PATENT NOTES FOR ENGINEERS

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By

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PREFACE

PATENT NOTES FOR ENGINEERS is the first volume in the new **Engineering Book Series** published by the RCA REVIEW Department of RCA Laboratories Division.

The **Engineering Book Series** is a logical extension of the publishing activities of RCA REVIEW. Frequently excellent material of great interest and value to engineers becomes available which cannot be fitted into publications already in existence, namely: *RCA REVIEW* (the quarterly technical journal); the **Technical Book Series** (e.g., TELEVISION, Volumes III and IV); the technical INDEX; and various technical pamphlets. Consequently, the need was felt for a book series which could contain either original or reprint material, written by one or several authors, on subjects of general engineering interest but of a less technical nature than the material on major aspects of radio and electronics covered in the **Technical Book Series.**

RCA REVIEW gratefully acknowledges the primary efforts of C. D. Tuska, who prepared the original manuscript, as well as those of other members of the Patent Department who contributed effectively by their careful editing.

While this book was prepared primarily for the use of the Patent Department, Radio Corporation of America, RCA Laboratories Division and for the information of the scientists and engineers of this and other divisions and RCA subsidiary companies, it is felt that the information presented is of sufficient general interest to *all* scientists, engineers, attorneys and others concerned with patent matters to warrant its full publication in this form.

The Manager, RCA REVIEW

RCA Laboratories
Princeton, N. J.
July 22, 1947

PATENT NOTES FOR ENGINEERS

CONTENTS

(Continued on next page)

PATENT NOTES FOR ENGINEERS

INTRODUCTION

THESE Notes represent a serious effort to bridge the technical gap between engineers, research workers and inventors generally, and their patent attorneys. The gap would soon disappear if the undergraduate curriculums in our colleges and universities included an appropriate course in patents. Such a course should be required, or at least offered, in the case of undergraduates who are receiving instruction in the arts in which they may later make inventions. In any event, whether acquired in school or otherwise, those possessed of a knowledge of patents will be better fitted to enter into vocations in which patents play an important part.

The extent of Chapters II and III and the number of citations have concerned the writer, who preferred brevity but concluded that Statutory Invention should be treated at some length for those who might like to view the field through the experienced eyes of our Courts. Readers, who are engaged in work likely to result in inventions, are urged to study carefully Chapters IV, V, VI, and VII. These Chapters offer practical suggestions for protecting inventions prior to the filing of patent applications and thereafter by means of adequate notes, witnessed reduction to practice, exercise of diligence, and appropriate records.

The fundamental patent philosophy of these Notes is best expressed in the words of Mr. Chief Justice John Marshall, who in 1832 said:

> "To promote the progress of useful arts, is the interest and policy of every enlightened government. It entered into the views of the framers of our constitution, and the power 'to promote the progress of science and useful arts, by securing for limited times to authors and inventors, the exclusive right to their respective writings and discoveries,' is among those expressly given to congress. This subject was among the first which followed the organization of our government. It was taken up by the first congress at its second session, and an act was passed authorizing a patent to be issued to the inventor of any useful art, etc. on his petition, 'granting to such petitioner, his heirs, administrators or assigns,

for any term not exceeding fourteen years, the sole and exclusive right and liberty of making, using, and vending to others to be used, the said invention or discovery.' The law further. declares that the patent 'shall be good and available to the grantee or grantees by force of this act to all and every intent and purpose herein contained.' The amendatory act of 1793 contains the same language, and it cannot be doubted that the settled purpose of the United States has ever been, and continues to be, to confer on the authors of useful inventions an exclusive right in their inventions for the time mentioned in their patent. It is the reward stipulated for the advantages derived by the public for the exertions of the individual, and is intended as a stimulus to those exertions. The laws which are passed to give effect to this purpose ought, we think, to be construed in the spirit in which they have been made; and to execute the contract fairly on the part of the United States, where the full benefit has been actually received: if this can be done without transcending the intention of the statute, or countenancing acts which are fraudulent or may prove mischievous. The public yields nothing which it has not agreed to yield; it receives all which it has contracted to receive. The full benefit of the discovery, after its enjoyment by the discoverer for fourteen years, is preserved; and for his exclusive enjoyment of it during that time the public faith is pledged. * * *" Grant v. Raymond, 31 U. S. 218, 241, 242.

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June 23, 1947.

PATENT NOTES FOR ENGINEERS

CHAPTER I

INVENTION IN THE POPULAR SENSE

1.01. *Invention Defined in Popular Sense.*

Patents are granted by the Government to promote the arts by rewarding inventors for their discoveries or inventions. In discussing patents and inventions, it would be helpful to begin by defining invention. Even in a popular sense "invention" seems to be an exceedingly difficult word to define. The dictionary definitions —

> The power of inventing, or conceiving, devising, originating, etc.; inventive skill or ingenuity. Something invented.—(Webster's Collegiate Dictionary—Fifth Edition) or
>
> The act of inventing or discovering through study, experience, etc.; a devising or contriving, especially that which has not before existed.—(Webster's New International Dictionary, Second Edition)

may not meet all of the precise rules of good definitions. The truth of the matter is that the term invention as used in the United States is yet to be defined precisely.

When the word is used in a popular sense as defined in the dictionaries, certain fundamental aspects appear: a mental act, an element of skill, and a requirement of novelty. When statutory invention is discussed in the next chapter, additional requirements will be found. Since invention usually starts with the mental act or conception, it follows that the conceiver (1) can keep his invention secret, (2) can disclose to others by word of mouth or otherwise, or (3) can by writing or by any suitable means make the information or invention available to the public.

1.02. *Unpatented Invention Not Protected.*

If the inventor has no interest in protecting his invention by filing a patent application, he can at first keep it secret. At a later date he can disclose to others in any fashion he desires; he can talk about the invention; he can write about the invention; and he can make the writings public. In brief, he can do as he pleases, for the invention is exclusively his. However, he has not protected the invention; he may soon lose the right to obtain a patent; and he has no assurances that

he will receive due credit for his work.

1. Suppose the inventor elects to keep the secret — some other person may come along even at a later date and, having independently made the same invention, may patent the invention, or may make it public, and receive full credit. The inventor who keeps his own secret can rarely establish that he was the earlier conceiver and there are other consequences. For example, an inventor who first elected to keep his invention secret and later elected to file a patent application, has been denied a patent on the grounds that secrecy and patentability are incompatible and that secrecy keeps the invention from becoming available to the public in due course (Quist v. Ostrom, 106 O.G. 1501).

2. The "popular inventor" may publish his invention and one might think that was sufficient; however, another and independent inventor may file a patent application within a year of the publication date, "swear back of the publication date" under the Rules of Practice of the United States Patent Office, and obtain a patent valid on its face. The holder of that patent can keep the public, including the "popular inventor," from practicing the invention for the period of the patent — for such is the reward. At considerable trouble and expense the "popular inventor" might prove his invention was earlier and that the issued patent was invalid, and thereby obtain for himself and the public the right to use the invention.

3. Then there is the possibility that some dishonest person might appropriate the invention and improperly obtain a patent. Again the patent might be proven invalid provided adequate written records, and witnesses thereto, were available. Nevertheless, it is usually very troublesome and very expensive to prove that a patent is invalid. The best protection is to have a patent application filed promptly, in the name of the first inventor, before publishing a description of the invention.

4. While there are doubtless many other examples of the lack of protection for an inventor who fails to take advantage of the protective character of a patent application, the foregoing suffices to point out the dangers encountered by an independent inventor. There are additional considerations when the inventor is an employee. If an engineer is using the facilities of his employer and is developing an invention at the expense of his employer, the only protection afforded the employer lies in the prompt filing of a patent application. Without the protection of a patent system, there is little incentive for one to spend substantial sums in developing new devices, new methods, new materials, or new systems only to see the new things made available to a competitor who contributes nothing or to a copyist who rushes in to take advantage of the work of another.

A research worker, independent or employed, and activated only by a desire to contribute to the never ending advance and without a thought of gain or personal honor, may fall short of his goal if he fails adequately to protect his invention because by his failure he may let another get a patent and "tax the public" for the use of the invention. A newcomer may obtain a patent because the research worker "slept on his rights."

CHAPTER II

STATUTORY INVENTION

2.01. ***No Definition of Statutory Invention.***

Statutory invention is harder to define than invention in a popular sense, which was considered in the preceding chapter. One may turn to the United States Constitution and to the Federal Statutes, but he will find no definition of invention. If the many decisions of the Courts are examined one finds no acceptable definition, although many of the decisions frankly state the problem.

1. Article I, Section 8 of the Constitution of the United States is as follows:

> "The Congress shall have power * * * to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

Notwithstanding the fact that it is this article which is the basis of the right of the Federal Government to grant patents, one will not find in the article either "patents" or "inventions" or their definitions. The lack of definition of these words in the Constitution is not surprising if it is realized that the Constitution is a framework and is not a detailed plan of our form of Government. Incidentally, the words "inventions" and "discoveries" are generally used synonymously in patent law so that we may read Article I, Section 8 as if it said "discoveries or inventions."

2. Invention is not defined in the Federal Statute (R.S. 4886) which authorizes the granting of patents in the following terms:

> "(U.S.C. Title 35, Sec. 31). Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new and useful improvements thereof, or who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof or more than one year prior to his application, and not in public use or on sale in this country for more than one year prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor." (The period is *two years* instead of *one year* where the application was filed prior to Aug. 5, 1940).

3. The Courts have recognized the difficulty of defining the word "invention" and have struggled with the problem in their deliberations. By way of example, Mr. Justice Brown speaking for the United States Supreme Court in McClain v. Ortmayer, 141 U.S. 419, 426, said: —

> "* * * What shall be construed as invention within the meaning of the patent laws has been made the subject of a great amount of discussion in the authorities, and a large number of cases, particularly in the more recent volumes of reports, turn solely upon the question of novelty. By some, invention is described as the contriving or constructing of that which had not before existed; and by another, giving a construction to the patent law, as "the finding out, contriving, devising or creating something new and useful, which did not exist before, by an operation of the intellect." To say that the act of invention is the production of something new and useful does not solve the difficulty of giving an accurate definition, since the question of what is new as distinguished from that which is a colorable variation of what is old, is usually the very question in issue. To say that it involves an operation of the intellect, is a product of intuition, or of something akin to genius, as distinguished from mere mechanical skill, draws one somewhat nearer to an appreciation of the true distinction, but it does not adequately express the idea. The truth is the word cannot be defined in such manner as to afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty or not. In a given case we may be able to say that there is present invention of a very high order. In another, we can see that there is lacking that impalpable something which distinguishes invention from simple mechanical skill. Courts, adopting fixed principles as a guide, have by a process of exclusion determined that certain variations in old devices do or do not involve invention; but whether the variation relied upon in a particular case is anything more than ordinary mechanical skill is a question which cannot be answered by applying the test of any general definition."

The United States Court of Appeals for the Third Circuit had this to say about defining invention in the case of Pyrene Manufacturing Co. v. Boyce et al (292 F. 480):

> "* * * It is a trite saying that invention defies definition. Yet through long use, the word has acquired certain characteristics which at least give direction to its meaning. Invention is a concept, a thing evolved from the mind. It is not a revelation of something which exists and was unknown, but is the creation of something which did not exist before, possessing the elements of novelty and utility in kind and measure different and greater than what the art might expect from its skilled workers."

4. In two of the text books this is said about invention:—

> "An invention is the result of an inventive act; it consists in (1) a mental operation involving the conception of an idea and (2) a physical operation involving the reduction to practice of the

inventive concept. An invention is the product of original thought; it is a concept, a thing evolved from the mind. It involves the spontaneous conception or "happy thought" of some idea not previously present to the mind of the inventor; it is the creation of something which did not exist before." (Walker on Patents, Deller Edition, Vol. 1, page 110.)

"It has been stated that the inventive act consists of both a mental part and a physical part. The mental part is technically known as "the conception", while the physical part is known as "the reduction to practice." Conception, the mental part of the inventive act, has been defined as the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice." (Patentability and Validity by Caesar and Rivise, published in 1936).

While the foregoing leaves the reader without an acceptable definition of invention, it does give a background for appreciating the following words of Judge Learned Hand:

"Objective tests may be of value vaguely to give us a sense of direction, but the final destination can be only loosely indicated. An invention is a new display of ingenuity beyond the compass of the routineer, and in the end that is all that can be said about it. Courts cannot avoid the duty of divining as best they can what the day to day capacity of the ordinary artisan will produce. This they attempt by looking at the history of the art, the occasion for the invention, its success, its independent repetition at about the same time, and the state of the underlying art, which was a condition upon its appearance at all. Yet, when all is said, there will remain cases when we can only fall back upon such good sense as we may have, and in these we cannot help exposing the inventor to the hazard inherent in hypostatizing such modifications in the existing arts as are within the limited imagination of the journeyman. There comes a point when the question must be resolved by a subjective opinion as to what seems an easy step and what does not. We must try to correct our standard by such objective references as we can, but in the end the judgment will appear, and no doubt be, to a large extent personal and in that sense arbitrary." (Kirsch Mfg. Co. v. Gould Mersereau Co., Inc., 6 F. (2d) 793, 794).

In view of the difficulties, the burden of determining whether or not an invention has been made should be shifted to the patent attorneys. If the patent attorneys have reasonable doubt, they can file a patent application, and thus let the Commissioner of Patents decide. If the Commissioner refuses to grant a patent on the application, an appeal can be taken to the Courts, who in the final analysis determine if a patent should be issued or if an issued patent is valid.

2.02. *Invention Defined Negatively by the Courts.*

Although a concise definition of invention has not been found,

there are a number of definitions of what is not invention. These "negative rules" of the Courts have arisen mainly in connection with appeals from refusals of the Commissioner of Patents to grant patents and in patent infringement suits in which the validity of the patents was an issue. In applying these negative rules one must be extremely cautious, because for almost every negative rule, there are certain exceptions and many of these exceptions involve subtle distinctions.

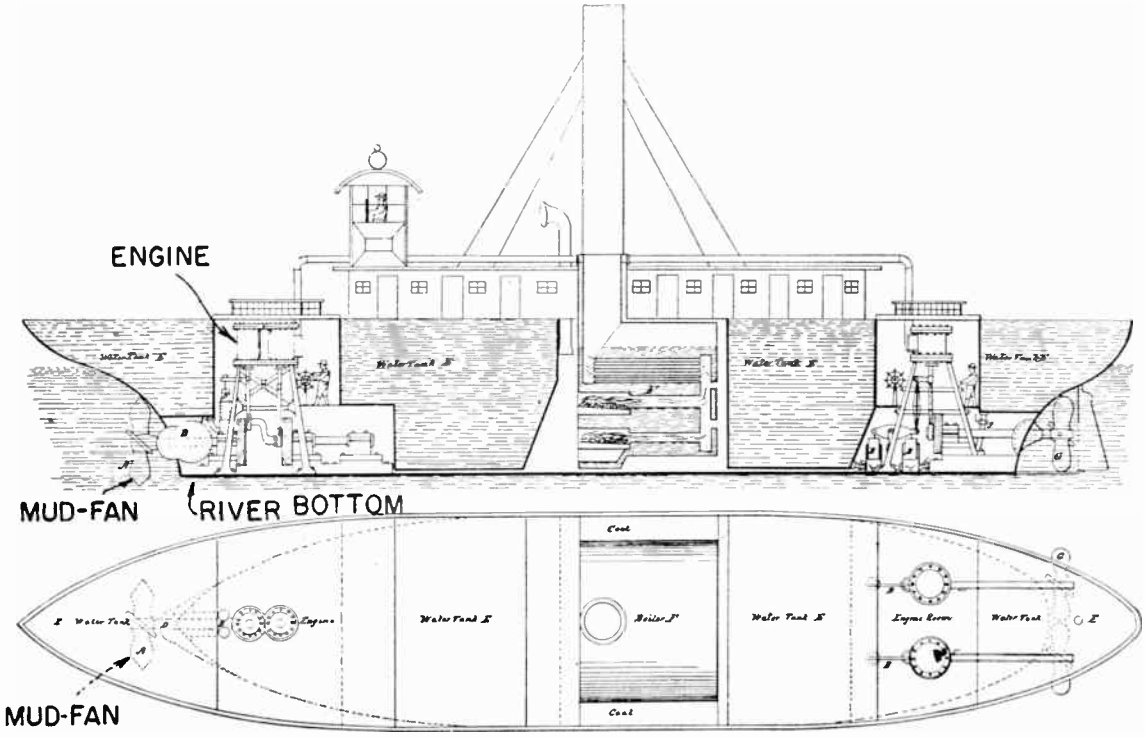
While it may seem undesirable to expand the text by quoting from a large number of decisions an abundance of decisions does seem to be the most practical way to give a background to the questions of what is and what is not invention. For the readers who may be interested in an example of the application of the rules of what is or is not invention, representative decisions respectively supporting some of the rules and the exceptions have been selected.

1. The exercise of ordinary mechanical or electrical engineering skill does not involve invention.

The Brady patent, granted December 17, 1867, was for a dredge-boat with stern driving propellers. The boat included a "mud-fan" which projected from the bow and below the bottom of the boat. The mud-fan was driven by a separate engine. Water was permitted to flow into watertight compartments to sink the boat to the required operating level. The mud-fan was driven to displace the sand and mud on the river bottom and to stir them and mix them with the water so that they were carried off by the current. (See page 8.)

The Court's opinion showed that it was old to dredge by driving a stern propelled boat either stern first or bow first into a bar to stir up the material of the bar. It was old to use watertight compartments to determine the operating draft of a vessel. The opinion also describes an ordinary central paddle-wheel boat which was provided with two revolving conical-shaped screws for cutting and stirring up the river bottom. While there was other prior art, and while there was a doubt whether Brady or General McAlester was the first inventor, the Court decided, among other things, that there was no invention in the Brady patent in view of the prior art. Mr. Justice Bradley delivered the opinion of the Court, which includes the following:

> "The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary head workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development. Each step forward prepares the way for the next, and each is usually taken by spontaneous trials and attempts in a hundred different places. To grant to a single party a monopoly of every slight advance made, except where the exercise of invention some-



BRADY U.S. PATENT 72,360

what above ordinary mechanical or engineering skill is distinctly shown, is unjust in principle and injurious in its consequences.

"The design of the patent laws is to reward those who make some substantial discovery or invention which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor. It is never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. * * *" (Atlantic Works v. Brady, 107 U. S. 192, 199, 200).

2. **The substitution of superior material, which is not new, for the inferior material previously employed, is not invention.**

The Hotchkiss et al. patent issued on July 29, 1841 for an improved method of making knobs of potter's clay. The knob included a cavity, largest at the bottom, in the form of a dovetail or wedge reversed, into which was inserted a shank. The shank was fastened by pouring metal in a fused state into the taper cavity. Hotchkiss et al. sued Greenwood et al. for infringement. On appeal to the U. S. Supreme Court, the question of patentability with regard to the substitution of a superior material, which was not new, for the inferior material previously used, was dismissed by Mr. Justice Nelson, speaking for the majority of the Court, as follows:

"But in the case before us, the knob is not new, nor the metallic shank and spindle, nor the dovetail form of the cavity in the knob, nor the means by which the metallic shank is securely fastened therein. All these were well known, and in common use; and the only thing new is the substitution of a knob of a different material from that heretofore used in connection with this arrangement.

"Now it may very well be, that, by connecting the clay or porcelain knob with the metallic shank in this well-known mode, an article is produced better and cheaper than in the case of the metallic or wood knob; but this does not result from any new mechanical device or contrivance, but from the fact that the material of which the knob is composed happens to be better adapted to the purpose for which it is made. The improvement consists in the superiority of the material, and which is not new, over that previously employed in making the knob.

"But this, of itself, can never be the subject of a patent. No one will pretend that a machine, made, in whole or in part, of materials better adapted to the purpose for which it is used than the materials of which the old one is constructed, and for that reason better and cheaper, can be distinguished from the old one; or, in the sense of the patent law, can entitle the manufacturer to a patent.

"The difference is formal, and destitute of ingenuity or invention. It may afford evidence of judgment and skill in the selection and adaptation of the materials in the manufacture of the instru-

ment for the purposes intended, but nothing more." (Hotchkiss et al. v. Greenwood et al., 52 U. S. 248, 265, 266).

3. **Mere enlargement is not invention.**

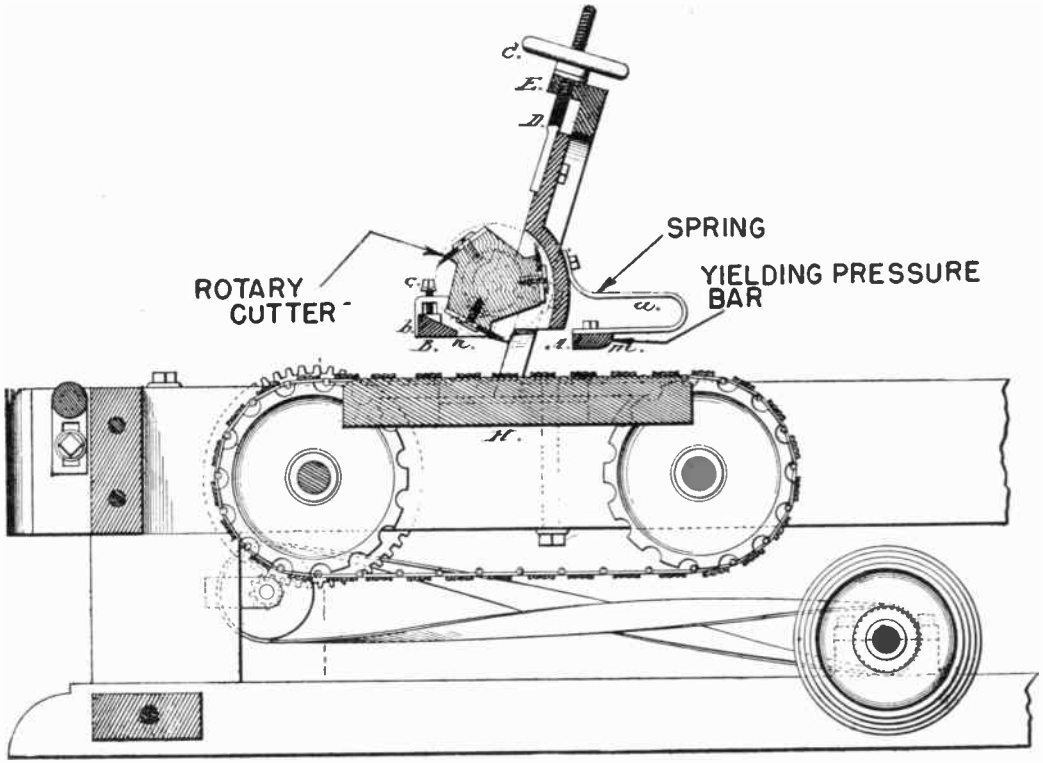
The owners of Woodbury Patent 138,462 for an improvement in planing machines sued one Keith for an infringement and among the questions submitted on appeal to the U. S. Supreme Court was this: Does mere enlargement involve invention? The Woodbury patent covered a rotary cutter and a yielding pressure bar arranged to counteract the fluttering or tremor caused by the cutter knives operating on the wood to be planed. The pressure bar was massive and rigid and was mounted on springs. Within reasonable limits the pressure bar accommodated itself to varying irregularities in the surface of the material to be planed.

The defendant proved that an Anson machine was built and operated in the manufacture of sash and blinds in 1843, which was earlier than Woodbury's earliest invention date. Mr. Justice Field delivered the opinion of the Court and, with respect to the foregoing question, said:

> "The appellant contends that the Anson machine fails to be an anticipation of the Woodbury invention, because, as they say, it has no solid bed. It plainly has, however, a solid bed, adequate for the purposes for which the machine was intended and used,—for cutting and planing light material, sash, and blinds, and the bed is sufficiently solid for such uses. It may be admitted it would be too weak for general planing work upon boards or plank. It is comparatively a small machine. It would not cease to be the same machine, in principle, if any one or all of its constituents were enlarged or strengthened, so that it might perform heavier work. True, the bed is divided by a slit running longitudinally from one end to the other, but the two parts are arranged so as to constitute one bed, and it is not perceived why, if enlarged, it would not answer all the purposes of the Woodbury machine. Mere enlargement is not invention. The simplest mechanic can make such a modification." (Planing Machine Co. v. Keith, 101 U. S. 479, 490).

4. **Mere change in form produced by mechanical division is not invention.**

Milligan and Higgins Glue Company sued George Upton for alleged infringement of Goddard Reissued Patent 4072 for an improvement in the manufacture of glue. The improvement consisted in breaking the hard, angular flakes of ordinary glue into small uniform grains. The ordinary glue was hard to package and slow to dissolve in water. The improved glue was more quickly soluble, more pleasing in appearance, consequently more merchantable, and brought a higher price. The only claim was to the comminuted glue as a new article of manufacture.



WOODBURY U.S. PATENT 138,462

The suit reached the U. S. Supreme Court on appeal.

The Court's opinion, delivered by Mr. Justice Field, included the following:

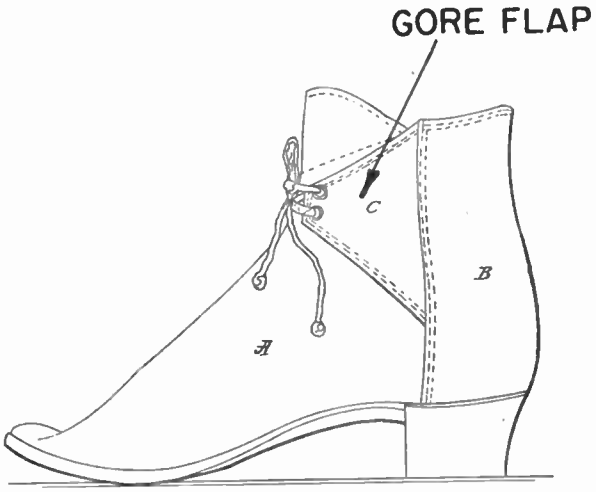
> "A distinction must be observed between a new article of commerce and a new article which, as such, is patentable. Any change in form from a previous condition may render the article new in commerce; as powdered sugar is a different article in commerce from loaf sugar, and ground coffee is a different article in commerce from coffee in the berry. But to render the article new in the sense of the patent law, it must be more or less efficacious, or possess new properties by a combination with other ingredients; not from a mere change of form produced by a mechanical division." (Glue Co. v. Upton, 97 U. S. 3, 6).

5. **Mere changes in form, proportions, degree, or arrangement do not involve invention, especially when no new principles or no new functions are involved.**

(a) Evory and Heston had granted to them U. S. Patent 59,375 on November 6, 1866, for an improvement in boots and shoes. The improvement consisted in a waterproof shoe having on each side an expansion-gore flap. The arrangement made the upper part of the shoe readily expansible to admit the foot. Thereafter, the flaps were folded forward over the instep and were secured by a buckle or suitable lacing.

The evidence showed that several types of watertight shoes had been made with gores or gussets which enlarged to permit the foot to be inserted in the shoe, and with flaps which could be folded and secured. After reviewing the evidence, Mr. Justice Lamar, speaking for the Court, said:

> "We think, therefore, the claim in this case must be regarded as being for a manufactured article, and not for a mode of producing it. This being true, it is difficult to see any patentable device or function in the Evory and Heston shoe. It is a mere aggregation of old parts with only such changes of form or arrangement as a skillful mechanic could readily devise—the natural outgrowth of the development of mechanical skill as distinguished from invention. The changes made by Evory and Heston in the construction of a watertight shoe were changes of degree only, and did not involve any new principle. Their shoe performed no new function. In the construction of it the vamp, the quarters and the expansible gore flap were cut somewhat differently, it is true, from like parts of the shoes constructed under the earlier patents referred to, but they subserved the same purposes.
>
> "It is well settled that not every improvement in an article is patentable. The test is that the improvement must be the product of an original conception. * * * And a mere carrying forward or more extended application of an original idea—a mere improve-



EVORY & HESTON
U.S. PATENT 59,375

ment in degree—is not invention. In Smith v. Nichols, 21 Wall. 112, 118, 119, Mr. Justice Strong, delivering the opinion of the court, said: 'A patentable invention is a mental result. It must be new and shown to be of practical utility. Everything within the domain of the conception belongs to him who conceived it. The machine, process, or product is but the material reflex and embodiment. A new idea may be ingrafted upon an old invention, be distinct from the conception which preceded it, and be an improvement. In such case it is patentable. The prior patentee cannot use it without the consent of the improver, and the latter cannot use the original invention without the consent of the former. But a mere carrying forward or new or more extended application of the original thought, a change only in form, proportions or degree, the substitution of equivalents, doing substantially the same thing in the same way, by substantially the same means, with better results, is not such invention as will sustain a patent. These rules apply alike, whether what preceded was covered by a patent or rested only in public knowledge and use. In neither case can there be an invasion of such domain and an appropriation of anything found there. In one case everything belongs to the prior patentee; in the other, to the public at large.'

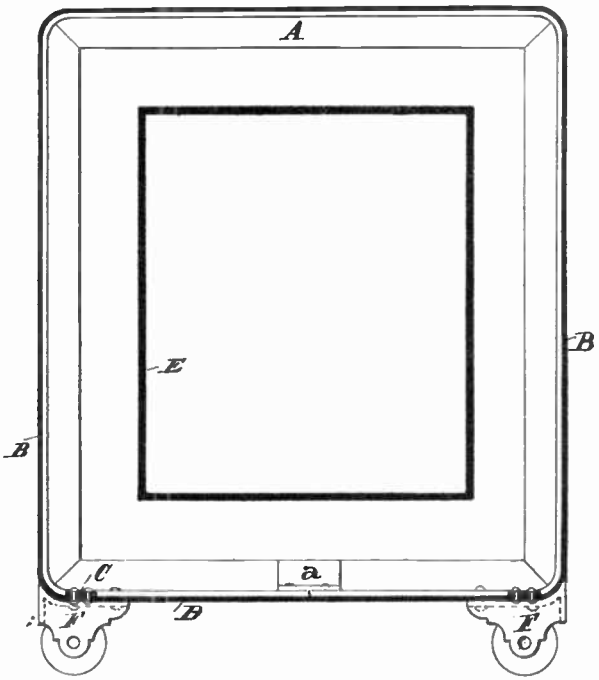
"Neither is it invention to combine old devices into a new article without producing any new mode of operation. * * *

"In the recent case of Hill v. Wooster, decided January 13 of this year, 132 U. S. 693, 700, it is said; 'This court, however, has repeatedly held that, under the Constitution and the acts of Congress, a person, to be entitled to a patent, must have invented or discovered some new and useful art, machine, manufacture or composition of matter, or some new and useful improvement thereof, and that "it is not enough that a thing shall be new, in the sense that in the shape or form in which it is produced it shall not have been before known, and that it shall be useful, but it must, under the Constitution and the statute, amount to an invention or discovery;" ' citing a long line of authorities.

"We are of the opinion that the patent in suit does not meet the requirements of the rules deduced from the decisions to which we have referred. We do not think there is any patentable invention in it; but, on the contrary, that it is merely a carrying forward of the original idea of the earlier patents on the same subject—simply a change in form and arrangement of the constituent parts of the shoe, or an improvement in degree only." (Burt v. Evory, 133 U. S. 349, 358, 359).

(b) Moses Mosler's U. S. Patents, 273,585 granted March 6, 1883 and 281,640 granted July 17, 1883, related to improvements in fireproof safes and included claims to a particular safe having round corners. All of the features of the safe, except the round corners, were found to be old. On that point Mr. Justice Blatchford, who delivered the opinion of the Court, said:

"* * * that, although the patentee was the first to employ the



MOSLER U.S. PATENT 273,585

combination claimed in the manufacture of round-cornered safes, the change from square-cornered safes was only a change in form; and that the combination was nothing more than an aggregation. * * *" (Mosler Safe and Lock Co. v. Mosler, 127 U. S. 354, 363).

(c) In declaring Hamline Q. French's U. S. Patent 244,224, which issued on July 12, 1881 for an improvement in "roofs for vaults," invalid, the U. S. Supreme Court, speaking through Mr. Justice Blatchford, said:

"* * * Where the roof-stones are wider, as in the Billaud roof, there need be only a narrow ridge-stone, while where the roof-stones are narrower, as in the patented device, a wider ridge-stone or cap-stone is necessary. In the latter case the cap-stone must rest upon the gable-stones. In the former case it need not do so. But, in each case, the vertical seam into which water could enter is covered, and the structure is held together and locked at the roof, so as to be made enduring by the locking and the weight of the roof. The question is one of degree only, as to the size of the ridge-stone or cap-stone and the corresponding width of the roof-stones. * * *" (French v. Carter, 137 U. S. 239, 245).

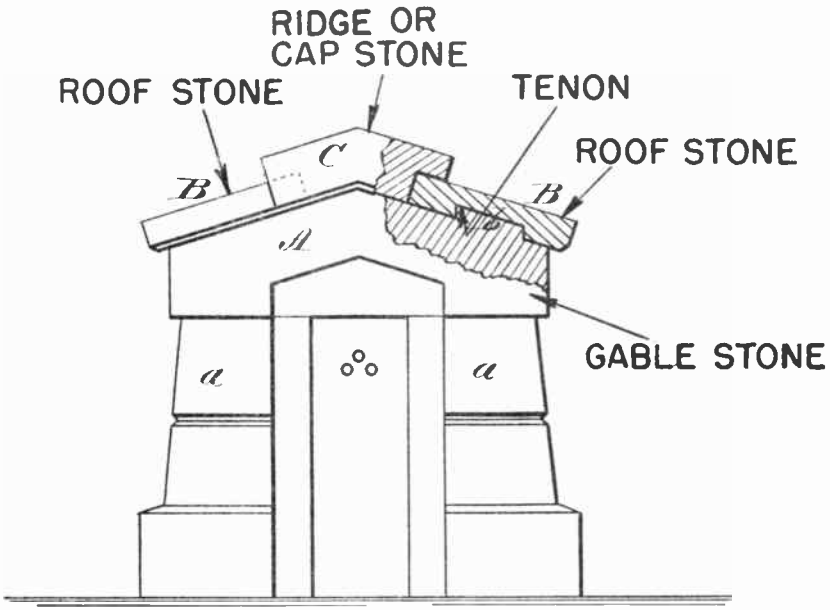
6. **Unification or multiplication of parts ordinarily involves no more than the exercise of mere mechanical skill, and hence is not invention.**

(a) U. S. Patent 206,074 was granted to Philo D. Beckwith on July 16, 1878 for an improvement in stove grates. The patent claimed a circular grate having a thin closed portion, a thick open portion, strengthened by ribs, and with a toothed periphery opposite the open part of the grate. The prior art included grates having the features of the Beckwith grate except that the latter was circular and the former rectangular to fit a rectangular firebox. Moreover, one prior art grate contained all the elements of the Beckwith grate, except that, being adapted for burning coal, it was cast in two pieces, while the Beckwith grate was cast in one piece. (See page 18.)

