

If they did not know them, they knew that licenses of some sort had been given by Raymond, who was their trustee and attorney; and, if they saw fit to make no inquiry, they became, on all principles of equity, equally estopped. If, in 1893, they had brought a bill in equity to obtain the cancellation of the license held by Harnden, their bill would clearly have been defeated by their laches; and the equities against them when Henderson granted his license to Abbott, if they had then been put in the position of defendants by Harnden, were precisely the same as though they had brought a bill of the character supposed. Abbott's equities are no greater than theirs. Let there be a decree in favor of the Ross Heel Company for an injunction and a master.

ERIE RUBBER CO. v. AMERICAN DUNLOP TIRE CO.

(Circuit Court of Appeals, Third Circuit. July 22, 1895.)

No. 20.

1. PATENTS—LIMITATION OF CLAIMS—AMENDMENTS IN PATENT OFFICE.

Where the original application for a bicycle patent was for a tire in combination with a wheel having a grooved rim with supplemental grooves, and the only rim shown in the drawing had supplemental grooves, and the specification and claims underwent several modifications and amendments on reference to other patents, but the drawings remained unchanged, and there was no intimation that the supplemental grooves could be dispensed with, until, by a final amendment, all mention of them was omitted from one of the claims, it seems that this claim should be limited by reading into it the supplemental groove. Otherwise, it would seem that the patent would be void for enlargement beyond the scope of the original application, which alone was supported by the required oath.

2. SAME—INFRINGEMENT—BICYCLE TIRES.

The first claim of the Brown and Stillman patent, No. 488,494, for a pneumatic tire made inextensible circumferentially by means of circumferential reinforcements along two lines within the edges and above the bottom of the groove, whereby the tire is made to seat itself on inflation, and the necessity for mechanical connection with the rim is obviated, held not infringed by a tire made according to the Moomey patent, No. 513,617, which is not retained upon the rim by internal air pressure alone, but requires binding cords in addition thereto, besides other points of difference. 66 Fed. 553, reversed.

3. SAME—EQUIVALENTS.

In applying the doctrine of equivalents, a distinction is made between inventions of specific devices and inventions of combinations. In a simple invention the range of equivalents is much wider than in a combination. In the former a change which would be held to be a substitution of equivalents may in the latter be considered to be an introduction of a new idea of means.

Appeal from the Circuit Court of the United States for the Western District of Pennsylvania.

This was a bill by the American Dunlop Tire Company against the Erie Rubber Company for alleged infringement of a patent relating to pneumatic bicycle tires. In the circuit court the patent was held valid and infringed as to the claim in issue, and a decree was entered accordingly. 66 Fed. 558. Defendant appeals.

Horace Pettit, John K. Hallock, and H. C. Lord, for appellant.
P. W. Page and S. A. Duncan, for appellee.

Before ACHESON and DALLAS, Circuit Judges, and WALES, District Judge.

WALES, District Judge. This is a suit for the infringement of the first claim of letters patent No. 488,494, dated December 20, 1892, and issued to Alexander T. Brown and George F. Stillman, for an improvement in inflatable or pneumatic wheel tires for cycles and other vehicles. The American Dunlop Tire Company, the complainant, by virtue of certain mesne assignments, became the owner of the patent, and obtained an interlocutory decree in the circuit court against the Erie Rubber Company, the defendant, which has brought this appeal.

The specification of the patent declares that:

"The primary object of the invention is to provide a tire which, while possessing the resiliency and life of what are technically known as true or high-grade pneumatics, may be readily and easily detached from, or applied to, the rim of a wheel."

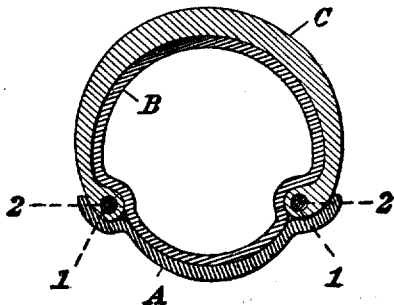
The chief characteristics of the improvement are described to be:

"First, an exteriorally grooved rim, with divergent side edges or flanges; and, second, a tire comprising or confining an inflatable tube, seated and contained partly within the grooved rim, and made rigid or nonextensible circumferentially along two lines on opposite sides, which lie within the groove, below the edges, but above the bottom or deepest part of the same."

