

appellant has allowed this testimony to stand without contradiction. It is not justifiable to say that the witness could not have made Astrakhan cloth by Booth's method at the date of Bywater's patent though he may have done it in the light of subsequent knowledge, in the absence of evidence tending to prove it. The question involved is one of fact which the circuit court, as its opinion shows, considered with unusual care; and its judgment is entitled under the circumstances to much weight.

Granting however that there is some difference in the two methods, it is not such, in my judgment, as involves the exercise of invention.

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WESTERN ELECTRIC CO. v. STANDARD ELECTRIC CO.

(Circuit Court of Appeals, Seventh Circuit. January 25, 1898.)

No. 422.

PATENTS—INTERPRETATION AND INFRINGEMENT—DYNAMO-ELECTRIC MACHINES.

The Scribner and Warner patent, No. 496,449, for an improvement in perforated pole-pieces for dynamo-electric machines, if valid at all, is very narrowly limited by the prior state of the art, as shown in the Hochhausen patent, No. 404,848, and others. And claim 2, which is for a machine "having consequent pole pieces cut away or perforated on a line coincident with a plane passing through the axis of the armature shaft, such perforations being symmetrical with regard to said plane, whereby a uniform magnetic field is produced, regardless of the direction of rotation of the armature," is not infringed by machines made under the Loveridge patent, No. 500,403. 81 Fed. 192, affirmed.

Appeal from the Circuit Court of the United States for the Northern Division of the Northern District of Illinois.

Henry A. Seymour, George P. Barton, and Charles A. Brown, for appellant.

Francis W. Parker and Donald M. Carter, for appellee.

Before WOODS and JENKINS, Circuit Judges, and BUNN, District Judge.

WOODS, Circuit Judge. The ruling of the circuit court in this case was that the second claim of letters patent of the United States No. 496,449, issued May 2, 1893, on the application of Charles E. Scribner and Earnest P. Warner, to the Western Electric Company, as assignee, is so far limited by the prior art as not to be infringed by devices made by the Standard Electric Company in conformity with letters patent No. 500,403, issued June 27, 1893, to F. H. Loveridge. The opinion delivered (81 Fed. 192), it is conceded, displays "an appreciation of the points at issue," intricate as in some respects they have been made to appear, but is criticized because its review of the prior art is confined to the patent of Hochhausen, No. 404,848, which it is said, is without significance, because it is for an electric machine which has no pole-pieces. But that objection was considered, and, as we think, sufficiently answered, in the opinion, and, without going again into the details of the subject, we deem it enough to declare our concurrence in the views of the circuit court concerning that patent. A further examination into the prior art, perhaps,

might have strengthened, but could not have changed, the conclusion.

The two claims of the patent in suit are closely related, the one being for a process, and the other for a product or result of the employment of the process upon the pole-pieces of an electric machine; and it is evident, upon the face of the patent, that neither claim embodies a pioneer discovery, and, if invention is shown, it is of a very narrow scope. The specification describes, in general terms, a process for discovering variations or lack of uniformity in the lines of force cut by the coils of the armature of an electric dynamo when the resistance in the circuit is gradually cut out or shunted, and the brushes rotated, meanwhile, from the maximum to the minimum point of commutation. In the claim it is called:

"The method of creating a uniform field for the short-circuited portion of the armature coils of a dynamo, which consists in shunting the brushes from the maximum to the minimum, varying the resistance in the circuit as the said brushes are shifted, and maintaining during said shifting freedom from sparking at the commutator by shifting the brushes slightly from the position that they would occupy if the field were uniform, in order to determine the amount and character of the variation in the distribution of the magnetic lines of force, and then perforating the pole-pieces to the degree thus found to be necessary, substantially as described."

It will be observed that neither in the claim nor specification is there disclosed any means or method of determining different degrees of irregularity of force, discovered by the experimental movements of the brushes between the maximum and minimum points of commutation; and in this respect the process of this patent differs, apparently to its disadvantage, from the process shown in the earlier patents, Nos. 402,200 and 410,656, granted to J. G. Statter, in which a volt meter is used to obtain from the different positions of the brushes "relative indications of the electro-magnetic force of the current (which are also relative indications of the resultant magnetic intensity produced by the mutual action upon each other of the field magnets and the armature) flowing through the coils." If the process of Scribner and Warner differs otherwise essentially from the process of Statter, it is not perceived, and whether there are other differences it is not important for the present purpose to inquire. Reference is made in the specification of the patent in suit to the first patent of Statter, in which, though the process is explained, the claims are for a dynamo-electric machine or motor having one or more pole-pieces cut away or incised, to neutralize irregularities of force to prevent sparking as the brushes are shifted; but it is pointed out that the pole-pieces there shown are salient, and, consequently, the armature can be rotated only in one direction, "since when the poles are incised for rotation in one direction the lines of force will not be properly distributed for rotation of the armature in the opposite direction." The special and characteristic advantage claimed for the dynamo of the patent is that its armature rotates in either direction, with no necessity for other change except the obviously expedient if not necessary one of making the brushes reversible. This is demonstrated by the statement in the specification that "our invention consists in producing, in the field, lines of force uniformly distributed as to generating or current producing effect throughout the arc or

segment traversed by the coils of the armature opposite the faces of the different pole-pieces, whereby the machine is made capable of running in either direction." The claim is for "a dynamo-electric machine having consequent pole-pieces cut away or perforated on a line coincident with a plane passing through the axis of the armature shaft, such perforations being symmetrical with regard to said plane, whereby a uniform magnetic field is produced, regardless of the direction of the rotation of the armature, substantially as described." It appears from the file wrapper that a claim in the same terms as this, except that it contained the words "at the center" immediately after the word "perforated," and did not contain the clause, "such perforations being symmetrical with regard to said plane," was rejected as containing nothing patentable over the references Statter, No. 402,200, and Hochhausen, No. 404,848. Those patents show ample knowledge of the irregularities in the field of force, and of the distortion of the lines of force due to armature reaction, to which imperfect short-circuiting and the consequent sparking or burning are attributable, and also show the method, not essentially unlike that of the patent in suit, and applicable equally to salient and consequent pole-pieces, of making the field of force uniform. With a knowledge of the earlier patents in the art it could not be invention to produce uniformity in the field of force of a consequent pole-piece or pieces, and it is difficult to believe that it was not evident from the beginning that, in a pole-piece of ordinary form, the boring or cutting requisite for that purpose must be at or near the center, and, once the advisability of rotation in either direction was thought of, it must likewise have been manifest that symmetry of construction was essential, and that to accomplish the end it was only necessary that the pole-pieces be cut away or perforated symmetrically, and to the proper extent, "on a line coincident with a plane, passing through the axis of the armature shaft." To what extent the cutting or boring must go seems to be a matter of experiment in each case. The specification says that "every dynamo must have its pole-pieces specially constructed and adjusted, as no two dynamos contain the same character of iron with respect to magnetism." The one expert, on whose testimony the appellant relied, made repeated statements to the same effect. For instance, in his examination in chief, he said:

"This operation requires the exercise of caution and good judgment, because, to produce the desired result, the exact amount of metal necessary to the uniform distribution of the lines of force must be cut away, and one-half of such amount must be taken from each side of a line that is coincident with a plane passing through the axis of the armature shaft, in order that the dynamo shall run sparkless and maintain a steady current, which under all conditions of load, or when operated in either direction, shall always be the same in amount."

On cross-examination, after a similar statement, he said:

"In other words, there is just a correct amount of metal to be removed, and a correct disposition of that metal remaining, which will produce a uniform field, and any variation therefrom produces nonuniformity."

When asked whether the separation of the upper or north poles of the machine shown in figure 10 of the Houston patent, No. 258,648, tends to make the field more uniform than it would be if the poles

were not separated, he answered that that "could be determined only by experimental tests."

The proposition announced in Thomson-Houston Electric Co. v. Western Electric Co., 34 U. S. App. 186, 256, 16 C. C. A. 642, and 70 Fed. 69, that, "when such tests are necessary to distinguish one device from another, it is manifestly an impracticable, not to say dangerous, proposition that the making or using of either under a given patent may be declared to be an infringement of a different patent upon the other," would seem to apply with equal or greater force here. But, that aside, it is clear that the earlier electric machines, of which patents No. 184,966, to Holcombe; No. 233,047, to Thomson; No. 258,648, No. 272,256, and No. 286,612, to Houston; No. 330,836, to Johnson; No. 332,682, to F. G. Waterhouse; No. 335,998, to Fisher; and No. 389,029, to A. G. Waterhouse,—are examples, in which the pole-pieces were cut away or perforated or entirely severed at or near the line of the plane of the axis of the armature shaft, were or were not anticipations of the patent in suit according to the result of experimental tests, and, such tests not having been made, it remains a question of reasoning or conjecture, in the light of the evidence, whether the particular construction shown in any of the prior devices was such as to produce, or to tend in a substantial degree to produce, the desired uniformity in the field of force. It is not enough to exclude those patents from consideration to say that the incisions or perforations or separations of the parts of the pole pieces were intended, or were described as intended, for some other purpose than to produce a uniform field, as, for instance, for the purpose of ventilating the machine. Ventilation was necessary only to prevent or to restrict the consequences of sparking, which results from irregularities in the field of force; and in the light of the learning contributed by the experts it seems probable, if, indeed, not certain, that the beneficial effect accomplished was more the result of decreased irregularities in the field of force than it was of the ventilation, whether the patentees so understood or not. It was common knowledge that the distribution of the lines of force depended largely upon the form of construction or distribution of metal in the pole-pieces, whether salient or consequent; and that the reason why this was so was also well understood, if not otherwise proved, is demonstrated by the patents to Statler and Hochhausen. It is therefore not to be believed that when other and earlier patentees constructed electric generators or motors with pole-pieces incised, severed, or perforated at or near the center, or elsewhere, they did not know that the incision or other particular change of form given to the pole-piece would have a certain and definite effect upon the working of the dynamo, and whether they knew just what the effect would be, or why it would result, is immaterial. It was an inevitable result, and not merely an accidental phenomenon, like the formation of fat acid in Perkins' steam cylinder, which in *Tilghman v. Proctor*, 102 U. S. 107, 111, was declared to be of no consequence. Whatever others had done in the way of shaping pole-pieces, and whatever the effect upon the field of force of what was so done, before the patent to Scribner and Warner, the appellee had the right to do

after the issue of that patent; and unless done by the process of that patent, which for the purpose of this statement is assumed to be valid, the machine produced could not be deemed to infringe the second claim in question, though shown by experimental tests to have pole-pieces with a uniform field of force. It is beyond doubt that the particular construction or adjustment of material used in the construction of the pole-pieces of the earlier patents had a direct effect upon the distribution and regularity of the lines of force, and the necessary inference is that in the machines which had, as most of them did have, incisions, perforations, or separations located at or near the center of the pole-pieces, and symmetrical, or nearly symmetrical, with reference to a line coincident with a plane passing through the axis of the armature shaft, the fields of force were thereby made in some degree more uniform, and that any one skilled in the art would have so understood before the patent in suit was granted or its contents made public. As already explained, it was well known in the art that sparking and like irregularities in the action of electric dynamos were due to unequal distribution and to distortion of the lines of electric force cut by the moving coils of the armature, and it was known, too, that the amount of distortion or irregularity of distribution of the lines depended, other things being equal, upon the form and proportion of parts of the pole-pieces. It was therefore open to every one to make his pole-pieces in any possible form for the purpose of producing a uniform field. There were known methods of overcoming the consequences of an irregular field, such as automatically variable brushes, an air blast at the point of the brushes to blow out the spark, and dividing the commutator into numerous segments, and connecting therewith correspondingly small coils of wire around the armature; but, to produce uniformity of the field, there was, as it was well understood, no way except to obtain the best adjustment of metal in the pole-pieces, and the accomplishment and determination of that result, if the statements quoted from the patent and from the testimony of the appellant's expert be accepted, depended and must continue to depend largely on experimental tests. A process for accomplishing the end might well be the subject of a patent, and possibly the discovery of an exact form of construction, possessing a distinct advantage over other forms, might also be protected by a patent (*Caverly's Adm'r v. Deere & Co.*, 24 U. S. App. 617, 631, 13 C. C. A. 452, and 66 Fed. 305); but it is impossible, in view of the prior art, to concede to the appellant a monopoly of the right to produce a uniform field in a consequent pole-piece, by giving it a symmetrical shape of the character stated, in order that there may be rotation of the armature in either direction. If the patent covers a pole-piece so incised or perforated as to have a uniform field, it covers one so shaped in the first instance, without boring or cutting, as to have a uniform field. That the device is not new, merely because rotation in either direction is made possible, is clear, because such rotation is shown in several of the prior patents already mentioned.