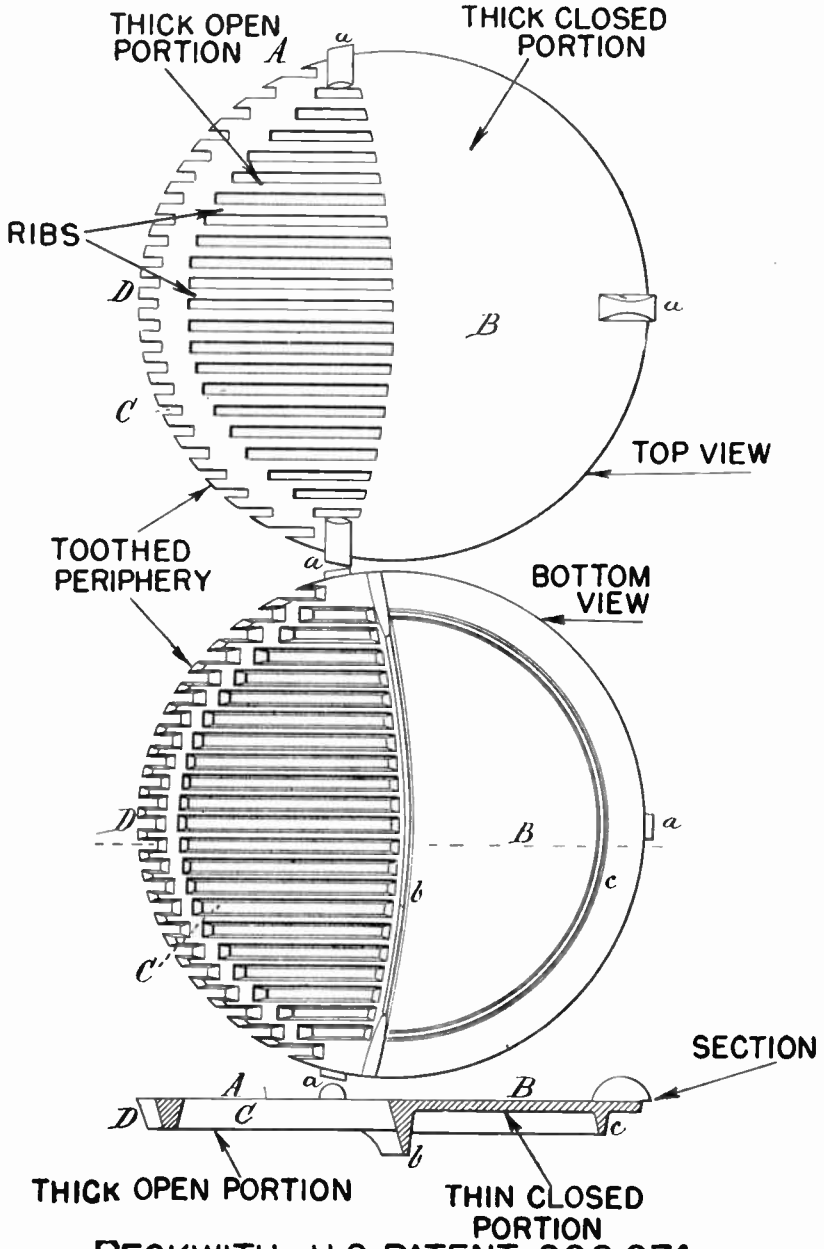
The U. S. Supreme Court, in an opinion delivered by Mr. Justice Jackson, held that:

"* * * As to the third patent (Beckwith 206,074) it is void because the claims in it were clearly anticipated, and because it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together, nor to make the shape of the grate correspond with that of the firepot." (Howard v. Detroit Stove Works, 150 U. S. 164, 170).

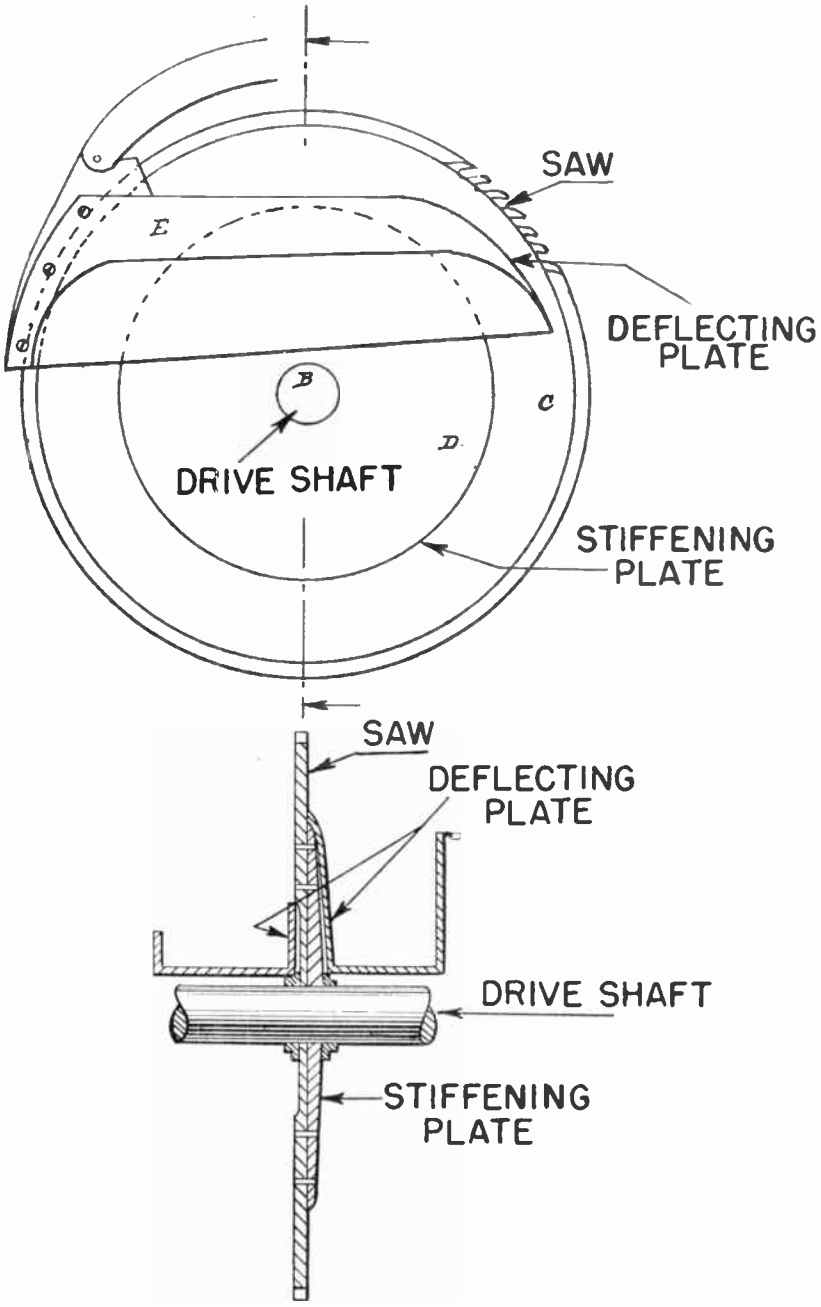
Myers and Eunson U. S. Patent 10,965, granted May 23, 1854 for an improved circular saw, claimed a circular saw with deflecting plates disposed at the sides. (See page 19.) The plates enlarged or expanded the saw kerf, thus preventing the material being sawed from coming in contact with the sides of the saw and binding the edge of



FRENCH U.S. PATENT 244,224



BECKWITH U.S.PATENT 206,074



MYERS & EUNSON U.S. PATENT 10,965

the saw near the teeth. The deflecting plates also made it possible to stiffen the saw by a suitable plate whereby a thinner saw could be used with a saving of the sawed material. In reviewing the decision of the lower Court, the U. S. Supreme Court stated the question of invention as follows:

> "Grant that two such plates are in certain cases better than one used alone, still the question arises whether it involves any invention to add the second plate to a machine already constructed with one plate. Beyond doubt, every operator who had used a machine having one deflecting plate knew full well what the function was that the deflecting plate was designed to accomplish, and the reasons for placing it at the side of the saw are obvious to the understanding of every one who ever witnessed the operation of a circular saw. Ordinary mechanics know how to use bolts, rivets, and screws, and it is obvious that any one knowing how to use such devices would know how to arrange a deflecting plate at one side of a circular saw which had such a device properly arranged on the other side, it being conceded that both deflecting plates are constructed and arranged precisely alike, except that one is placed on one side of the saw and the other on the opposite side. Both are attached to the frame in the same manner; nor is it shown, either in the specifications or drawings, that there is anything peculiar in the means employed for arranging the deflecting plates at the sides of the saw, or in attaching the same to the frame. Both are alike, except that the outer end of the one on the same side as the strengthening plate projects farther from the saw than the inner end, and that the other is rather smaller in diameter, and that the ends project about an equal distance from the saw."

* * * * * * *

and after reviewing a large number of decisions on patentability concluded:

> "For these reasons, we are all of the opinion that the claim of the improvement described as the employment or use of two deflecting plates, one placed on each side of the circular saw, for the purposes set forth in the specification, is void, because it does not constitute a patentable invention." (Dunbar v. Myers, 94 U. S. 187, 195, 200—Quoting Mr. Justice Clifford).

7. Ordinarily no invention is involved in converting from a manual or hand operation to a mechanical operation if there has been no substantial change in the mechanics or method of making the product.

(a) Marchand's U. S. Patent 273,569 was granted on March 6, 1883 for "an improved method of making hydrogen peroxide by cooling the acid solution (sulphuric or nitric, etc.), imparting thereto a continous movement of rotation, as well in vertical as in horizontal planes, such, for example, as imparted by a revolving screw in a receptacle, and adding to the acid solution a binoxide (barium or calcium) in

small quantities, while maintaining the low temperature and the rotary or eddying movements, * * *"

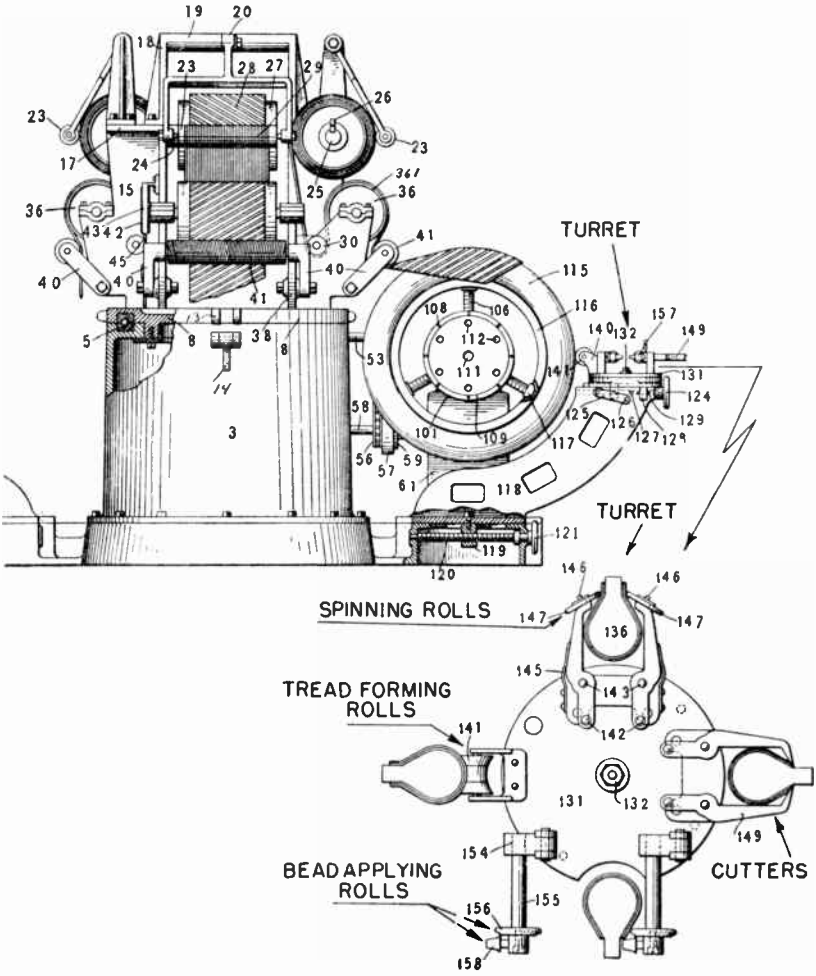
It was admittedly old to make hydrogen peroxide by adding from time to time barium or calcium binoxide, mixed with water, to a dilute acid, refrigerating the solution, and agitating or stirring the solution by hand. The Marchand patent alleged that rapid movement of a mechanical stirrer was more favorable in point of rapidity and yield. The trial Court asked itself the question: "Does it constitute invention to stir, by a well known and simple mechanical device, what was before stirred by hand?". Judge Coxe answered in the negative (23 Blatchford 435). The U. S. Supreme Court concurred in Marchand v. Emken, (132 U. S. 195).

(b) Rubber tires for automobiles were first made by hand on an annular core, which revolved on a shaft. The operator coated the core with a cement and affixed a strip of rubber impregnated fabric, stretching and cutting it so as to cover the circumference of the core. Revolving the core slowly, the operator patted and stretched the fabric, thus pressing and shaping the fabric by his fingers and by hand tools so that it adhered smoothly to the core. Additional layers of fabric were added. The fabric was cut on the bias and the layers arranged with the warp threads extending alternately in opposite directions diagonally over the core. While the tread portion of the tire offered no difficulty, it was hard to prevent wrinkling and bagginess as the material was shaped to the sides of the core. At first a saw-tooth tool was used along the sides of the core to stretch the fabric and thus to avoid wrinkles, and then a spinning roller was spun in a diagonal direction along the fabric down the core side. However, the operators found that by increasing the speed of rotation of the core and by using only the spinning roller, they could secure better results.

Beginning about 1894, a number of patents were issued for tire making machines. In 1909, State applied for a patent on an improved tire making machine. The State machine, in addition to a rotatable core, included a turret with four independent tools: The first was the tread roller, the second the spinning rollers, the third the stitching rolls, and the fourth the bead attaching rolls. The operator rotated the turret to bring into operation the desired tool in the same manner as he had previously used hand tools.

In holding the State Patent 941,962 invalid (See page 22), Mr. Chief Justice Taft, delivering the opinion of the Court, included the following:

> "The change from hand to the use of machinery often involves invention. In the making of tires, it has in fact resulted, because of the use of power, in speed of manufacture and possibly in some



STATE U.S. PATENT 941,962

greater uniformity of the product. But the record does not show that there has been substantial change in the mechanics or method of making. The steps are the same and the succession from one to the other are as in the manual art, and the transfer from hand to power was by the usual appliances and had all been indicated before the State patent." (Thropp's Sons Co. v. Seiberling, 264 U. S. 320, 328).

8. **No invention resides in adding means to make a device movable when, without such means, the device would not be movable.**

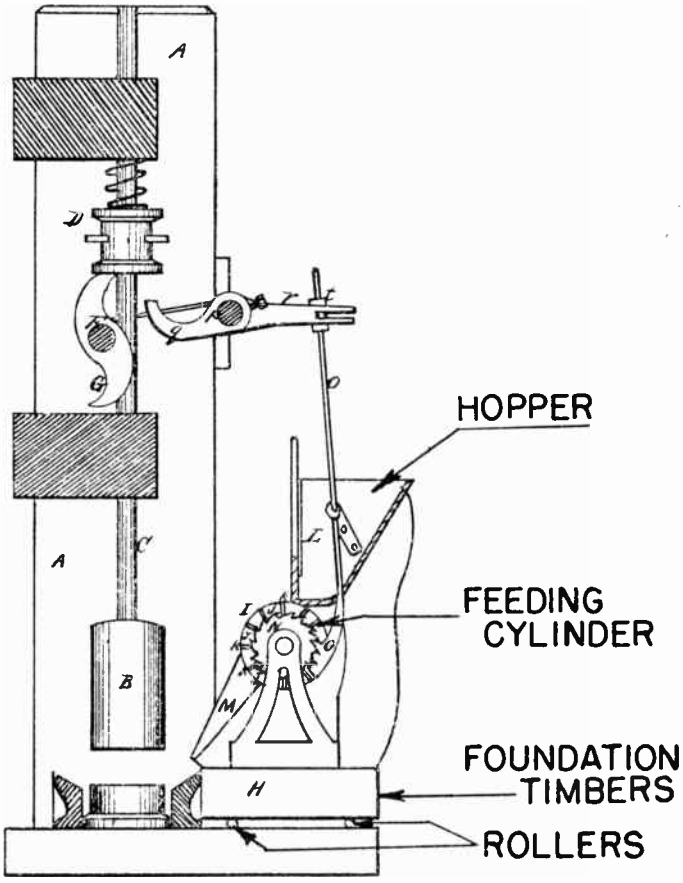
U. S. Patent 140,250 was granted on June 24, 1873 to Cusenbary and Mars for an improvement in ore-stamp feeders (See page 24). The feeding cylinder was mounted on foundation timbers. These timbers were mounted upon rollers, so that the cylinder and frame could be moved about as desired. We need not concern ourselves with the balance of the description, because the decision of the U. S. Supreme Court rested in part on claim 1 which covered the device as described above.

The following is included in the opinion of the Court, which was delivered by Mr. Justice Blatchford:

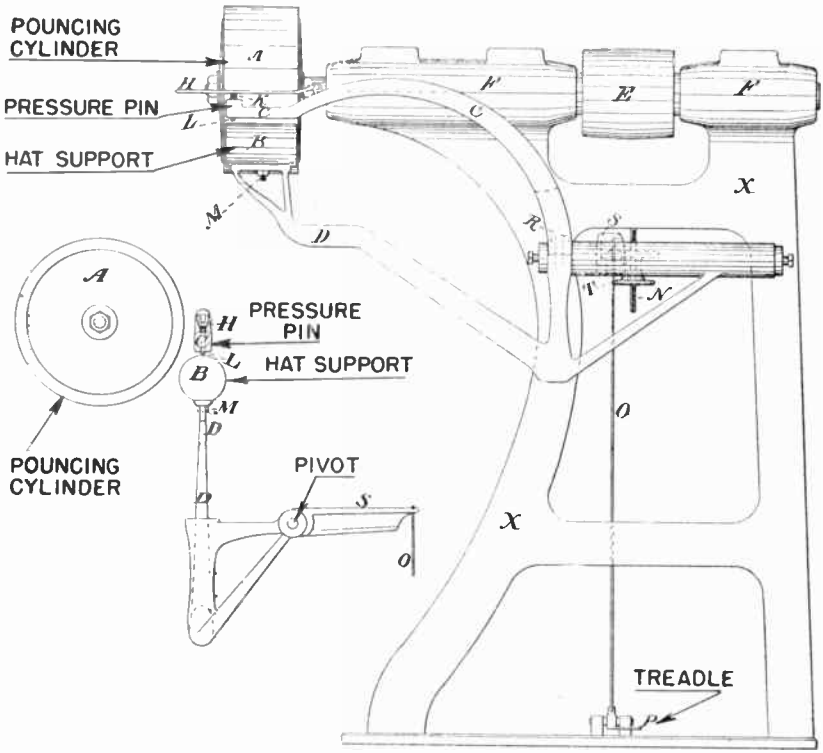
"It is contended, in defence, that claim 1 of the patent is really a claim only for making the timbers movable, by mounting them upon rollers, so as to be able to move the cylinder and frame about as desired, and that this required no exercise of any inventive faculty. This seems to be the purport of the invention, as stated in the specification. It is the movable character of the frame on which the feed cylinder is mounted, so that the cylinder and frame may be readily shifted from place to place, when repairs are desired, that is designated as the invention. When the mill is in operation, the movable feature is not brought into play. It is only when the mill is out of operation that the movable feature is to be used. The first claim does not appear to cover the functions or operation of the feeding cylinder I, as a part of the mill when in operation; and, interpreting it by its own language, as well as by that of the description in the specification, it covers only the mounting upon rollers of the timbers which carry the feeding cylinder. Merely putting rollers under an article, so as to make it movable, when, without the rollers, it would not be movable, does not involve the inventive faculty, and is not patentable. * * * (Hendy v. Miners' Iron Works, 127 U. S. 370, 374, 375).

9. **Omission of parts and their attendant functions, unless the omission causes a new mode of operation of the parts retained, is not invention.**

U. S. Patent 220,889, which was granted to Edmund B. Taylor for improvements in machines for pouncing hats, came before the U. S. Supreme Court in an appeal decided April 3, 1893. Grinding off the



CUSENBARY & MARS
U.S. PATENT 140,250



TAYLOR U.S. PATENT 220,889

rough surface of the wool or fur of which a hat is made, by the use of pumice, is termed "pouncing." While the operation was originally performed by hand, machines came into use about 1866. The Taylor patent, which was an alleged improvement, claimed (See page 25.)

> "The combination of the support for the hat and the self feeding pouncing cylinder, whereby the hat is drawn over the support B in the direction of the pouncing cylinder."

An earlier patent, Eickemeyer No. 97,178, disclosed a machine with a rotating pouncing cylinder, a support for the hat to be pounced, and a feed roller. Taylor had omitted Eickemeyer's feed roller. The operator of the Taylor machine guided the hat and permitted the pouncing cylinder to draw the hat in the direction of the cylinder.

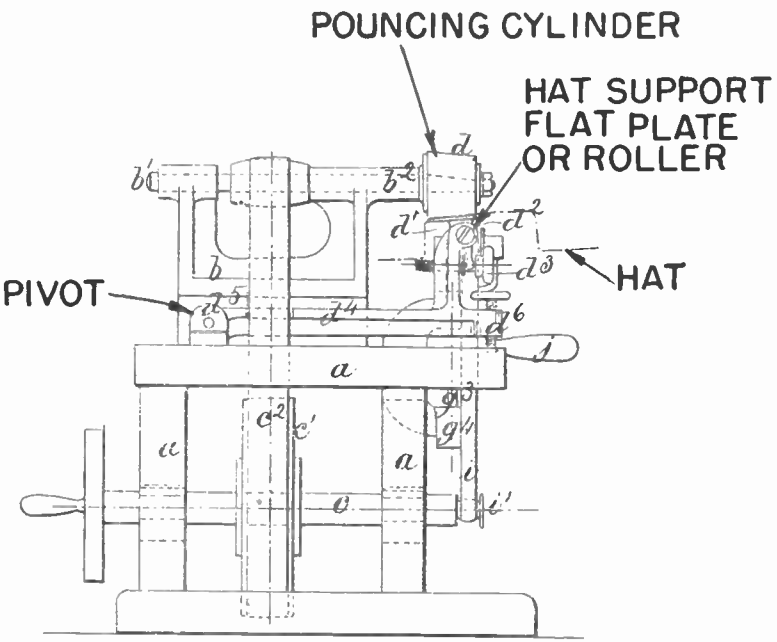
In the opinion of the court, delivered by Mr. Justice Brown, the following is found:

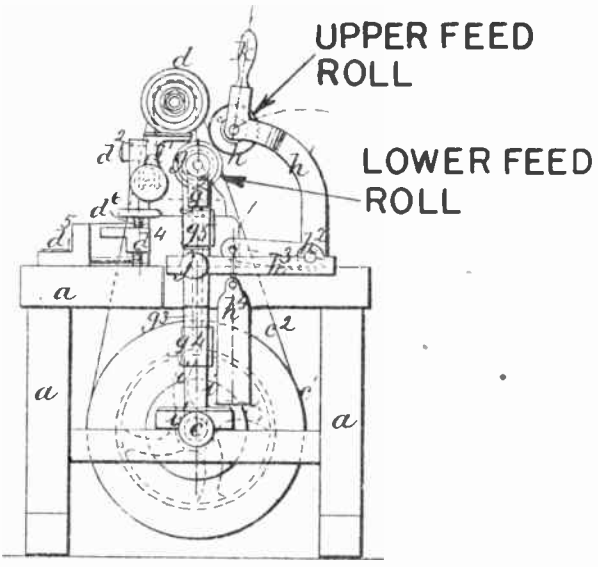
> "On examination of Eickemeyer's device, however, it is difficult to see wherein the feed roll is so far essential to the operation of the machine that it would not perform practically the same function as the Taylor patent, if the feed roll were omitted. There would still be left a support for the hat by and upon which it could be held up to the pouncing cylinder. The feeding of the hat, instead of being accomplished or assisted by the feed roll, would be done entirely by hand as contemplated in the Taylor patent. Indeed, all the significance of the words 'self-feeding' in this connection appears to be that, when the hat is pressed against the pouncing cylinder, it has a tendency to feed in the direction in which the cylinder revolves, and it is difficult to see why in either machine the hat may not be fed in the opposite direction.
>
> "In the Eickemeyer machine it was fed in the opposite direction by the aid of the feeding-roll, and the same thing, it would seem, may be done, by the application of a little more force, in the Taylor patent.
>
> "The case then really resolves itself into the question whether the omission of the feed roll involves invention; and in view of the fact that the hat support and pouncing cylinder of the Eickemeyer patent will accomplish practically the same functions as the Taylor device, though not so perfectly, we hold it does not—in other words, it required no invention to omit the feed roll of the Eickemeyer patent, and to make the subsidiary changes necessary to produce a working device." (Hat Pouncing Machine Co. v. Hedden, 148 U. S. 482, 489).

10. **Duplication of parts, unless the duplication causes a new mode of operation, or produces a new unitary result, is not invention.**

The basis of the foregoing rule can be found from the following quotation from the U. S. Supreme Court's opinion, delivered by Mr. Justice Woods:

> "A glance at the specification and claim of the patent granted to the complainant Slawson shows that the invention described





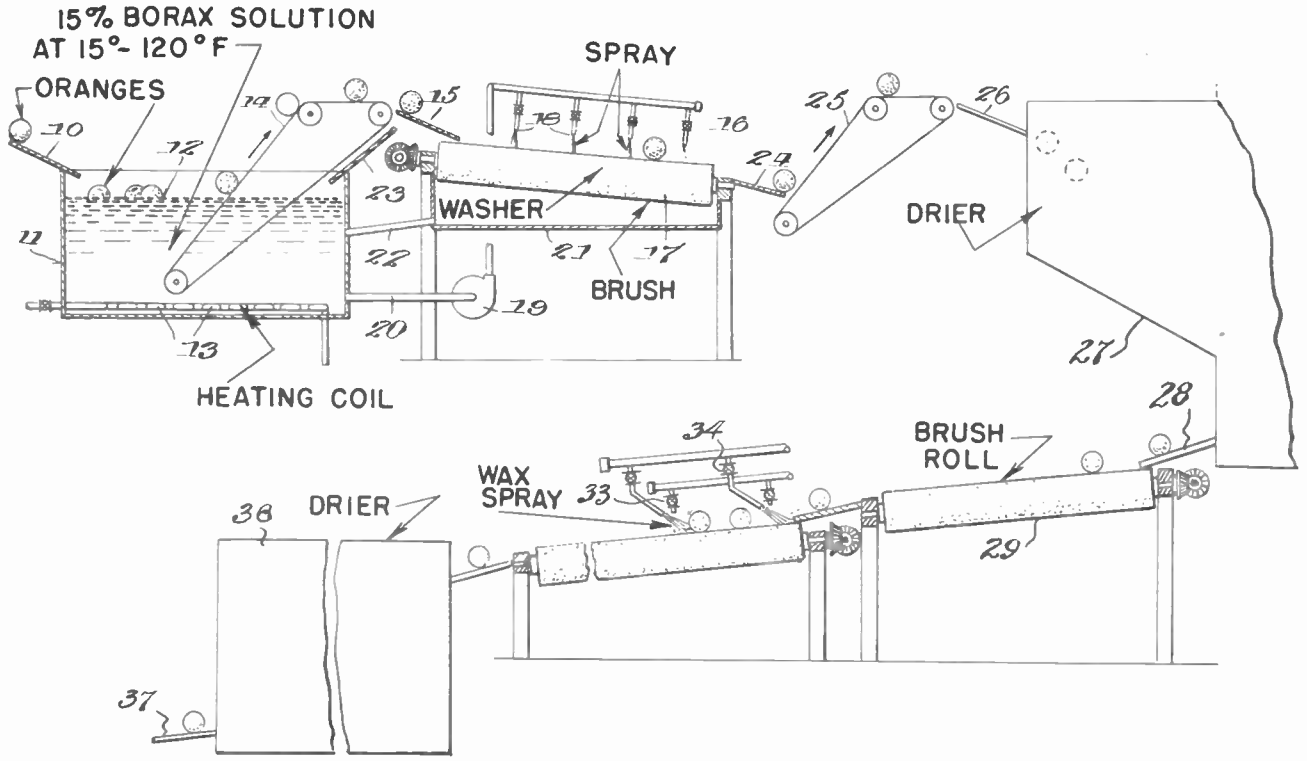
EICKEMEYER U.S. PATENT 97,178

therein consists simply in the placing, in the ordinary fare-box used on street cars and omnibuses, of a glass panel opposite to the glass panel next the driver, usually inserted in such boxes. The patent does not cover the fare-box, it does not cover the insertion in the side of the fare-box next the driver of a glass panel, nor a combination of these two elements. It consists merely in putting an additional pane of glass in the fare-box opposite the side next the driver, so that the passengers can through it see the interior of the box. Such a contrivance does not embody or require invention. It requires no more invention than the placing of an additional pane of glass in a showcase for the display of goods, or the putting of an additional window in a room opposite one already there. It would occur to any mechanic engaged in constructing fare-boxes, that it might be advantageous to insert two glass panes —one next the driver and the other next the interior of the car. But this would not be invention within the meaning of the patent law. * * * It is not a combination of the fare-box having one glass panel with an additional glass panel, but is a mere duplication of the glass panel. Doubtless, a fare-box with two glass panels, arranged as described in the patent, is better than a fare-box with only one. But it is not every improvement that embodies a patentable invention. This rule was fairly illustrated in Stimpson v. Woodman, 10 Wall. 117, in which it was held that where a roller, in a particular combination, had been used before without particular designs on it, and a roller, with designs on it, had been used in another combination, it was not a patentable invention to place designs on the roller in the first combination, and that such a change, with the existing knowledge in the art, involved simply mechanical skill, which is not patentable." (Slawson v. Grand Street R.R. Co., 107 U. S. 649, 653).

11. **Substituting a part for an equivalent part of a machine, process, manufacture, or composition of matter, is not invention unless the substituted part not only performs the function of the part for which it was substituted but also performs another function by another mode of operation.**

Brogden and Trowbridge were granted U. S. Patent 1,529,461 relating to an improvement in the art of preparing fresh fruit for market. The process of preparing the fruit for market comprised: "Subjecting fruit to the action of an aqueous solution of borax, the fluidity, strength and temperature of the treating solution, and the duration of the treatment, being such that exposed rind or skin tissues of the fruit are effectively impregnated with borax and rendered resistant to blue mold decay, while at the same time the fruit is not scalded nor is its freshness or edibility otherwise substantially impaired."

A Bishop patent of 1901 described and claimed a method of treat-



BROGDEN & TROWBRIDGE U.S. PATENT 1,529,461

ing articles of food which consisted in washing them with a solution of boracic acid and then applying a coating of gelatin. Bishop patent described the application of the treatment to fruits and other foods to prevent their usual rapid decay, and the patent disclosed that the bath was a harmless antiseptic which purified, cleansed and killed all germs.

In holding the Brogden and Trowbridge patent invalid, Mr. Justice McReynolds, speaking for the U. S. Supreme Court, said in part:—

> "That boracic (boric) acid—a weak acid—and borax, with an alkaline reaction, inhibit the rapid development of blue mold has long been known. Both are compounds of boron and contain the "boric acid radical." Their antiseptic quality is due to the presence of that element. For present purposes, the two must be regarded as equivalents, and the mere substitution of one for the other would not involve invention or avoid infringement." (American Fruit Growers v. Brogden, 283 U. S. 1, 14).

12. **Change in proportions of a device or machine or manufacture will seldom amount to invention, but it may be invention to change the proportions of the ingredients of a chemical combination or other composition of matter.**

(a) In a suit for infringement of U. S. Patent 325,410, which was granted to Oliver H. Hicks for a package of toilet paper in the form of an oval roll, it was shown that prior to Hicks' invention a small toilet-paper case for an oval form of paper had been patented by one Peacock and another small oval shaped toilet paper package had been sold.

The infringement suit involving the Hicks patent reached the U. S. Supreme Court. The opinion of the Court, delivered by Mr. Justice Brown, included the following:

> "But construing this claim as for an oval or oblong roll, it is clearly anticipated by the patent granted March 6, 1883, to one Peacock, for a toilet-paper case, used for carrying toilet paper, which was wound in an oval form about a spool or core, precisely as described in plaintiff's patent. Apparently it differs from the Hicks roll only in being smaller and having its core hinged to a stiff case, in which the paper for convenience was carried.
>
> "There was also put in evidence by the defendant a device known as the Wheeler Pocket Companion, which was a small package of toilet paper of an oval form, differing from those covered by the Hicks patent only in size, and in the fact that no attention was paid to the relation of the inner to the outer convolutions, and no intent shown that when one convolution was torn off the end of the next would drop into position to be grasped. While neither of these devices is a precise anticipation of the Hicks patent in the manner in which they are used, it is impossible to say that a mere enlargement of these devices to the size contemplated by Hicks

would constitute invention, although by such enlargement the roll became capable of being used in a somewhat different manner." (Morgan Envelope Co. v. Albany Paper Co., 152 U. S. 425, 429, 430).

(b) However, in Hicks v. Kelsey, 18 Wallace 670, 674, it was observed by Mr. Justice Bradley that "in compositions of matter a different ingredient changes the nature of the composition, whereas an iron bar in place of a wooden one, and subserving the same purpose, does not change the identity of a machine."

13. The application of an old process or machine to an analogous subject, with no change in the manner of application, and no new result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not before been contemplated.

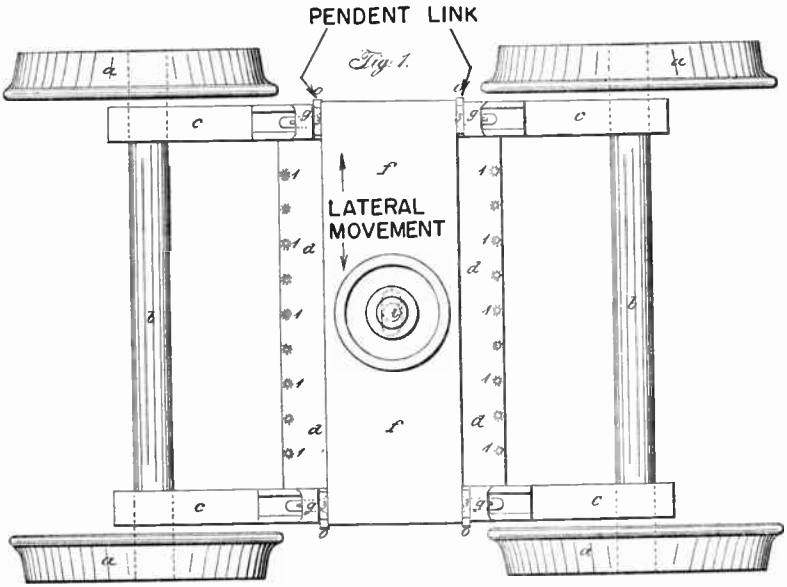
A patent was granted on February 11, 1862 to Alba F. Smith for an improvement in trucks for locomotive engines. The engines were equipped with a truck or pilot wheels provided with pendent links, to allow a lateral movement, so that the driving wheels of the locomotive engine could continue to move correctly on a curved track, in consequence of the lateral movement allowed by the pendent links, the forward part of the engine traveling as a tangent to the curve, while the axles of the drivers remained nearly parallel to the radial line of the curve. (See page 32.)

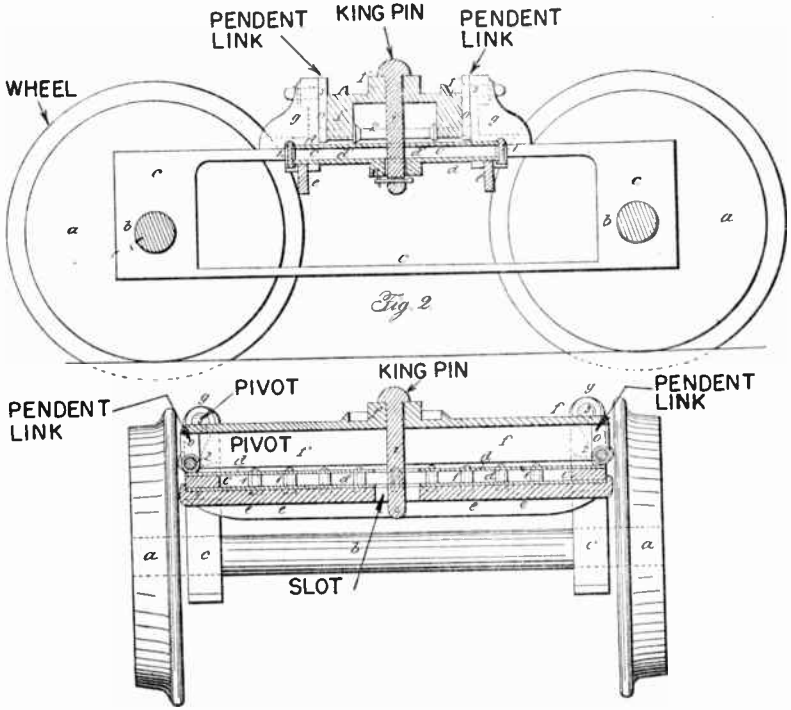
When the Smith patent reached the U. S. Supreme Court, in an infringement suit, the Court reviewed the prior art and concluded that the trucks of railroad cars had, prior to Smith, included all of the elements of Smith's trucks. Mr. Justice Gray, speaking for the Court, held the patent invalid in the following terms:

> "In the case at bar, the old contrivance of a railroad truck, swivelling upon the king-bolt, with transverse slot, and pendent divergent links, already in use under railroad cars, is applied in the old way, without any novelty in the mode of applying it, to the analogous purpose of forming the forward truck of a locomotive engine. This application is not a new invention, and therefore not a valid subject of a patent." (Pennsylvania Railroad Co. v. Locomotive Truck Co., 110 U. S. 490, 498).