"In the practical carrying out of our invention, we secure the best results by attaching to or incorporating with the tire two metallic wires or bands, endless or having connected ends, and combining such a tire with a peripherally grooved rim, having in each divergent side or flange, and above the bottom or deepest part of the groove, a supplemental groove, or an offset or shoulder, up, into, or onto which the wires or bands are forced by the air pressure when the tire is inflated, and where they are seated and retained by that pressure. A tire thus constructed requires no permanent connection of any description between it and the rim, as the internal air pressure alone is amply sufficient to maintain it in position thereon. It further obviates the use of tightening appliances, or accessories other than those required for inflation, or any manipulation of the same, in the operation of applying the tire to, or removing it from, the rim."

The accompanying figure, representing a cross section of the patented combination, and reproduced from the drawings of the patent, illustrates the invention in the preferred form, as above described.

B is the inner tube; C, the outer cover, with wires, 2, 2, in its edges; A, the rim; and 1, 1, the supplemental grooves or shoulders.



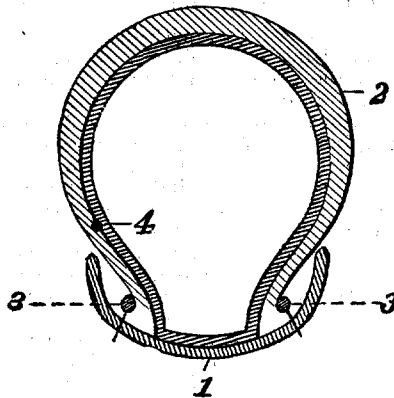
The first claim reads thus:

"(1) In combination with an exteriorally grooved rim, having divergent side edges or flanges, a tire comprising or confining an inflatable tube, seated and contained partly within the grooved rim, and made rigid or inextensible circumferentially along two lines lying within the groove, below the edges, but above the deepest part of the same, by means of circumferential reinforcements secured to or incorporated with it, and adapted to be held in place in the rim by the action of the internal air pressure."

The alleged infringing device is manufactured and sold by the defendant under a license from Joseph G. Moomey, to whom letters patent No. 513,617, dated January 30, 1894, were issued for improvements in pneumatic tires, the specification whereof states:

"More specifically, my invention has relation to the fastening of the tire to the rim of the wheel, and particularly to that class of tires having flaps on their peripheries, on which a binder is placed, binding them to the rim of the wheel."

The Moomey tire is shown in the following drawing, representing a transverse section:



In this cut, 1 marks the rim; 2, the tire; 3, a string or cord binder wrapped several times around the wheel, and binding the tire firmly upon the rim; 4, the inflatable tube.

The defenses are (1) that the first claim is invalid, or, if valid, can have no scope beyond the structure shown in the drawings, and described in the original specification; and (2) noninfringement.

By reference to the file wrapper and contents, it appears that the original application of Brown and Stillman, filed June 20, 1891, was for the invention of new and useful improvements in tires for vehicles, of which the specification, "taken in connection with the accompanying drawings, is a full, clear, and exact description." The specification further states, "Our invention consists of the several novel features of construction and operation hereinafter described, and which are specifically set forth in the claims hereto annexed." The claims for the supplemental grooves, when first made, were rejected by the examiner, on the ground that the prior patents of Harris and Du Bois "show solid tires held in place on the rim by the lateral shoulders and wires, and is the same means as employed by

applicant." The first specification and claims having been canceled entire, others were substituted by the applicants, which, however, retained the "auxiliary, concaved flanges," and these substitutions were also amended on additional objections from the examiner. On the third amendment two claims were added, for "the combination with the rim, having side cavities, of a flexible tire," etc. The fourth amendment was for a "wheel rim having a central, peripheral groove, and a supplemental groove, of increased diameter, at each side of the said central groove, in combination with a pneumatic tire having its expansible tube disposed in said central groove, and a wire annulus secured to each edge of the tire casing, and disposed in said supplemental grooves in the manner described."

It is conceded that this device was novel, and entitled to the protection of a patent, but it will be observed that the patent is for a combination; and to support the charge of infringement, against the defendant, it must be shown that it has made use substantially of the same combination, including every one of the elements thereof, or a mechanical equivalent for any one that has been omitted. It will also be noticed that the defendant does not use the supplemental grooves, and it is admitted that if those grooves are, constructively or by implication, included in the first claim, there is no infringement. On this point the issue between the parties is distinctly made. The complainant contends that the first claim covers a rim without the supplemental grooves; and the defendant insists that this construction would extend the claim beyond the scope of the original application and in opposition to the express limitation contained in the correspondence of the applicants with the patent office, and render it invalid. The original application of Brown and Stillman was for a tire in combination with a wheel having a grooved rim with supplemental grooves, and the accompanying drawings illustrate a rim of that description, and no other. The specification and claims underwent several modifications and amendments on references to other patents; but the drawings remained unchanged, nor was any claim made or intimation given that the supplemental grooves could be dispensed with, until the final amendment, of December 1, 1892, when, for the first time, claim 1, as it now appears, was made and allowed, and a clause was interpolated in the specification corresponding therewith. Before this, on March 18, 1892, the examiner having pointed out that the Jeffrey patent contained a tire having "endless bands imbedded in its edges," the claims were so amended as to specify the supplemental grooves as a feature of the claims, and thereby avoid the Jeffrey interference. Additionally, it is not denied that the complainant has never put on the market, for sale, a single patented structure without the supplemental grooves. On May 24, 1892, an interference was adjudged between Brown and Stillman and prior patentees, on the following issue:

"A wheel rim having a central, peripheral groove, and a supplemental groove, of increased diameter, at each side of said central groove in combination with a pneumatic tire having its expansible tube disposed in said central groove, a wire annulus secured in each edge of the tire casing, and disposed in said central grooves."

A compromise having been effected by a consolidation of the interests of the parties to the interference, the application, filed June 20, 1891, was allowed, and the patent in suit was issued.

It is objected, and, we think, with much force, that if claim 1 is not restricted to a rim with side grooves, the patent will be enlarged beyond the scope of the original application, which is alone supported by the required oath, and thereby rendered invalid. This contention is supported by reason and authority. Thus, in *De La Vergne Bottle & Seal Co. v. Valentine Blatz Brewing Co.*, 14 C. C. A. 77, 66 Fed. 771, the court said:

"It is true that the language of the specification and the claim of the patent is different, in this respect, from that first used in the application, but the correspondence contained in the file wrapper discloses no purpose to change the character or scope of the invention in this particular."

The claim of the patent must be restricted within the limitation imposed by the patent office and accepted by the applicant. *Eagleton Manuf'g Co. v. West, Bradley & Carey Manuf'g Co.*, 111 U. S. 490, 4 Sup. Ct. 593; *Machine Co. v. Featherstone*, 147 U. S. 209, 13 Sup. Ct. 283; *Snow v. Railway Co.*, 121 U. S. 617, 7 Sup. Ct. 1343; *Crawford v. Heysinger*, 123 U. S. 589, 8 Sup. Ct. 399; *Consolidated Electric Light Co. v. McKeesport Light Co.*, 40 Fed. 21. The fact that the third claim of the Brown and Stillman patent covers a rim having the supplemental grooves does not remove the self-imposed limitations of the patentees, and permit such a construction of the first claim as would prohibit the use by the defendants of a rim not having the side grooves. The infringement of the first claim only being at issue, the remaining claims are out of the present controversy. We do not wish, however, to be understood as expressing a definite conclusion on this branch of the case. It is sufficient to say that it is worthy of serious consideration.

The first claim makes no reference to the supplemental grooves, but, in view of the correspondence attending the passage of the case through the patent office, it becomes important to ascertain whether the patentees ever meant to claim a rim not having the supplemental grooves, and, if such was their meaning, whether it would be within the scope of the patent. But admitting the construction of the first claim to be that given to it by the court below, namely, "that the element of a supplemental groove is neither expressly nor impliedly incorporated in the claim now being considered," we are fully convinced, after a careful examination of the proofs, including the history of the prior state of the art, that the defendant is free from the charge of infringement. The patent in suit is for a combination, and not for a pioneer device. All of the elements of the combination were old, excepting the mode of fastening the tire on, and of removing it from, the rim; and this is accomplished by the particular arrangement of reinforcing the edges of the tire so that, when fully inflated, it will be "seated and contained partly within the grooved rim, and made rigid and nonextensible circumferentially along two lines, between the edges, but above the deepest part of the same." The specification states the primary object of the invention to be "to provide a tire * * * which may

be readily and easily detached from or applied to the rim of a wheel.