That the decree below should be affirmed we have no doubt, and it is so ordered.

## PALMER PNEUMATIC TIRE CO. v. LOZIER.

(Circuit Court, N. D. Ohio, E. D. January 12, 1897.)

No. 5,404.

## 1. INTERFERING PATENTS—EQUITY SUIT.

In a suit in equity, under Rev. St. § 4918, for relief against an interfering patent, the better opinion is that no issue is involved, other than that of priority of invention as between the interfering patentees.

## 2. SAME—OPINIONS OF PATENT OFFICE—CONCLUSIVENESS.

The opinions or conclusions of the patent office in interference proceedings upon the construction of the language used in the claims, or as to the scope and meaning of earlier patents, does not operate as an estoppel upon the applicant, except in cases where he is required to abandon some part of his claim, or accept alterations narrowing their scope.

## 3. SAME—PRODUCT PATENTS.

The rule that similarities and differences in a machine or process do not depend on mere names of things, words used to describe them, or immaterial matters by which they may be distinguished, applies also to a patented product.

## 4. SAME—IMPROVED FABRICS.

The Huss patent, No. 539,224, for "a new and useful improvement in fabrics" (being fabrics made and used mainly for bicycle tires), *held*, on the evidence in an interference proceeding under Rev. St. § 4918, to be prior, in point of invention and reduction to practice, over the Palmer patent, No. 493,220, for the same invention.

This was a suit in equity by the Palmer Pneumatic Tire Company against Henry A. Lozier to determine a question of interference between certain patents, both covering "a new and useful improvement in fabrics."

E. L. Thurston and Dyrenforth & Dyrenforth, for complainant.  
Gilbert & Hills and William A. Redding, for respondent.

LURTON, Circuit Judge. This is a bill filed under section 4918 of the Revised Statutes. That section provides that:

"Whenever there are interfering patents, any person interested in any one of them, or in the working of the invention claimed under either of them, may have relief against the interfering patentee, and all parties interested under him, by suit in equity against the owners of the interfering patent; and the court, on notice to the adverse parties, and other due proceedings had according to the course of equity, may adjudge and declare either of the patents void in whole or in part, or inoperative, or invalid in any particular part of the United States, according to the interest of the parties in the patent or invention patented. But no such judgment or adjudication shall affect the right of any person except the parties to the suit and those deriving title under them subsequent to the rendition of such judgment."

The complainant company is the assignee of patent No. 493,220, issued March 7, 1893, to John P. Palmer, for "a new and useful improvement in fabrics." The defendant is the assignee of patent No. 539,224, issued May 14, 1895, to Roudolph W. Huss, for "a new and useful improvement in fabrics." The only claims of the Huss patent are literal copies of the three first claims of the Palmer patent. The Huss patent was issued upon an application filed October 9, 1893, or seven months after the Palmer patent had issued. The specifications of the Huss application were also, for the most part, but

a verbatim copy of the specifications of the Palmer patent; the principal difference between them being as to the method, described, of producing the fabric covered by the claims. This similarity of application, specification, and claims was confessedly resorted to by the solicitors for Huss to insure an interference issue with the Palmer patent. This object was attained, and on the 20th of October, 1893, an interference was declared between the Huss application and the complainant Palmer's patent. The subject-matter of this interference, as defined by the commissioner of patents, was declared to be "a fabric made of elastic and impervious material, such as rubber, having imbedded within the surface, threads, substantially out of contact with each other." Preliminary statements were filed by each of the parties to this interference, and voluminous proofs submitted, and the questions at issue aggressively contested. March 4, 1895, the examiner of interferences rendered a decision awarding priority of invention to Huss, and filed a written opinion giving his reasons for this conclusion. From this decision an appeal was prayed to the board of examiners, but through some mishap the appeal fee was not paid within the time allowed for appeal, whereupon the application of Huss, under the rules of the patent office, was sent back to the primary examiner, who at once issued the patent. Though the commissioner of patents subsequently accepted the appeal fee, there was no way to recall the patent so that the appeal might be prosecuted. This bill was thereupon filed, under the provisions of the statute, to further contest the matter of priority.

This bill presents no other issue than that of priority. It charges that the patents are interfering patents, and that they are for substantially the same improvement. The answer concedes this to be the case, and neither bill or answer so much as suggests that the subject-matter of the patents is not patentable for any reason. Neither does the bill assail the Huss patent as void or voidable for any reason other than that Palmer was the first inventor, and had properly received the only valid patent. But, aside from this state of the pleadings, the better opinion seems to be that a proceeding under section 4918 involves no other question than that of priority between interfering patents. *Sawyer v. Massey*, 25 Fed. 144; *Pentlarge v. Pentlarge*, 19 Fed. 817; *Lockwood v. Cleveland*, 20 Fed. 164; *American Clay-Bird Co. v. Ligowski Clay-Pigeon Co.*, 31 Fed. 466; *Electrical Accumulator Co. v. Brush Electric Co.*, 44 Fed. 602-608. The last two cases cited were decided in this circuit,—one by Judge Sage, and the other by Judge (now Justice) Brown. In *Foster v. Lindsay*, Fed. Cas. No. 4,976, a contrary view was announced by Judge Treat. That case has been considered in each of the five cases we have cited, and repudiated as an unsound construction of the statute. The proceeding permitted by section 4915, where a patent has been refused, necessarily involves patentability, and every other reason for which a patent might be refused. The construction of that section in *Hill v. Wooster*, 132 U. S. 693, 10 Sup. Ct. 228, and by other cases cited by counsel, seems to have no proper application to such a bill as that now under consideration. Entertaining this view of the scope of a bill under section 4918, I shall not consider the questions argued

by counsel for complainant which go to the invalidity of the Huss patent for want of a sufficient description of a process by which the fiber covered by his claims may be produced, or to the patentability of the fabric described by his claims and specifications.