14. A mere aggregation of elements or a mere aggregation of separate results is not invention.

U. S. Patent 1,455,141 was granted to Lowell and Dunmore for an improved radio receiving device energized from 60-cycle alternating current. The nature of the invention may be understood by referring to claim 3 which, with elements identified by letters for further consideration, reads as follows: (See page 33.)





SMITH U.S. PATENT 34,377

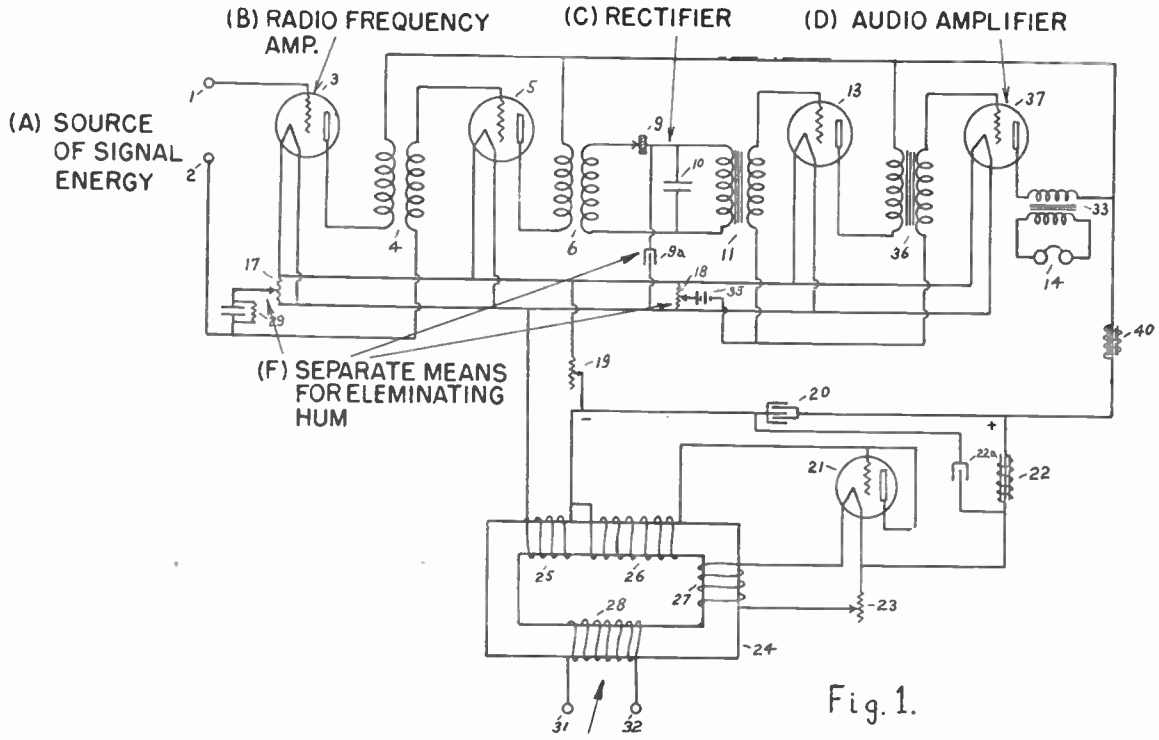


Fig. 1.

LOWELL & DUNMORE U.S. PATENT 1,455,141

"In an apparatus for the reception of radio signals the combination (A) of a source of signal energy, (B) means for amplifying said signal energy at radio frequencies, (C) means for rectifying said energy, (D) means for amplifying said energy at audio frequencies, (E) a source of alternating current for supplying power to said amplifying means and (F) separate means connected to each of said amplifying and rectifying means for eliminating the hum of said alternating current in said apparatus."

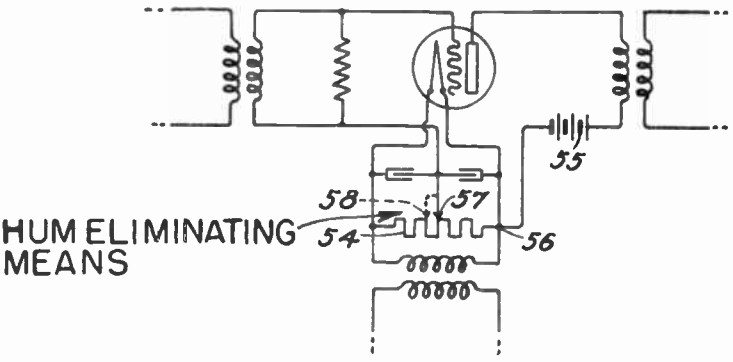
While the District Court held the claim valid and infringed, the U. S. Circuit Court of Appeals, Third Circuit, pointed out that the means lettered A, B, C, D and E were unquestionably old and Lowell and Dunmore did not improve these means but simply used them as they found them. Moreover, the hum elimination means (F) was taught by Heising in his U. S. Patent 1,432,022 and by White in his U. S. Patent 1,195,632 (See page 36.), both patents being earlier than the Lowell and Dunmore invention. Finally, the Court observed that the hum in each of the amplifying and rectifying means was independent and that the hum elimination means in each section of the receiver controlled the hum independently of the other sections and in the same manner as the prior art devices controlled hum.

Mr. Justice Woolley, speaking for the Court, said:

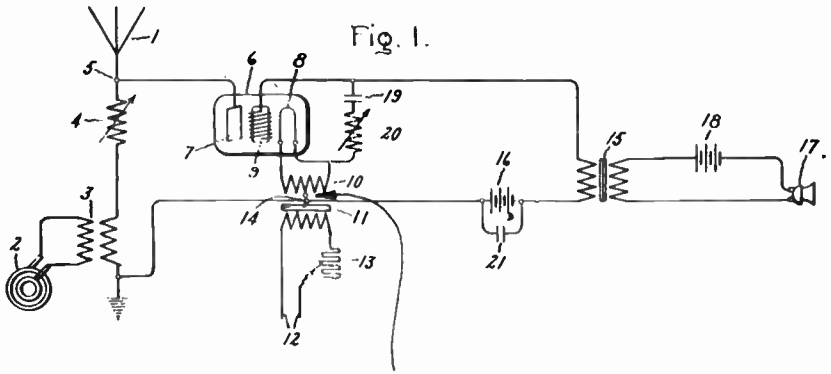
"Therefore, in the final analysis, the claimed invention consists in applying curbed alternating current to the detector section and the audio frequency amplifier section and also to the radio frequency amplifier section in the same way that it had previously been applied to the last named section. Is this invention?

"It might be invention if, when operating, some hum should develop in the first section and pass over to the second section, or if hum in these two sections should invade the third section and be suppressed before it reaches the loud speaker by the three hum eliminators coacting to that end. In other words, there might be invention if the hum eliminators, though separately placed, functioned together on the circuits of all sections in eliminating wandering hum. There is, however, no suggestion of such hum action, and no such inter-relation or coaction of separately placed hum eliminating means is claimed for the invention. Instead of doing anything like this, the plaintiffs themselves claim that the hum is killed 'at the source'—at the mid-point connection—that each eliminator stops hum in the tubes of its own section, or rather, as we look at it, each eliminator prevents hum from developing in the tubes with which it alone is connected, leaving nothing for the other eliminators connected with the other sections to do with the tubes of its section or with hum in them. So it appears that each eliminator performs in the apparatus of the combination claim the same function it performed in the device from which it was taken * * *; that is, each does its own work in its own section and is through. The result, in theory at least, is complete hum prevention or elimination in each section by each eliminator. It follows

Fig. 4.



HEISING U.S. PATENT 1,432,022



HUM ELIMINATING MEANS

WHITE U.S. PATENT 1,195,632

that the effect of the operation of all the eliminators is an aggregation of separate results * * *, all alike and all admittedly obtained by prior art means. From the very nature of the circuit connections, the three eliminators act independently of one another * * *. Operating separately yet in conjunction with the other elements of the combination, they evolve no new co-operative function, * * *, and the new result, as claimed, is only that which arises from the well-known operation of each one of the several elements of the combination. * * *" (Radio Corporation of America v. Dubilier Condenser Corp. et al, 12 U. S. P. Q. 466, 469, 470.)

2.03. *Exceptions to "Negative Rules".*

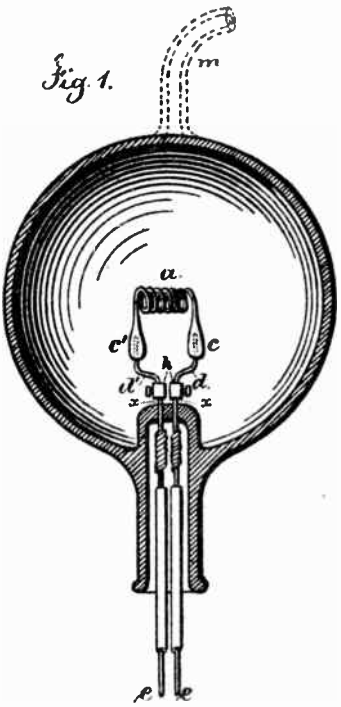
In the application of the so-called "negative rules of invention" numerous exceptions were indicated. At the risk of unduly expanding this section a few of the well established exceptions will be set forth.

1. Perhaps the most famous exception to the rule that mere changes in form, proportions, degree or arrangement do not involve invention, is found in the decision involving the Edison Incandescent Lamp patent. The earlier electric lamps had filaments having a diameter of the order of 1/32nd of an inch. The earlier lamps had a low voltage and high current rating, and did not give much light. The Edison lamp differed from the earlier carbon filaments only in the diameter of the filament being 1/64th inch or less and in the corresponding increase in resistance. The Edison lamp was of high voltage and low current rating. By the reduction of filament diameter the resistance had been increased four times and the radiating surface reduced two times with a resulting increase of the ratio of resistance to radiating surface of eight times. These changes made it much more economical to transmit the power from the generator to the lamp because the transmission line losses were reduced. (See page 38.)

In holding the Edison lamp patent valid, Circuit Judge Lacombe rendered the opinion which included the following:

". . . It is true that carbon burners still break down, that the improvements neither of Edison nor of other inventors have made them absolutely stable, and in a sense it may be said that Edison only made them more stable than they were before, that it is a matter of degree. But the degree of difference between carbons that lasted one hour and carbons that lasted hundreds of hours seems to have been precisely the difference between failure and success, and the combination which first achieved the result 'long desired, sometimes sought and never before attained' is a patentable invention." (Edison Electric Light Co. v. United States Electric Lighting Co., 52 Fed. 300.)

2. The rule that the substitution of superior material, which is not new, for the inferior material previously employed, is not invention



EDISON
U.S. PATENT
223,898

meets a classic exception in Smith v. Goodyear Dental Vulcanite Co. The invention before the Court was claimed in Cummings Reissue Patent No. 1904 for an improvement in artificial gums and palates. Prior to Cummings gutta-percha, porcelain paste, gold, silver, tin, platinum and other materials had been used in the manufacture of plates for false teeth. The patentee formed the plates, to which the teeth had been attached, of hard rubber or vulcanite. The plates were vulcanized by Goodyear's process whereby a one piece structure was formed. (See page 40.)

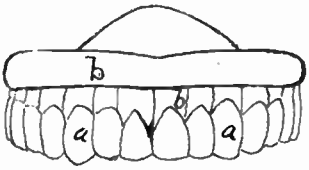
After reviewing Hotchkiss v. Greenwood, 52 U. S. 248, which had held that there was no invention in substituting porcelain knobs for knobs of iron, brass, wood, or glass, Mr. Justice Strong, delivered the United States Supreme Court's majority opinion, including the following:

> "The case (Hotchkiss v. Greenwood) does decide that employing one known material in place of another is not invention, if the result be only greater cheapness and durability of the product. But this is all. It does not decide that no use of one material in lieu of another in the formation of a manufacture can, in any case, amount to invention, or be the subject of a patent. If such a substitution involves a new mode of construction, or develops new uses and properties of the article formed, it may amount to invention. The substitution may be something more than formal. It may require contrivance, in which case the mode of making it would be patentable; or the result may be the production of an analogous but substantially different manufacture. This was intimated very clearly in the case of Hicks v. Kelsey, 18 Wall. 670, where it was said, 'The use of one material instead of another in constructing a known machine is, in most cases, so obviously a matter of mere mechanical judgment, and not of invention, that it cannot be called an invention, unless some new and useful result, as increase of efficiency, or a decided saving in the operation, be obtained.' But where there is some new and useful result, where a machine has acquired new functions and useful properties, it may be patentable as an invention, though the only change made in the machine has been supplanting one of its materials by another. This is true of all combinations, whether they be of materials or processes." (Smith v. Goodyear Dental Vulcanite Company, 93 U.S. 486, 496, 497).

3. The exception to the rule that the omission of parts and their attendant functions is not invention is expressed in an appeal involving a process patent which omitted a step in the prior art process along with the parts used in the omitted step. The appeal reached the U. S. Supreme Court, which rendered a decision sustaining the patent.

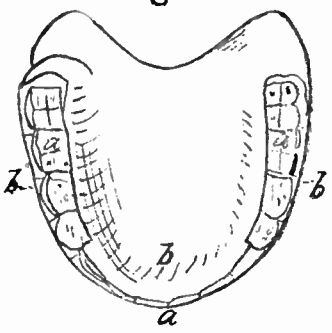
U. S. Patent 168,164 was granted to Alfred B. Lawther for an improved process for treating oleaginous seeds. His process, which

Fig. 1



FRONT

Fig. 2.



SOFFIT

CUMMINGS
REISSUE U.S. PATENT
1904

provided a greater yield of oil and a saving of time and power with respect to prior methods, omitted one of the steps of the prior process for extracting oil. The prior process consisted of crushing the oil seeds between revolving rollers, and completing the imperfect crushing by passing the crushed seeds under heavy stones known as mullers along with a quantity of water. Thereafter the crushed and moistened seeds were taken from the mullers and stirred in a heated steam-jacketed reservoir preparatory to being pressed for extracting the oil.

The difficulty with the prior process was that the seeds were either overground, whereby a pasty mass was formed and oil was absorbed in the mass, or were underground, whereby the yield was reduced because the presses were incapable of extracting from the seed the full amount of the oil. This difficulty was overcome by Lawther's process in which the seeds were conveyed to very powerful revolving rollers so that the oil cells of the seeds were fully crushed and disintegrated. The crushed seeds were then passed directly to the mixing machine to be stirred and moistened and heated. Thereafter the mass was transferred to the presses.

Lawther appealed from an adverse decision of the Circuit Court to the U. S. Supreme Court. The Supreme Court, in reviewing the lower Court's decision to the effect that Lawther's patent could not be sustained as a patent for a process, sustained the patent, and rendered the following opinion concerning the invention:

> "The view thus taken by the court below seems to us open to some criticism. If, as that court says, and we think rightly says, the omission of the muller-stones is a real improvement in the process of obtaining the oil from the flaxseed; if it produces more oil and better oil-cakes, and it is new, and was not used before, why is it not a patentable discovery? And why is not such new method of obtaining the oil and making the oil-cakes a process? There is no new machinery. The rollers are an old instrument, the mixing machinery is old, the hydraulic press is old; the only thing that is new is the mode of using and applying these old instrumentalities. And what is that but a new process? This process consists of a series of acts done to the flaxseed. It is a mode of treatment. The first part of the process is to crush the seed between rollers. Perhaps, as this is the only breaking and crushing of the seed which is done, the rollers are required to be stronger than before. But if so, it is no less a process.
>
> "The evidence shows that, although the crushing of the seed by two horizontal rollers, and then passing it, thus crushed, under the muller-stones, was the old method commonly used, yet that, for several years before Lawther took out his patent, a more thorough crushing had been effected by the employment of four or five strong and heavy rollers arranged on top of one another in a stack, still using the muller-stones to grind and moisten the crushed seed after

it was passed through the rollers. The invention of Lawther consisted in discarding the muller-stones and passing the crushed seed directly into a mixing machine to be stirred, moistened, and heated by jets of steam or water, and then transferring the mass to the presses for the expression of the oil by hydraulic or other power.

"The machinery and apparatus used by Lawther had all been used before. His only discovery was an improvement in the process. He found that, by altogether omitting one of the steps of the former process—the grinding and mixing under the muller-stones—and mixing in the mixing-machine by means of steam, a great improvement was effected in the result.

"Why should it be doubted that such a discovery is patentable? It is highly useful, and it is shown by the evidence to have been the result of careful and long-continued experiments, and the application of much ingenuity.

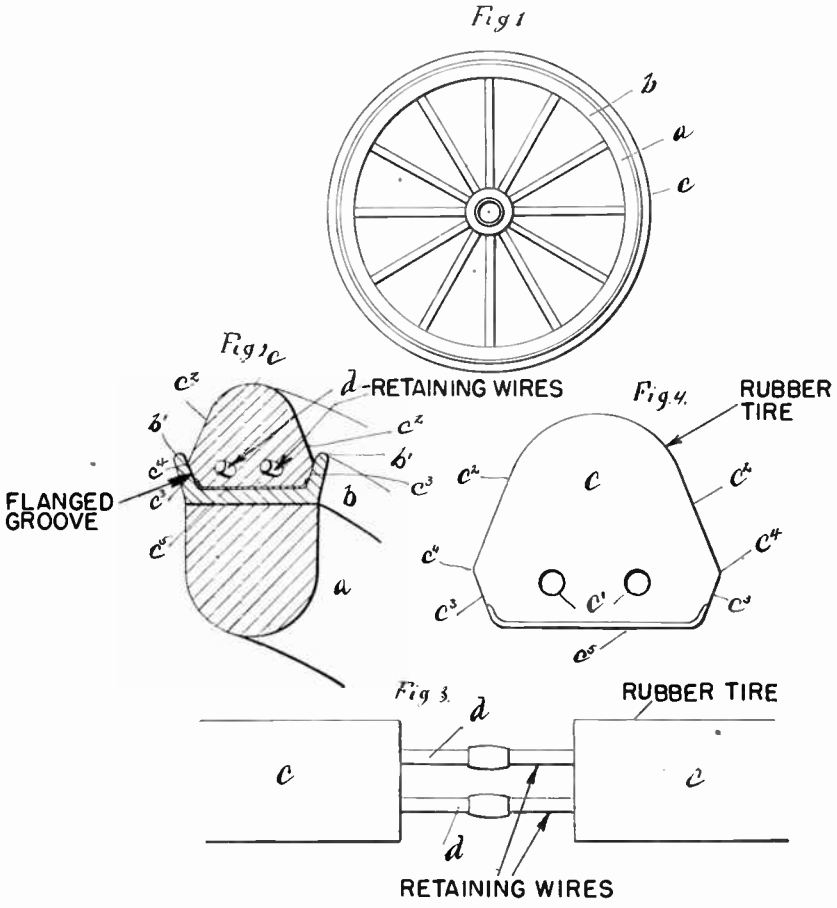
"By the omission of the mullers greater care may be necessary on the part of the workman in carrying on the operations, especially in watching the moistening and mixing process so as to produce the proper moisture and consistency of the mass before subjecting it to hydraulic pressure. But though it be true that the new process does require greater care and even greater skill, on the part of the workman than was formerly required, this does not change its character as being that of a process, nor does it materially affect its utility." (Lawther v. Hamilton, 124 U. S. 1, 6, 7; Opinion delivered by Mr. Justice Bradley.)

2.04. ***Doctrine of commercial success.***

In the immediately preceding paragraphs there appeared some of the rules established by numerous Court decisions holding that specific patents did not involve invention. In considering the problem of whether or not a specific patent involves invention, the Courts often give due weight to evidence of "commercial success." The commercial success test is applied when the other facts leave the question of invention in doubt.

The Courts, in many cases in which the presence of invention was in doubt and in which the evidence indicated that there had been a long existing and an unsatisfied demand for the substance of the invention, and in which the invention had met with outstanding commercial success, have decided that invention was involved.

By way of example, there is the case of the Grant patent involving an improved solid rubber tire, which was secured by means of two retaining wires to a wheel having a broad circumferential flanged groove. The retaining wires passed entirely within the base portion of the tire and in the region bounded by the flanged groove. Thus retained, the tire could creep around the wheel and could respond to lateral blows. In holding that invention was involved, Mr. Justice McKenna, delivering the Supreme Court opinion, said:



GRANT U.S. PATENT 554,675

"That the tire is an invention is fortified by all of the presumptions, the presumption of the patent by that arising from the utility of the tire. And we have said that the utility of a device may be attested by the litigation over it, as litigation 'shows and measures the existence of the public demand for its use.' * * * We have shown the litigation to which the Grant tire has been subjected."

"We have taken for granted in our discussion that the Grant tire immediately established and has ever since maintained its supremacy over all other rubber tires and has been commercially successful while they have been failures. The assumption is justified by the concession of counsel." (Diamond Rubber Co. v. Consolidated Tire Co., 220 U.S. 428, 441).

While the weight of commercial success has been a factor in many cases, it is clear that certain essential facts must be present and that the Courts will not otherwise apply the doctrine. For example, in the famous sound picture case involving the so-called "flywheel" patent of Vogt et al, Mr. Justice Stone, speaking for the U. S. Supreme Court, offered the following comment about commercial success:

"The court below, attributing the rapid development of the sound motion picture industry to the invention in the patent in suit, thought, as respondent earnestly argues here, that its utility and commercial success must be accepted as convincing evidence of invention. But we think that want of invention would have to be far more doubtful than it is to be aided by evidence of commercial success, indicating that it brought realization of a long-felt want. * * * Moreover, the record fails to show that there was any long-felt or generally recognized want in the motion picture industry for the device defined by the flywheel claims, or that the use of sound motion pictures was delayed by the inability of those skilled in the art to add a flywheel to the apparatus in order to give the desired uniformity of motion to linear phonograms. * * * There was no public demand for sound motion pictures before 1926, when the disc system of the Western Electric Company was first publicly used in conjunction with moving pictures. Before change to the photographic film system could be accomplished, it was necessary to await the development of numerous electrical devices not embraced in the present claims. Among them were adequate amplifiers, loud speakers and microphones. Progress in the perfection of these appliances was achieved rapidly, after the public acceptance of the sound picture in 1926, through the efforts of many independent workers in the field. When the need arose for a mechanism suitable to move film records with such speed-constancy as to reproduce the sound successfully, it was forthcoming. Only the skill of the art was required to adapt the flywheel device to familiar types of mechanism to secure the desired result." (Altoona Publix Theatres, Inc. v. American Tri-Ergon Corp., et al., 294 U. S. 477, 487, 488.)

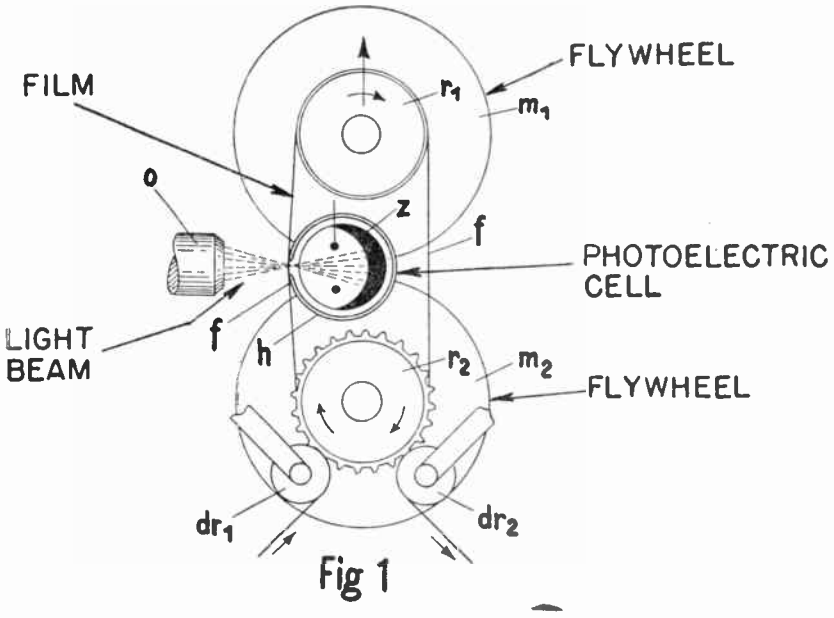


Fig 1

VOGT ET AL. U.S. PATENT 1,713,726

Before going forward to the next phase of the subject, it is emphasized that the foregoing rules must be applied with great care. Not only are there many exceptions but there are fine distinctions. Moreover, not all of the "negative rules of invention" were set down and by no means were all of the exceptions enumerated. Thus this phase of the discussion comes back to the starting point, namely, the difficulty of defining invention either positively or negatively. Probably the truth is that in each case, especially those in which the facts are even slightly different from the preceding cases, the Patent Office and the Courts must in the end use their best judgment, guided by what they consider appropriate rules, to determine the presence or absence of that mysterious and indefinable thing—"patentable invention."

CHAPTER III

NATURE OF STATUTORY INVENTION

3.01. ***Essentials of Statutory Invention.***

In the two preceding chapters the difficulty of defining affirmatively the word "invention" was considered. A few of the U. S. Supreme Court opinions from which certain "negative rules" and exceptions to the rules, may be deduced were also considered. In the present chapter the essentials of statutory invention will be enumerated and discussed. The particular statute (Sec. 4886 R.S.) was quoted in Chapter II. The statute specifies the general conditions under which a patent may be obtained. It is the immediate purpose to examine these conditions. In considering these conditions one by one the reader should not overlook the fact that an applicant for a patent must comply with all of the statutory requirements.

1. The statute starts by specifying "any person, who has invented or discovered * * *". The term "any person" ordinarily means the person who made the invention, and there is no present requirement of citizenship, age, or sex. If two or more persons jointly made the invention, it is necessary that they file a joint application. If in fact an invention was made jointly by several inventors, a sole application by one of the inventors will lead to a void patent. A joint application in the case of an invention made actually by a sole inventor will lead also to a void patent. In general, any application made by one who is not the inventor, or the one designated by statute, will lead to a void patent.

> "The patent law makes it essential to the validity of a patent, that it shall be granted on the application, supported by the oath, of the original and first inventor, (or of his executor or administrator), whether the patent is issued to him or to his assignee. A patent which is not supported by the oath of the inventor, but applied for by one who is not the inventor, is unauthorized by law, and void, and, whether taken out in the name of the applicant or any assignee of his, confers no rights as against the public." Quoting from Opinion of U. S. Supreme Court, delivered by Mr. Justice Gray in Kennedy v. Hazelton, 128 U. S. 667, 672.

Therefore, the person or persons, who made the invention, must make the application for a U. S. patent. The only exceptions are found in a statute* which provides that the legal representative of a deceased or an insane person may file, in accordance with prescribed conditions,

* Sec. 4896 R.S. (U.S.C., title 35, sec. 46).

an application for the invention of the deceased or insane person.

In the present instance, the term "person" does not include corporations, partnerships, companies, and organizations. Since corporations, etc. are impersonal and therefore lack the mental capacity to invent, they cannot be the applicants for a United States Letters Patent. However, the exclusion does not mean that corporations and the like cannot obtain patents by assignment. It is found that many inventors have the mistaken impression that the company or corporation in which they are employed can file applications for patents for their inventions. While the laws of some foreign countries permit corporations, importers, and others to file patent applications,† the United States requires that the inventor or inventors must file their application for letters patent.

2. An invention or discovery must be "new and useful" to be patentable. The word "new" is used in a statutory sense which is somewhat different from the dictionary meaning. For example, while an invention must be new in the sense of "not formerly known", it will be found that mere prior knowledge or use of an invention in a foreign country will ordinarily not defeat the claim of a domestic inventor who made the invention independently of the foreign knowledge or use. If the foreign use was described in a foreign patent or in a foreign publication prior to the invention of a domestic inventor, the patent of the domestic inventor may be declared invalid. Generally speaking, to obtain a valid U. S. Letters Patent the inventor must bring into existence or must discover that which was not known in this country or published, prior to his invention. Other qualifications with respect to novelty will develop subsequently.

The term "useful" in a patent sense means that the invention must be operable or capable of producing a result. The result may be imperfect and therefore may be subject to considerable improvement, or the results may not lead to commercial success. Nevertheless such results are held to be evidence of sufficiently useful inventions in a patent sense. However, in some cases the usefulness of an invention may lie in the commission of a fraud, or in the performance of a lottery, or in the corruption of the public morals, and in such cases the inventions have been held to lack utility in the patentable sense. If an invention has a "good function" and an "evil function", the good function is usually considered sufficient. Since a complete discussion of utility with respect to good and bad functions would lead one far afield, the reader may conclude that utility is not negatived because the invention falls far short of perfection, provided the results

† England—Statute of Monopolies (21 Jac. 1, Ch. 3).

prove advantageous in the ordinary pursuits of life. The patent standard of usefulness is probably far below a critical engineering standard of utility.

While the invention must possess utility, it must also possess novelty to be patentable. J. B. Blair's U. S. Patent 66938 was for an eraser for lead-pencils. The eraser consisted of a piece of rubber of suitable shape. The rubber included an aperture slightly smaller than the pencil so that the inherent elasticity of the rubber held it on the pencil. In declaring the patent invalid the Court pointed out that rubber erasers were old and that the clinging effect of a small aperture in rubber on a larger insert was known. The Chief Justice in rendering the opinion of the Supreme Court said: (See page 50.)

> "An idea of itself is not patentable, but a new device by which it may be made practically useful is. The idea of this patentee was a good one, but his device to give it effect, though useful, was not new. Consequently he took nothing by his patent." (Rubber-Tip Pencil Company v. Howard, 87 U. S. 498, 507.)

3. The third requirement of invention refers to the fields or subject matter of invention in the following terms: (a) art, (b) machine, (c) manufacture, or (d) composition of matter. These terms are defined differently in the decisions of the Courts than in the dictionary.

(a) "Art" is used synonymously with "science" and to include methods, modes of treatment, and processes, and in turn these terms are used in their broadest sense. For example, quoting Mr. Justice Bradley:

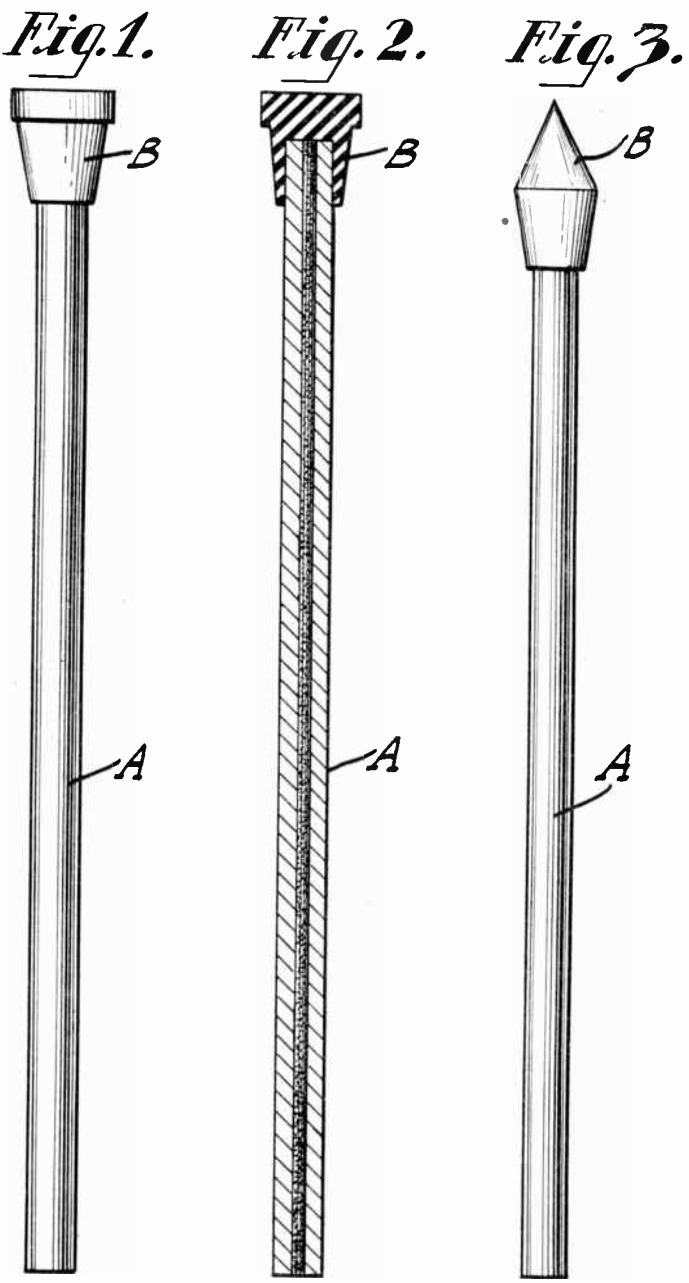
> "A process is a mode of treatment of certain materials to produce a given result. It is an act, or series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful, it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art." (Cochrane v. Deener, 94 U. S. 780, 788.)

(b) "Machine" was defined by the U. S. Supreme Court in 1853 in the following language:

> "The term machine includes every mechanical device or combination of mechanical powers and devices to perform some function and to produce a certain effect or result." (Quoting Mr. Justice Grier in Corning et al v. Burden, 56 U. S. 252, 267.)

(c) "Manufacture" is used in the broad sense of anything made by the hand of man or by a machine directed by man. Not every "manufacture" or "article of manufacture"—for these terms are used synonymously—is patentable:

> "But to render the article new in the sense of the patent law, it must be more or less efficacious, or possess new properties by com-



BLAIR U.S. PATENT 66,938

bination with other ingredients. * * *" (Quoting Mr. Justice Field in Glue Co. v. Upton, 97 U. S. 3, 6.)

(d) Composition of matter is the substance or compound resulting from a mechanical mixing of substances or elements, or from chemical reaction or chemical union of two or more elements. Not all compositions of matter are patentable for they, like "manufactures", must pass the usual tests of invention.

For example in upholding the lower Court's instructions to the jury, which held Tyler's patent for a new compound of fusel oil and mineral and earthy oils invalid, Mr. Justice Grier said:

> "The patent states that 'the exact quantity of fusel oil which is necessary to produce the most desirable compound must be determined by experiment.'
>
> "Now a machine which consists of a combination of devices is the subject of invention, and its effects may be calculated a priori, while a discovery of a new substance by means of chemical combinations of known materials is empirical and discovered by experiment. Where a patent is claimed for such a discovery, it should state the component parts of the new manufacture claimed with clearness and precision, and not leave the person attempting to use the discovery to find it out 'by experiment.' The law requires the applicant for a patent-right to deliver a written description of the manner and process of making and compounding his new-discovered compound. The art is new; and therefore persons cannot be presumed to be skilled in it, or to anticipate the result of chemical combinations of elements not in daily use." (Tyler v. Boston, 74 U. S. 327, 330.)