* * * A tire thus constructed requires no permanent connection of any description between it and the rim, as the internal air pressure alone is amply sufficient to maintain it in position thereon. It further obviates the use of tightening appliances, or accessories other than those required for inflation, or any manipulation of the same, in the operation of applying the tire to, or removing it from, the rim." Prior to the date of the Brown and Stillman patent, three different modes of applying and retaining a pneumatic tire on a wheel had been in use, which may be classified as follows: (1) Those in which the tire consists of an endless tube of canvass and rubber, usually, but not always, containing an inner, inflatable, air tube, and permanently secured within the groove of the rim by cement or otherwise, and known as "hose-pipe tires." (2) Those in which the edges of the shoe or cover engage the side flanges of the rim by a hook or dovetailed formation, and are held in place by the force of the internal air pressure, and are known as "clinchers tires." To this class belong Jeffrey's patent and Bartlett's patent (defendant's exhibits). (3) Those wherein the edges of the shoe or cover are bound to the rim by some form of binder, or clamping means, which must be manipulated in the operation of applying the tire to, or removing it from, the rim. To this class belong several patents which are contained in defendant's exhibits, including the Rice patent, of April 19, 1892. The application of Rice was filed May 8, 1891, and the object of his invention, as set forth in the specification, was to "produce an effective means for securing the tire to the rim of the wheel; and it consists in a wheel having a rim constructed with an annular central bearing surface for the tire, and with an annular groove at each side of said bearing surface, combined with a tire arranged in said central portion of the rim, with a flexible jacket surrounding the tire; the jacket constructed with circumferential pockets at its edges, and wires through the said pockets, provided with means for contracting said wires into the said annular grooves at the sides of the bed of the tire, and whereby the said jacket thus secured to the rim incloses and secures the tire upon the rim." The first difference to be noted between the Brown and Stillman tire and the defendant's tire is that the latter is not retained upon the rim by the internal air pressure alone, but belongs to the third class of tires just described; and, secondly, that the tires of this class cannot be removed from the rim without loosening the binders, and this distinguishes them from the Brown and Stillman tire, which is kept in place upon the rim by air pressure alone, and is readily removed by the deflation of the air tube. Again, Brown and Stillman, in their correspondence with the patent office, in avoidance of objections which were made by the examiner on reference to the prior patents, repeatedly limit their claims to "a tire having endless bands imbedded in the edges thereof." "Applicants' bands," they say, "are imbedded in the edges of tire, and do not require tightening." Distinguishing their invention from that of a prior patent, they call attention to the fact that

the bands of the latter "are not imbedded in the tire, and that applicants' bands are not required to be reduced in diameter." Their specification states, "We prefer that the bands be welded to be continuous, or that the ends thereof be connected by suitable means so that the tire may be adjusted to the proper fit upon the rim, but not to be used in removing the tire from, or attaching it to, the rim." Notwithstanding these limitations, and the marked differences between the complainant's tire and that of the defendant, the court below was of the opinion that "the cords of the respondent's device produce the same results as complainant's endless bands, in substantially the same way." In other words, the multiple cord wrappings of the Moomey tire are held to be the equivalents of the wiredged tire of the patent in suit. Practically, the same result may be effected by each of these tires, but the means by which the result is effected are, in our opinion, entirely different; the one tire being held in place by air pressure alone, while the other requires the addition of the binding cords to keep it on the rim. The edges of one are permanently reinforced by the imbedded wires. The edges of the other are of a different formation, and are applied to and detached from the rim in a different manner. The one is not the equivalent of the other, although the ultimate function of each may be the same, in the sense that all pneumatic tires, when attached to the rim in any way, act as elastic cushions, in promoting the comfort of those who use them. And here it may be remarked that, in applying the doctrine of equivalents, a distinction is made between inventions of specific devices and inventions of combinations. In a simple invention the range of equivalents is much wider than in a combination. In the former a change which would be held to be a substitution of equivalents may in the latter be considered to be an introduction of a new idea of means. Therefore, it is said, with reference to such elements in any combination as constitute its subordinate means, no other elements can be equivalent unless they are equivalent inventions; that is, unless they not merely perform the same functions, but perform them by applying the same force to the same object through the same mode of application. 1 Rob. Pat. 254; *Wells v. Curtis*, 13 C. C. A. 494, 66 Fed. 318. It is only when an invention is broad and primary in its character, and the mechanical functions performed by the machine are, as a whole, entirely new, that the courts are disposed to make the range of equivalents correspondingly broad. *Miller v. Manufacturing Co.*, 151 U. S. 207, 14 Sup. Ct. 310. The improvement made by Brown and Stillman was for a new mode of attaching to and removing the tire from the rim, and their invention is not so much one of a result or effect as it is of a particular arrangement of parts by which the result or effect may be obtained. The elements of the combination are old, with the exception of a tire which is held upon the rim by the conjoint action of the inextensible rigid bands imbedded in the edge of the tire and the outward action of the internal air pressure, and which can be applied to or removed from the rim without disconnecting the ends of the reinforcing wires. The defendant's tire

is of a different character from that of the complainant, both in the mode of its application to and of its removal from the rim, and in the manner in which it is secured and held in place on the rim. These differences, if there were no others, are sufficient to exempt the defendant from the charge of infringement. The defendant's tire, indeed, more closely resembles that of the Rice patent, and, so far as relates to the mode of fastening the tire to the rim, belongs to the third class of pneumatic tires described above. It is clear to even an unskilled observer that, in the methods of putting on and taking off the tire, the defendant's contrivance is entirely dissimilar to that of the Brown and Stillman patent, which are declared to be the primary objects of their invention, and which are admitted to be a decided improvement; but it is only an improvement, and, in the view we have taken of the facts established by the proofs in the cause, we do not see that the defendant has, in any respect, invaded the complainant's rights. We are therefore of the opinion that the decree of the court below should be reversed, and the cause remanded, with directions to dismiss the bill.