In approaching the question of priority of invention, it is essential that a clear understanding shall be had of what it is that both Palmer and Huss claim to have invented. This involves, collaterally, the utility of the material, and the object each had in view in the experiments they each rely upon as evidence of first conception and production. The fiber which is the subject of this controversy is primarily and chiefly useful in the construction of the tires of bicycles, and is well described by the interference issue framed by the commissioner of patents. That issue may be profitably restated. It was in these words:

"A fabric made of elastic and impervious material, such as rubber, having imbedded within the surface, threads, substantially out of contact with each other."

The interfering claims of each patent are in identical words, and are as follows:

"(1) A fabric made of elastic and impervious material, such as rubber, having imbedded within the surface, threads, substantially out of contact with each other, substantially as described. (2) A fabric made of elastic and impervious material, having imbedded and vulcanized therein substantially parallel fibrous threads, substantially as described. (3) A fabric made of vulcanized, elastic, and impervious material, having embedded and vulcanized therein substantially parallel fibrous and nonextensible threads, substantially as described."

Both Palmer and Huss were poor men, working for others upon meager salaries. Neither knew anything of the rubber business, and neither had been engaged in the making of bicycles. Both were experts in the use, and familiar with the structure and mechanism, of such machines. Both knew of the defects in the original form and structure of bicycle tires, and each, before the date of conception of the present invention, had given much thought to the improvement of tires, and each had theretofore either obtained or applied for patents covering improvements upon pneumatic tires. The particular attention of both had been especially directed to strengthening the cover protecting the air tube on the tires of bicycles against punctures, which, while not adding to the weight, would increase resilience and avoid vibration as much as possible when passing over obstacles in its path. It was conceived that it was desirable to avoid any prolonged depression of the tire caused by such obstructions, by producing a tire which would yield readily at the point of immediate contact with such obstacles. If the cover was so constructed as to be strengthened against lateral extension or expansion, and yet easily extensible longitudinally, it was conceived that resilience would be increased, and vibration of the wheel diminished, in passing over an obstruction. This condition, it was believed, would result if the fabric used in the construction of such tires could be made substantially nonstretching in one direction, while capable of considerable elasticity in another. It was old, in the rubber art, to incorporate a woven or braided fabric in sheets



or tubes of rubber. The oldest form of producing a rubber cloth or fabric was to dissolve pure rubber in a suitable solvent, forming a paste, which was spread over a cloth fabric with a knife or brush; the solution of rubber being forced by pressure, either cold or hot, applied by means of rollers, into the meshes of the cloth, which formed a coating on the side to which it was applied. Many old patents have been exhibited to show, not only the state of the art before their issuance, but the improvements which were covered by these patents. The most notable of these are the Newall patent, of 1861, for the manufacture of elastic cloth; the Bickford, originally issued in 1850, for a process of rolling rubber cloth; the Coles, Jacques & Fanshaw patent, of 1864, and Mayall patent, of 1869, both being for improvements in the manufacture of rubber hose. This old art was well known to both Palmer and Huss, and both make references to old methods of production, and to the defects in the old fabrics which it was their object to obviate. This part of their respective applications and specifications is an important part of every patent, as a statement of the object of the inventor, and the novelty and utility of his invention. That an invention shall be novel is not enough. It must have some utility,—must be capable of being put to some useful and practical purpose. It was therefore proper that these rival inventors should not only distinguish their invention from that which was old and well known, or the subject-matter of other patents, but should show to what useful end their discovery, invention, or manufacture might be put. Thus, the object they had in view in eliminating something which was objectionable in that which was old and well known, in order that new and useful results might be produced, furnishes a key by which the claims of an inventor may be read for the purpose of understanding their meaning, and ascertaining that which is material and vital, and distinguishing that which is merely model or immaterial. From the evidence of each of these inventors, and from the specifications of their respective patents, it is obvious that each was working upon precisely the same line. Each desired to get an elastic and impervious cloth, which should contain no interwoven or interlaced threads, and yet should have both strength and elasticity. The reason for this is found in the defects known touching the old form of rubber fabrics, and in the new and wide use of such fabrics resulting from the popularity of the bicycle. The elastic and impervious fabrics theretofore employed in the manufacture of tires, belting, and hose had incorporated therein or united therewith a woven or braided textile fabric, of linen, cotton, or other material. This contact of interwoven threads at point of crossing resulted in a sawing or cutting of the threads, one against the other, resulting finally in the severance of threads and the weakening of the fabric, when subjected, as in the case of belting and bicycle tires, to rapid and continuous vibration. To avoid this sawing and cutting action of interwoven threads is stated by each to be the primary object to be attained by producing a fabric in which the substantial parallelism of the threads is preserved, and all cutting and sawing at crossing points avoided. Both therefore state that the primary ob-

ject of their inventions was to produce a fabric "which shall be made up of flexible threads, which are not interwoven, but are held together by the rubber or equivalent material employed therewith." By having the threads of such a fabric lie parallel to each other, this objectionable sawing action of the threads, one upon another, was avoided. The second object stated by each was to get a fabric which would be substantially nonstretchable in one direction, and capable of stretching in another. This object is also clearly obtained by having the threads parallel to each other.