In holding valid Wood's patent of 1836 for bricks and tile made of a mixture of fine anthracite coal and clay, Mr. Chief Justice Taney said:

> "But when the specification of a new composition of matter gives only the names of the substances which are to be mixed together, without stating any relative proportion, undoubtedly it would be the duty of the court to declare the patent to be void. And the same rule would prevail where it was apparent that the proportions were stated ambiguously and vaguely. For in such cases it would be evident, on the face of the specification, that no one could use the invention without first ascertaining by experiment the exact proportion of the different ingredients required to produce the result intended to be obtained. And if the specification before us was liable to either of these objections the patent would be void, and the instruction given by the Circuit Court undoubtedly right.
>
> "But we do not think this degree of vagueness and uncertainty exists. The patentee gives a certain proportion as a general rule; that is, three fourths of a bushel of coal-dust to one thousand bricks. It is true he also states that clay which requires the most burning will require the greatest proportion of coal-dust; and that

> some clay may require one eighth more than the proportions given, and some not more than half a bushel instead of three fourths. The two last-mentioned proportions may, however, be justly considered as exceptions to the rule he has stated; and as applicable to those cases only where the clay has some peculiarity, and differs in quality from that ordinarily employed in making bricks. Indeed, in most compositions of matter, some small difference in the proportions must occasionally be required, since the ingredients proposed to be compounded must sometimes be in some degree superior or inferior to those most commonly used." (Wood v. Underhill et al., 46 U. S. 1, 5.)

(e) The statute continues with the words—"or any new and useful improvements thereof". The words "new and useful" have the same meaning here as attributed to them in Section 2 of the present chapter. An improvement is the betterment of that which came before. The improvement may be the result of an addition, or a subtraction, or substitution, or a modification of the prior art. A mere improvement, possessed of both novelty and utility, is not the only requirement of statutory invention; the improvement must also be an invention or a discovery to be patentable.

As a practical matter almost all of our present day patents relate to improvements. It is difficult to identify any invention of recent times which is not an improvement of some earlier invention. By way of discussion, one may go back to the year 1837 and consider Samuel F. B. Morse's invention of the telegraph. The Morse telegraph was undoubtedly a pioneer invention in one sense but viewed as a forward step in the very old art of communication by signalling, the Morse telegraph was an improvement. Whether Morse is considered as the creator of a new art or as the improver of an old one, his invention was most meritorious and worthy of the highest praise. The Courts do not hesitate to sustain patents and to praise inventions which are avowed improvements. (Eibel Co. v. Paper Co., 261 U. S. 45, 63.)

4. The present statute includes provisions for plant patents in the following language: "or who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant, etc." Since these notes are directed primarily to engineers, it seems desirable to omit further comment with respect to plant patents and to continue the consideration of the remaining conditions of statutory invention.

3.02. *Other Requisites of Statutory Invention.*

Statutory invention falling within the preliminary requirements outlined in Section 3.01 may be protected provided certain other requisites are met. It is the present purpose to consider, one by one,

these additional conditions or requisites most of which really relate to newness or novelty:

1. The first of the additional requisites is "* * * not known or used by others in this country, before his invention or discovery thereof". By these words the public is protected because if the invention is known or has been used by others in this country prior to the alleged invention, the public should not be deprived, even for a limited time, of the right to continue to use or to profit by earlier knowledge. In brief, the inventor is not entitled to a reward at the expense of the public already possessed of the invention. To grant a patent for an invention previously known in this country would retard rather than "promote the progress of science and useful arts."

It should be noted that mere "use or knowledge" in a foreign country—unknown to an inventor in this country before his invention—will not invalidate a United States Letters Patent. In Mr. Justice Holmes' language * * * "a previous foreign invention does not invalidate a patent granted here if it has not been patented or described in a printed publication." (Alexander Milburn Company v. Davis-Bournonville Company, 270 U. S. 390, 400.) The controlling statute is as follows:

> "Whenever it appears that a patentee, at the time of making his application for the patent, believes himself to be the original and first inventor or discoverer of the thing patented, the same shall not be held void on account of the invention or discovery, or any part thereof, having been known or used in a foreign country, before his invention or discovery thereof, if it had not been patented or described in a printed publication." (4923 R.S. (U.S.C., title 35, sec. 72)).

In commenting on foreign use the Supreme Court said:

> "* * * and it is clear that proof of prior use in a foreign country will not supersede a patent granted here, unless the alleged invention was patented in some foreign country. Proof of such foreign manufacture and use, if known to the applicant for a patent, may be evidence tending to show that he is not the inventor of the alleged new improvement; but it is not sufficient to supersede the patent if he did not borrow his supposed invention from that source, unless the foreign inventor obtained a patent for his improvement, or the same was described in some printed publication." (Roemer v. Simon, 95 U. S. 214, 218, 219.)

However the Court held that Roemer's U. S. Patent No. 56,801 for an improvement in travelling-bags was invalid in view of the testimony of five admittedly credible witnesses that the thing patented had been previously known and used extensively in this country:

> "Competent proof of a prior patent anywhere is entirely wanting, nor is there any satisfactory evidence that the invention was

previously described in any printed publication; but the evidence shows beyond any reasonable doubt that the thing patented was known and used extensively by others in this country before the invention or discovery made by the patentee, as set forth and described in the bill of complaint. Such was the finding of the court below; and the evidence is so full to the point, and is so fully set forth in the record and in the opinion delivered in the Circuit Court, that it is not necessary to reproduce it in the present opinion." (Roemer v. Simon, supra.)

2. The second requisite is expressed in the statute as follows: "and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof or more than one year prior to his application". This condition like the preceding one is for the protection of the public. If the alleged invention has been patented or published before the date of the invention, the public is presumed to have all the essential information and either has (if the invention is not patented) or will have (at the expiration of the prior patent) the right to use that information. But a word of caution—the published information must be clear and concise to anticipate a patent. As in the preceding case one who is not the original inventor is not entitled to a reward at the expense of the public.

The immediate conditions which defeat a patent may be restated at greater length as follows: (a) if the invention has been patented in this country or in any foreign country prior to the instant invention, or (b) if the invention has been patented in this country or in any foreign country more than a year prior to the application for United States Letters Patent or (c) if the invention has been described in a printed publication in this country or in any foreign country prior to the instant invention or (d) if the invention has been described in a printed publication in this country or in any foreign country more than a year prior to the application for United States Letters Patent. The patent issuing on an application claiming an invention made under any one of the four foregoing conditions is void.

As to "patented in this country" it is clear that the United States Patent becomes an effective reference as a patent from the day the patent issues. Moreover, the patent is an effective reference for all it discloses in the specifications and drawings whether or not claimed by the patentee. The writer has found that many engineers study the claims of a patent cited as a reference against a pending application; however it is clear that, if the filing date of the patent is sufficiently early, the patent is a good reference for all it discloses.

Prior to the Supreme Court's decision in Alexander Milburn Company v. Davis Bournonville Company (supra), there was a conflict

between decisions of some of the Circuit Courts of Appeals as to the effect of a patent issuing on a prior application showing but not claiming the invention of the patent in suit: A patent had issued to Whitford on an improvement in welding and cutting apparatus. Whitford filed his application on March 4, 1911 and his patent issued on June 4, 1912. The defense was that Whitford was not the first inventor because Clifford had filed an application on January 31, 1911 and had issued to him on February 6, 1912 a patent which did not claim but included a complete and adequate description of the Whitford invention. The Supreme Court held that Clifford's prior description in his patent application was evidence that Whitford was not the first inventor and that an adequate description in a patent had the same effect from the date of the patent application as any printed publication. (Alexander Milburn Co. v. Davis Bournonville Co., supra.)

With respect to foreign patents, they are good references for what they clearly disclose. (In re Cross, 16 USPQ 10, 11.) The patents of different foreign countries have different effective dates. Some of the foreign patents may have one effective date as a patent and another effective date as a publication. The questions involving the effectiveness of foreign patents are varied and entirely too numerous to be considered within the scope of these notes. The effects of foreign patents as references can be summarized by quoting from Mr. Justice Bradley's opinion in Elizabeth v. Pavement Co., 97 U. S. 126, 130:

> "It would be very difficult to sustain Nicholson's patent if Hosking's stood in his way. But the only evidence of the invention of the latter is derived from an English patent, the specification of which was not enrolled until March, 1850, nearly two years after Nicholson had put his pavement down in its completed form, by way of experiment, in Boston. A foreign patent, or other foreign printed publication describing an invention, is no defence to a suit upon a patent of the United States, unless published anterior to the making of the invention or discovery secured by the latter, provided that the American patentee, at the time of making application for his patent, believed himself to be the first inventor or discoverer of the thing patented. He is obliged to make oath to such belief when he applies for his patent; and it will be presumed that such was his belief, until the contrary is proven. That was the law as it stood when Nicholson obtained his original patent, and it is the law still. * * * Since nothing appears to show that Nicholson had any knowledge of Hosking's invention or patent prior to his application for a patent in March, 1854, and since the evidence is very full to the effect that he had made his invention as early as 1848, the patent of Hosking cannot avail the defence in this suit."

Referring to "printed publications", which negative novelty, it is

proper to describe a printed publication as anything printed and offered for sale or distributed to any part of the public, without any injunction of secrecy. This would not include printed matter not distributed or offered for distribution but it would include printed matter deposited in a public library and available to the public. The invention in question must be anticipated within the printed matter by an adequate description and this may be fulfilled by written matter or drawing or both. The description should be sufficient to teach one, skilled in the art to which it relates, how to practice the invention to be anticipated.

The attitude of the courts is indicated by the following paragraph which is from Mr. Justice Clifford's opinion in Seymour v. Osborne, 78 U. S. 516, 555:

> "Patented inventions cannot be superseded by the mere introduction of a foreign publication of the kind, though of prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement, in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains, to make, construct, and practice the invention to the same practical extent as they would be enabled to do if the information was derived from a prior patent. Mere vague and general representations will not support such a defence, as the knowledge supposed to be derived from the publication must be sufficient to enable those skilled in the art or science to understand the nature and operation of the invention, and to carry it into practical use. Whatever may be the particular circumstances under which the publication takes place, the account published, to be of any effect to support such a defence must be an account of a complete and operative invention capable of being put into practical operation."

3. The third requisite of the statute is set forth in the following language: "and not in public use or on sale in this country for more than one year prior to his application". At the outset foreign use or foreign sale can be dismissed because the expression "in this country" definitely limits the use or sale of the device of the invention to the United States. (Gandy v. Main Belting Co., 143 U.S. 587, 592, 593).

With respect to "public use" it will be found that public use or sale by the inventor or with the consent of the inventor for a period of more than one year (formerly two years) prior to his application for a patent, will defeat the patent because by his consent the inventor has presumably abandoned his invention to the public. U. S. Letters Patent 102,913 was issued on May 10, 1870 to John L. Mason for an improvement in fruit-jars. He sold his patent to Consolidated Fruit-Jar Company. The Company sued one Wright to restrain an alleged infringement. Mason had completed his invention in June 1859 at which time

Fig: 1

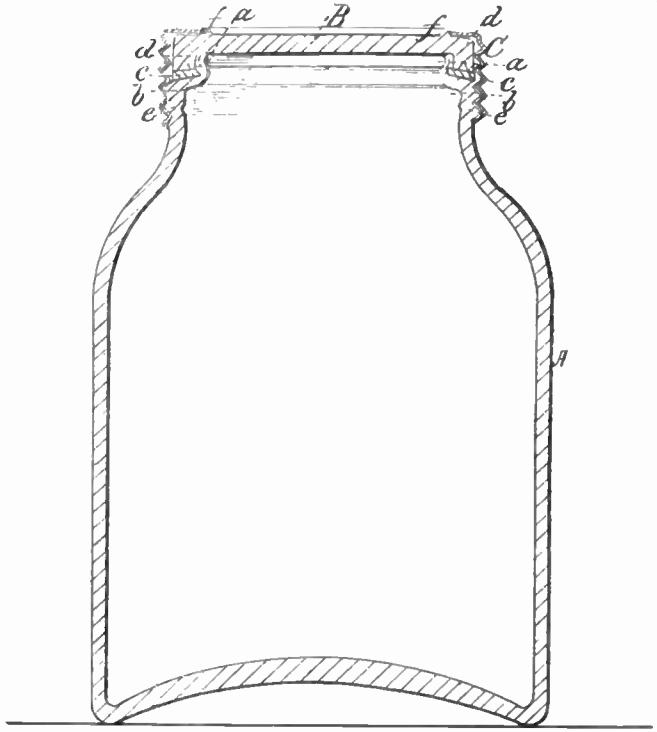
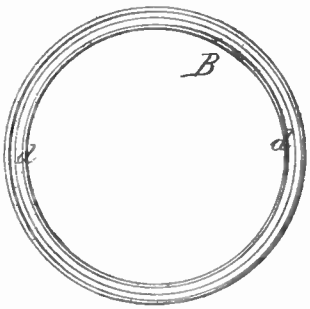


Fig: 2



MASON U.S. PATENT 102,913

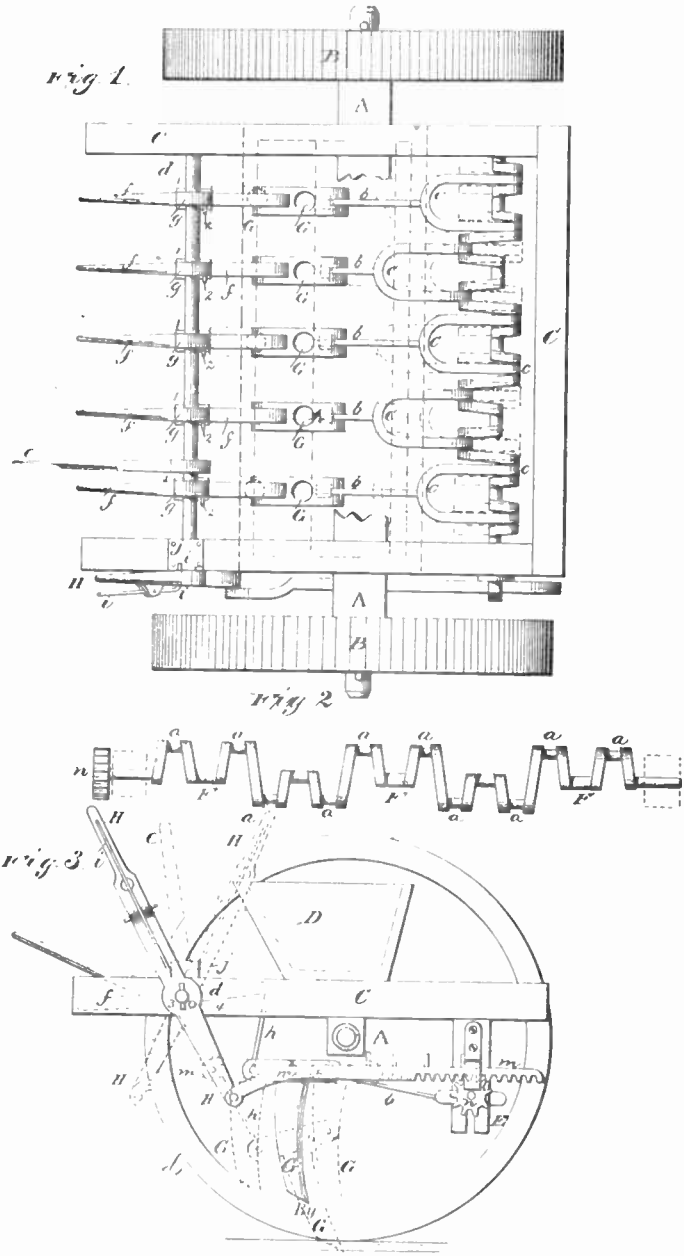
he had at least two dozen jars made. Some the jars he gave away; others he sold to get the money they yielded and to test salability in the market. Mason failed to file a patent application until January 15, 1868 and had no explanation for the inexcusable delay. In holding the Mason patent void, Mr. Justice Swayne, speaking for the U. S. Supreme Court, quoted the following with approval:

> "In Pitts v. Hall, 2 Blatchf. 235, Mr. Justice Nelson said, 'The patentee may forfeit his right to the invention if he constructs it and vends it to others to use, or if he uses it publicly himself in the ordinary way of a public use of a machine at any time prior to two years before he makes his application for a patent. That is, he is not allowed to derive any benefit from the sale or the use of his machine, without forfeiting his right, except within two years prior to the time he makes his application.' * * * The result must always depend upon the purpose and incidents accompanying the act or acts relied upon." (Consolidated Fruit-Jar Co. v. Wright, 94 U. S. 92, 94.)

While the foregoing case covers the situation in which the inventor himself made the sale and thereafter let the statutory period pass without filing his patent application, it is more often found that the device of the invention was put in public use or on sale by others and that the inventor filed his application after the statutory period of public use or sale had passed. In Anderson v. Miller, 129 U. S. 70, the Supreme Court, speaking through Mr. Justice Lamar, said: "* * * It is satisfactorily shown by the evidence in the record that for more than two years prior to the application for the patent in question, the appellees had been manufacturing, at their place of business in Richmond, Virginia, garments identical in pattern with those that are now alleged to infringe appellant's patent." The Court then affirmed the lower Court's dismissal of the bill alleging infringement.

In holding the Davis and Allen Patent Reissue No. 8589 for an improvement in grain drills invalid, the U. S. Supreme Court referred to the testimony of one Powers, who was selling grain drills at Madison, Wisconsin in 1862. He worked out a device to set the shovels of a grain drill to form either single or double rows or ranks, which was the invention of the Davis and Allen Reissue Patent. Powers testified that he used two such devices and that the devices worked perfectly. In holding the Reissue Patent invalid, Mr. Justice Blatchford said:

> "* * * If claim 1 of the reissue is given a construction which includes any arrangement for shifting not substantially using a rotating crank-shaft, it becomes a claim which could not lawfully have been granted in the original patent; and, as a claim in a reissued patent, it is invalid, within the defences set up in the answer, because the application for the reissue was made nearly



DAVIS U.S. REISSUE PATENT 8,589

eleven years after the original patent was granted, and after machines effecting the shifting by other means than a rotating crank-shaft had gone into use subsequently to the date of the original patent, and no sufficient excuse is given for the laches and delay. The same remarks apply to claim 3 of the reissue." (Brown & Others v. Davis & Others, 116 U. S. 237, 251.)

While public use or sale in this country will defeat a patent issued on an application filed after the statutory period, the Courts have recognized that there are occasions when the successful testing of an invention may be such that some public use is required. A good example is found in inventions relating to roads. Samuel Nicholson invented an improvement in wooden pavements and as an experiment he arranged to put down in 1854 a section of the improved road on a street in Boston. The Nicholson road was exposed to public view and was travelled for several years. The road proved successful and Nicholson obtained a patent therefor. The Supreme Court held that the experimental road was not a "public use or a sale of the invention" in the following portion of its opinion:

"If, now, we apply the same principles to this case, the analogy will be seen at once. Nicholson wished to experiment on his pavement. He believed it to be a good thing, but he was not sure; and the only mode in which he could test it was to place a specimen of it in a public roadway. He did this at his own expense, and with the consent of the owners of the road. Durability was one of the qualities to be attained. He wanted to know whether his pavement would stand, and whether it could resist decay. Its character for durability could not be ascertained without its being subjected to use for a considerable time. He subjected it to such use, in good faith, for the simple purpose of ascertaining whether it was what he claimed it to be. Did he do any thing more than the inventor of the supposed machine might do, in testing his invention? The public had the incidental use of the pavement, it is true; but was the invention in public use, within the meaning of the statute? We think not. The proprietors of the road alone used the invention, and used it at Nicholson's request, by way of experiment. The only way in which they could use it was by allowing the public to pass over the pavement.

"Had the city of Boston, or other parties, used the invention, by laying down the pavement in other streets and places, with Nicholson's consent and allowance, then, indeed, the invention itself would have been in public use, within the meaning of the law; but this was not the case. Nicholson did not sell it, nor allow others to use it or sell it. He did not let it go beyond his control. He did nothing that indicated any intent to do so. He kept it under his own eyes, and never for a moment abandoned the intent to obtain a patent for it.

"In this connection, it is proper to make another remark. It is not a public knowledge of his invention that precludes the inven-

tor from obtaining a patent for it, but a public use or sale of it. In England, formerly, as well as under our Patent Act of 1793, if an inventor did not keep his invention secret, if a knowledge of it became public before his application for a patent, he could not obtain one. To be patentable, an invention must not have been known or used before the application; but this has not been the law of this country since the passage of the act of 1836, and it has been very much qualified in England. * * * Therefore, if it were true that during the whole period in which the pavement was used, the public knew how it was constructed, it would make no difference in the result.

"It is sometimes said that an inventor acquires an undue advantage over the public by delaying to take out a patent, inasmuch as he thereby preserves the monopoly to himself for a longer period than is allowed by the policy of the law; but this cannot be said with justice when the delay is occasioned by a bona fide effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended. His monopoly only continues for the allotted period, in any event; and it is the interest of the public, as well as himself, that the invention should be perfect and properly tested, before a patent is granted for it. Any attempt to use it for a profit, and not by way of experiment, for a longer period than two years before the application, would deprive the inventor of his right to a patent." (Elizabeth v. Pavement Co., 97 U. S. 126, 136, 137.)

The expression "on sale in this country, etc." has been held to include either "offered for sale" or "sold" and it is clear that the sale of a single device or a very limited number of devices involving the invention claimed in a patent issuing on an application filed after the statutory period is void. (Hall v. Macneale, 107 U.S. 90, 96, 97.) The decisions involving prior sales and the circumstances under which the prior sales become statutory bars to a valid patent, or are held not a bar to obtaining a valid patent, are many. For those who are especially interested reference is made to the patent law books and to the opinions of the Courts.

4. The fourth of the additional requisites for obtaining a valid patent is found in the following: "unless the same is proved to have been abandoned,". These words refer to an inventor abandoning his invention. An abandonment may be (a) actual, (b) constructive or (c) statutory. By way of examples: (a) The inventor may undertake to complete his concept of the invention by reducing it to physical form, and after unsuccessful experiments, he may intentionally abandon the invention. (b) The inventor may file a patent application disclosing more than he claims and upon the issuing of his patent, he has abandoned to the public that which he has not claimed; moreover some patents are issued in which the claimed invention is specifically dedicated to the public. (c) A patent may issue inadvertently

with claims to more than the patentee was entitled as original inventor and by filing a disclaimer* the patentee may abandon that to which he was not entitled and thereby claim properly that which is truly and justly his own. Furthermore, one party to an interference may file a written disclaimer, or concession of priority or abandonment of invention.†

There are other examples of ways in which an inventor may abandon his invention; for example, if an applicant should cancel a claim, without any reservation, he is said to abandon the invention of the cancelled claim. By acquiescence in a Patent Office rejection of claims, the applicant may abandon the invention of the rejected claims. A good summary of abandonment is found in the following Supreme Court decision brought up by writ of error from the Circuit Court of the United States for the district of Rhode Island. The lower Court had set aside the defendant's prayer for instructions to the jury, and included in the instructions the following:

> "And that if the jury should find that the plaintiff's declaration and conduct were such as to justify the defendants in believing he did not intend to take letters patent, but to rely on the difficulty of imitating his machine, and the means he took to keep it secret, this would be a defence to the action. And they were further instructed, that to constitute such an abandonment to the public as would destroy the plaintiff's right to take a patent, in a case where it did not appear any sale of the thing patented had been made, and there was no open public exhibition of the machine, the jury must find that he intended to give up and relinquish his right to take letters patent. But if the plaintiff did intend not to take a patent, and manifested that intent by his declarations or conduct, and thereupon it was copied by the defendant, and so went into use, the plaintiff could not afterwards take a valid patent."

In approving the forgeoing instructions, the U. S. Supreme Court, speaking through Mr. Justice Daniel said:

> "It is the unquestionable right of every inventor to confer gratuitously the benefits of his ingenuity upon the public, and this he may do either by express declaration or by conduct equally significant with language—such, for instance, as an acquiescence with full knowledge in the use of his invention by others; or he may forfeit his rights as an inventor by a wilful or negligent postponement of his claims, or by an attempt to withhold the benefit of his improvement from the public until a similar or the same improvement should have been made and introduced by others. Whilst the remuneration of genius and useful ingenuity is a duty incumbent upon the public, the rights and welfare of the community must be fairly dealt with and effectually guarded. Con-

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* Sec. 4917 (R. S. (U. S. C., title 35, sec. 65)).

† Rule 107 from Rules of Practice, U. S. Patent Office, Page 31.

> siderations of individual emolument can never be permitted to operate to the injury of these. But, whilst inventors are bound to diligence and fairness in their dealings with the public, with reference to their discoveries on the other hand, they are by obligations equally strong entitled to protection against frauds or wrongs practiced to pirate from them the results of thought and labor, in which nearly a lifetime may have been exhausted; the fruits of more than the *viginti annorum lucubrationes*, which fruits the public are ultimately to gather. The shield of this protection has been constantly interposed between the inventor and fraudulent spoliator by the courts in England, and most signally and effectually has this been done by this court, as is seen in the cases of Pennock and Sellers v. Dialogue, (2, Peters, 1,) and of Shaw v. Cooper, (7, Peters, 292). These may be regarded as leading cases upon the questions of the abrogation or relinquishment of patent privileges as resulting from avowed intention, from abandonment or neglect, or from use known and assented to. (Kendall et al. v. Winsor, 62 U. S. 322, 329).

5. The fifth of the additional requisites of the statute (R.S. 4886) is the matter of fees, which is expressed as: "upon payment of the fees required by law." With reference to the payment of fees, the present first fee is thirty dollars and one dollar for each claim in excess of twenty for examining the application, and the final fee is thirty dollars and one dollar for each claim in excess of twenty for issuing the patent.* The first fee should accompany the application for letters patent, unless the application is filed under the provision of the Act of April 30, 1928,† which provides that, under the prescribed conditions, certain employees of the Government may obtain a patent without payment of fees. Failure to pay the final fee within six months after notice that the application has been allowed may result in the patent being withheld.‡

6. The sixth or final requisite of the statute (R.S. 4886) which is as follows: "and other due proceeding had," is of the greatest practical importance. The due proceedings are the formal requirements for obtaining a patent. These requirements are enumerated in the Statutes and in the Rules of Practice of the United States Patent Office. In Chapter VI some detailed information will be given with respect to the preparation of patent applications, and in Chapter VII the subject of interferences, which is an important element of "due proceedings", will be discussed.

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* Sec. 4934 R. S.
† Act of April 30, 1928.
‡ Sec. 4885 R. S.

The statutory requirements on which "due proceedings" are based are found in the Revised Statutes. Since there are many statutes which define the procedure for obtaining a patent, it becomes clear that detailed comments would become too lengthy for these notes.

3.03. ***Summary.***

In this chapter consideration was given to the statute (R.S. 4886) which sets forth the conditions which must be met in obtaining a valid patent. Any person, who complies fully with the requisites of the statute, may obtain a patent. The several requisites have been explained clause by clause and the application of the statute has been illustrated by reference to other statutes and to a few of the opinions of the Courts. Remembering that the statute is for the protection of both inventor and public, it is fitting to summarize by quoting the following paragraphs of Mr. Justice M'Lean who delivered the opinion of the U. S. Supreme Court in Shaw v. Cooper, 32 U. S. 292, 320:

> "The patent law was designed for the public benefit, as well as for the benefit of inventors. For a valuable invention, the public, on the inventor's complying with certain conditions, give him, for a limited period, the profits arising from the sale of the thing invented. This holds out an inducement for the exercise of genius and skill in making discoveries which may be useful to society, and profitable to the discoverer. But it was not the intention of this law, to take from the public, that of which they were fairly in possession.
>
> "In the progress of society, the range of discoveries in the mechanic arts, in science, and in all things which promote the public convenience, as a matter of course, will be enlarged. This results from the aggregation of mind, and the diversity of talents and pursuits, which exist in every intelligent community. And it would be extremely impolitic to retard or embarrass this advance, by withdrawing from the public any useful invention or art, and making it a subject of private monopoly. Against this consequence, the legislature have carefully guarded in the laws they have passed on the subject.
>
> "It is undoubtedly just that every discoverer should realize the benefits resulting from his discovery, for the period contemplated by law. But these can only be secured by a substantial compliance with every legal requisite. His exclusive right does not rest alone upon his discovery; but also upon the legal sanctions which have been given to it, and the forms of law with which it has been clothed.
>
> "No matter by what means an invention may be communicated to the public, before a patent is obtained; any acquiescence in the public use, by the inventor, will be an abandonment of his right If the right were asserted by him who fraudulently obtained it,

perhaps no lapse of time could give it validity. But the public stand in an entirely different relation to the inventor.

"The invention passes into the possession of innocent persons, who have no knowledge of the fraud, and at a considerable expense, perhaps, they appropriate it to their own use. The inventor or his agent has full knowledge of these facts, but fails to assert his right; shall he afterwards be permitted to assert it with effect? Is not this such evidence of acquiescence in the public use, on his part, as justly forfeits his right?"

Summary Outline of Patentable Invention Requirements

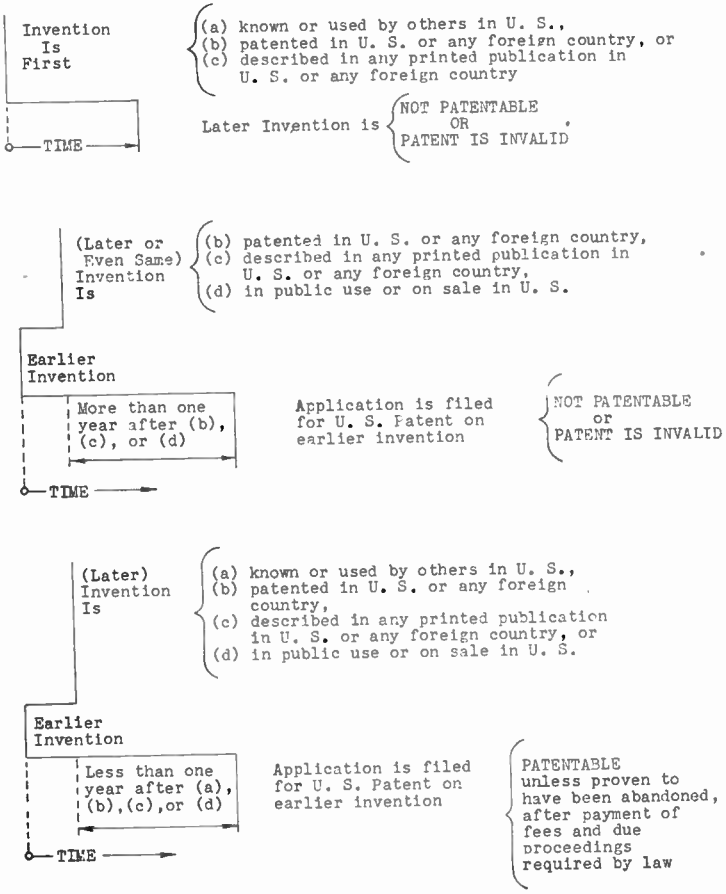
Statute (R. S. 4886) requires:

1. Person(s) make invention
2. Invention must be { new and useful } { art, machine, manufacture, composition of matter, any new and useful improvement hereof, or asexually reproduced plant * * * }
3. Must not have been { known or used by others in U. S., before applicant's invention, patented or described in any printed publication, before applicant's invention, or more than 1 year prior to his application, in public use or on sale in U. S., for more than 1 year prior to his application, or proven abandon. }
4. Payment of fees, and
5. Other due proceedings (such as filing of application in accordance with Statutes).

Summary Outline of Situations Relating to Patentability or Validity

(See following page.)

Outline of Situations Relating to Patentability or Validity based upon R.S. 4886



CHAPTER IV

STATUTORY INVENTION AS A PRACTICAL MATTER

4.01. ***Undisclosed Conception of Invention.***

While it is difficult to define invention, it has been possible to set forth in the preceding chapters some of the recognizable characteristics. As one of those characteristics, it was found that invention involved a mental picture or conception. It was also apparent that statutory invention included a factor of novelty because if an invention was known or used by others in this country, patented or described in a printed publication, or in public use or on sale in this country before the invention or more than one year prior to the patent application, it is impossible to obtain a valid patent. When the novelty of an invention is considered, the time when the invention was made becomes a necessary reference point. This may be of great practical importance as will be shown by examining situations which have arisen or which might arise.

As a first case, consider an invention which appeared in the mind of the inventor. The invention may be a very simple solution of a perplexing problem. The means for putting the invention into physical form may be so elementary that no tests or trials are necessary. In fact the entire means are seen as clearly in the mind of the inventor as if he had before him an excellent photograph of the entire device. After the inventive concept our inventor does nothing more; he does not tell his associates about it; he does not write about it; he does not make any sketches or drawings. That condition of affairs might continue for days, months or years and after a period of inaction, the inventor might file a patent application.

If there were no intervening rights of the public such as prior use, a prior sale, or a prior publication, or if there were no prior inventors to be considered, the resultant patent would be valid. However, if there should be a prior invention of the same subject matter, or if any one of the prior statutory conditions should arise, it becomes important to ascertain exactly when the previously undisclosed invention was made. Later the text will show that the time of the physical embodiment of the invention is an essential factor, but for the moment consider the instant of the mental picture as the time of the invention. The burden is on the inventor and he is possessed of NO EVIDENCE other than his unsupported word, and that is not acceptable proof to

the Courts. It makes no difference how honest the inventor may be; or how great may be the inventor's reputation; or how accurate his memory. The Courts have consistently held that the evidence of any invention must be produced and must be corroborated. Without corroborative evidence the date of the invention will be held to the date of the patent application, and that date is too late for the assumed conditions. The inventor has lost out because he can not establish the date of his invention.

> "Conception is an act of the mind and it has no value as evidence until its existence has been manifested and proved by exterior acts or declarations * * *" (Downs v. Andrews 1928 C.D. 137, 145).

Inventors should not let their inventions lie dormant in their minds because against a rival who makes adequate notes, explains the invention to others, and has the notes duly dated and witnessed, the "sleeper or dreamer" can not prevail. But what is even more important—the "do nothing" inventor gives nothing to the public and the dormant invention fails to promote the progress of the arts and sciences and the welfare of our country.

4.02. ***Oral Disclosure of Invention.***

The next case for consideration is that of an inventor who, after making his invention or discovery, has made an oral disclosure to others but neither the inventor nor the disclosees did anything to record the facts. Later the application for letters patent is filed and subsequently the time of the invention becomes an issue. Can the facts be proven?

The disclosees can testify as to the disclosure and the time thereof. But it will not be an easy matter to recall all of the details of the disclosure, omitting for the moment the time factor, and if the witnesses are according to the average, they will not agree as to subject matter. The Courts expect some variation in the testimony of witnesses and such variation, within proper limits, carries a conviction that the witnesses are trying to tell the truth. Nevertheless will the Court be able to find from the mass of the testimony a clear concise description of the subject matter of the invention? Most of us can appreciate how very unsatisfactory this sort of testimony may be and how extremely difficult it is to establish the detailed facts of the invention orally disclosed.

Return now to the time factor: If the time elapsing between the disclosure and the testimony is several years, the Courts, being well aware of our vagaries, are very hesitant to rely upon our memories. Memories play tricks upon the best of us. Sometimes a witness can associate the time of a very important event in his life with the time

of the disclosure, but more often the witness can not find any association of the disclosure and the time of the disclosure of the invention, and an outstanding or time marking event. Sometimes the witness selects an imposing series of related events but his selection, upon cross examination, proves erroneous.

Sufficient hints have been given of the difficulties which are apt to await an inventor who must rely solely on the recollections of his associates to whom he disclosed his invention for the subject matter and the date thereof. This may be summarized by referring to the words of Mr. Justice Brown, who, speaking for the Supreme Court, said:

> "* * * As we have had occasion before to observe, oral testimony, unsupported by patents or exhibits, tending to show prior use of a device regularly patented is, in the nature of the case, open to grave suspicion. * * * Granting the witnesses to be of the highest character, and never so conscientious in their desire to tell only the truth, the possibility of their being mistaken as to the exact device used, which, though bearing a general resemblance to the one patented, may differ from it in the very particular which makes it patentable, are such as to render oral testimony peculiarly untrustworthy; particularly so if the testimony be taken after the lapse of years from the time the alleged anticipating device was used. If there be added to this a personal bias, or an incentive to color the testimony in the interest of the party calling the witness, to say nothing of downright perjury, its value is, of course, still more seriously impaired. This case is an apt illustration of the wisdom of the rule requiring such anticipations to be proven by evidence so cogent as to leave no reasonable doubt in the mind of the court, that the transaction occurred substantially as stated. The very exhibit produced by the witness Heller contradicted, so far as it could contradict, his testimony, and the witnesses who ought to have corroborated his story, gave a version which showed it to be untrue in more than one important particular." (Deering v. Winona Harvester Works, 155 U.S. 286, 300, 301.)