ANDREWS et al. v. THUM et al.

(Circuit Court of Appeals, First Circuit. June 11, 1895.)

No. 89.

Appeal from the Circuit Court of the United States for the District of Massachusetts.

This was a bill in equity by Otto and William Thum against John A. Andrews, William Y. Wadleigh, B. F. Bullard, and William A. Dole, trading under the name of John A. Andrews & Co., for alleged infringement of letters patent No. 278,294, issued May 22, 1883, and No. 305,118, issued September 16, 1884, both to Otto Thum, for improvements relating to fly paper. The circuit court rendered a decree for complainants (53 Fed. 84), and defendants appealed. A petition to dismiss the appeal was denied by this court (12 C. C. A. 77, 64 Fed. 149); and, the case being afterwards heard on the merits of the appeal, a decree was entered reversing the decree below, and remanding the cause, with directions to dismiss the bill. 15 C. C. A. 67, 67 Fed. 911. After the entry of this decree, the present rehearing was allowed.

John M. Perkins, for appellants.

Thomas J. Johnston, for appellees.

Before COLT, Circuit Judge, and WEBB and ALDRICH, District Judges.

PER CURIAM. Upon rehearing we see no reason to modify the views heretofore expressed, or to change the result already announced in this case. The decree of the circuit court is reversed, and the cause remanded, with directions to dismiss the bill, with costs.

PACKARD v. LACING STUD CO.

(Circuit Court of Appeals, First Circuit. October 18, 1895.)

No. 135.

1. PATENTS—PRIMA FACIE VALIDITY—OPERATIVE MACHINE.

The fact that no machine has been constructed and put into practical operation under a patent is not, of itself, sufficient to show that the patent is inoperative, or to overcome the prima facie presumption of its validity from the fact of its issuance. If the proofs do not overcome this presumption, and the device is of such a character, or relates to such special and peculiar subject-matters, that it does not come within the range of common experience or judicial knowledge, the prima facie showing must stand.

2. SAME—SUFFICIENCY OF SPECIFICATIONS.

Where it is claimed that a patent, under which no machine has been put into practical use, would be inoperative because of a difficulty pointed out, it is only necessary that the specification should be such that a mechanic of ordinary skill in the art should be able, by the aid thereof, to overcome such difficulty.

3. SAME—ANTICIPATION—UTILITY OF ANTICIPATING MACHINE.

Where a machine is relied on only as an anticipation of the patent in issue, it is not necessarily of importance to inquire whether the same possessed utility or not, or was in all respects patentable.

4. SAME—INVENTION—ANTICIPATION.

A patent for a combination is not necessarily invalid by reason of the fact that all its elements could be brought together by selecting parts from various known machines of the same character, though this may require a strict construction of its claims.

5. SAME—MACHINE FOR SETTING AND FEEDING LACING HOOKS.

The Eppler patent, No. 255,076, for a machine for feeding and setting lacing hooks, held void as to claims 1, 6, and 7, and valid as to claim 3, which is also held infringed by a machine made in accordance with the Smith patent, No. 309,166. 67 Fed. 115, modified.

Appeal from the Circuit Court of the United States for the District of Massachusetts.

This was a bill in equity by the Lacing Stud Company against Nathaniel R. Packard for alleged infringement of letters patent No. 255,076, issued March 14, 1882, to Andrew Eppler, Jr., for a machine for feeding and setting lacing hooks. The machine used by respondent was made according to letters patent No. 309,166, issued December 9, 1884, to Stephen N. Smith. The first, third, sixth, and seventh claims of the Eppler patent were put in issue in the case, and the circuit court held that each of these claims was valid, and was infringed by respondent's machine. 67 Fed. 115. Respondent appeals.

John L. S. Roberts, for appellant.

Frederick P. Fish and William K. Richardson, for appellee.

Before COLT and PUTNAM, Circuit Judges, and NELSON, District Judge.

PUTNAM, Circuit Judge. This is a suit on a patent for improvements in machines for feeding and setting lacing studs. The defendant below (now appellant) claims that the patented machine of the plaintiff below (now appellee) is inoperative; and, in turn, the plain-