Having in mind the object which each of these inventors had in view, we come to the consideration of what each did in order to obtain the desired fabric. Here we are at once struck with the striking similarity of the methods employed, and of the fabrics first produced. The first actual reduction to practice of a conception touching the desired fabric was made by Huss. This was in March, 1892. What Huss then did was this: Obtaining access to the factory of the Chicago Rubber Works, he caused a layer of linen threads to be closely wound around a tube having a diameter of  $3\frac{1}{2}$  inches and a length of 25 feet. These threads were laid on this tube smoothly, and in close lateral contact with each other. He then spread over this layer of threads a heavy coating of rubber in solution. Upon this was then placed a thin sheet of unvulcanized rubber, which was rolled down upon the threads so covered with rubber in solution with a heavy iron hand roller, such as used in rubber factories for that purpose. The effect of this operation was to imbed the threads, to a certain extent, in the solvent rubber, and to cause a uniting of the threads in the solvent rubber and the rubber sheet. This fabric was then split across the threads, and lengthwise with the tube, and removed therefrom. The result was a sheet of unvulcanized rubber, to which a layer of threads was united, which ran transversely across the sheet. In length and width, it was adapted to be cut into two strips suitable for bicycle tires. One of those strips was thereupon placed around an iron ring or core, after which a strip of linen, having wood imbedded in its edges, was placed on the outer periphery of the core, in order to fill up the mold properly into which the core or ring was placed. The mold was then taken to a heated hydraulic press, and subjected to a high pressure, in which it remained until the rubber was vulcanized. The result of the entire operation was to incorporate the threads and rubber sheet into one mass, the rubber being forced between the threads in such way as to almost completely immerse them in the rubber. This fabric was at once used in the construction of several bicycle tires, which proved, after use, to possess every advantage which it was the object of the invention to secure. Palmer's reduction to practice was later. In July or August, 1892, he obtained access to certain rubber works at Akron, Ohio. What he did was this: He took a thin sheet of unvulcanized rubber. Upon this he placed linen threads after they had been immersed in a solution of pure rubber. These threads were laid parallel to each other, and separated by a space about equal to the diameter of each thread. Another coating of the rubber solution was put on, and allowed to dry. These threads were rolled with an ordi-

nary hand roller, just as had been done by Huss. The further operation is thus described by Mr. Palmer:

"After the whole had dried, the threads were rolled down with an ordinary iron hand roller, to insure close adhesion. After this was done, another coat of solution was applied with a brush, and, I think, a third one. After the whole had dried, the piece of rubber, with the threads adhering to it, in length about twelve feet and in width about seven inches, was divided, longitudinally of the threads, in the middle, leaving each strip about three and one-half inches wide by twelve feet in length. An ordinary unvulcanized air tube was placed upon a straight, round mandrel, and the two strips of fabric or material I have mentioned wound thereon spirally; the threads in one strip running at an angle opposite to the threads in the other, as shown in Fig. 2 of my patent 489,714; the whole being rolled with the small iron roller, to secure close adhesion between the several layers. Upon the last layer of thread was superimposed a layer of rubber, the same being rolled down as before. The tube was then cut to a proper length (about six feet nine inches), an airtight joint made in the inner tube, and a joint made in the threads by intermingling the opposing ends; they having been freed from the solution for the purpose. The joint was then covered with a piece of sheet rubber corresponding in thickness with the last layer applied to the tube, and the tire placed upon a ring-shaped mandrel of a section shown in Fig. 3 of my patent No. 489,714, wrapped thereon by a spiral winding of muslin, and then vulcanized."

The covers thus made were used upon bicycles, and found to satisfactorily answer the conditions required, and the objects sought to be attained by Palmer.

It is not at all disputed that Huss' reduction to practice antedated that of Palmer. The contention is that Palmer first conceived the invention, made a drawing, and disclosed it to others in February or March, 1891, though he did not produce the fabric until July or August, 1892. This issue was the one to which the evidence was chiefly directed on the interference trial, and upon which the decision was adverse to Palmer. Palmer produces a drawing dated March 21, 1891, signed by him, and witnessed by H. J. Hughes and Milton Mill. This exhibit does not show the distinctive idea of a fabric having threads parallel to each other. Upon the contrary, it shows, in the most unequivocal way, a sectional view of a tire in which the threads are woven or braided. Palmer's explanation of this drawing and of the then state of his mind is not at all satisfactory, and the evidence of the witnesses who signed it is equally unconvincing. Whatever idea Palmer then had in his mind of a rubber sheet in which should be incorporated threads out of contact with each other, and substantially parallel, was evidently a dim intellectual notion, which had taken no form, and was abandoned, as shown by his drawing, in favor of a woven or braided fabric incorporated in, or united with, rubber sheets. His alleged conception of the advantages of threads parallel with one another found no expression in his drawing, which clearly shows a woven or braided fabric united with the rubber sheets. The sawing action of crossing threads was not guarded against. Neither was it possible, if his drawing is evidence of the then state of his mind, to see how, from a woven or braided envelope for his inner tube, he was to get a fabric nonextensible in one direction, and stretchable in another. I entirely agree with the opinion of the patent office that Palmer has failed to produce such evidence of conception earlier than his reduction to practice as to justify a holding that his invention

should be carried back to a date antecedent to the actual production of the fabric in question.

But it is said that Huss is not entitled to priority of invention unless the fabric which he made in March, 1892, is identical with the fabric described and claimed by the Palmer patent, and that as the question of priority depends upon Huss' earlier reduction to practice, the question of identity of the fabric first made by him with that described and claimed in the Palmer patent is pertinent. The question thus presented must turn primarily upon the proper meaning and reasonable limitation of the claims of the Palmer patent. For the Palmer patent, it has been most strenuously urged that the first claim covers an unvulcanized fabric, elastic and impervious, "having imbedded within the surface threads substantially out of contact with each other, as described," and that the second and third claims cover the same fabric vulcanized. It is urged that complete and entire imbedment of the threads within the surface of the rubber sheet is essential to constitute the fabric described by these claims. The first three claims of the Palmer patent were rejected by the primary examiner upon a reference to the Mayall patent of April 13, 1869, Crone patent of June 4, 1882, and the Jones patent of August 28, 1883. Upon an appeal to the board of examiners this action was reversed, and those claims allowed, upon the ground that the Crone and Jones patents were not for an elastic and impervious material, but for a fabric of paper, and that the Mayall fabric did not have threads "imbedded within the surface," "or imbedded and vulcanized within the material," as called for by the first three claims of the Palmer application. It is now urged that this ruling of the patent office operates as a construction and limitation of the claims in question, and limits the Palmer patent to a fabric in which parallel threads are completely buried or immersed within the surface of a single sheet of elastic and impervious material. We cannot accept the opinion of the patent office as to the legal construction of the claims allowed Palmer as a conclusive determination of their scope. These claims had been rejected because the examiner regarded these earlier patents as covering the same invention. The board of examiners did not agree with this conclusion, and distinguished the claims in question from those of the patents supposed to interfere. The question involved was a mixed question of law and fact, and is one for judicial determination. *Andrews v. Hovey*, 124 U. S. 694, 717, 718, 8 Sup. Ct. 676. It is not a case where an applicant was compelled, as a condition to receiving a patent, to abandon claims, or make changes operating to narrow their scope. There is no estoppel growing out of the opinion entertained by the patent office as to the legal effect of the language employed by applicants, either in their specification or claims, nor as to the scope and meaning of earlier patents. It is undoubtedly the duty of the patent office to allow or disallow applications, as it may deem the matter patentable or not, and for this purpose to inquire into the state of the art, and compare with patents supposed to interfere. But we are not aware that the conclusions of the patent office operate as an estoppel upon the patentees, except in cases where the applicant is required to aban-