4.03. *Written Description Is Best Evidence of Invention.*

It can be inferred from sections 4.01 and 4.02 that a written description is the best evidence of invention but that is a far cry from saying that any written document is sufficient to prove priority of invention. The description must be no less clear than is required in a patent application claiming the invention; i.e.,

> "* * * a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof,

and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions; * * *" (Sec. 4888 R.S.—U.S.C. Title 35, Sec. 33)

The foregoing relates to the written description of the invention. The time of the invention is often an important factor, the sufficiency of the proof is even more important, and adequate corroboration is of the greatest importance. Some of the factors will be considered and in each of the immediately following cases it is assumed that the written disclosure is adequate.

1. In the first assumed case the written description or drawings are not dated, are not signed by the inventor, and are not witnessed. Under such conditions—if the documents were not disclosed to others —the evidentiary value of the description and drawings is slight. The documents are self-serving and only slightly better than the unsupported word of the inventor.

One of the leading cases in point was quoted with approval by Judge Alvey of the Court of Appeals of the District of Columbia in rendering the Court's opinion in Winslow v. Austin, 1899 C. D., 301, 303-304:

"It is very true, as declared by this court in the case of Mergenthaler v. Scudder, * * * the fact of conception by an inventor for the purpose of establishing priority cannot be proved by his mere allegation nor by his unsupported testimony, where there has been no disclosure to others or embodiment of the invention in some clearly perceptible form, such as drawings or models, with sufficient proof of identity in point of time. For if such unsupported proof of the inventor himself could be received as sufficient evidence of conception in many cases there would be no way of effectually rebutting or disproving such evidence; but it does not follow from this principle that the party upon whom is cast the onus of proving the fact of priority of invention is an incompetent witness to testify as to the fact of priority. The competency or admissibility of the evidence is one thing, but the sufficiency of it to establish a fact is quite a different thing. A party may testify but his testimony may not be taken without corroboration as sufficient to establish a particular fact. In this case, however, the testimony of Austin is strongly corroborated in very material particulars by other and independent testimony."

In an interference, involving a spark plug, after decisions by the Examiner of Interferences and by the Board of Appeals holding that the appellant had failed to establish conception of the invention prior to his opponent, the appellant took his case to the Court of Customs and Patent Appeals. In commenting on one portion of the evidence the Court said:

"With respect to Exhibit 1, it was testified that the witness Daze made it from a sketch, in evidence as Exhibit 4. This sketch is not signed, dated, or witnessed, and it does not show the entire

plug. A careful examination of Exhibit 4 convinces us, as it did the tribunals of the Patent Office, that it has little, if any, evidentiary worth. We do not see how the plug, Exhibit 1, could be made from the sketch, Exhibit 4." (Quoting Judge Jackson in Kasarjian v. Paulson—1938 C.D. 781, 783, 784.)

In the foregoing appeal, while the sufficiency of the sketch was in doubt, the Court clearly gave weight to the lack of signature, date, and witnesses. It is evident that the sketch was disclosed to the witness Daze, who made the plug; otherwise, the evidence might have been characterized as worthless.

If the inventor, having an adequate written description, had sent it to another person for safekeeping, it might be acceptable evidence of conception as of the time the document was received. Quoting from Judge Shepard in Peters v. Hopkins (1910 C. D. 278, 280):

"It is quite true that this supporting evidence must ordinarily consist of disclosures of the invention as conceived, to others. Such disclosures may be in writing, or be made orally and with or without the aid of sketches or models. If in writing or through sketches or models, the same must be proved in some satisfactory manner, and if oral only, the party to whom the disclosure is made, or some other person, who may have overheard it, must be able to reproduce it with reasonable certainty. As admitted, however, by the Commissioner, in his opinion, heretofore quoted, there may be cases in which conception can be established by other means than the disclosures referred to. For example: An inventor might write a complete description of his invention and deposit the same in a sealed packet with another person for safekeeping, without making any disclosure of the contents. The production of the packet with proof of the date of the receipt would be sufficient evidence of the existence of the conception on that date. Other conditions more or less probable might be imagined."

2. In the second assumed case the written description is dated, and is signed by the inventor, who kept the document in his possession, but the document was not disclosed to others at the time it was made and is not witnessed and dated by witnesses. In the absence of corroboration such evidence will not support the burden of proof. If the document had been shown to others and explained to them, the witnesses could testify as to the facts but usually it will be difficult to prove the date of the disclosure. Moreover, the Court will look with doubt upon any situation in which no acceptable explanation is offered as to why the inventor failed to have witnesses sign and date the written disclosure.

It is usually of vital importance to establish the date on which the written description was made and the date on which the conception was disclosed. The importance will be understood by reading the following quotations:

Judge Hatfield, speaking for the United States Court of Customs and Patent Appeals, in Sloan v. Peterson et al (1942 C. D. 499, 510) said:

> "The drawing appearing on exhibit 15, having been properly identified, is sufficient to establish conception by appellant of the involved invention. However, the date when that drawing was made is of vital importance, and it is strange indeed, particularly in view of the hereinbefore related facts and circumstances, that counsel for appellant, who, with meticulous care, examined appellant's witnesses as to the dates appearing on other of appellant's documentary exhibits, did not interrogate at least one of them regarding the date appearing on exhibit 15. Counsel for appellant was, of course, aware that it was essential that some evidence be submitted to establish that exhibit 15 was, in fact, made on the date which it bears—February 14, 1935. There being no such evidence, we are unable to hold that appellant is entitled to February 14, 1935, for conception of the involved invention."

In Britton et al v. Hass et al (38 U. S. P. Q. 495, 496, 497) the Board of Appeals of the Patent Office held:

> "Coleman testifies that all the notebooks of the laboratory were kept in great security at the time such as being even locked in the safe over night. Although there are some broad allegations that Dr. Britton may have inspected such laboratory notebooks and that final reports of work done in the laboratory were made up and that these reports may have been seen by other members or officers of the Dow Chemical Company, we are convinced after a review of the testimonial record submitted on the behalf of Britton and Coleman that it is not proven beyond reasonable doubt that any one at that time or so far as shown subsequently at any available date inspected these particular notebooks or reports or that the matter contained therein was disclosed to or discussed with any one so that they understood the matter involved or particularly had their attention drawn to the specific matter relating to counts 1, 2 and 4 here involved. We accordingly hold that neither Coleman separately nor Coleman or Britton can be said to have established corroboration in these matters. Mere recording of data in a private memorandum book by an applicant cannot, we believe, be accorded the necessary weight for proof beyond reasonable doubt, if in fact any weight of disclosure and thus corroboration."

3. In the third assumed case the written disclosure is dated and is signed by the inventor and by witnesses. However, the witnesses were not competent to understand the disclosure. On cross examination it is made clear that the witnesses merely signed their names and set down the date of their signing without an adequate understanding of the invention. In principle it is doubtful if a witness who is not competent to understand an invention, when it is disclosed to him, can corroborate the testimony of the inventor with respect to the invention or the date thereof.

In the appeal involving Kirkegaard and Jebsen v. Ries (1906 C. D. 485, 487, 488) Commissioner of Patents Allen in delivering his opinion said:

> "Exhibit No. 2 shows all the features of the issue except the two-part ring. This drawing is dated November 27, 1903, which is several days prior to the date fixed by Kirkegaard and the witnesses called by him when the conversation between Ries and Kirkegaard took place. Exhibit No. 3 shows all the features of the issue and is dated December 4, 1903. The witnesses to the drawings are stenographers who were accustomed to visit the office of Ries. It appears from the testimony of these witnesses that their names were placed on the drawings at the dates following the same. It does not appear, however, that any one of these witnesses understood the invention in issue except in a general way that the invention related to bottle-stoppers which could be taken off and again replaced. There is no testimony whatever to show the condition of the drawings at the time they were witnessed. It is doubtful if these drawings can be considered a disclosure of the invention in issue at the dates which they bear. * * *

4. The fourth assumed case is that of a written description of an invention. The description is dated and is signed by two persons who clearly understood the invention. This sounds like proof which carries conviction but if the two signers happened to be the joint conceivers of the invention in question, there is an insurmountable difficulty. The testimony of joint inventors cannot be used to corroborate each other's testimony.

The principle is well stated by Judge Shepard of the Court of Appeals of the District of Columbia in Garrels et al v. Freeman (1903 C. D. 542, 545, 546):

> "4. Freeman's evidence, having established his conception of the invention at a date prior to the filing of the appellants' application, entitled him to the award of priority over them unless overcome by evidence of sufficient weight to carry their conception back of his established date. This they undertook to do by testifying on their own behalf to a joint conception at an earlier date. No witness was called to prove a disclosure of the invention by them, and there are no independent circumstances established by the evidence tending to corroborate their statements.
>
> These unsupported statements of the two rival claimants were held insufficient to overcome the priority that had been established by satisfactory proof on the part of Freeman, in accordance with a long-established rule in such cases. * * *
>
> The contention on behalf of the appellants is that the enforcement of this rule is a denial of the competency of an interested party to testify on his own behalf; and they insist that the evidence of such a party, being admissible, must be accepted, when unimpeached and uncontradicted, as sufficient proof of his claimed date of conception.

> This contention, we think, is answered in the following extract from the opinion of the Chief Justice in Winslow v. Austin: * * *
> 'Nor do we see sufficient ground for making an exception in this case to the settled rule respecting the weight of evidence of the complete conception of an invention that is required to antedate another whose conception has been established under the same rule, because there have been two witnesses to the fact instead of one. These witnesses are the two opposing applicants who jointly lay claim to the one invention, the one conception. The conception of one is incomplete without conjunction with the other. All the reasons, consequently, which underlie the rule apply with the same force where there are joint inventors, instead of a single one'."

In section 4.03 a few examples have been given of the need of an adequate written description, adequate drawings, dated and signed documents, competent witnesses and other factors which are required to prove conception of invention. It should be remembered that in each of the supporting cases inventors lost their right to a patent because they were unable to produce sufficient proof of their inventive concept and its disclosure to others.

A similar situation might arise if a patent owner (plaintiff) sued an infringer (defendant), who produced sufficient evidence that the identical invention was known or used in this country prior to the application date of the patent in suit but not early enough to be a statutory bar. In such cases the plaintiff must establish the fact that the invention of the patent in suit was made before the date of the prior knowledge or use proven by the defendant. If the plaintiff is unable to establish priority of the invention, the patent in suit will be declared invalid.

4.04. ***Reduction to Practice.***

One might infer from the immediately preceding sections that a conception of invention, sufficiently proven with respect to subject matter and with respect to time, is all that is required as a practical statutory matter to establish the inventor's right to a patent for his invention. Nothing could be further from the truth. While the Patent Office and the Courts place stress on the evidence of conception of the invention, they place greater stress on the reduction to practice of the invention. In fact, the Courts hold that an invention lacks completion until it is reduced to practice.

> "It is evident that the invention was not completed until the construction of the machine. A conception of the mind is not an invention until represented in some physical form, and unsuccessful experiments, or projects, abandoned by the inventor, are equally destitute of that character. These propositions have been so often reiterated as to be elementary." (Clark Thread Co. v. Willimantic Linen Co.—140 U.S. 481, 489.)

"The law appears to be well established that a conception evidenced by disclosure, drawings, and even a model, confers no rights upon an inventor unless followed by some other act, such as actual reduction to practice, or filing an application for a patent. A conception of this character is not a complete invention under the patent laws. It may constitute an invention in a popular sense, but it does not make the inventor the 'original and first inventor' under the statutes." (Automatic Weighing Machine Co. v. Pneumatic Scale Corp., 166 Fed. 288).

1. The actual reduction to practice of an invention required by the Courts and by the Patent Office involves the embodiment of the invention in physical or tangible form and a successful demonstration that the embodiment is capable of producing the intended result.

"* * * A process is reduced to practice when it is successfully performed. A machine is reduced to practice when it is assembled, adjusted and used. A manufacture is reduced to practice when it is completely manufactured. A composition of matter is reduced to practice when it is completely composed. * * *" (Quoting Mr. Chief Justice Taft, Corona Co. v. Dovan Corp., 276 U.S. 358, 383)

"Complete invention must amount to demonstration. It must be shown to have passed the region of experiment—of possible or probable failure—and to have arrived at certainty by being embodied in the form intended, capable of producing the desired results * * *" (Hunter v. Strikeman, 1898 C.D. 564.)

"Machines and articles of manufacture are reduced to practice when they are embodied in physical or tangible form and their practicability for the intended purpose is adequately demonstrated." (Paul v. Hess, 1905 C.D. 610.)

2. Actual reduction to practice, like conception and disclosure of invention, must be corroborated by a witness or by witnesses who saw and understood demonstration.

In Ireland v. Smith (1938 C.D. 672, 678) after quoting at length the testimony of the witnesses, Judge Lenroot, speaking for the Court of Customs and Patent Appeals, said:

"There is clearly no corroboration of appellant's claim of successful reduction to practice on July 4, 1929.

"The claim of a party that devices were fully completed, tested, and operated prior to date of filing an application requires corroboration in order to establish reduction to practice of an invention. Janette v. Folds and Persons, 17 C.C.P.A. (Patents) 879, 38 F.(2d) 361."

3. Corroboration of an actual reduction to practice must be on the following points: (a) subject matter of the invention, (b) time of the reduction to practice, and (c) evidence that the test of the invention was successful.

The foregoing statement of the law follows from the fact that

whoever first perfects an invention is usually entitled to the patent and if an inventor is to prevail over an opponent, the inventor's witnesses must corroborate the inventor in at least the three points enumerated.

> "He is the first inventor in the sense of the patent law, and entitled to a patent for his invention, who first perfected and adapted the same to use, and it is well settled that until the invention is so perfected and adapted to use it is not patentable under the patent laws. * * *" (Seymour v. Osborne, 78 U.S. 516, 552.)

The corroborating testimony usually must be based upon more than unsupported memories and vague ideas as to dates. In Interference No. 75285, Kell v. Farnsworth v. Gray, three witnesses gave testimony to corroborate Kell's successful reduction to practice of an invention relating to television but Kell lost principally because:

> "The oral testimony based solely on the unsupported memories of all three corroborating witnesses is so vague as to dates and the specific apparatus with which the results they allegedly saw were accomplished that little weight can be accorded such testimony to definitely establish on or before a fixed date that the invention in issue was successfully completed."

4. Constructive reduction to practice is a fiction of patent law in which the filing of a patent application disclosing an operable invention is held equivalent to an actual reduction to practice.

The constructive reduction to practice bears the date on which the complete application was filed and while constructive reduction to practice does not have to be corroborated, the disclosure of the application may be subjected to searching scrutiny to determine if it will produce the intended result.

In a decision by Assistant Commissioner Fenning in Skinner v. Swartwout (1922 C.D. 26, 27, 28) the following appears:

> "A complete and allowable application for patent has regularly been held the equivalent of an actual reduction to practice of the invention. Such a constructive reduction to practice is allowed the applicant on the theory that he has placed in permanent form his invention and such permanent form must be a form which will operate to produce the results claimed for it.
>
> "It seems clear in the present case that the purpose of both inventors was to provide valve-operating mechanism which would be superior to the valve-operating mechanism in use at the time the present applicants entered the field. Swartwout's testimony, as well as that of his father and brother, indicates that it was his purpose to produce something which was more efficient than the engines on the market. It would seem reasonable, therefore, to apply to his disclosure a test to determine whether it actually would produce a more efficient machine than those on the market. In applying this test no extraordinary sympathy should be ex-

tended to Swartwout. He has not produced an actual reduction to practice of his invention, but asks the technical benefit of the substitute for a reduction which his application affords. The postulant for a technical benefit can not object to a searching scrutiny of his disclosure. It seems proper then to determine whether the actual structure illustrated in his application drawings and described in his specification will produce the result which he was endeavoring to get. * * *

Skinner has produced as witnesses engineers who are familiar with the actual construction and operation of machinery, including the specific type of steam engine on which both parties here were working. These witnesses, being familiar with prior art devices, are able to demonstrate that an error is inherent in the Swartwout structure, as disclosed in his drawings, which is in excess of the error present in the prior art devices. Admittedly, the Swartwout device was not operative as shown in the drawings originally filed. Skinner's brief points out that six attempts have been made to correct Swartwout's drawings in one respect or another. Nevertheless, the drawings as now corrected do not disclose a structure which will eliminate the errors due to expansion and contraction in the prior art devices. * * *

Swartwout's attorney objected to the testimony on operativeness introduced by Skinner, but he was unable to discredit the witnesses on cross examination and there is nothing in the record to attack their reliability or to indicate that the conclusions which they draw are incorrect. At the proper time Skinner moved to dissolve the interference on the ground that Swartwout's device was inoperative, and it is appropriate to consider that matter here.

"The witnesses Mueller and Stevens clearly demonstrate that there would be a greater error in an engine built in accordance with the drawings of the Swartwout application than was present in the prior art devices. (Mueller, Q. 4; Stevens, Q. 19 and Q. 42.)"

Because of a defect in Swartwout's disclosure—which was proven inoperable—Swartwout lost to his opponent Skinner.

There are numerous other requisites for constructive reduction to practice; such as: the application must be complete; the application must not be invalid; the application must not have been abandoned: the application must not contain new matter; the device of the application must be operative without more than mere mechanical skill; a foreign application filed more than a year before the U. S. application is not a reduction to practice; and the application must disclose the subject-matter in controversy (Patent Office Practice by McCrady, pages 303, 304.)

4.05. *Relation Between Conception of an Invention and Reduction to Practice — Diligence.*

In the ordinary course of events an inventor conceives an invention first and later may reduce the invention to practice. He is entitled to

the date of the conception of the invention rather than the date of the reduction to practice, provided he was diligent in the perfecting of the invention:

> "Under our patent system, he who first arrives at a complete conception of the inventive thought is entitled to recognition and reward, unless and until the interest of the public is compromised by his lack of diligence in demonstrating that his invention is capable of useful operation. The public may justly demand of the inventor who seeks a legal monopoly that within a reasonable time the invention be brought to such a stage of perfection as to be adapted to actual use." (Laas v. Scott, 161 F. 122, 126.)
>
> "That the man who first reduces an invention to practice is prima facie the first and true inventor, but that the man who first conceives, and in a mental sense first invents, a machine, art, or composition of matter, may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act." (Christie v. Seybold, 55 F. 69, 77).

The question of diligence usually is of little importance unless another inventor enters the field after conception of the invention by the earlier inventor and before the earlier inventor has reduced the invention to practice. If the second inventor conceives the invention and reduces it to practice before the first inventor has perfected the invention, the first inventor will lose his right to the patent if he was not diligently trying to reduce the invention to practice from a period just before the second inventor entered the field and continuing to the reduction to practice, or if he can offer a reasonable excuse for his lack of diligence.

> "It is elementary that, where diligence is involved in reducing an invention to practice, diligence must be established at and immediately before the opposing party entered the field, and it must continue until there is an actual or constructive reduction to practice by the party claiming diligence.
>
> "It is also well established that absence of activity during the critical period, if due to reasonable excuses or reasons for failure of action, will not be held to be lack of diligence." (Quoting Judge Lenroot of the United States Court of Customs and Patent Appeals, Brown, Jr. v. Barton, 1939 C.D. 279, 285.)

4.06. ***Suggestions.***

1. Prepare promptly adequate written descriptions of your inventions.
2. Sign and date the document.
3. Show the document to competent witnesses.
4. Explain the invention described in the document to the witnesses.

5. Have the witnesses sign and date the document.

6. Be diligent in reducing the invention to practice actually or constructively.

7. If the invention is to be actually reduced to practice, keep adequately written, dated, and witnessed notes of the preparations, tests, etc.

8. When ready for a successful demonstration of the invention, explain the demonstration to competent witnesses and have them sign and date the notes describing the demonstration.

CHAPTER V

RECORDS OF INVENTION

5.01. ***Records of Invention.***

In the preceding chapter some of the practical aspects of statutory invention were discussed. While the discussion suggested the desirability of keeping written records, no specific recommendations were made as to the actual form of the records. The manner of recording engineering notes and inventions will be considered in the present chapter and some suggestions will be made as to form.

1. Records of invention may be written or printed, in pencil or in ink, or typewritten. It is not essential that the records be in the handwriting of the inventor. In one interference, a shorthand diary was offered as a disclosure of invention. It appeared that the shorthand could be transcribed by persons familiar with one of the known systems. The Court approved of the shorthand record (Burson v. Vogel, 1907 CD 669).

While unique records have been accepted, it is desirable to use conventional mediums, such as a good grade of paper and typewritten or longhand ink entries. The notes may be illustrated with photographs, drawings, charts, graphs, and any other helpful matter. It is desirable to follow some regular form, but this is largely a matter of personal preference.

In the Radio Corporation of America, there are two approved methods of keeping engineering notes. The older method consists of using bound notebooks which are serially numbered. The notebooks are assigned by number to the engineers. These notebooks are provided with duplicate pages and a piece of carbon transfer paper so that duplicate notes may be made. The duplicate pages are or were made for a reason not of immediate interest. It is expected that the engineers will enter in their notebooks suitable records of their design, test, and experimental work, which may or may not involve invention. Needless to say, the notebook entries should be signed and dated by the engineer and duly signed and dated by competent witnesses.

The newer method involves the use of a photographic machine which is used at regular intervals to photograph the notes kept by the engineers. The engineers use loose leaf sheets which are preferably 8½″ x 11″, but smaller size sheets may be used. The individual sheets are signed and dated by the inventor and are dated, stamped, and signed by witnesses. The stamp indicates that the notes were disclosed

to the witnesses and understood by them. The individual sheets are kept by the engineers, but at regular intervals the sheets are collected and are put through the photographic device for recording on microfilm. The main film becomes a chronological record of all engineering notes for the particular period and the record shows the date and identifies the notes of the individual engineers. A second film is made and divided into sections corresponding to the notes or records of a particular engineer. In this manner the individual records may be connected together and filed in the name of the individual as his chronological record.

Thereafter the notes are returned to the individual engineers and at suitable intervals are indexed and bound together to suit the individual requirements. Some engineers prefer that their notes be bound in accordance with subject matter and others prefer chronological binding. The bound records may be kept by the individuals or filed in the library. While there are some advantages in the described system, it is not recommended for a small group because of its complexity.

Regardless of whether the older or the newer system or almost any other system of recording notes is used, the disclosures are no better than the individual efforts to keep an accurate and careful account of the work. It is worth repeating that the substance of the notes is more important than the form.

2. A well kept engineering notebook should establish the essential facts. Among the essential facts are the subject matter of the notes, the time of the recorded work and the time when the record was made, and the names and dates of the witnesses to whom the work and the notes were disclosed.

a. As to subject matter, "the descriptions should speak for themselves." That is, the described experiments, tests, measurements, designs, drawings, etc., should enable one reasonably skilled in the art to which they pertain to understand the disclosures without requiring the verbal explanation of the engineer. This is probably asking a great deal, but nevertheless it is a goal which the engineer should set for himself. Learn to write clearly and concisely.

b. The time when the work was done is of importance; the time when the notes were made may also be of importance. Form a habit of dating the notes to indicate when the tests and experiments were performed. Also make a habit of dating your signature so that you can testify when you did the work and when you signed the notes.

c. It is very important that you disclose the work and the notes to witnesses competent to understand what you have disclosed and re-

corded. Ask the witnesses to sign and date the notes and to indicate that they understood the disclosure. If a test or demonstration was successful, note that fact in the record, so that the witnesses can subscribe to it. Include any essential facts which will help you and your witnesses to recall the work in later years.

d. If you are working on a complex system in which some of the components are well known in the art, refer to the known devices by adequate references. For example, if you are using a particular type of amplifier and do not wish to take time to describe it in detail, refer to a published description or to a patent. If necessary, refer to a prior disclosure of your own.

5.02. ***Standard Form for Disclosing Inventions.***

While engineering records of invention may contain sufficient information for preparing a patent application, for establishing the nature of the invention, and for proving the time when the invention was conceived and reduced to practice, it is desirable, especially in a large organization, to make a separate written disclosure of invention. One reason for the separate disclosure is to select from an extensive engineering record those portions which the engineer believes may involve invention. An engineer, after specializing in an art, has some notion of what is new and useful, and therefore he is in a good position to call such matters to the attention of the patent attorney. If an engineer were to explain all of his engineering notes to a patent attorney, the total time consumed would probably exceed the time required to prepare a brief disclosure. One of the advantages in submitting written disclosures is that the engineer can forward the disclosures as they are prepared, without waiting for the attorney to call to discuss the notes. Furthermore, in a large organization it would be difficult for a limited patent personnel to review, within a limited time, all engineering notes, as might be necessary to ascertain if some other engineer had made the same invention at an earlier date.

By sending promptly to the patent department their disclosures of inventions, all engineers have an equal opportunity to get credit for their inventions in the monthly reports which the patent department submits to the management. The disclosures are acknowledged, are docketed in the order received, and are assigned to an attorney who specializes in the subject matter of the invention. The attorney can study the disclosures and can prepare the patent applications of related disclosures, as far as possible in the order in which the inventions were made. When several disclosures of the same invention are made by different engineers, the attorney can confer with the interested parties to determine who first made the invention.

The engineers are aided by a disclosure of invention form, because the essential entries follow a regular order and tend to minimize oversights. The RCA patent disclosure data sheet is reproduced on the following page. The form was developed to meet the needs of the engineers and the requirements of the patent department.

Considering the entries in the order indicated, the following explanation of the form is presented: (A) The disclosure is addressed to the attention of the patent department. (B) The disclosure of the invention is submitted in pursuance of the inventor's employment agreement. (C) The relation of the invention to the field to which it pertains is indicated by title or field of use. (D) The block in the upper right hand corner is for the patent department date-stamp and docket information. (E) The purpose of the invention is stated. For example, to improve an existing system or to provide a new method or a new device or a new composition of matter, etc. (F) The brief description is the invention disclosure proper, and may be continued on additional sheets. (G) Additional sheets, papers, prints, and samples forming part of the disclosure are identified.

The next four items deal with dates and are *very important:* (H) Invention conceived ..... (I) Construction of the device completed on ..... (J) The complete device first tested on ..... (K) This disclosure written on ....

The items (L) and (M) are to provide necessary information with respect to government contracts, which require the contractor to take some action with respect to inventions or patent applications. The item N provides for a reference to engineering notebooks. The inventor's full name, or names, if there is more than one inventor, should be given because patent applications must be made in the full name(s) of the inventor(s). The inventor(s) should apply their signature(s).

(P) It is important to have the disclosure witnessed and dated in the space provided. (Q) The desirability of obtaining the signature of the person to whom the inventor first disclosed is called to the inventor's attention because it is important to establish the earliest possible date. (R) While the entry does not indicate that the witness understood the disclosure, it is assumed that the witness understood what was disclosed to him, and the additional disclosure sheets bear the legend, "Witnessed and understood by" in the space provided for the signature of the witness.

(S) It is noted that the date of the explanation of the disclosure may or may not be the same as the date of the witness's signature.

The thus described disclosure sheet is made in duplicate. The

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RCA **PATENT DISCLOSURE DATA SHEET**

ATTENTION OF PATENT DEPARTMENT: (A)

(D)

The herein described invention is being submitted in pursuance of my employment agreement. (B)

THE INVENTION RELATES TO: (C)

PURPOSE OF INVENTION: (E)

BRIEF DESCRIPTION: (F)

Attached hereto are additional sheets, papers, prints, samples, etc., forming a part of this disclosure, as follows: (G)

Invention conceived (H), 194___. Construction of the device completed on (I), 194___.

The completed device first tested on (J), 194___. This disclosure written on (K), 194___.

Was invention made during course of your work on Government contract? Yes___ No___ Contract No.___ (L)

Is disclosure, or any material part thereof, related to, or embodied in any material furnished or to be furnished under, any Government contract or contracts? Yes___ No___ Contract Nos.___ (M)

See Engineering Notebook No. (N) Pages___

My full name is (O)

(P) SPACE BELOW RESERVED FOR WITNESS

(Q) (An effort should be made to obtain the signature of the person to whom the inventor first disclosed the invention.)

The invention was first explained to me by the above identified inventor(s) on (R), 194___

(S)
Signature of Witness

Date of Signature

PATENT DISCLOSURE DATA SHEET

Inventor _____ Date _____

WITNESSED AND UNDERSTOOD BY

_____ Date _____

original is sent to the RCA Patent Department and the copy is kept by the engineer for his records. By using the loose-leaf form the disclosure may be conveniently typewritten. (The earlier RCA disclosure forms were in bound books, which were not adapted to typewriting.) The disclosure may be in the inventor's handwriting. Ink is recommended over pencil, but ink is not a patent department requirement. The form assures a logical disclosure and minimizes the possibility of overlooking essential entries. The standard form gives the patent department an opportunity of standardizing its files. The form also provides a ready means of checking invention dates without calling on the inventor for the information. The docket entries on the disclosure are very helpful in patent interference matters and have been accepted as satisfactory evidence by opposing counsel (Hefele v. Brown).

5.03. ***Substance of Disclosure.***

The substance of a disclosure of invention is of the greatest importance because, if the disclosure is inadequate, all that is based upon it is apt to fail. In the case of a conflict, it will not help very much to show *when* an invention was made if it is impossible to show *what* invention was made. Furthermore, a patent application based upon an inadequate disclosure is not apt to result in an adequate patent. A hazy disclosure usually leads to a hazy patent, which may be held invalid as failing to teach those skilled in the art how to practice the invention. An inoperative disclosure generally leads to an inoperative patent, which is worthless. On the other hand, a clear, concise disclosure is the best starting point for a good patent. The following suggestions may be helpful in preparing a disclosure of invention:

1. Prepare the disclosure so that it will teach one skilled in the art to which the invention pertains how to practice the invention. Remember the invention may be very clear and distinct in your own mind, but it is your written words which convey the ideas to the reader. Do not take things for granted; the reader will not start with the same concept that you have, and if you skip over portions, the reader will be unable to understand the invention. Picture the reader as being many miles away, and you are going to describe your invention to him in this one communication. Perhaps the remote reader does not have a dictionary with him; therefore, it is best to use ordinary words. Drawings, sketches, photographs and block diagrams, especially those with the proper legends, often tell the story better than many words. Do not hesitate to use enough words and enough illustrations to make your disclosure understandable to the reader, but remember that length does not necessarily lead to clarity. Accurate brevity is a great virtue.

2. A patent application cannot be based merely upon a happy idea. The patent must disclose a means or a method for putting the invention into actual use, and it will fail in that if it does not disclose the means. Therefore, let your disclosure show or describe the means. As you would shun a plague, shun "happy idea" inventions, with no means for producing the desired inventive result. If you will do this, you will earn the ever-lasting gratitude of your patent attorney associates.

Now disclosing the "means" does not require that you provide a detailed mechanical drawing of a radio chassis, if your invention relates to a radio circuit. However, if your "happy idea" requires a limiter amplifier and will not work without one, you must disclose that particular amplifier with sufficient detail so that it will be clear to those skilled in the art. In the event that a limiter amplifier is merely an element of the invention, and if limiter amplifiers are adequately described in a printed publication or a patent, there is ordinarily no objection to making reference to such descriptions. If you have previously disclosed an invention which forms an element in a second invention, reference to the first disclosure may save time for you and for the patent attorney. Briefly, you are not required to describe that which is well known to those skilled in the art, but in relying on this rule do not make it a guessing game for the patent attorney and others interested in your disclosure. If you wish to rely upon a reference, please give a proper citation.

3. By way of example, an excellent disclosure* of invention is reproduced on the following pages. While the original disclosure included all essential dates and names of witnesses, these confidential matters have been eliminated from the reproduction, as only the subject matter of the disclosure is of interest here. The disclosure was duly docketed, a patent application was prepared and filed, the Patent (No. 2,086,615) issued to G. L. Grundmann on July 13, 1937, and the invention is being used commercially.

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* An earlier form was used for this disclosure.

DISCLOSURE OF INVENTION

(Data Sheet)

ATTENTION OF PATENT DEPARTMENT:

The herein described invention is being submitted in pursuance of my employment agreement with the RCA Victor Company, Inc.

THE INVENTION RELATES TO: High Frequency Wave Meter

PURPOSE OF INVENTION: To permit the determination of frequencies above 300 M.C. to an accuracy of at least .001 per cent by a simple form of frequency meter.

BRIEF DESCRIPTION: This frequency meter consists mainly of a concentric ¼ wavelength transmission line arranged mechanically so that tuning of the line may be accomplished by changing the length of the inner conductor without altering the coupling to the signal source under measurement or to the resonance indicating voltmeter. A wide range of frequencies are covered by making the inner conductor interchangeable with others of like design but of different length.

The method of operation is as follows: The unknown signal is coupled to the frequency meter through a coupling loop inserted through a slot in the side of the outer shell as shown on the following

(Continued on next page)

Attached hereto and forming a part of this disclosure are additional papers, namely:

Pages 2, 3 and other material, such as samples, blueprints, etc. as follows .....

I first thought of the invention on (Date)

The invention is described in my notebook No. 2105, on page 27 (selectivity curve for such a circuit shown on p. 22, curve sheet "C")

If device was built, when was it completed? (Date)

Was device tested? Yes.

If so, when? (Date)

This disclosure was written on (Date)

The invention was first explained to me on (Date)

My full name is Gustave Louis Grundmann (signed)

SPACE BELOW RESERVED FOR WITNESS

(Signature of Witness) *(Date of Signature)*

Page 2.

page. The micrometer head knob is turned until resonance is indicated by the V. T. voltmeter coupled as shown on page 3. If no resonance indication is obtained then change the inner conductor to one of a different length until resonance is indicated. (When resonance is indicated the length of the tuning rod will be approximately $\frac{\lambda}{4}$ cm. long.) The scale reading of the micrometer head is then referred to the calibration curve and the frequency determined from the calibration chart.

The instrument was originally calibrated by the use of measurements made on Lecher wires.

G. L. Grundmann (signed)

Witness.....(signed) (dated)

Date.....(dated)

(See following page for disclosure drawing)

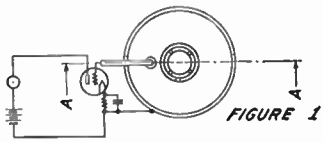


FIGURE 1

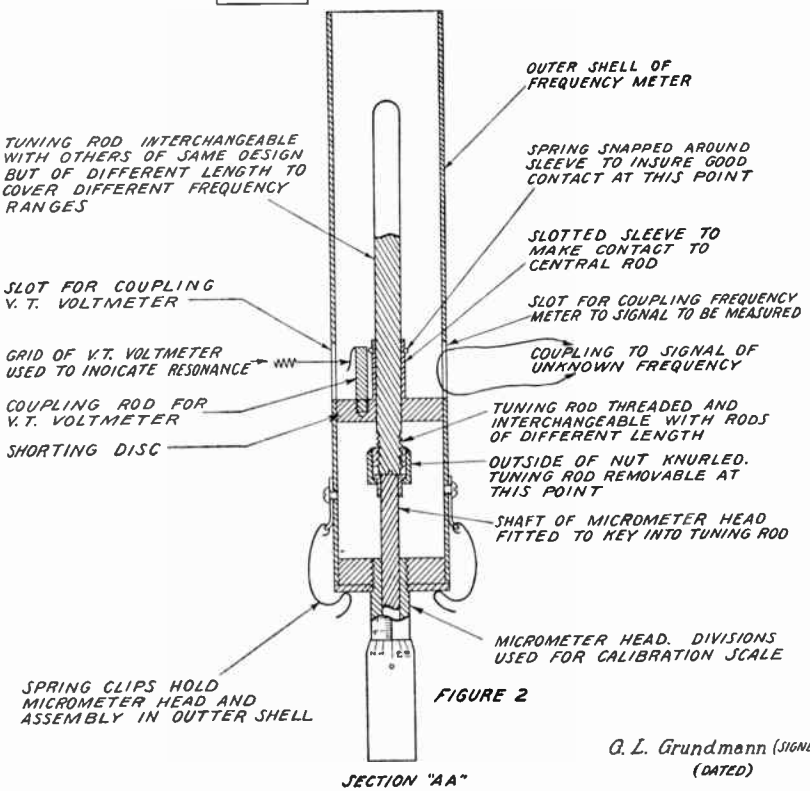


FIGURE 2

SECTION "AA"

G. L. Grundmann (SIGNED)
(DATED)

WITNESS:
G. H. Brown (SIGNED)
(DATED)

GRUNDMANN DISCLOSURE DRAWING

CHAPTER VI

PROSECUTION OF PATENT APPLICATION

6.01. ***Preparation of Patent Application.***

After a disclosure of invention has been submitted to the Patent Department, has been docketed, and has been assigned to a patent attorney, the next step is to decide if a patent application should be prepared. This decision is based upon the state of the art and the importance of the invention.

