclosing the Isbell antenna disclosure. Mayes also, in his signed disclosure report (D. Ex. 10) describing his alleged invention of this very Mayes and Carrel application, cited the further publication of Isbell 'Log Periodic Dipole Arrays', Antenna Laboratory Technical Report No. 39, June 1, 1959 (also in evidence as D. Ex. 23 and containing the same disclosure as the later IRE article cited by the Patent Examiner.)

"Not only did Mayes know of these Isbell publications more than a year before his application filing date, but counsel for the Foundation were also apprised of the same since they filed the Isbell patent application itself and received the Mayes and Carrel invention disclosure, D. Ex. 10.

"Certainly counsel knew of these earlier publications which Mayes could not have sworn back of to remove Isbell as a reference and which were in existence more than a year before the Mayes and Carrel filing dates. Indeed, Patent Office Rule 131 under which this Mayes affidavit was filed (D. Ex. 12, p. 31) specifically excludes the filing of such an affidavit in these circumstances, the rule reading, in part, as follows:

> 'Rule 131, Affidavit of prior invention to overcome cited patent or publication. (a) When any claim of an application is rejected on reference to a domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing date of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, then the patent or publication cited shall not bar the grant of a patent to the applicant, unless the date of such patent or printed publication be more than one year prior to the date on which the application was filed in this country.' [emphasis added]

"The Foundation's procuring of the Mayes and Carrel patent, in pursuance of its effort to give JFD further ammunition against competition in the market place, was thus effected by an entirely misleading affidavit, either prepared willfully or through gross and wanton neglect, perpetrating a fraud on the Patent Office.

"The significance of that fraudulent affidavit is all the more pointed out by the testimony of Dr. Mayes in this case, admitting that he could not swear back of Isbell's invention, and thus the Mayes and Carrel patent would never have been granted had the Patent Office been properly informed:

> "'Q. Is it not the fact that the structural difference between the antennas of your Mayes and Carrel Patent in suit, Plaintiff's Exhibit 20, and the antenna of

the Isbell Patent, Plaintiff's Exhibit 1, is the bending of the straight Isbell dipoles into V's?

"'A. Yes.

"'Q. Do you agree that the invention of the Isbell Patent, Plaintiff's Exhibit 1, was completed before you and Carrel made the invention of your patent, Plaintiff's Exhibit 20?

"'A. Yes.' (T.650)"

3. Invalidity Because of Improper Reissue.

The law is very clear that reissue patents may only be granted under certain strict conditions:

> "Whenever any patent is, through error without any deceptive intention, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than he had a right to claim in the patent, the Commissioner shall, on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent."

The record here shows that none of those conditions obtained in the present case. To the contrary, though the Foundation had Dr. Mayes and Mr. Carrel sign a reissue oath stating that the original patent was "defective and inoperative",* Dr. Mayes admitted that he knew of nothing in the patent specification that was defective or inoperative (T. 342).

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* D. Ex. 11, pages 8, 9, 10.

Dr. Mayes further stated that he signed this document on the representation of counsel that they sought a broader patent (T. 343).

But the file history (D. Ex. 11, p. 9, lines 16-18) shows that, to the contrary, the reissue was requested to have narrower claims reciting the particular 62° and the 114° angles (see claims 11 through 13 submitted with the petition for reissue).

The record further shows, however, that under the guise of getting such narrower specific claims, the Foundation later added broader claims not specifying these angles (claims 14 through 17); and thus not even supported by the reissue petition itself!

Even had the original Mayes and Carrel patent been valid, the reissue patent in suit is clearly invalid as improperly obtained contrary to law.

THE MAYES AND CARREL PATENT IS NOT INFRINGED, EVEN HAD IT BEEN VALID

Since each of the claims of this patent is also restricted to substantially coplanar or colinear constructions not employed in the BT antennas, as before discussed in connection with the Isbell patent, no infringement exists.

THE ISBELL AND MAYES AND CARREL PATENTS ARE UNENFORCEABLE

As a result of the misrepresentations in the procurement of the Mayes and Carrel patent, above discussed, and in view of the unclean hands and unfair conduct set forth in defendant's brief as to Counts I and II of the Counterclaim, even had the Foundation patents been valid and infringed, they are unenforceable. See cases cited at pages 37-44 of defendant's first brief.

CONCLUSION

Defendant has supported its defenses of invalidity, non-infringement and unenforceability of the Foundation patents.

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Defendant's Reply Brief to Plaintiff's Brief After Trial was sent by First Class Mail this 18th day of March, 1968, to the following:

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