don some part of his claims, or accept alterations narrowing their scope. Neither are the courts any more concluded by a construction of the claim presented by a patentee which removes a supposed conflict with an existing patent, than they would be by an interpretation of a patent whereby it was distinguished from the old art. That some claim has been rejected, or that some amendment has been accepted, which was imposed as a condition to the allowance of a claim, is essential to an estoppel on a patentee. *Morgan Envelope Co. v. Albany Perforated Wrapping Paper Co.*, 152 U. S. 429, 14 Sup. Ct. 627; *Leggett v. Avery*, 101 U. S. 256; *Thomas v. Spring Co.*, 23 C. C. A. 211, 77 Fed. 420. The mere opinion of one of the boards of the patent office upon a supposed interference is no more an estoppel upon the patentee or the public than would be the opinion of the same board as to the meaning of claims as they were affected by the prior art. In neither case would the courts be concluded from giving to the language of both claims and specifications their true and proper meaning under ordinary rules for the interpretation of such contracts.

Was the fabric produced by Huss in March, 1892, the fabric described by the identical claims of both patents? In answering this, it is proper to bear in mind that these claims are not for a process, nor for a design, but for a fabric. There may be many ways for producing the fabric, and it is immaterial as to the method, provided the result is the manufacture or article described and protected by the patent. We have already seen that the object of both patents was the same. Both had in mind a fabric primarily useful in bicycle tires,—a fabric which should take the place of the canvas and rubber fabric theretofore used in such tires. What each wished was a fabric which should be substantially nonstretchable in one direction, and capable of stretching in another. The material conditions of such a fabric are all found in that made by Huss in March, 1892. The threads were united, and, to a degree, imbedded in an unvulcanized sheet of rubber. They were so far incorporated with the rubber, as a result of the application of rubber in solution, and pressure applied by hand, as that the threads were securely held in position parallel to each other. The fabric thus produced was soft and tacky, and, so far as the evidence shows, unfit for any particular use until after vulcanization. But this is also true of the fabric described by Palmer's first claim. Vulcanization further imbedded the layer of threads, hardened the fabric, and retained it in the form given to it before vulcanization, still leaving it resilient. Both before and after vulcanization the parallel position of the threads, whether laterally in contact or not, prevented the sawing or cutting incident to the incorporation of a woven or braided fabric with a sheet of rubber. It is now sought to differentiate the fabric thus produced by Huss from that described by the claims of the Palmer patent. To do this, great stress is laid upon the degree of imbedment of the threads in the unvulcanized fabric of the first claim. This contention is a very narrow one. So far as it is rested upon the interpretation placed on Palmer's claims by the board of examiners when considering the reference to the Mayall patent, it is

not to be sustained upon the theory that such interpretation constitutes a limitation. This question I have already dealt with. There were quite a number of much more material differences between the Palmer fabric and that described in the Mayall patent. Palmer's first fabric did not differ in any substantial particular from that first made by Huss. Neither used calender rolls to imbed the parallel threads in the sheet of unvulcanized rubber. Both used a solution of rubber as a cement to unite the layer of threads with a rubber sheet, and both used hand pressure to cause a more close adhesion and unification. The next step (that of vulcanization) was taken after the fabric had been placed in a tire, and the result in both instances was to increase the unification of threads and rubber, and blend them by heat and pressure into an almost inseparable mass. If the fabric first made by Palmer in July, 1892, was the fabric described and protected by his patent, it must follow that the fabric first made by Huss in March, 1892, was also the fabric described and protected by the identical claims of Huss' patent. But it is said that afterwards Palmer produced the fabric of his patent through the instrumentality of heated calender rolls, and that he thus made a fabric in which the threads were completely imbedded within the surface of the sheet without the aid of cement or vulcanization, and that the fabric described by his claims is one in which there is a complete imbedment within the surface of an elastic and impervious sheet, and that subsequent vulcanization adds nothing to the degree of imbedment. In other words, the claim is that the identity of the fabric turns upon the degree of imbedment. To this we cannot assent. The verb "imbed" does not necessarily imply entire inclosure or complete immersion. It is defined by Webster as follows: "To sink or lay as in a bed; to deposit as in a partly inclosing mass, as of earth," etc. Thus imbedment of the thread would exist if it was partly inclosed by the sheet of rubber, or if sunken so as to be partly inclosed. Neither does the context of the sentences in which the word "imbedded" or "imbedment" occurs require complete inclosure within the sheet of rubber. The imbedment is to be "within" (that is, by "the surface" of) the rubber sheet. Now, it is evident that, if the diameter of the thread to be imbedded was greater than that of the sheet in which the imbedment was to occur, there could not be a complete inclosure. This is recognized by complainants, who produce one exhibit of the fabric described by Palmer's first claim, which shows that the outside of the layer of threads is not inclosed by the surface of the rubber sheet, which fact is explained by the greater diameter of the imbedded threads. If we look to Palmer's specifications, to ascertain the object of the imbedment, we find that any degree of imbedment which results in holding the threads parallel to each other, and united to the rubber, secures the ends sought by the inventor. Is it possible that a suit by Palmer for infringement would not lie against one who made and sold a fabric such as that first produced by him, in which the layer of threads was united with the rubber by means of a solution of rubber, and such degree of imbedment as resulted from hand pressure? Would an infringement depend upon the degree to which the threads