The state of the art is determined by the prior patents and publications. The patent attorney, who specializes in a particular field, acquires a knowledge of the issued patents and keeps abstracts or reference files. By either searching these files or by having a search made in the United States Patent Office, the closest patent art may be found. If the search shows that the invention has been disclosed prior to the date of the subject invention, or more than a year earlier than a patent application can be filed, the application should be made inactive because in the absence of most unusual circumstances, it will be impossible to obtain a valid patent.

In many cases the disclosures of the prior art will not be exactly the same as that of the subject invention, but sufficiently close so that one skilled in the art would consider that the subject invention was substantially anticipated. In other cases the search will disclose references which might be combined to anticipate. In these and in similar situations, it requires the judgment of experience to determine if an application should be filed. The inventor can often aid the attorney in reaching a decision by pointing out just how the references fail to anticipate or in what manner the invention of the subject disclosure differs from the disclosure of the references. In reading anticipatory references, remember it is the disclosure which is important, while the claims define the boundaries of the patent grant and measure the invention. (Paper Bag Case, 210 U.S. 405, 419).

When the search discloses prior inventions which are very close to the subject invention, the engineering or commercial importance of the invention should be considered. If the engineering or commercial aspects of the invention are of great importance, or perhaps the best way of accomplishing the desired result, it may be desirable to file a patent application. In the final analysis the Examiners in the Patent Office, or the Courts, determine if invention is involved. While the Patent Office will pass upon the question of the patentability in

each application for Letters Patent, the Office should not be burdened by filing a multitude of applications for trivial and doubtful inventions.

1. *Outline of Specification and Claims*

For the present purposes it may be assumed that the search does not disclose references which anticipate and that the references will aid the attorney in preparing the application, and in drafting the patent claims. Some patent attorneys prefer first to prepare the claims; others write the specification and then the claims. In either event it is customary to make a rough draft of the proposed application. The rough draft is submitted for the consideration of the applicant—or applicants, if there is more than one inventor. The following outline may aid the inventor in considering the draft:

The patent application should clearly and concisely disclose the preferred embodiment of the invention. While no particular form is required, a definite outline makes for an orderly disclosure. For example:

First—The title indicating the field to which the invention pertains.

Second—A sentence or paragraph stating the nature of the invention and indicating the general field of use.

Third—The prior art is recited in general terms so that the improvement represented by the subject invention may be emphasized or recited by contrast.

Fourth—The objects of the invention are stated broadly and specifically and in intermediate terms.

Fifth—If the invention may be illustrated by drawings, the several figures of the drawings are described. If similar reference characters are applied to similar elements in the drawings, an appropriate statement is made.

Sixth—The invention is then described in some detail by referring to the drawings. Elements or portions that are well known are often described by referring to the prior patents or publications.

Seventh—Rather than to combine the description of the invention with the statement of the mode of operation, some specification writers prefer to follow the description with a section in which the mode of operation is set forth.

Eighth—The mode of operation may be followed by a description of one or more modifications of the invention and, if necessary, their mode of operation. The modifications should be illustrated in the drawings, if capable of illustration.

Ninth—A summarizing paragraph is very helpful, and is often used to restate briefly the invention.

Tenth—The claims follow the specification and are of the utmost importance because they are the formal boundaries of the invention. It is very important that the claims cover the invention broadly and specifically. The present Patent Office practice permits the applicant to claim in the same application three species or modifications, provided a generic claim broad enough to cover all three species is allowed (Rules of Practice, U.S. Patent Office, Rule 41.)

2. *Formal Papers*

The following formal papers, in addition to the specification, drawings, and claims, are required in patent applications: a petition to the Commissioner of Patents, a power of attorney (unless the applicant elects to prosecute his own application), and an oath. The oath must be administered by a duly authorized officer, such as a notary public. A filing fee of $30 and an additional fee of $1 for each claim over twenty must accompany the application. If the invention and application are assigned at the time the application is filed, the formal papers may include the assignment. Assignments are usually acknowledged before a notary public.

Throughout the formal papers the applicant's full name must be used, and the papers must be signed by the applicant (Rule 40). There should be no inconsistencies in the application with respect to applicant's residence, citizenship, venue of the oath, or dates. These are a few of the highly technical legal phases of patent application papers. Such matters should be the primary concern of the patent attorney rather than the applicant. A detailed discussion of the legal questions would be outside the scope of these notes.

3. *Filing the Application*

When the complete application has been duly executed and has been filed in the U.S. Patent Office, a receipt will be mailed to applicant's attorney. The receipt will include the serial number, the filing date, the title, and applicant's name. The receipt will also designate the Patent Office Division to which the application has been assigned.

6.02. ***Patent Office Procedure.***

Patent applications are assigned to the examining divisions according to a very complex classification system. The Examiners within each division are also assigned patent applications in accordance with sub-divisions of the main classes handled by their respective divisions. In this manner the Examiners become highly skilled in a particular subject or subjects and they are especially well acquainted with the prior patents and publications pertaining to the subject matter of the art, or more often a portion of the art, which they examine.

1. *The Examination*

In examining an application, applicant's compliance with the law and Rules of Practice, the technical accuracy of the specification, the sufficiency of the disclosure, the correctness of the drawings, and especially the novelty of the claimed invention, are all duly considered. With respect to novelty, the Examiner makes a search through the patent classes to which the invention pertains, to determine the closest prior art, and thereafter he prepares his first action on the application.

2. *Patent Office Action*

The Examiner must notify the applicant of any reason for rejecting a claim. The reasons for the rejection must be fully and precisely stated. The rejection must include information and references so that applicant can judge the propriety of prosecuting his application or of altering his specification. When an application is rejected for want of novelty, the Examiner is required to cite the best references at his command. When the reference shows or describes inventions other than that claimed by applicant, the particular part relied upon must be designated as nearly as practical. The pertinence of the reference, if not obvious, must be clearly explained and the anticipated claim specified (Rules 65 and 66).

3. *Example of Patent Office Action*

For the benefit of those who are not familiar with Patent Office actions, a representative action in an application Serial No. 457,968 (now Eaton & Luck U.S. Patent 2,401,416) is reproduced herewith

6.03. ***Amending the Application.***

While an application may be amended before the Examiner's action is received, it is customary to amend after receipt of the Office Actions. Amendments must be filed within six months after the date when any action taken by the Patent Office, is mailed to the applicant, unless a shorter time is specified by the Office in writing. If not amended as required, the application will be held abandoned. However, if a shorter time than six months is specified, an extension of time may be secured upon a sufficient showing. (Rule 77).

1. *General Considerations*

An applicant may respond to a rejection by requesting reconsideration or by amending the application and in some cases both steps may be taken. If reconsideration is requested, it is usually on the basis of an error in the Examiner's action. Such error must be pointed out distinctly and specifically in writing. A mere allegation that the Examiner has erred is insufficient and will not be received as a basis

Div. 65 Room 312 260

Address only "The Commissioner of Patents," and not any official by name SBP/gg

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
RICHMOND, VA.

Paper No. 4

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

8280
7m/8

Commissioner of Patents.

Applicant: T. T. Eaton & D. C. C. Lnek

C. D. Tuska,
Patent Dept.,
R. C. A. Mfg. Co. Inc.,
Camden, N. J.

Ser. No. 457,968
Filed Sept. 11, 1942
For Amplifier for Pulses.

MAILED
APR 20 1943

This application has been examined.

References:

Wilson	2,255,839	Sept. 16, 1941	178-44.19 ux
Bethenod	1,809,503	June 9, 1931	178-44.19
Lewis	2,217,957	Oct. 15, 1940	178-44.18.

The claims are 1 through 8.

Claim 1 is rejected as obviously fully met by each of the above references.

Claim 2 is rejected on each of the above references. No invention would be required to provide the Wilson and Bethenod device with "means for taking * * * terminals".

Claim 3 is rejected as unpatentable over each of the above references. Each reference shows the method step claimed.

Claims 4, 5, and 6 are rejected on each of the above references. No invention would be required to connect the delay circuit in the anode circuit in Wilson. The source 1 in Bethenod is fully equivalent to an anode circuit.

Claim 7 is rejected as unpatentable over each of the above references. It is ordinarily not invention to provide a repeater wherever necessary.

Claim 8 is rejected as obviously unstatutory.

All claims are rejected.

DOCKETED

Amendment due Oct 20 1943

RECEIVED PATENT DEPT. APR 21 1943

Answered By

Examiner

for re-examination or reconsideration. (Rule 69). If an application is amended, the drawing may be changed to make it conform to the specification as filed, or the specification may be changed to make it conform to the drawing as filed. It is a cardinal principle that no new matter may be inserted in an application. New matter is defined in Rule 70 as: "Matter not found in either",—specification or drawing— "involving a departure from the original invention."

New matter cannot be added to the application even though supported by a supplemental oath, and can be shown or claimed only in a separate application. One salient reason for this rule is that if an applicant were permitted to add new matter in a pending application, he could carry an invention back of a statutory bar and thus avoid the immediate effect of the statute. Another reason is that an applicant might be tempted to insert by amendment just enough new matter to disclose the invention of a later inventor who had published a description of his invention. An additional reason that in the absence of the rule, an applicant might file a vague application and by delaying the prosecution, he could wait for the art to develop. As the art developed, the application could be amended to cover specifically the later developments which were not part of the original invention. Do not overlook the importance of the "no new matter rule". See that your application is complete before it is filed.

While the rule against new matter is strictly enforced, the Patent Office rarely objects to an applicant offering an explanation of the mode or theory of an operation of an invention, provided the specification as filed offers a basis for the explanation. However, the explanation must not be an attempt to include a different invention from that disclosed or claimed in the application as filed. In general, the statement of invention should disclose clearly and definitely the invention claimed originally or claimed by amendment. In the event that a claim is inserted in an application which originally showed or described the matter later claimed but not substantially embraced in the statement of invention or in the original claims, a supplemental oath to the effect that the subject matter of the proposed amendment was a part of the invention and was invented before the original application was filed, is required in accordance with Rule 48.

Often the original claims are too broad and are anticipated by the prior art; in such event the claims are narrowed by amendment or are rewritten to distinguish over the references. This is necessary as the second cardinal rule is that no claims should be drawn which are broad enough to read upon the prior art. Such claims are clearly invalid and are worthless to the patentee and to those who acquire title from him.

Experience shows that many inventors are reluctant to study the claims: some inventors insist that they cannot distinguish one claim from another. Nevertheless, from the foregoing, it is clear that the claims are of the utmost importance because: (1) If the claims are too broad, they are invalid. (2) If the claims are too narrow, infringement may be avoided easily. The amending of the claims can be directed to make them narrower or broader. Broadening the claims may involve difficult procedural questions. It is customary to include claims of varying breadth or to amend the claims so that the invention is amply protected as broadly as the prior art permits and with varying degrees of narrowness. It requires skill to amend the claims to obtain the best possible protection. While the attorney is expected to supply the technical skill, the applicant can be of great help by his practical knowledge of the art. Close cooperation between attorney and applicant will lead to the best claims.

2. *Form of Amendments*

The paragraphs of this section relate primarily to the form of amendments. Amendments to the specifications and claims are made in writing by requesting the Office to cancel precisely specified portions, or to insert at definitely indicated points certain matter, or both. (Rule 73). In the event that amendatory matter is to be further amended, the prior amendment should be cancelled and the subsequent amendment should be wholly rewritten so that the amendment will not include interlineation or erasure. (Rule 74).

Changes in the patent drawings may only be made after obtaining the written permission of the Patent Office. The Office requires that an approved photographic copy of the original drawing be included in the file. (Rule 71). The proposed changes are usually submitted by entering the alterations in red ink on a copy of the drawing as originally filed. The changes are made by the Office Draftsman at the expense of the applicant. If the changes are such that the Office Draftsman can not make them, the drawing may be withdrawn provided a photographic copy of the drawing has been filed and accepted by the Examiner as a part of the application. Substitute drawings are admitted when required by the Office. (Rule 72).

The form of amendments to the claims corresponds to the form of amendments to the specification. (Rule 73). If very extensive amendments have been made, it may be preferable to cancel and substitute a completely rewritten claim to take the place of the original claim. In fact if extensive amendments have been made, the Examiner may require the amended claims rewritten. Additional claims may be

offered by amendment. If claims are added or substituted for cancelled claims, the new claims must be numbered consecutively beginning with the number next following the highest numbered claim previously in the application. (Rule 73)

3. *Overcoming Later Reference—Rule 75*

In this and in the next section the application of Rules 75 and 76 which set forth conditions for overcoming a rejection on references without amending the claims, will be considered. For example, if an expired or an unexpired domestic patent, which substantially shows or describes but does not claim the rejected invention, bears a filing date later than the date when the applicant completed his invention in this country, and provided the date of the patent is not more than one year prior to the filing date of the rejected application, the applicant may make an oath to the facts and, upon a sufficient showing, have the Examiner withdraw the rejection on the reference. In a similar manner if an applicant completed his invention before the date of a foreign patent, or before the date of a printed publication, and has filed the patent application in this country within one year of the date of the foreign patent or printed publication, he may make an oath to the facts and thus overcome the reference. (Rule 75). The rule further provides that the applicant "shall also make oath that he does not know and does not believe that the invention has been in public use or on sale in this country, or patented or described in a printed publication in this or any foreign country for more than one year prior to his application, and that he has never abandoned the invention."

While Rule 75 refers to the completion of the invention *in this country*, the inclusion of the italicized words was held by the Court of Customs and Patent Appeals "as not warranted by law". (In re McFarlane, 1942 C.D. 254, 261) In the McFarlane Case, the Court followed the reasoning in the decision of the United States Supreme Court in Electric Storage Battery Co. v. Shimadzu et al., 307 U.S. 5. The term "completion of the invention" means either a reduction to actual practice prior to the date of the reference or conception of the invention prior to the date of the reference and coupled with due diligence to a subsequent reduction to practice. (Ex parte Grassei 1880 C.D. 94) (See Chapter IV, Sections 4.04 and 4.05 for discussion of Reduction to Practice and Diligence.)

Affidavits under Rule 75 must be drawn carefully to state facts and not conclusions. It is customary to attach to the affidavit photostatic copies of the notebook entries or other references to which the affidavit refers as evidence relied upon to establish the completion of the invention. It is permissible to blank out the actual dates because the oath

usually states "that the invention was completed in this country prior to (or on or before)" the date of the reference to be overcome, and therefore the exact date is not necessary. Furthermore, knowledge of the actual date might be prejudicial to the applicant's interests if it became available prematurely to an opponent. Parenthetically speaking, Rule 75 is another good reason why the engineers should keep good records, because being able to overcome a rejection, on a reference having a later date than the subject invention, may be the difference between abandoning the application and obtaining the patent.

4. *Overcoming Inoperable Reference—Rule 76*

Occasionally an application may be rejected upon a mode or capability of operation attributed to a reference, or because the alleged invention is held to be inoperative or frivolous or injurious to public health or morals. Affidavits or depositions traversing these references or objections may be presented by or on behalf of the applicant in accordance with the provisions of Rule 76.

5. *Election of Species—Rule 41*

Office Actions on patent applications frequently include a requirement that the applicant in his response elect "that species of his invention to which his claims shall be restricted if no generic claim is finally held allowable". This requirement is based upon Rule 41 which provides that up to three species of an invention may be claimed in one application, if the application also includes an allowable claim generic to all the claimed species. The rule requires the Examiner to make a complete search in his first action to determine if the generic claim or claims are patentable and if he is of the opinion that they are unpatentable, he shall require the election of species.

It is the writer's observation that many applicants have not understood what is meant by the rule and the effect of an election of species. Perhaps even an "oversimplified example" will be helpful. If it is imagined that the invention to be claimed involves the following geometrical areas: a triangle, a square, and a pentagon, a generic claim might be the following: "A geometrical area bounded by intersecting lines." This claim would be broad enough to include each of the three species. The three separate species might be claimed respectively as follows: (1) an area bounded by three intersecting straight lines; (2) an area bounded by four intersecting straight lines; and (3) an area bounded by five intersecting straight lines.

If the Examiner's search brought forth a prior publication or a prior patent disclosing a geometrical area bounded by a plurality of intersecting *curved* lines, he would reject the generic claim and require

an election of one of the three species. Thereupon applicant would have to determine if he would elect to prosecute the claims to the triangle, the square or the pentagon. He might also amend the generic claim by inserting "straight" before lines. This would distinguish from the reference and the Examiner might allow the amended generic claim together with the three claims to the species, if no further prior art were found. Whereupon the application may be allowed; the final fee paid; and the patent issued.

On the other hand, the Examiner might find prior art anticipating the amended generic claim, again reject the generic claim, allow the claim to the elected species, and hold applicant estopped from claiming the non-elected species. Under such circumstances, the applicant may obtain allowance of the parent application and may file a divisional application claiming generically and specifically the two remaining species or the applicant may file two divisional applications claiming respectively each of the remaining species.

6. *Requirement of Division—Rule 42*

There is a requirement for division which should not be confused with the election of species and the resulting divisional applications. The requirement in question is based upon the following provision of Rule 42: "If several inventions claimed in a single application be of such nature that a single patent may not be issued to cover them, the inventor will be required to limit the description, drawing, and claim of the pending application to whichever invention he may elect. The other inventions may be made the subjects of separate applications, which must conform to the rules applicable to original applications * * *"

The rule relates to applications *claiming two or more distinct inventions* and it does not relate to modifications or species of an invention. More crudely stated, the Patent Office has no intention of examining an application involving what should be several applications for the price of one. If, in fact, there are claims for two separate inventions, the applicant must elect which invention will be claimed in the parent application.

However, it often happens that the Examiner and the applicant may not agree on the facts. In that event applicant may traverse the requirement and request that the question be submitted to the Examiner of Classification. The Examiner of Classification will give written approval or disapproval of the requirement. If the requirement is approved, the applicant may elect to prosecute one group of claims, retaining the remaining claims in the case with the privilege of

appealing from the requirement of division after the final action by the Examiner on the group of claims prosecuted. (Rule 42)

There is a danger in filing a divisional application under conditions in which the question of separate inventions is close and the parent application is prosecuted so that it will issue as a patent before the divisional application becomes a patent. During the course of their lives, either or both of the patents may become involved in an infringement suit. The defendant may allege "double patenting" because two patents have issued on the same invention and at least one of the patents must be invalid. The fact that the Patent Office required division is persuasive but not conclusive. Therefore, the issue will be before the Court and subject to the usual hazards of a trial. Perhaps the safest procedure is to file the divisional application promptly, prosecute both applications concurrently, and ultimately issue the patents on the same day.

There is one more pitfall in divisional applications: If the Examiner has required division under Rule 42 and the applicant has elected to prosecute the claims to one invention, paid the final fee and just prior to the issuance of the first patent, he may then file a divisional application claiming the second invention. Whereupon the Examiner will reject the divisional application claims on the ground that no invention is involved over the invention of the parent patent. If the Examiner persists in the rejection, the remedy is to appeal.

6.04. *Further Office Action.*

An amendment may involve one or more of the responses suggested by the immediately foregoing sections and occasionally there are other issues requiring special treatment. The amendment is signed by the applicant or his attorney and is filed in the Patent Office. The amendment then becomes part of the application file, which, after the issuance of the patent, is open for public inspection. In due course the Examiner considers the amendment and reviews the application. He may make a further search and may cite additional references upon which the amended or rewritten or additional claims may be rejected, or the claims may be rejected on the art of record. He may offer other objections to the application and may even reject claims previously allowed. Whereupon the application may be again amended to meet the latest rejection. Under the present practice, it is customary for the Examiner to give a "final rejection", if the application is not in condition for allowance at the time of the third action of the Office.

1. *Final Rejection*

If a final rejection is given, it usually means that an issue has been

reached between the applicant and the Examiner. Three courses are then open: 1st. The applicant, provided he responds promptly, may ask for an "advisory action" which is based upon a further amendment, putting the application in condition for allowance. 2nd. The applicant may arrange an appointment to discuss the final rejection and to try to put the application in condition for allowance. 3rd. The applicant may appeal to the Board of Appeals. The course followed depends largely on the facts in each case. As a matter of fact all three courses may be followed, usually in the order listed, and are recommended in important applications.

2. *Interference Search*

After all the final requirements have been met and the retained claims allowed, the Examiner makes "an interference search." The purpose of this search is to determine if there are any copending applications of other inventors who are claiming or may be entitled to claim the same invention. If interfering applications are found, an interference will be declared. (The subject of interferences is discussed in Chapter VII). If no interfering applications are found, the application will be passed to issue.

3. *Notice of Allowance; Payment of Final Fee*

A notice of allowance will be sent to the applicant, his attorney or his agent, calling for payment of the final fee within six months from the date of such notice of allowance, upon the receipt of which within the time fixed by law, the patent will be prepared for issue. (Rule 164). The final fee of $30.00 must be paid within six months from the date of notice of allowance and if not paid within that period, the application will be forfeited and the patent withheld. (Rule 167) "The Commissioner of Patents may in his discretion receive the final fee if paid within one year after the six months' period for payment has passed and the patent shall issue. Each petition for the delayed payment of the final fee shall be accompanied by the final fee and the petition fee, and a verified statement in support of the petition." (Rule 175).

6.05. *Appeal from Final Rejection.*

1. In Paragraph 1 of Section 6.04 it was indicated that when an issue has been reached, the Examiner may give a "final rejection" and that the applicant may appeal to the Board of Appeals. Such appeals are permitted in accordance with the following provisions of Rule 133:

> "Every applicant for a patent, any of the claims of whose application have been twice rejected for the same reasons, upon

grounds involving the merits of the invention, such as lack of invention, novelty, or utility, or on the ground of abandonment, public use or sale, inoperativeness of invention, aggregation of elements, incomplete combination of elements, or, when amended, for want of identity with the invention originally disclosed, or because the amendment involves a departure from the invention originally presented; and every applicant who has been twice required to divide his application, and every applicant for the reissue of a patent whose claims have been twice rejected for any of the reasons above enumerated, or on the ground that the original patent is not inoperative or invalid, or if so inoperative or invalid that the errors which rendered it so did not arise from inadvertence, accident, or mistake, may, upon the payment of a fee of $15.00, appeal from the decision of the primary examiner to the Board of Appeals. The appeal must set forth in writing the points of the decision upon which it is taken, and must be signed by the applicant or his duly authorized agent or attorney."

2. The appeal, together with the appeal fee of $15.00, are mailed to the Commissioner of Patents within six months from the final rejection. The appeal is submitted to the Primary Examiner who, if he finds it to be regular in form, and to relate to an appealable action, is required to furnish the Board of Appeals with a written statement of the grounds for the final rejection on all of the points involved in the appeal. The Examiner is required to include in the statement the rejected claims, references applicable thereto, and a concise explanation of the invention claimed and of the subject matter of the references so far as pertinent to the appealed claims. (Rule 135). A copy of the Examiner's statement is sent to the applicant.

3. The Board of Appeals fixed a day of hearing and duly notifies the applicant. The applicant prepares and files, twenty days before the day of hearing, a brief of the authorities and arguments on which he will rely to maintain his appeal. The Examiner may, in his discretion and at least five days before the day of hearing, present to the Board a written reply to applicant's brief and arguments or state that no comment is necessary. At the time of making such reply, the Examiner is required to furnish a copy thereof to the applicant. (Rule 137 as amended September 6, 1945). The applicant may rely solely upon his written brief or if he desires, may appear in person or by agent or attorney, for oral argument before the Board. The Examiner does not appear before the Board for the oral argument.

4. According to Rule 139 the Board of Appeals is directed to affirm or reverse the decision of the Primary Examiner only on the points on which the appeal shall have been taken. However, the Board may, if it discovers any apparent grounds not involved in the appeal for granting or refusing the patent in the form claimed, or in any other

form, include in the decision an appropriate statement together with the reasons for so holding. If the Board reverses the adverse decision of the Primary Examiner, the application is passed to allowance by the Primary Examiner. If the Board files a decision confirming the adverse opinion of the Primary Examiner but also indicating the conditions under which claims might be allowed or that allowed claims should be rejected, the prosecution of the application is reopened before the Primary Examiner in accordance with Rule 139. The procedure after the decision of the Board in appeals in which the Board files a statement going beyond affirming or reversing the decision of the Primary Examiner is somewhat involved and is beyond the scope of these notes.

5. After an adverse decision of the Board of Appeals, an appeal may be taken to the United States Court of Customs and Patent Appeals in accordance with Revised Statutes 4911 and 4912, or the applicant may proceed under Section 4915 of the Revised Statutes. The appeal under R.S. 4911 is based upon the Patent Office Record. In the case of proceedings under R.S. 4915 a new record is made by trying the case before the United States District Court. There are a number of advantages in the procedure under R.S. 4915 but the cost is considerably greater than an appeal on the Patent Office Record to the Court of Customs and Patent Appeals. Under conditions prescribed by statute, appeals may be taken to higher Courts.

6.06. *Reissues.*

Occasionally, due to inadvertence, accident, or mistake, a defective patent is issued. For example, the specification may be defective or insufficient, or the patentee may have claimed more than he had a right to claim as new. If the defect occurred without fraudulent or deceptive intent, the patentee may apply for a reissue. Although the Commissioner of Patents has no authority to cancel a patent, he can reissue a patent upon surrender of the original patent. Consequently the inventor is not deprived "of the compensation thus solemnly promised because he has committed an inadvertent or innocent mistake." (Quoting Chief Justice John Marshall in Grant v. Raymond, 31 U. S. 218, 242).

1. *Formalities of a Reissue Application*

The formal requirements for a reissue are found in the statutes (R.S. 4892 and R.S. 4916) and in the Rules of Practice (Rules of Practice, 85 to 92 inclusive). The requirements state that the reissue application must be made and the specification sworn to by the inventor, if he be living. If the original patent was assigned, a certified

copy of the abstract of title must be filed and the assignee must assent in writing to the reissue. The oath in addition to the usual provisions must include the following: (a) A statement that the applicant verily believes the original patent to be inoperative or invalid, and the reason why. (b) When it is claimed that such patent is so inoperative or invalid "by reason of a defective or insufficient specification," the applicant must particularly specify such defects or insufficiencies. (c) When it is claimed that such patent is inoperative or invalid "by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new," he shall distinctly specify the part or parts so alleged to have been improperly claimed as new. (d) The applicant shall particularly specify the errors which it is claimed constitute the inadvertence, accident, or mistake relied upon, and how they arose or occurred. (e) A declaration that said errors rose "without any fraudulent or deceptive intention" on the part of the applicant. The application must be accompanied by an offer to surrender the original patent. If the original is lost or is inaccessible, an affidavit to that effect must be filed. While the application may be accepted in the absence of the original patent or the affidavit, one or the other must be supplied before the reissue will be allowed.

2. *The Reissue Application*

One of the cardinal rules of a reissue application is that no new matter may be introduced. However, the drawings may be made to conform to the specification or the specification to the drawings. The reissue application is examined the same as an original and therefore is subject to rejections, and to objections of the type raised in an original application. Even the original claims may be rejected. Requirements for division may be made in a reissue application. If the reissue application be refused, the original patent will be returned to applicant upon his request.

3. *The Reissue Patent*

When the Reissue Patent is finally granted, it is for the unexpired term of the original patent. That is, the life of the original patent is not extended by the reissue. A few words of caution about reissue patents may not be out of place:

(a) *Broadening Claims*

If the claims of an original patent are broadened in the reissue, the reissue application must be filed with great promptness because the Courts do not look with favor on reissue patents with broadened claims and with no favor at all on reissues filed solely to broaden the claims. (Miller v. Brass Company, 112 U. S. 350).

(b) *Intervening Rights*

If, after an original patent issues, a manufacturer—knowing of the patent and relying upon the claims—expends money and time and starts manufacturing and selling or using a *non-infringing device*, he acquires an intervening right to continue such manufacture and sale or use even though the device infringes the reissue claims. Mahn v. Harwood (and others, 112 U. S. 354).

(c) *Reissue for Different Invention is Invalid*

A reissue patent which is not for the same invention described and claimed and intended to be secured by the original patent is void. (U. S. Industrial Chemicals v. Carbide and Carbon Chemical Corp., 315 U. S. 668). This rule of the Supreme Court is strictly followed. For example, Pitman Reissue Patent No. 22,301 was involved in The Girdler Corporation v. E. I. DuPont de Nemours and Co. (65 U. S. P. Q. 398, 401). The original Pitman Patent included claims concerning the use of high frequency currents for cementing or joining surfaces, such as leather belting or laminations of wood. The original patent (1) set the lower frequency limit as "above 100,000 cycles per second" (2) specified the cementing of safety glass, (3) and was unlimited as to the materials which might be cemented. The reissue patent limited the cementing to "organic materials"; deleted "safety glass"; and specified the frequency as "above at least 600,000 cycles per second."

The Court said "* * * It would appear (that) discovery of the frequency at 600,000 cycles per second is to have some special merit; in the original patent no significance is attached to the figure "600,000" nor to any particular frequency. In short, the original patent treated frequency as no part of the invention. It is not that the boundaries of frequency are different, but the inventive act to which Pitman points as justification for the reissue is different. In the reissue patent he states that his was the discovery that organic substances could be joined provided you use current of a specified range, i.e., above at least 600,000 cycles per second. Pitman has drawn a line where no line existed before. Our conclusion is that the reissue covers an invention different from that originally claimed."

The changed claims of the Pitman Reissue were declared invalid by the District Court and the decision was sustained upon appeal. The foregoing is but one of many decisions which indicate the dangers in reissuing patents.

6.07. ***Disclaimers.***

It is considered improper for a patentee or the assignee of a patent

to hold—as against the public—claims which are invalid. The knowledge of the invalidity of the claims is brought home after a final decision from which no appeal is taken or in the absence of re-litigation against a different defendant. If, by way of example, certain claims of a patent are declared invalid, the remaining claims may be saved by the timely filing of a disclaimer by the patentee or assignee to the effect that the claims in question are no longer held by virtue of the patent or assignment.

1. *Statutory Disclaimers*

The authority for disclaimers is in R.S. 4917 and R.S. 4922. The corresponding rule of the Patent Office (Rule 181) provides:

> "Whenever, through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, a patentee has claimed as his invention or discovery more than he had a right to claim as new, his patent will be valid for all that part which is truly and justly his own, provided the same is a material or substantial part of the thing patented; and any such patentee, his heirs or assigns, whether of the whole or any sectional interest therein, may, on payment of the fee required by law ($10), make disclaimer of such parts of the thing patented as he or they shall not choose to claim or to hold by virtue of the patent or assignment, stating therein the extent of his interest in such patent. Such disclaimer shall be in writing, attested by one or more witnesses, and recorded in the Patent Office; and it shall thereafter be considered as part of the original specification to the extent of the interest possessed by the claimant and by those claiming under him after the record thereof. But no such disclaimer shall affect any action pending at the time of filing the same, except as to the question of unreasonable neglect or delay in filing it."

2. *Timely Filing of Disclaimer*

It is not necessary for a patentee or assignee to wait for a Court to pass upon the validity of the patent claims: If he has reason to believe that some of the claims cover more than he had a right to claim as new, the patentee, or his assignee, may file a disclaimer in accordance with Patent Office Rule 181. In any event after a Court decision holding some of the claims of a patent invalid, it is essential either to appeal, re-litigate against a different defendant, or disclaim promptly, if the remaining claims are to be saved.

The attitude of the Supreme Court in respect of disclaiming promptly is expressed by Mr. Justice McReynolds in the following words:

> "When the District Court in Ohio declared claim 2 invalid, the owner of the patent might have appealed to the Circuit Court of Appeals within thirty days and thus secured an early determination of his rights. He did not choose this course but continued to

> hold himself out as possessor of the sole right to 'make, use and vend' under the rejected claim, for nearly two years. Then he abandoned it. He made no effort promptly to vindicate what he had asserted nor did he surrender it. Thus he failed to earn the offered exemption and now he may not complain." (Ensten v. Simon, Ascher and Co., 282 U.S. 445, 455.)

3. *Improper Use of Disclaimer*

While both the disclaimer statute and the reissue statute are designed to correct inadvertent mistakes, there are fundamental differences in the two statutes. A reissue application is examined by the Patent Office; a disclaimer is merely filed in the Office. The claims of a reissue patent are effective on the date of the reissue; a disclaimer operates from the date of the original claims. These differences make it important that the disclaimer should not be used to change the claims, when the only proper remedy is a reissue.

An improper disclaimer is void as was found in the so-called Flywheel Case involving U. S. Patent 1,713,726 of Vogt et al for a "device for phonographs with linear phonogram carriers." Original claim 9 of the patent specified a broad method of "flexing the film arcuately longitudinally at the point of translation and rapidly and uniformly moving the film in a circumferential direction past said point." The disclaimer limited the claim by stating that: "* * * the uniformity of movement of the film past the translation point is effected by subjecting the portion of the film passing said point to the control of the inertia of a rotating weighty mass." Apparatus claim 13 was amended in a corresponding manner. The Supreme Court pointed out that the disclaimer was improper in the following language:

> "While the effect of the disclaimer, if valid, was in one sense to narrow the claims, so as to cover the combinations originally appearing in Claims 9 and 13 only when used in conjunction with a flywheel, it also operated to add the flywheel as a new element to each of the combinations described in the claims. The disclaimer is authorized by R.S. § 4917, which provides that when 'through inadvertence, accident, or mistake * * * a patentee has claimed more than that of which he was the * * * inventor * * * his patent shall be valid for all that part which is truly and justly his own,' provided that he or his assigns 'make disclaimer of such parts of the thing patented as he shall not choose to claim * * * stating therein the extent of his interest in such patent.' While this statute affords a wide scope for relinquishment by the patentee of part of the patent mistakenly claimed, where the effect is to restrict or curtail the monopoly of the patent, it does not permit the addition of a new element to the combination previously claimed, whereby the patent originally for one combination is transformed into a new and different one for the new combination."

"If a change such as the present could validly be made, it could only be under the provisions of the re-issue statute, R.S. § 4916, which authorizes the alteration of the original invention in a re-issued patent, upon surrender of the old patent, for its unexpired term. Upon the re-issue 'the specifications and claim in every such case shall be subject to revision and restriction in the same manner as original applications are.' A patent amended by disclaimer thus speaks from the date of the original patent, while the reissued patent, with respect to the amended claim, speaks from the date of re-issue. If respondent could thus, by disclaimer, add the fly-wheel to the arcuate flexing claim and to the optical claim, he would in effect secure a new patent operating retroactively in a manner not permitted by the re-issue statute and without subjecting the new claims to revision or restriction by the customary patent office procedure required in the case of an original or re-issued patent. Such transformation of a patent is plainly not within the scope of the disclaimer statute, and the attempted disclaimer as applied to Claims 9 and 13 is void. * * *" (Altoona Theatres v. Tri-Ergon Corp., 294 U.S. 464, 489-491.)

6.08. ***Summary.***

From the foregoing it should be clear that the prosecution of a patent application is a highly technical matter. The description of the invention should be clear and concise and as such, should teach one skilled in the art how to practice the invention. It is extremely important that the claims define properly the boundaries of the invention. For the best protection it is desirable that claims of varying breadth be included.

Applicants can often help their attorneys by considering how the claims might be avoided by technical modifications of the invention and by discussing such possibilities with their attorneys. While applicants or assignees of the entire interest in an invention may prosecute their own cases, they are advised by the Patent Office, unless they are familiar with such matters, to employ a competent registered attorney or registered agent (Rule 17). The wisdom of this advice will become more apparent in the next chapter dealing with the extremely technical interference proceedings.

CHAPTER VII

INTERFERENCES

7.01. ***Definition of Interference.***

The Commissioner of Patents cannot issue two valid patents for the same invention. Therefore, it often becomes necessary to determine to whom the patent will issue when two or more parties are claiming substantially the same invention. The awarding of the claims to the proper party is based upon a procedure known as an interference. Rule 93 of the Rules of Practice defines an interference as follows:

> "An interference is a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention * * *"

An interference is one of the most technical of all legal procedures and correspondingly difficult for the layman to understand. Nevertheless, a general understanding of interferences is of the greatest importance to engineers who are making patentable inventions. The importance is emphasized by devoting all of the present chapter to the subject.

Interferences may be declared between two or more copending applications in which substantially the same invention is being claimed, provided the Patent Office has determined that the subject matter is patentable. It is important that the question of patentability be determined first, thus avoiding needless litigation. It would be fruitless to go to all the trouble of determining who of the parties first made the invention, if in fact the invention were unpatentable (Rule 95).

Therefore, assuming that patentable subject matter is involved, an interference may be declared under one of the following conditions:

1. Between two or more applicants.

2. When one or more applicants copy claims from an issued patent and call the Examiner's attention to the patent and to the common subject matter, provided the applicant or applicants can comply with the several formal matters, which will be considered below.

3. Upon satisfactory showing of inadvertence, accident, or mistake, a patentee may apply for a reissue patent and, in the reissue application, copy claims from an issued patent for interference purposes.

These are the general conditions under which interferences may be declared. We shall now consider in greater detail the several procedures.

7.02. ***Examiner's Interference Search.***

When an application is ready to be passed to issue, the Examiner is required to make a search to determine if there are any copending applications in which the claims of the application ready for issue might be made. If he discovers a later filed application, i.e., a junior application, he may require the junior applicant to state in writing, under oath, the date and the character of the earliest fact or act, susceptible of proof, which will be relied upon to establish the date of conception of the invention under consideration (Rule 93). If the conception date sworn to by the junior applicant is prior to the senior applicant's filing date, an interference will be declared. If the junior party fails to reply within the required period (not less than twenty days), the Commissioner will proceed upon the assumption that the date of the conception of the invention of the junior applicant is the date of the oath attached to the application. If the date of the oath of the junior applicant does not antedate the filing date of the senior application, no interference will be declared.

7.03. ***Claims Proposed for Interference.***

It is unlikely that two applicants would claim the same invention in exactly the same phraseology. This difficulty is met by the Examiner's suggesting claims for interference purposes. He may prepare entirely new claims or he may employ the claims from either or both applications.

Such claims are set forth in a letter. Copies of the letter are sent to the applicant, his assignee and his attorney. The letter specifies the time within which the claims must be made in order that an interference may be declared. Upon failure or refusal to make the suggested claims within the specified time, or within an authorized extension of time, it is assumed, without further action, that the applicant has disclaimed the invention covered by the claims (Rule 96).

7.04. ***Primary Examiner's Reference to Examiner of Interference.***

Assuming that the Primary Examiner has found an interference to exist and that the applicants have prepared their applications by making the same claims, it then becomes the duty of the Primary Examiner to comply with the established Patent Office procedure by sending the following items to the Examiner of Interferences: The files and drawings; notices of interference for all the parties dis-

closing the name and residence of each party and those of his attorney and of any assignee and, if any party be a patentee, the date and number of the patent; the ordinals of the conflicting claims and the title of the invention claimed; and the issue clearly and concisely defined in counts which are the conflicting claims. If more than one count is involved, the Primary Examiner specifies the respective claims of the applicants. The Primary Examiner also forwards a statement disclosing and identifying the interfering applications, arranged in the inverse chronological order of the filing of the applications, the issues, the ordinals of the conflicting claims, the name and residence of any assignee, and the names and residences of the attorneys of record (Rule 97).

It is then the duty of the Examiner of Interferences to examine the files and the Primary Examiner's statement to ascertain if the issues have been clearly defined and to determine if any error is involved. If the Examiner of Interferences is of the opinion that the issue or declaration is ambiguous or defective, he transmits his objections to the Primary Examiner, who may amend the subject matter (Rule 98) or may present the points of difference to the Commissioner of Patents for a decision (Rule 99). During this period of preparing the interference declaration, the Primary Examiner has jurisdiction (Rule 100).

7.05. ***Declaration of Interference.***

After the disposal of all preliminary questions and upon the institution and declaration of the interference, the Examiner of Interferences takes jurisdiction. He adds to the prepared notices a designation of the time within which "preliminary statements" must be filed and he forwards notices to the several parties (Rule 102). The notices are sent to the parties in care of their attorneys, and to their assignees, if the applications have been assigned. If the notices cannot be delivered, the Commissioner of Patents may direct that a notice be published in the Official Gazette of the Patent Office. Thus, the interference is initiated. A copy of a formal declaration is inserted for the benefit of those who are not familiar with the form.

7.06. ***Avoidance or Postponement of Interference.***

While an interference may be avoided under certain conditions by filing a written disclaimer or concession of priority, or abandonment of the invention (Rule 107), it is here assumed that the interference is to be contested according to the Rules of Practice. The first requirement for the applicant is to prepare and file a "preliminary statement." While the preliminary statement should be filed within the time

Div. 51 Paper No. 9

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

(Copy sent assignee)

MAILED
FEB 13 1940

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents.

Applicant: Wilhelm Runge
Ser. No. 208,562
Filed. May 18, 1938
For. Double frame direction finder with visual indicator

RECEIVED PATENT DEPT.
FEB 14 1940
Answered By

J. Hurt,
Patent Department,
RCA Mfg. Co., Inc.,
Camden, N. J.

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 71,370 On or before Apr. 8 '40 the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, endorsed on the envelope. The subject-matter involved in the interference is

Count 1. In a direction finder the combination which includes a pair of directional antennas and an auxiliary directional antenna, said antennas being rotatably mounted and having similar directional characteristics, an indicator having separate control means for causing a resultant deflection, means for applying the output potential from said auxiliary antenna to one of said control means, and means for applying the difference of the output potentials from said pair of antennas to the other of said control means.

Count 2. In a direction finder the combination which includes a pair of directional antennas and an auxiliary directional antenna, said antennas being rotatably mounted and having similar directional characteristics, a cathode ray indicator having vertical and horizontal deflecting means, means for applying the output potential from said auxiliary antenna to one of said deflecting means, and means for applying the difference of the output potentials from said pair of antennas to the other of said deflecting means.

Count 3. In a direction finder the combination which includes a pair of frame antennas and an auxiliary frame antenna mounted in parallel planes and adapted to rotate about a common axis, an indicator having separate control means for causing a resultant deflection, means for applying the output potential of said auxiliary frame antenna to one of said control means, and means for applying the difference of the output potentials from said pair of frame antennas to the other of said control means.

(*Continued on next page*)

208,562

Count 4. In a direction finder the combination which includes a pair of directional antennas and an auxiliary directional antenna, said antennas being rotatably mounted and having similar directional characteristics, a pair of receivers, means for applying the output potentials of said pair of antennas in phase opposition to one of said receivers, means for applying the output potential of said auxiliary antenna to the other of said receivers, an indicator, means for connecting the output of said receivers to said indicator, and means for adjusting the relative phase of the output potentials of said receivers.

This interference involves your application above identified and an application for Radio Direction Finders filed by Paul H. Taylor, whose post office address is Signal Corps Aircraft Radio Laboratory, Dayton, Ohio, and whose attorneys are John J. Honan and Charles A. Rowe, C/O Chief of the Air Corps, Munitions Building, Washington, D. C.

The relation of the counts of the interference to the claims of the respective parties is as follows:-

Counts	Runge	Taylor
1	4	17
2	5	18
3	6	19
4	7	20

Examiner

limit set by the Examiner of Interferences, the time may be extended by presenting a motion, duly served on the other parties, giving the reasons for the requested postponement. Such motions should be supported by affidavit and presented before the preliminary statement is due. It is customary for the parties to stipulate a postponement subject to the approval of the Examiner, who also has the discretion to extend the time on ex parte request or on his own motion.

7.07. *Preliminary Statement.*

It is extremely important that the preliminary statement be prepared most carefully, as the parties are strictly held in their proofs to the dates alleged in their respective statements. For example, if a party should succeed in proving an earlier date than that alleged in the preliminary statement, such proof is held to establish only the date alleged. Moreover, it is very difficult to amend a preliminary statement. Rule 110 defines the preliminary statement requirements as follows:

> "110. Each party to the interference will be required to file a concise preliminary statement, under oath, on or before a date to be fixed by the office. When the invention was made in the United States the statement should so allege and show the following facts:
>
> (a) The date upon which the first drawing of the invention and the date upon which the first written description of the invention were made.
>
> (b) The date upon which the invention was first disclosed to others.
>
> (c) The date of the first act or acts (other than the acts specified in (a) and (b)), which, if proven, would establish conception of the invention, and a brief description of such act or acts.
>
> (d) The date of the reduction to practice of the invention.
>
> (e) The date when he began actively exercising reasonable diligence in adapting and perfecting the invention.
>
> (f) The applicant shall state the date and number of any application for the same invention filed within twelve months before the filing date in the United States, in any foreign country adhering to the International Convention for the Protection of Industrial Property or having similar treaty relations with the United States.
>
> If a drawing has not been made, or if a written description of the invention has not been made, or if the invention has not been reduced to practice or disclosed to others, or if there have been no other acts, which, if proven, would establish conception of the invention, the statement must specifically disclose these facts.
>
> When the invention was made abroad the statement should so allege and set forth:
>
> (a) That the applicant made the invention set forth in the declaration of interference.

(b) Whether or not the invention was ever patented; if so, when and where, giving the date and number of each patent, the date of publication, and the date of sealing thereof; and shall state the date, number, and country of the first application filed by him for the same invention before the filing in the United States.

(c) Whether or not the invention was ever described in a printed publication; if so, when and where, giving the title, place and date of such publication.

(d) When the invention was introduced into this country, giving the circumstances with the dates connected therewith which are relied upon to establish the fact."

The foregoing requirements again indicate the importance of keeping records of inventions and laboratory notes. Without adequate records or notes, it is difficult to prepare a satisfactory preliminary statement, but if the records are available, the preparation of the statement presents no difficulties. For example, (a) the first requirement, i.e., the date of the first drawing and the date of the first written description, may be taken directly from the earliest record. (b) If the records indicate the date when disclosed to others, that date is included in the second required fact. (c) The third requirement gives the party an opportunity to allege and describe other acts or facts which might help to establish conception of the invention. (d) The fourth fact is the very important date of the reduction to practice, which should never be omitted from the inventor's notes. (e) The fifth fact is usually found within the records which trace the inventor's steps between conception of the invention and its reduction to practice.

7.08. *Motion Period.*

After an interference has been declared and the parties have filed preliminary statements, which are approved by the Examiner of Interferences, the statements are not immediately open to inspection by the opposing parties. Moreover, if a junior party either fails to file a preliminary statement, or does not allege in his statement any date earlier than the filing date of his opponent's application, he is denied access to his opponent's statement. Finally, if the interference should be terminated by dissolution, the several preliminary statements remain sealed (Rule 111).

During the motion period two types of motions may be filed: One type of motion is to dissolve under Rule 122; the other is to amend under Rule 109. These motions are preliminary matters, which are concluded before the interference is ready for taking testimony. In the event that no motions are filed, the motion period is allowed to pass before the preliminary statements are open to inspection and the time for taking testimony is set.

1. *Motions to Amend Under Rule 109.*

After the preliminary statements have been approved and within a time fixed by the Examiner of Interferences but not less than thirty days, an applicant may file a motion to amend the interference. The motion may be on one or more of the following points: (1) to add any claims which in an applicant's opinion should be made the basis of an interference between him and any of the other parties, (2) to include any of the claims already in a party's application or patent which should be the basis of an interference between him and the other parties, (3) to add or substitute any other application or patent owned by the moving party and pertinent to the existing issue. In considering the propriety of filing a motion to amend, an engineer can be of great assistance to his attorney because the engineer may have a broader view of the scientific or engineering features of the interfering invention. In a similar manner, the engineer may recall earlier filed applications or issued patents in which the conflicting invention is disclosed.

Such motions must comply with the prescribed formal requirements and must be served upon the other parties (Rules 153 and 154). The motions must be accompanied by the proposed amendment. If the motions are in proper form, they are set for a hearing before the Primary Examiner. A party may oppose the motion but if he relies upon prior patents or publications, due notice must be given at least twenty days before the hearing. Briefs in support of or in opposition to the motions may be filed (Rule 163). After the hearing the Primary Examiner renders a written opinion in which he may admit the amendment in whole or in part or he may deny the motion. If he grants the motion, the interference is redeclared and new preliminary statements are required as to the added claims.

2. *Motion to Dissolve under Rule 122.*

In the preceding section (1) motions to amend were discussed. In this section motions to dissolve an interference will be considered. The following grounds for dissolution of motions are listed under Rule 122: (1) alleging that there has been such informality in declaring the same as will preclude the proper determination of the question of priority of invention, (2) denying the patentability of an applicant's claim, (3) denying the right to make the claim, and (4) if the interference involves a design patent or application, alleging that there is no interference in fact.

The second and third grounds are the most common basis for a motion to dissolve an interference and are apt to involve scientific or engineering considerations. By way of example, if an interference

involving a broad claim has been declared and one of the parties knows of a prior art reference which anticipates the claim, he should file a motion to dissolve. In that event, the reference patent or publication is cited and the moving party shows how the reference anticipates the invention of the claim. An interference should be dissolved under such circumstances because none of the parties is entitled to a patent for an invention lacking in novelty.

While the Patent Office does not hesitate to dissolve an interference in which the counts are anticipated by references cited in a motion to dissolve, there has been a strong tendency to ignore questions of patentability of the invention and to consider only priority once the motion period has passed. The Board of Appeals and the majority of the Courts have gone along with this tendency. However, the Court of Appeals for the District of Columbia has recently indicated that it will not hesitate to consider patentability before priority. One such decision came out of litigation involving three interfering applications of Radtke, Whitson, and Vogt et al. Each of the applications disclosed and claimed broadly a sound reproducing system for converting a sound track on film by means including a photoelectric cell and an appropriate circuit. After considering the prior art, the Court held that the invention involved no more than the substitution of a photoelectric cell for the prior art selenium cell and that there was no inventive problem in the associated circuits. While the appeals were primarily taken to the Court to obtain a decision on priority, the Court held: "But as none of those disclosures constitute invention, the question of priority is immaterial." (Radtke Patents Corp. et al. v. Coe et al., 1942 C. D. 12, 36).

After studying an opponent's application, copies of which may be obtained after the preliminary statements have been filed and approved, one may be of the opinion that his opponent's application does not really disclose the invention in issue. If an invention is not disclosed in an application in interference, such applicant has no right to make the interference claims. The proper procedure is to file a motion for dissolution on the ground that the party whose application is lacking in disclosure has no right to make the claim. A common-sense view of this situation is that claims not supported by the specification are invalid. Such claims should not be allowed to an applicant even if he should be a senior inventor because his seniority relates to some invention other than the one in issue.

3. *Example of Motion to Amend.*

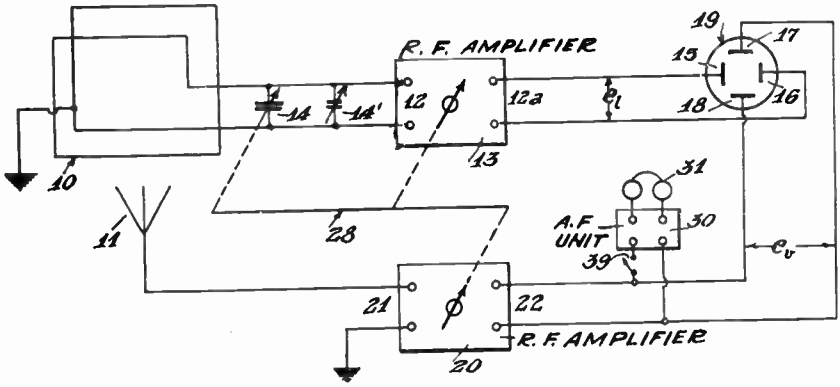
Interference No. 75,424, Hefele v. Brown involved Hefele's application, entitled "Right-Left Indicating Direction Finder Systems,"

and Brown's application, entitled "Apparatus and Method for Adjusting Transmitting Antennas." The interference was declared on a single broad count which covered the device used by Hefele for direction finding and the apparatus by Brown for adjusting a transmitting antenna. The claim or count described apparatus including a resonant balanced loop antenna, a vertical antenna, a resonant circuit coupled to the vertical antenna, and a cathode ray tube. The loop was connected to one set of the cathode ray tube deflecting electrodes and the resonant circuit was connected to the other set of the deflecting electrodes. (See page 120.)

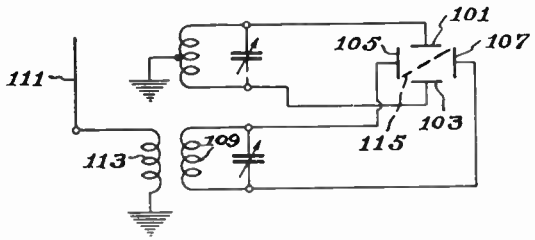
In using Hefele's device a vertical cathode ray trace was obtained when the loop was in the null position and the trace was tilted to the right or left as the loop was directed to the right or left of the null. In using Brown's apparatus the transmitting antenna was adjusted by varying an inductor interposed between the upper and lower sections of the antenna to obtain the desired disposition of current in the antenna. The correct current disposition was indicated when the cathode ray trace was a straight line, showing that the electric field was in time quadrature with the magnetic field at a predetermined distance (within less than a wavelength) from the base of the antenna. While the Brown apparatus was used as a phase meter, it was also inherently a direction finder and when used even for Brown's purpose gave the same indications of direction as the Hefele device. Incidentally, Brown's apparatus did not require amplifiers as it was used at very short distances; Hefele's device included amplifiers which greatly increased its range.

Hefele's application included a number of specific claims covering a radio direction finder employing the cathode ray tube indicator, and other necessary elements. Since at least some of these specific claims could be read upon Brown's disclosure, a motion to add these claims was made on his behalf on the theory that direction finding was inherent in the Brown apparatus. This motion to add claims was opposed on behalf of Hefele on the principal ground that the Brown application did not disclose the invention of Hefele's specific claims. It was also pointed out that Brown's apparatus was generally used within sight of the antenna and that the directional characteristic of the apparatus was not used to locate the antenna. Finally the inventions were not the same and therefore Brown should not be permitted to make the specific claims.

On the other hand, it was urged on Brown's behalf that since the directional character of the apparatus was inherent, he should be allowed to make the claims for interference purposes. The few por-



HEFELE U.S. PATENT 2,329,199



BROWN U.S. PATENT 2,281,668

tions of the Brown specification which supported his position were emphasized. Nevertheless, the Primary Examiner denied Brown's motion to add the specific claims on the ground that Brown's application did not disclose the radio direction finder of Hefele's specific claims. An appeal was taken from the Examiner's decision but the Board of Appeals affirmed the Examiner as to Brown's right to make Hefele's specific claims.

4. *Example of Motion to Dissolve.*

An example of a motion to dissolve is found in the same Hefele v. Brown Interference No. 75,424. From the discussion in the preceding section (7.08, 3) it follows that Brown was not allowed to claim the direction finder but how about the original broad interference count? That count did not specify the field of use or the functional operation of the apparatus. It merely described the apparatus in the broadest possible terms regardless of whether it was used to indicate phase or direction. Nevertheless, Hefele filed a motion to dissolve mainly on the ground that Brown did not have the right to make the claim. It was urged on Hefele's behalf that Brown disclosed one invention and that Hefele disclosed a different invention and that no interference in fact existed.

Brown opposed Hefele's motion to dissolve. Brown's attorneys pointed out that the claim was written broadly enough to read on either Brown's or Hefele's apparatus; that the claimed apparatus was the same; and that since both Hefele's and Brown's apparatus was described by the same broad claim, an interference existed. The Primary Examiner denied Hefele's motion to dissolve on the ground that the claim read on the two devices and, since the claim contained no limitations as to the field of use, both Brown and Hefele could make the claim. There was no appeal from this portion of the Examiner's decision. The interference was continued on the single broad count. Testimony was taken, arguments were heard, and briefs were filed. The Examiner of Interference awarded priority to Brown. The decision was affirmed on appeal to the Board of Appeals. The contested count appears as Claim *1* in Brown's U. S. Patent *2,281,668*. (Note: There were other issues involved in Hefele v. Brown but they are not of concern here).

7.09. *Testimony in Interferences.*

After the preliminary statements have been filed and have been approved, and after all motions to amend under Rule 109 and all motions to dissolve under Rule 122, the preliminary statements are opened for inspection by the opposing parties and the interference

is ready for the taking of testimony (Rule 111). There are three exceptions to opening preliminary statements: (1) if a junior party fails to file a preliminary statement, (2) if a party alleges no date in his preliminary statement earlier than the application of another party, or (3) if the interference is terminated by dissolution. In each of these exceptions the preliminary statements remain sealed.

1. *Notice of Time for Taking Testimony.*

When the interference has progressed to the point for the taking of testimony, the Examiner of Interference notifies the parties by a letter assigning times (1) within which the junior applicant shall complete his testimony in chief, (2) within which the senior party shall complete his testimony, and (3) a further time within which the junior party may take rebuttal testimony. If there are more than two parties, times for taking testimony are arranged so that each has an opportunity to prove his case against prior applicants and to rebut evidence of the prior applicants and to meet the evidence of junior applicants.

2. *Notice of Taking Testimony Sent to Opposing Parties.*

Since the junior party must either complete his testimony within the allotted time or obtain a postponement, he must estimate the time required to take the depositions, set the time and place, and serve due notice on his opponents. The notice must state the time and place and the cause or matter in which the depositions are to be used, and must give the names and residences of the witnesses to be examined. Reasonable time must be given for the opposing party to reach the place of the examination (Rule 154(a)). The notice must be served on the adverse party or his attorney by registered mail or by one of the other several methods approved in Rule 154(b). The notice must show sworn proof of the fact, time, and mode of service. The notice of the taking of testimony is later attached to the deposition and becomes a part of the record.

3. *Taking of Testimony.*

The testimony is taken before an officer, who is authorized to administer oaths. The officer, for example, a notary public, must not be connected by blood or marriage with either of the parties, nor interested directly or indirectly, in the interference, unless the parties consent in writing to his officiating. Each witness before testifying is duly sworn according to law by the officer before whom his deposition is to be taken. The witness is questioned first by the attorney for the party on whose behalf the deposition is being taken. Then the witness

may be cross examined by the opposing attorney; redirect and further cross examination are permitted. The questions and answers are committed to writing in their regular order by the officer, or by some person not interested in the case either as a party or as an attorney. The testimony is taken stenographically and transcribed unless the parties agree otherwise. The consent is noted in writing. The rules also provide that the presence of the officer during the testimony may be waived by written agreement, e.g., a stipulation in the record. After the testimony is reduced to writing, it is either read to the witness or read by him and is subscribed by the witness in the presence of the officer, unless the reading and the signature be waived on the record by agreement of the parties (Rule 154(c) and 156).

4. *Objections to Testimony.*

The attorney for either party may object or may take exceptions to questions or to a line of examination which he believes improper, immaterial, incompetent, or irrelevant. The objection or exception is noted on the record, and since the officer before whom the testimony is taken is not competent to rule on the objections, they will be ruled upon in due course by the Examiner of Interferences. In the meantime, the witness is usually directed by his attorney to answer the questions, subject to the stated objections. If a witness is presented for examination but was not named in the notice and if no objection was made by the opposing party, or if the opposing party cross examines such witness, the lack of proper notice is deemed to have been waived.

5. *Testifying.*

A few words about testifying will not be out of place: The questions which an attorney asks a witness are to bring out the facts of the case. The attorney for one of the parties has a duty to bring out all the facts favorable to his client; the attorney for the opposing party will ask the same witness questions which are usually designed to bring forth facts helpful to his client. It is facts that are wanted from a fact witness and not opinions or conclusions.

Witnesses will usually help themselves by answering the questions, as far as the questions permit, without "quibbling." The questions that are asked should be answered; do not answer some other question! The answer should be responsive but when the question is not understood there must be no hesitation in stating the uncertainty about what is asked. Sometimes it helps to have the question repeated.

While leading questions are objectionable on direct examination,

the "sky is the limit" on cross examination. Watch out for "loaded" questions! Pay very careful attention to the question on cross examination, otherwise a clever questioner may have one testifying that "black" is "white." Remember, a question of the type of the classical "Have you stopped beating your wife?" can not be answered with a careless "yes" or "no" if the person in fact "never did beat his wife." One must be a truthful witness but one does not have to become so careless that testimony is given to a half truth or no truth at all.

6. *Formal Matters Pertaining to the Record.*

After the testimony has been completed and after the exhibits have been offered in evidence, the transcript is completed. The officer, before whom the testimony is taken, without delay seals up the evidence, notices, and paper exhibits in an envelope, size permitting. He inscribes on the envelope a certificate giving the title of the case, the name of each witness, the date of sealing and he forwards the envelope to the Commissioner of Patents. However, the parties may reach an agreement on the record concerning the forwarding of the transcript and the custody of the exhibits. These and a number of other formal matters pertaining to the taking of testimony are set forth in the Rules of Practice. For example: Depositions may be taken in foreign countries (Rule 158). Witnesses may be required to attend by the issuance of a subpoena (Rule 160). Thirty-one or more printed copies of the testimony must be furnished, except where a record does not exceed one hundred and twenty-five letter-size, double space, typewritten pages when printing may be dispensed with upon request (Rule 162).

7. *Final Hearing.*

After the records of the testimony of all the parties have been filed in the Patent Office, briefs are prepared by the attorneys for the respective parties. The briefs are the written arguments of the parties. The statements of the case in the briefs are usually supported by reference to the record page and to the questions and answers by number. For example (Hefele Record page 101, Q. 33). The brief usually emphasizes the strength of one party's case and the weakness of the opponent's case. The briefs, which are printed if in excess of thirty pages, are filed on the dates set by the Examiner of Interferences. The brief of the senior party is due not less than fifteen days after the filing of the junior party's brief and not less than ten days before final hearing. The briefs must be served on the opposing party in accordance with Rule 154(b) (Rule 163).

In addition to filing the brief, a date for a final hearing is set by

the Examiner of Interferences. The parties may appear before him and argue their cases. After the final hearing the Examiner of Interferences studies the record and the briefs and renders a written decision awarding priority of invention to one of the parties with respect to the several counts. Different counts may be awarded to different parties.

7.10. *Priority of Invention.*

At the beginning of this chapter an interference was defined as "a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention." The normal course of an interference has been traced through the preliminary considerations, the declaration, the motion period, the taking of testimony and the final hearing before the Examiner of Interferences.

Before leaving the subject, which incidentally has been treated more in outline than in detail, some of the predictable decisions under a given set of facts will be considered. Bear in mind that while here the facts are agreed upon, in actual interferences the facts are usually disputable or at least the conclusions that the opposing parties would draw from the established facts are generally in dispute. Also remember that in the Courts and in the Patent Office in addition to the conception of an invention there must be a successful reduction to practice. (See Chapter IV, Section 4.04).

1. *First to Conceive, First to File, and First to Reduce to Practice.*

In this case we shall assume that the facts establish: (1) that party A was the first to conceive the invention, (2) that A was the first to file an application in the Patent Office, and (3) that the invention was successfully reduced to actual practice. Moreover we shall assume (1) that party B had an application which was filed later than A's application but was copending, and (2) that B's reduction to actual practice, while successful, came later than A's reduction to practice. There is no doubt that, *under the assumed conditions*, priority of invention should be awarded to party A, who was the first to conceive, the first to file, and the first to reduce to actual practice. (Appleby v. Beckman, 1943 C. D. 144, 161).

2. *First to Conceive, First to Reduce to Actual Practice, and Last to File.*

In this assumed case the party A who was first to conceive and first successfully to reduce to actual practice was the last to file. *In the absence of any facts indicating that A suppressed, concealed or*

abandoned the invention, he will prevail over an opponent B who was the second to conceive and the second successfully to reduce to actual practice but the first to file a patent application. Briefly A's later inactivity and delay in filing is not material in the absence of proof of actual abandonment, suppression or concealment of the invention. (Hainsworth v. Philipp, 1942 C. D. 532, 535).

3. *First to Conceive and Last to Reduce to Practice.*

In the instant case the order in which the parties filed their applications is omitted as the filing order determines the "burden of proof." That is, the junior party or last to file has the burden of proving his case (1) by a "preponderance of the evidence," if the applications were copending (Boileau v. Godfrey, 1943 C. D. 749, 750) or (2) by establishing priority of invention beyond a reasonable doubt, if the junior party filed after the senior party's patent issued. (Jones v. Winsor, 1943 C. D. 235, 236).

Therefore, apart from the burden of proof, a new problem is presented in which A is assumed to have been the first to conceive and the last to reduce successfully to actual practice. His opponent B conceived the invention after A conceived and successfully reduced the invention to actual practice before A. Decisions in interferences involving the conditions here assumed turn on the diligence of A in the "critical period" commencing just prior to B's entry into the field. If A was lacking in diligence throughout the "critical period", priority of invention should be awarded to B. (Sperry v. Aufiero et al, 1943 C. D. 319, 327). However, if A was not lacking in diligence during the critical period, just prior to B's entry into the field, priority should be awarded to A (Petty v. Giles, 1942 C. D. 249, 254).

4. *Exercising Diligence.*

And what is the required diligence? "There is no general rule as to what constitutes diligence applicable to all cases, but what is due diligence must be determined from the particular facts of each case." (Knutson v. Ellson, 1941 C. D. 734, 742). In the cited case Ellson was chargeable with diligence in reducing the invention to practice from immediately prior to Knutson's filing date of March 31st, 1938, to his own filing date of May 5, 1938. During this critical period Ellson was making efforts toward a commercial exploitation of the invention, which required funds he did not have but was trying to raise. However, efforts in that direction do not constitute diligence. (Fageol v. Midboe, 1932 C. D. 399). The evidence did not show clearly that Ellson sought to retain a patent attorney to prepare the application although he had seen one on one or more occasions during the critical period.

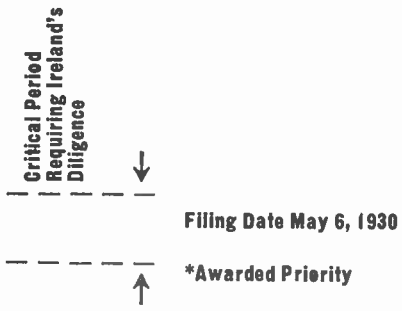
The United States Court of Customs and Patent Appeals decided that Ellson had failed to sustain the burden of proving diligence and awarded priority to Knutson. In the case under discussion a constructive reduction to practice was involved; i.e. Ellson by filing a patent application disclosing the invention in operable form, established a constructive reduction to practice. Diligence is also required in interferences involving actual reduction to practice. (Triplett v. Steinmayer, 1942 C. D. 687, 693).

5. *Decisions Involving Diligence.*

Consideration of a few decisions involving diligence may be helpful in demonstrating how strictly the tribunals regard the evidence offered by parties attempting to prove their activities during the critical period:

(a) Ireland's Patent 1,866,808 was issued on July 12, 1932 upon an application on May 31st, 1930. In the interference Ireland tried to prove conception of the invention about January 1, 1929, disclosure to others about April 1, 1929, and actual reduction to practice on July 4, 1929. While there were a number of issues, the real issue was Ireland's diligence during the critical period from immediately prior to May 6, 1930 (Smith's filing date) and May 31, 1930 (Ireland's filing date).

Chronological Outline — Ireland v. Smith



The invention related to a variable speed timing mechanism for toasters. Ireland proved that he was active for a considerable time prior to Smith's filing date; i.e., he offered in evidence a drawing dated October 12, 1929 disclosing the invention; a witness testified a model was assembled and tested in the Spring of 1929, but the friend who witnessed a successful test on July 4, 1929 was not produced; although his whereabouts were unknown, it was not shown that the

witness was sought; another witness testified rather vaguely about the first model, which was not produced; and there was some evidence indicating that six models of the toaster with the timer were shipped on June 23, 1930. From this evidence Ireland tried to draw the *conclusion* that the tools must have been made and a vast amount of work must have been done before the models could be shipped and therefore he must have been diligent prior to June 23, 1930.

The Court refused to draw these conclusions pointing out:

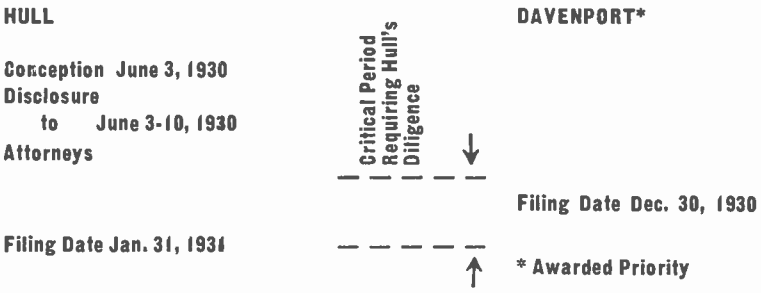
> "The difficulty with appellant's contention is that there is no evidence of any activity upon appellant's part with respect to the invention immediately prior to appellee's filing date, May 6, 1930. He may have been active for a considerable time prior to appellee's filing date, but any such activity occurring at a time not immediately prior to appellee's filing date would be of no avail to appellant in establishing diligence.
>
> "It would seem that appellant might have established with greater certainty the time when work was performed in the construction of the toaster shipped to Chicago on June 23, 1930. We may surmise that appellant was probably diligent in the matter on May 6, 1930, and immediately prior thereto, and that such diligence continued until May 31, 1930, his filing date; but mere surmise cannot take the place of proof, and there is no proof in the record of such diligence." (Ireland v. Smith, 1938 C.D. 672, 678, 679)

(b) Hull, the first to conceive and the last to reduce to practice, was awarded a date of conception of June 3, 1930. He filed his application on January 31, 1931. Davenport filed his application on December 30, 1930, which is his only date for conception and reduction to practice. The only question was Hull's diligence. It was shown that Hull was employed by Frigidaire of General Motors Corporation and that the patent work was handled by a patent department. The department prepared and delivered to a law firm invention files of all necessary papers and sketches. The law firm had awaiting action 311 disclosures in the first of 1930 and 406 disclosures at the end of the year. Hull's disclosure of invention file was delivered to the law firm within a week of June 3, 1930. The record fails to throw any light on the preparation of the application from the date of the delivery of the disclosure of invention file during the entire period of about eight months.

The Examiner of Interferences held that the critical period was from just before December 30, 1930 to January 31, 1931 and that the period of five weeks was not in excess of a reasonable time for preparing the application, which consisted of two sheets of drawings and eleven pages of printed specification including six claims. The Examiner gave consideration to the press of immediate business and the

activity attendant upon the preparation of the application, and that lack of reasonable diligence could not be imputed to Hull.