were sunken in, or inclosed by, the rubber sheet? We think not. It could not be said that a fabric in which parallel threads were only partially incorporated was not the same article. Its qualities, uses, and capabilities are overwhelmingly shown to be identical. All that can be done with the fabric when the threads are united by entire incorporation can be done when such incorporation is only partial. To render the article, manufacture, or fabric something new and different from that described by the claims and specifications of the Palmer patent, it must present some new properties, and be more or less efficacious. If it was substantially identical in its properties and uses, it would be the same, though distinguishable in immaterial particulars. Whether the threads be entirely or only partially incorporated in a sheet of unvulcanized rubber, the properties and uses are the same. Similarities and differences in a machine, process, or product do not depend on mere names of things, words used to describe them, or immaterial matters by which they may be distinguished. *Glue Co. v. Upton*, 97 U. S. 3; *Glue Co. v. Upton*, Fed. Cas. No. 9,607. There is no reason for applying one rule to a patented machine, and another to a patented product. In *Bates v. Coe*, 98 U. S. 31-42, the court said, touching a question of infringement, that:

"In determining about similarities and differences, courts of justice are not governed merely by the names of things, but they look at the machines and their devices in the light of what they do, or what office or function they perform, and how they perform it, and find that a thing is substantially the same as another if it performs substantially the same function or office in substantially the same way, to obtain substantially the same result, and that devices are substantially different when they perform different duties in a substantially different way, or produce substantially a different result."

It is said that the method of production stated by Huss in his specification is inoperative, and results in a fabric not answering to the description of his claims. It is doubtful whether an objection to the sufficiency of description in specifications will lie, in the absence of an averment in the pleadings that the description was ambiguous and defective, with intent to deceive the public. *Loom Co. v. Higgins*, 105 U. S. 580. Huss claims, as he may well do, that his fabric is protected without regard to method of production. He makes no claim to process. Touching the way in which the fabric may be made, he says:

"In order to produce the within-described fabric, I may employ any suitable means for laying the threads, and for causing the same to be incorporated within the sheet of rubber."

The expert evidence shows no less than seven different ways in which this might be done, all well known to persons skilled in the rubber art. As an example of one such way, Huss says:

"I have arranged a layer of thread and a layer of rubber upon a large, straight rod or mandrel, and imbedded or incorporated the thread within the sheet of rubber by pressure and vulcanization."

It is said that this method permits the use of neither heat nor cement, and that without one or the other there can be no such degree of imbedment of the threads within the rubber from cold pressure as will hold the threads parallel with each other, or united to the rub-

ber sheet. If it be conceded that the test of the sufficiency of this method of production depends upon the results of pressure applied to a layer of threads upon cold rubber to sufficiently unite the one to the other to permit the next step (that of vulcanization), then the method will serve, though clumsy and most expensive. The experiments made by the witness Ives, and the exhibits of fabric made by means of cold pressure alone, and of the same fabric after vulcanization, demonstrate that if the narrowest construction be placed upon Huss' method of production, the result is not in any material matter distinguished, for the practical purposes to which such material is to be put, from that made by the more economical and scientific method of calendering rolls. But I am not prepared to admit that Huss' description is to be so narrowly interpreted. Such instructions are addressed to those familiar with the art to which the invention belongs. While sheets of unvulcanized rubber are soft, pliable, and tacky, still it is difficult to imbed or unite threads with such material by mere cold pressure. If such pressure is great enough, and continued long enough, there will occur a degree of imbedment as shown by the Ives exhibit. Of course, the operator would be required to use whatever degree of pressure was necessary, and continue it for the necessary time, before it could be said that the fabric could not be made, and the patent was void for insufficiency of description. But it is well known in that art that a low degree of heat would make sheets of unvulcanized rubber quite plastic, so that pressure when in that condition would make it quite easy to incorporate a foreign body within such a sheet. The direction to use pressure to incorporate such threads may well be taken as implying pressure with heat, just as heat is implied by the use of calender rolls. Certainly, if that knowledge was a part of the common knowledge of those familiar with the properties of rubber and with the rubber art, as is abundantly shown in this case, then the direction might well be construed as requiring the use of the knowledge of the art which those to whom it is addressed are presumed to have. In *Klein v. Russell*, 19 Wall. 433, which involved a patent for treating certain articles with a patent process, the description of the method of application stated that it was "desirable to heat the liquor to or near the boiling point." There was evidence that, if applied while in that state, it would greatly injure the articles to which it was applied. There was also evidence that, if this liquor was suffered to cool before being applied, it possessed great virtue. The court was asked to charge "that, if cooling the fat liquor after boiling is an essential point of the plaintiff's process, then the patent is void for not indicating that such process of cooling is necessary, or how it is to be accomplished." This was given, but modified by adding, "Unless the common knowledge of persons skilled in the art of treating this leather to produce softness and pliability would make the operator wait until it was partially cooled." *Klein v. Russell*, 19 Wall. 433, 444, 467. Such a specification is sufficiently full and specific when expressed in such terms as are intelligible to persons skilled in the art, "for that which is common and well known is as if it were written out in the patent and delineated in the draw



ings." *Loom Co. v. Higgins*, 105 U. S. 580-586; *Seabury v. Am Ende*, 152 U. S. 561-566, 14 Sup. Ct. 683. But this is a digression, and need not have been said. No such issue is made by the pleadings, and no such question is admissible under the bill filed to settle a question of interfering patents under section 4918. Neither need I discuss the effect of describing this fabric in earlier applications made by Huss for patents upon improved pneumatic tires in which this fabric was used. Whatever effect that disclosure and subsequent division of his application would have upon the patent now in question, is a question to be made under some other form of litigation. The same question, too, would have a like effect upon the Palmer patent, by reason of a like disclosure in an earlier application. Holding as I do that the only question properly open upon this bill is that of priority, no other question is decided. The three first claims of the Palmer patent must be declared void. A decree will be so drawn, and taxing all costs to complainant.