Chronological Outline — Hull v. Davenport



The Board of Appeals considered eight months as the critical period and held that it was too long a period to be accepted as a reasonable time within which to file an application in the absence of a showing of special circumstances. On appeal, the Court of Customs and Patent Appeals resolved this difference in views by holding: "The weight of authority, however, regards his diligence sufficiently shown if it be found that he was diligent from a time just prior to the second conceiver's entrance into the field to the first conceiver's reduction to practice either actually or constructively." The Court also held that merely turning the matter over to an attorney can not account for failure to reduce to practice if in fact the attorney showed inexcusable lack of diligence in preparing the application. Finally in the following words the Court held that Hull had failed to show the diligence the law requires:

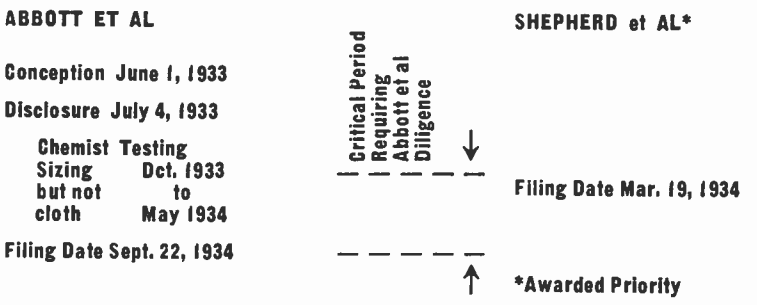
> "There is, therefore, no showing that appellant was diligently engaged in trying to perfect his invention at the time or just before the time when the appellee entered the field. We cannot presume under the facts in this case that appellant's attorneys were diligent at the time appellee entered the field nor are there any facts proven from which we may conclude that they were diligent at *any* particular time during the entire eight months period. Of course, they were using diligence when they were engaged in preparing the application, but when the preparation of it began has not been shown. It is not shown that the several hundred cases in the attorneys' hands were taken up in their regular order or that appellant's case was not put to one side and others preferred over it." (Hull v. Davenport, 1937 C.D. 588, 592)

(c) The case of Abbott et al v. Shepherd et al reached the United States Court of Appeals for the District of Columbia after the Examiner of Interferences decided in favor of Abbott and decisions adverse

to Abbott and in favor of Shepherd were rendered by the Board of Appeals and the District Court. The interference involved an invention relating to a process of weaving into cloth a yarn composed partly of an elastic material. Uneven tensioning of the elastic yarn caused the cloth to pucker. The gist of the invention was to coat the elastic yarn with a sizing. Upon hardening, a coating formed around the thread. The coating was sufficiently rigid to prevent uneven tensioning and sufficiently flexible to permit weaving. After weaving the cloth, the sizing was washed out or dissolved.

Abbott conceived the invention about June 1, 1933 and filed his application on September 22, 1934. Shepherd filed a provisional British Application on March 19, 1934 and shortly thereafter filed a complete application and in due course an application for United States Letters Patent. A division of the U. S. application, filed after September 1934, became involved in the interference. It was held that Shepherd was entitled to a constructive reduction to practice on March 19, 1934. In order for Abbott to prevail it was necessary for him to prove either (1) that he reduced to actual practice before March 19, 1934 or (2) that he was diligent from just prior to March 19, 1934 until his application was filed on September 22, 1934.

Chronological Outline — Abbott et al v. Shepherd et al



Abbott, after conceiving the invention about June 1, 1933, first mentioned it on July 4th to Burke, a trained chemist in the employ of Abbott's company. Abbott suggested sizings of starch, casein, and glue. Burke tried out some preliminary compounds and before the end of September reported to Abbott that a sizing would hold in stretched position small rubber bands. Early in October Burke tried the coating on a regular rubber yarn and reported that "it holds * * * sets o.k. with special size." From then Burke's efforts were given to developing suitable formulas for sizing. Although from the beginning the most suitable formula of the "dextrine type" was satisfactory as to rigidity

and as to washing out, Burke concentrated on the dextrine sizing from October 1933 to May 1934.

The Court of Appeals decision reminds the reader that the invention was not in the sizing formula but in the cloth woven with coated or sized elastic yarns in which the sizing was later washed out. The Court held that most of Burke's work from October 1933 to May 1934 was not necessary to reduce the invention to practice. Moreover, Burke very early in his work had found three experimentally workable sizing formulas. Nevertheless "none was tried in actual weaving or knitting," notwithstanding the fact that Abbott, a large owner of interests in extensive textile industries, could have proceeded more directly and diligently. In that respect "it would be a matter at most of only a slight effort to size up and run through a loom some of the "Lastex" yarns." Thus the Court held that Abbott had not reduced to actual practice and that he was lacking in diligence by his long delay in filing his patent application. In summing up, the Court said:

> "* * * after completing his invention, he delayed too long in refinement of a minor and non-essential detail of one application of his process, work which belonged to the artisan not to the inventor. However necessary and convincing that activity might have been if the invention claimed had been in the specific formula it finally developed, in relation to the invention in issue it was at most an artisan's sidetrack where the inventor had no business to be when others were coming along the main line. Perfection of utility is to be encouraged. But delay, while one is engaged only in what is already known to the art after the essential idea has been proved, is not that diligence which is required to secure priority in invention." (Abbott et al v. Shepherd et al, 1943 C.D. 37, 53).

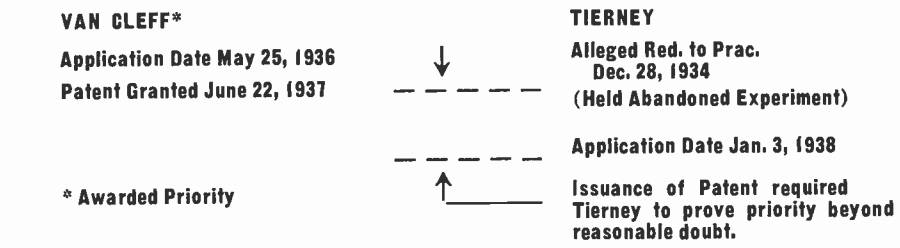
(d) The interference Van Cleef v. Tierney involved Van Cleef Patent No. 2,084,878, granted June 22, 1937 on an application filed May 25, 1936, and an application filed by Tierney on January 3, 1938, apparently after Tierney had actual notice of the Patent. Under the circumstances, Tierney had to establish priority beyond a reasonable doubt.

The invention involved "a tape comprising a strip of rubber hydrohalide and a coating of pressure sensitive rubber base adhesive on one face of the strip." The issue was finally resolved into one of whether Tierney had established a reduction to practice of the invention on December 28, 1934, which was at least six days prior to any date which could be awarded to Van Cleef.

The evidence established that tape was produced under Tierney's direction on December 28, 1934 at the plant of the Minnesota Mining and Manufacturing Company. The tape was only given "an adhesion

'test," and then it was laid aside without being put to any of the many uses mentioned in Tierney's application. The Tierney application also specified many of the objections to prior art adhesive tapes such as limited flexibility, susceptibility to tear, susceptibility to puncture, humidity and temperature effects, telescoping of roll, oozing of adhesive, manufacturing difficulties and other objections. The evidence indicated that the production tape backing was stretched and distorted; that the tape was ragged and irregular; that it curled; that its appearance was not good; and that the tape was not regarded as commercially satisfactory.

Chronological Outline — Van Cleff v. Tierney



Considering the evidence as a whole the Court concluded that the article produced on December 28, 1934 amounted to nothing more than an abandoned experiment and, hence, might not be properly regarded as a reduction to practice of the invention. There seems to be no doubt that the long delay in filing, the issuance of Van Cleef's Patent, and the burden on Tierney of proving his case beyond a reasonable doubt were important factors in the Court's decision. (Van Cleef v. Tierney, 1941 C. D. 423).

6. *Abandoned Experiment.*

If the first to conceive and actually to reduce to practice delays filing a patent application, without abandoning or concealing or suppressing his invention, he will ordinarily be awarded priority of invention. (See Section 7.10, Par. 2). However, the tribunals frequently concluded that the alleged reduction to practice, especially when followed by a long delay before filing a patent application, amounts to an abandoned experiment. For example, in Taylor v. Swingle, 1943 C. D. 630, 634, Taylor tested a circuit breaker in June, 1932. While the tests showed that the device operated successfully under the described circumstances, the United States Court of Customs and Patent Appeals held "that the tests in order to constitute reduction to practice should have been such as to establish utility

beyond *probability* of failure admits of no argument." The Court also had doubts that Taylor or his witness Wood at the time of the tests were convinced that the device operated beyond probability of failure. Moreover, from the fact that the device was placed in Taylor's desk for nearly four years before Taylor's application was filed, the Court concluded that the work done in 1932 amounted to nothing more than an abandoned experiment, and therefore awarded priority to Taylor's opponent—Swingle.

7. *Suppression or Concealment of Invention.*

The first to conceive and the first successfully to reduce the invention to practice may have deliberately suppressed or concealed the invention by delaying the filing of a patent application. At a later date the first inventor may be spurred into activity by learning of another party's invention or patent. Notwithstanding the fact that the second party made the invention later, he is awarded priority over the first inventor who suppressed or concealed:

Mason conceived of a clip magazine for firearms and had it completely ready for use in July, 1887. The invention was concealed or suppressed until Hepburn's Patent was issued on September 11, 1894 on an application filed April 3, 1894. Mason, after seeing Hepburn's Patent in the Official Gazette, filed a patent application which was dated three months later than Hepburn's Patent. It appears that Hepburn had made his invention at least as early as April, 1894, which was nearly seven years later than Mason's invention date. Priority was awarded Hepburn because Mason had purposely and without excuse withheld his invention from the public. The Court offered the following explanation:

> "Considering, then, this paramount interest of the public in its bearing upon the question as presented here, we think it imperatively demands that a subsequent inventor of a new and useful manufacture or improvement who had diligently pursued his labors to the procurement of a patent in good faith and without any knowledge of the preceding discoveries of another shall, as against that other, who has deliberately concealed the knowledge of his invention from the public, be regarded as the real inventor and as such entitled to his reward. The true ground of the doctrine, we apprehend, lies in the spirit and policy of the patent laws and in the nature of the equity that arises in favor of him who gives the public the benefit of the knowledge of his invention, who expends his time, labor, and money in discovering, perfecting, and patenting in perfect good faith that which he and all others have been led to believe has never been discovered by reason of the indifference, supineness, or willful act of one who may, in fact, have discovered it long before." (Mason v. Hepburn, 1898 C.D. 510, 516, 517)

8. *Summary.*

It would require an analysis of many more decisions to indicate even a few of the "rules" upon which the Examiner of Interferences, the Board of Appeals, and finally the Courts base their decisions in interference cases. The few briefly reported cases indicate the strictness of the tribunals in interpreting the evidence. It is clear that in a close case the path of a junior party is not an easy one. It is imperative that one, who is apt to make inventions, safeguard his efforts by making careful notes of his work. Make sure that the witnesses understand the demonstrations; make sure that the written reports of the demonstrations are adequate; make sure that the reports are witnessed and dated; if possible, preserve the models; identify them by signatures and dates; if the tests were successful, note the success in writing; and do not belittle your own work, your opponent will attend to that!

7.11. ***Appeals from Adverse Decisions.***

Under the present practice, the decision in interference cases is rendered by the Board of Interference Examiners. There is no appeal to a tribunal within the Patent Office from the decision of the Board. Nevertheless, there are at least two courses open to any party to an interference who is dissatisfied with the final decision on priority.

1. *Appeals to the Court of Customs and Patent Appeals.*

An appeal from an adverse decision of the Board of Interference Examiners may be taken under the provisions of Section 4911 of the Revised Statutes (U. S. C. Title 35, Sec. 59a) by the appellant giving written notice thereof to the Commissioner of Patents within 40 days (exclusive of Sundays and legal holidays but including Saturday half-holidays) from the date of the adverse decision. (Sec. 4912, R. S.—U. S. C. Title 35, Sec. 60). However, if another adverse party files a notice with the Commissioner within 20 days after an appellant has filed an appeal in accordance with the Statute Sec. 4912, that he elects to proceed in accordance with Section 4915 R. S. (U. S. C. Title 35, Sec. 63), the appellant's appeal under R. S. 4912 will be dismissed by the U. S. Court of Customs and Patent Appeals and the appellant shall have 30 days within which he may proceed to file a bill in equity under R. S. 4915.

In the event that an appeal is taken to the U. S. Court of Customs and Patent Appeals under R. S. 4911, the proceedings are had in accordance with the rules of that Court. While a detailed recital of the Court's rules would unnecessarily lengthen these notes, it may be helpful to explain that the appeal to the C. C. P. A. involves a review

of the record of the Patent Office interference proceedings. The Court's rules provide for the printing of the record, for omitting unnecessary portions thereof, for submitting appeals on an agreed state of facts, for a diminution of the record, and for the submission of briefs. In this type of appeal, no new evidence may be added. The decision of the Court is certified to the Commissioner of Patents and governs further proceedings in the case.

2. *Appeals to the United States District Court.*

If a party, dissatisfied with the decision of the Board of Interference Examiners, has not appealed to the U. S. Court of Customs and Patent Appeals, he may file a bill in equity. The bill in equity must be filed within six months after the decision of the Board. The adverse parties are duly notified and the case is brought to trial in the usual manner according to the rules of the United States District Court, which has jurisdiction. In this proceeding, the witnesses for the parties may appear in Court. The witnesses are examined and may be cross-examined. While the testimony and the exhibits of record in the Patent Office may be admitted in evidence, using the old record is generally not advisable because the advantages of a "4915 proceeding" would be partly lost, as the Court would not have the witnesses before it. Moreover, matters which were not sufficiently clear may be clarified, such as questions of operability, or evidence not offered in the Patent Office may be presented. (Wright v. Runge et al., 1940 C. D. 11, 12, 13). The District Court in its decision will grant or deny the relief sought, and if the decision is in favor of the appellant, will authorize the Commissioner to issue the patent.

3. *Further Appeals.*

While there is no appeal from the decision of the Court of Customs and Patent Appeals, there is an appeal from a decision of the District Court to the Circuit Court of Appeals for the circuit in which the bill in equity under R. S. 4915 was filed. For example, an adverse decision of the District Court of the District of Columbia in an R. S. 4915 proceeding is appealable to the United States Court of Appeals for the District of Columbia. This additional appeal is a further advantage in proceeding under the provisions of R. S. 4915.

4. *Interfering Patents.*

In the event of an adverse decision to the patentee, in an interference involving a patent and one or more applications, the patentee or the patent owner, instead of appealing may wait until his opponent's patent issues and then elect to proceed under the provisions of Section 4918 of the Revised Statutes (U. S. C. Title 35, Sec. 66). This

statute provides for relief against interfering patentees by means of a bill in equity. In such procedure, the Court gives notice to the adverse parties and after due proceedings may adjudge and declare either or both patents void in whole or in part, upon any ground, or inoperative, or invalid in any particular part of the United States, according to the interest of the parties in the patent or in the invention patented.

Thus, there are many procedural paths open to those who are dissatisfied with a decision of the Board of Interference Examiners. The choice of procedure usually depends upon the soundness of the lower tribunal's decision, upon the importance of the invention, the question of expense, the possibility of newly discovered evidence, the record in the Patent Office, and similar considerations.

7.12. ***Summary.***

It is hoped that the foregoing outline of the many and varied technicalities of interference procedure will not obscure the great importance of keeping understandable and accurate records of invention. Records are essential if an applicant is to carry his date of invention back of his filing date. The testimony of witnesses to whom the invention was disclosed and demonstrated is also essential.

In the preliminary statement, the several dates—conception of invention, disclosure to others, and reduction to practice—are alleged; in the testimony they must be proven. The burden of proof is never light; it requires convincing testimony, supported by documentary and physical exhibits. Many an applicant has actually been the first inventor but his evidence lacked that degree of cogency which convinces the Court of the truth or fact.

Good records must be kept. The models used in the successful demonstration of the invention must be retained. Notes and records must be witnessed and dated!

CHAPTER VIII

OWNERSHIP AND USE OF PATENTS

8.01. *Ownership of Inventions and Patents.*

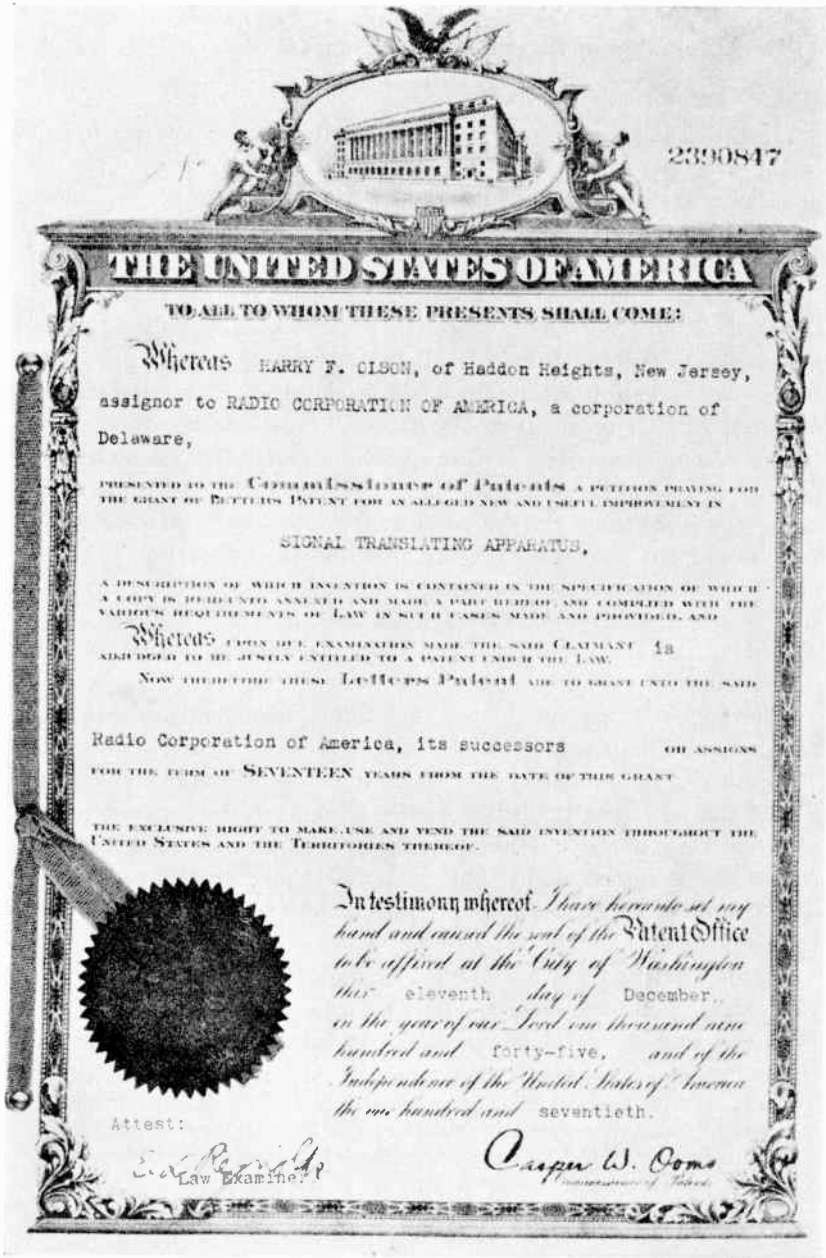
1. *Free-lance Inventor.*

In the absence of an expressed or implied agreement, an invention is the exclusive property of the inventor. He may keep, give away, or sell his invention because it is his property. A buyer of an exclusive right in an invention is apt to insist that a patent application be filed on behalf of the inventor and that the sale of the invention include an assignment of the patent application and the patents issuing thereon. Some other buyer might be content with less than the exclusive right to the invention; he might be willing to acquire a license to use the invention in certain fields, in specified states or territories, or for a limited term. A non-exclusive licensee is also apt to insist that a patent application be filed because in the ultimate absence of a patent, the inventor would be unable to prevent non-licensees from using the invention. Such a situation would hardly attract licensees who would pay for the right to practice the invention while their non-licensed competitors might use the invention without any obligation to pay the inventor. Thus it is clear that a free-lance inventor should protect his inventions, and make licenses attractive by obtaining patents.

The patent itself is evidence that the Government has granted the patentee, and his assigns, the exclusive right, for a limited term (now 17 years), to make, use, and vend the invention throughout the United States and the Territories thereof. A photostatic copy of a patent grant is reproduced on the following page. In the instant case the patent was assigned at the time the application was filed and since the assignment was recorded promptly, the patent was assigned on its face to the assignee.

If the inventor has not previously assigned the patent application, the patent will be issued to him. He will be free to dispose of the invention and patent in accordance with the law:

> "Section 4898 R.S. (U.S.C., title 35, sec. 47). Every patent or any interest therein shall be assignable in law by an instrument in writing, and the applicant or patentee or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent or patent to the whole or any specified part of the United States * * *"



2390847

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Whereas HARRY F. OLSON, of Haddon Heights, New Jersey, assignor to RADIO CORPORATION OF AMERICA, a corporation of Delaware,

PRESENTED TO THE Commissioner of Patents A PETITION PRAYING FOR THE GRANT OF LETTERS PATENT FOR AN ALLEGED NEW AND USEFUL IMPROVEMENT IN

SIGNAL TRANSLATING APPARATUS,

A DESCRIPTION OF WHICH INVENTION IS CONTAINED IN THE SPECIFICATION OF WHICH A COPY IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND COMPLIED WITH THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED, AND

Whereas UPON DUE EXAMINATION MADE THE SAID CLAIMANT is ADJUDGED TO BE JUSTLY ENTITLED TO A PATENT UNDER THE LAW.

NOW THEREFORE THESE Letters Patent ARE TO GRANT UNTO THE SAID

Radio Corporation of America, its successors OR ASSIGNS

FOR THE TERM OF SEVENTEEN YEARS FROM THE DATE OF THIS GRANT

THE EXCLUSIVE RIGHT TO MAKE, USE AND VEND THE SAID INVENTION THROUGHOUT THE UNITED STATES AND THE TERRITORIES THEREOF.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington this eleventh day of December, in the year of our Lord one thousand nine hundred and forty-five, and of the Independence of the United States of America the one hundred and seventieth.

Attest:

Law Examiner

Casper W. Ooms
Commissioner of Patents

In accordance with the statute quoted above, it is clear that (1) an applicant for a patent or the patentee may assign his property in the patent; (2) those to whom the applicant or patentee has assigned his interest may also assign their interests; (3) the right to the patent grant does not have to be assigned in its entirety but may be divided as to any specified part of the United States; and (4) in the event of the death or incapacity of the patentee, his legal representative acquires title in the patent, which may be assigned by the representative.

While it may not be clear from reading the statute, the owner of a patent may sell shares in the grant; may grant licenses to others to make, use, or vend the invention of the patent; may dedicate the patent to the public; or may simply hold the patent without using or attempting to use it. Briefly, the patentee or his assigns are free to make any lawful disposition of the property in the patent, which may be treated like any other property and is entitled to the same protection. (Seymour v. Osborne, 78 U.S. 516, 533).

2. *Inventor Subject to Employment Agreement*

One, who is employed or is about to be employed, is likely to be asked to sign a written agreement dealing with the right to inventions made during the course of his employment. It is usual for an employer to request his employees, who have been hired to make inventions or who because of the nature of their employment are normally expected to make inventions, to enter into such employment agreement. The agreement usually provides: (1) that the employee will assign, or actually does assign to his employer or his employer's nominee, the inventions made during the course of his employment and relating to the employer's business; (2) that the employee upon request will assist in the preparation of patent applications for such inventions; (3) that the employee will execute and assign such patent applications and the patents issuing thereon; and (4) that he will do whatsoever is necessary to vest the title in the inventions and patents in his employer or his employer's nominee. By way of illustration reference is made to the RCA employment agreement (Form 232A—See pages 140 and 141.)

The usual consideration for the assignment is the employment, although some employers give incentive payments in addition to salary or wages. While the foregoing represents the general run of patent agreements between employer and employee, many other conditions might be expressed. When the conditions are lawful, the written agreement determines the relations of the parties and the ownership of the inventions and patents.

Form 232 A

RADIO CORPORATION of AMERICA

Full name.....Dep't.....Place.....Date.....19...

AGREEMENT

IN CONSIDERATION of my employment by the Radio Corporation of America, hereafter called the Corporation, I agree:

I. I will communicate to the Patent Department of the Corporation all inventions made or conceived by me from the time of entering the Corporation's employ until I leave, along electrical, acoustical and optical lines and along all lines of the work, investigations or obligations of the Corporation and of those companies in which it has a substantial interest, or resulting from or suggested by any work which I may do for the Corporation, or at its request, and will assist the Corporation and its nominees in every proper way (entirely at its expense) to obtain for its own benefit patents for these inventions in any and all countries, the inventions to be and remain the property of the Corporation or its nominees whether patented or not. As a matter of record, I attach hereto a complete list and brief descriptions* of all inventions, patented or unpatented, which I made or conceived prior to my employment by the Corporation, and I desire that these inventions shall be excluded from this agreement.

II. It is understood that if I am transferred, by a written order of the Corporation, to an occupation in which I am not (a) hired to invent or (b) normally expected to invent, the obligations hereof to assign inventions shall be suspended for the period of such transfer, except in respect of inventions made during the course of a contract between the Corporation and the U. S. Government, or a representative thereof, requiring the granting of patent rights to the Government.

(Signature).....

Witness:

.....

Original to be signed by employee, witnessed by Head of Department, or his duly authorized assistant, and retained by Radio Corporation. Copy to be given to employee.

*No such list attached—employee represents that he has no such inventions at the time of signing this agreement.

(This footnote to be cancelled with ink if any such inventions exist.)

(OVER)

Form 232 A

The men who are asked to sign this agreement are those who in the natural course of events may be brought in touch with the problems which are from time to time presented to the Radio Corporation of America for solution, and with the efforts which are being made by various engineers attached to the Corporation to solve these problems. Without an agreement to assign inventions along the line of the Corporation's activities it would be impossible to put these men in any such relations with the Corporation's work, and to bring them into free and open relations with those engineers who are regularly assigning inventions to the Corporation.

While the Corporation holds out no promise of additional compensation for assignment of inventions, its policy is to recognize all good service of whatever nature, by proper adjustment of the salaries of employees, by advancement in opportunity and responsibility and otherwise, and inventive ability is in general recognized as an element of value just as designing ability, executive ability and other similar traits are recognized.

As the employee is to assign inventions which he makes after he enters the employ of the Corporation, then for his own protection as well as in the interests of the Corporation it is desirable that records should be made of the inventions which he possesses at the time of employment and which he would therefore naturally wish to exclude from the operation of the contract and to take up specially with the Corporation if they were such that the Corporation would be likely to be interested in them.

CONFIDENTIAL INFORMATION

It is obvious that during his employment a man may acquire many records and data and much confidential information which under no circumstances should he use after the termination of the employment. There is also much that is marginal, or to which doubt may arise. It is difficult exactly to draw the line in writing; a man's own sense of propriety is usually the safest guide in each particular case. The more experience he has the more careful he becomes in such matters. The Corporation will in many cases be glad to have the employee use such information, but expects the employee to obtain permission in each case when doubt arises.

Often the employment agreements include some restriction relating to the use of confidential information obtained during the course of employment after the employment has terminated. When the restraints are reasonable, they are enforceable. The restraints must not become a perpetual bar to the employee obtaining gainful employment. The attitude of the Courts is well expressed in Sternberg v. O'Brien, 48 N.J. Eq. 370, which was recently quoted with approval in Sprague Electric Company v. Cornell-Dubilier Electric Corp., 66 U.S.P.Q. 431, 435:

> "The law is settled that a contract in restraint of labor which seeks to prevent one of the contracting parties from exercising his skill or labor generally, without limitation as to place or time, or which attempts to put a restraint upon his right to labor or to exercise his skill greater than is necessary for the fair protection of the other party to the contract, is void."

While the Courts are reluctant to enforce contracts unnecessarily restraining labor, reasonable and temporary restraints are not only not set aside, but the employer may recover substantial damages from an employee who violates his employment agreement.

Conmar Products Corporation sued Henry Tibony, formerly one of its employees, who had learned Conmar's trade secrets during the course of his employment. Tibony was under a contract not to disclose such trade secrets. He left Conmar and assisted the Lamar Corporation in designing certain machines which infringed patents owned by Conmar and in doing so Tibony not only imparted Conmar's trade secrets but contributed to the infringement.

Tibony failed to attend the trial and the matter was referred to a Special Master for an accounting. The Special Master attributed $16,556.62 as Tibony's gain from the Lamar work plus smaller amounts for work with other companies. When the findings were referred back to the District Court, Tibony offered a number of objections which were overruled. In approving the findings the Court said:

> "Until such time as contracts are no longer to be accorded a recognized status in our law, it is believed that there is nothing reactionary in the view that this defendant must be held to have deliberately and intentionally committed a serious breach of an enforceable written contract into which he freely entered." (Conmar Products Corporation v. Tibony, 67 U.S.P.Q. 323, 327.)

3. *Ownership of Invention and Patent Rights in Absence of Agreement*

Considerable litigation over invention and patent rights between employers and employees, especially between those who have not entered into written agreements, has defined fairly definitely the ques-

tion of ownership. The general rule is that in the absence of an agreement, the right to an invention and patent belong to the employee who made the invention; *but there are two extremely important limitations.* The rule and the limitations are well expressed by Mr. Justice Brewer speaking for the United States Supreme Court in Solomons v. United States, 137 U.S. 342, 346:

> "* * * The government has no more power to appropriate a man's property invested in a patent than it has to take his property invested in real estate; nor does the mere fact that an inventor is at the time of his invention in the employ of the government transfer to it any title to, or interest in it. An employé, performing all the duties assigned to him in his department of service, may exercise his inventive faculties in any direction he chooses, with the assurance that whatever invention he may thus conceive and perfect is his individual property. There is no difference between the government and any other employer in this respect. But this general rule is subject to these limitations. If one is employed to devise or perfect an instrument, or a means for accomplishing a prescribed result, he cannot, after successfully accomplishing the work for which he was employed, plead title thereto as against his employer. That which he has been employed and paid to accomplish becomes, when accomplished, the property of his employer. Whatever rights as an individual he may have had in and to his inventive powers, and that which they are able to accomplish, he has sold in advance to his employer. So, also, when one is in the employ of another in a certain line of work, and devises an improved method or instrument for doing that work, and uses the property of his employer and the services of other employés to develop and put in practicable form his invention, and explicitly assents to the use by his employer of such invention, a jury, or a court trying the facts, is warranted in finding that he has so far recognized the obligations of service flowing from his employment and the benefits resulting from his use of the property, and the assistance of the co-employés, of his employer, as to have given to such employer an irrevocable license to use such invention. The case of McClurg v. Kingsland, 1 How. 202, (42 U.S. 202) is in point."

The doctrine of a shop right or employer's license has been stated by the Court in Grip Nut Co. v. Sharp, 66 U.S.P.Q. 391, 395 as follows:—

> "It will be enough to say that the inventions here in issue were developed and perfected in plaintiff's plant with its time, materials and appliances, and wholly at its expense; hence the court correctly concluded that plaintiff had shop rights under the patents. We are fortified in this belief since the principle has been established that if an employee in the course of his employment makes an invention using his employer's time and materials, the employer has a free indefeasible license and shop right under the invention and any patent covering the invention, which shop right is co-extensive with

> the business requirements of the employer, * * *; that is to say, because the servant uses his master's time, facilities and materials to attain a concrete result, the employer is entitled to use that which embodies his own property, and to duplicate it as often as he may find occasion to employ similar appliances in his business. * * *"

8.02. *Use of Patent.*

As stated in Section 8.01 a patent is a grant to the patentee, who may use or not use the grant provided he does so lawfully. For example, in the Paper Bag Patent Case, (210 U.S. 405, 425) the United States Supreme Court adopted for a second time the language of the Circuit Court of Appeals for the Sixth Circuit in Heaton Peninsular Company v. Eureka Specialty Company, 77 Fed. Rep. 294 as follows:

> "* * * If he [a patentee] sees fit, he may reserve to himself the exclusive use of the invention or discovery. If he will neither use his device nor permit others to use it, he has but suppressed his own, * * * his title is exclusive, and so clearly within the constitutional provisions in respect to private property that he is neither bound to use his discovery himself or permit others to use it. The dictum found in Hoe v. Knapp*, 17 Fed. Rep. 204, is not supported by reason or authority."

The doctrine that a patentee is not bound to use or to permit others to use his invention during the term of the patent has been repeatedly affirmed in the United States. Laws in many foreign countries require the patentee or his assignee "to work the patent", and in such countries a very limited working of the patent seems sufficient.

If a patentee elects to use the patent himself, he may make, use and sell the machine, composition or device of the claimed invention. He may practice any combination of the three rights, i. e., make, use or sell. He may employ others to exercise one or more of the three rights and exercise one or more of the rights himself. In some cases geographic division may be employed so that the patentee operates in one section of the country and licenses others to operate in the remaining sections. A patentee might license others in certain fields and reserve all other fields to himself, e. g., the license might cover non-commercial uses such as radio in the home, and the reserved field might include commercial uses such as in theatres.

A patentee, patent owner, or licensee under a patent must bear in mind that the right granted by the Government to make, use or sell *does not include the right to use the unexpired patents of others.* This restriction applies in two directions: (1) If there is an earlier patent

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* Note in Hoe v. Knapp the lower Court held that a patentee was bound to use the patent or allow others to use it on reasonable terms.

with broad claims, the earlier patent stands squarely in the path and excludes the manufacture, use or sale of the later invention, in the absence of a license, until the earlier patent has expired. (2) If a later inventor makes an improvement over the earlier invention, the owner of the patent on the earlier invention has no right to use the improvement. In Odiorne v. Winkley, 18 Fed. Case 581, Judge Story voiced the first restriction in the following words:

> "The original inventor of a machine is exclusively entitled to a patent for it. If another person invents an improvement on such a machine he can entitle himself to a patent for such improvement only, and does not thereby acquire a right to patent and use the original machine; and if he does procure a patent for the whole of such a machine with the improvement, and not for the improvement only, his patent is too broad, and therefore void."

8.03. ***Patent Licenses.***

Licenses to use a patent were mentioned in Section 8.02 in connection with the patentee's or patent owner's active engagement in the practice of his invention. Instead of participating in the actual use of the invention, many patent owners prefer to license others to make, use or vend the invention. The present section is directed to a general consideration of patent licenses.

Patent licenses may involve a variety of forms but generally licenses are: (1) exclusive or non-exclusive, (2) transferable or non-transferable, (3) divisible or indivisible, (4) subject to payment of royalties or royalty-free, and (5) limited or unlimited. The limitations imposed might apply with respect to time, territory, field of use, or to combinations of the three functions; i.e., (1) manufacture, (2) use, or (3) sale. The number of combinations of terms or conditions of a patent license is almost unlimited. The most common form of license is non-exclusive, non-transferable, subject to royalties based on extent of use, with a grant of the right to make, use, or vend the invention of the patent.

The nature, conditions, and terms of a license depend upon many things; such as, the custom of the industry in which the invention is to be used; the demands of the licensor, who grants the license; and the interest and needs of the licensee, who acquires the license. It is unusual for the licensor to agree to do more than to permit the licensee to use the patent. However, although it is unusual, the licensor may agree to protect his licensee against infringement suits which are brought against the licensee practicing the patented invention. In other license agreements the licensor may agree to sue those who infringe the licensed patent. In this connection it is noted that a non-exclusive licensee does not have the right to bring an infringement

suit. The right to sue belongs to the patent owner or his exclusive licensee. As a practical matter many licensors do sue infringers to have their patents adjudicated whereby infringers may be enjoined from further infringement. This increases the value of their licenses.

It may not be out of place to voice a few comments about the value of licenses. The average free-lance patentee strives to get a high return from his invention but in doing so he may ask too much royalty. It is easy to understand his viewpoint: he may believe that his invention is the sole means of accomplishing the desired result; and therefore, he may believe that he can extract whatever royalty he pleases. But the truth is that very few inventions are "the sole means," and if they are, most inventions do not stay long in that class.

If the price of a license is high, a great effort will be made to find a cheaper or even a better means to produce the result. Rarely does that effort fail. On the other hand, there are always those who are willing to infringe and to take their chances on the outcome of an infringement suit. The infringer may be and usually is well fortified with prior art, and, not infrequently in the present cycle, the patent will be declared invalid by the trial court. Even if the patent should be valid, there is a reasonable chance, that the natural developments of the art will displace the invention.

On the other hand there may be no suits or there may be no attempt to avoid the patent and yet the license fails to bring substantial returns. In such situations the license fees or royalties may weigh too heavy in the final price. If the royalty rates were lower, the returns might be greater. There can be no doubt that even a patent cannot set aside the "law of diminishing returns." The "law" does operate and experience demonstrates that royalty rates on the low side of reasonable are apt to produce more income than excessively high rates.

TABLE OF CITATIONS

TABLE OF ILLUSTRATIONS

INDEX

A

B

C

D

E

F

J

K

L

M

N

O

P

R

S

T

U

V

W