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NATIONAL HARROW CO. v. WESCOTT et al.

(Circuit Court, N. D. New York. January 27, 1898.)

No. 6,469.

PATENTS—INVENTION AND INFRINGEMENT.

In the West & Chase patent, No. 244,100, for a spring-tooth harrow, claim 2, for a tooth "having the egg-shaped or bowed portion located as specified," etc., if valid at all, is limited to a tooth so placed that the egg-shaped part hangs well in advance of the beam to which it is attached, and over the next forward beam, so that, in hard soil, it rests thereon, so as to deprive the tooth of a large degree of elasticity.

This was a suit in equity by the National Harrow Company against Pulaski D. Wescott and others for alleged infringement of a patent for a spring-tooth harrow.

Edwin H. Risley, for complainant.  
Strawbridge & Taylor, for defendants.

COXE, District Judge. This is an equity suit based on letters patent, No. 244,100, granted July 12, 1881, to L. C. West and N. Chase for a spring-tooth harrow. The second claim, which is the only one involved, is as follows:

"(2) The harrow tooth having the egg-shaped or bowed portion of the tooth located as specified, and terminating on top of the beam in a convex shank, all substantially as set forth."

The defendants insist that they do not infringe. The other defenses need not be considered.

The complainant argues regarding the claim that the words "the egg-shaped or bowed portion of the tooth located as specified" have no reference to the location of the tooth in relation to the other parts of the harrow, but are confined solely to the tooth itself; that is to say, the egg-shaped portion of the tooth must be located with reference to its shank and working point as shown and described. It is

contended that such a tooth, no matter where located, is an infringement. This construction rests the sole claim to novelty and invention upon the shape of the tooth. Assuming that such a construction is permissible, to adopt it would be to invalidate the claim for the reason that the prior art shows spring teeth of almost every conceivable shape, and, in the absence of testimony showing that the patentees have added something of value to the tooth by imparting to it the shape described, the court would not be warranted in basing patentability upon changes, apparently, so insignificant. If these patentees may have a patent for an egg-shaped tooth, the next applicant may secure one for a pear-shaped tooth, the next for a heart-shaped tooth, and so on ad infinitum. But the complainant's construction is not maintainable; it is strained and illogical. The claim states that the bowed portion is "located as specified." If the exact location were not pointed out in the specification and drawings there might be some plausibility for the complainant's contention, but it is. The tooth is placed so that the egg-shaped part hangs well in advance of the beam to which it is attached and extends over the next forward beam for about half the width of said beam. The principal advantages of the patentees' harrow are declared, by the description, to reside in this location. When in operation in average soil there is a space between the egg-shaped portion of the tooth and the forward beam, but when the tooth strikes a hard strip of soil the egg-shaped portion rests on the beam "which temporarily deprives the tooth of a large degree of elasticity." To produce this result was the object of the invention. It could only be produced by locating the teeth in the manner described with reference to the forward beams. By means of this location the patentees assert that they produce great contraction of the tooth frame, less rearward spring, increased vertical oscillation and also automatic control of the elasticity of the teeth in relation to the consistency of the soil. The defendants' harrow is so constructed that by no possibility can the bowed portion of the spring touch the forward beam. Upon no theory, therefore, can the complainant recover. If the claim be construed to cover the defendants' teeth it is void, and it is not infringed if restricted as required by the specification. The bill is dismissed.

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NATIONAL HARROW CO. v. WESCOTT et al.

(Circuit Court, N. D. New York. January 27, 1898.)

No. 6,470.

1. PATENTS—INVENTION—MECHANICAL SKILL—SPRING-TOOTH HARROWS.

The adaptation of spring-teeth to harrows being once accomplished, it only required mechanical skill to attach them by devices already known to adjustable beams already in use, so as to make a spring-tooth harrow, with teeth adjustable both independently on the bars and in series, by turning the bars themselves.

2. SAME.

The Cobb patent, No. 224,273, for an improvement in spring-tooth harrows, in which the teeth are adjustable both separately and in series, is void for want of invention as to claim 1.

This was a suit in equity by the National Harrow Company against Pulaski D. Wescott and others for alleged infringement of a patent for an improvement in spring-tooth harrows. On final hearing.

Edwin H. Risley, for complainant.

Strawbridge & Taylor, for defendants.

COXE, District Judge. This is an equity action founded upon letters patent No. 224,273, granted February 10, 1880, to S. C. Cobb for an improvement in spring-tooth harrows. The alleged invention consists of pivoted tooth-bars in combination with spring-teeth attached to the bars by devices which permit the teeth to be adjusted thereon, and which secure them rigidly in any desired position. The teeth may be adjusted independently on the bars, or in series, by turning the bars themselves. The specification describes specific devices for adjustably attaching the teeth to the bars. It says:

"Whenever it is desired to adjust a tooth it is only necessary to loosen the nuts sufficiently to permit the end of the tooth to be raised out of the slot in which it is held, when the tooth may be turned in either direction around the bar and the end placed in another slot, when the fastening is again secured. Thus the lower end of the tooth may be raised or lowered and its pitch changed, as desired. The same result may be accomplished, however, by employing some other attaching device which will permit the tooth to be adjusted on the bar."

The first claim only is in dispute. It is as follows:

"(1) In a spring-tooth harrow, the tooth-bars B, hinged or pivoted to the frame so as to be adjustable, in combination with elastic teeth attached to the bars by devices which permit them to be adjusted thereon and which secure them rigidly in any position to which they may be adjusted, whereby the teeth may be either adjusted independently on their respective bars or in a series by adjusting said bars themselves, substantially as described."

The patent expired pendente lite. Infringement is not denied. The defenses are defective title and want of patentability.

The two features of which invention is predicated are the adjustable tooth-bars and the elastic teeth attached adjustably to the bars so that there may be a simultaneous adjustment of all the teeth and an independent adjustment of each tooth separately. Were it not for the fact that the claim is limited to spring-teeth the precise combination would be found in the prior art. Before the alleged invention of Cobb, spring-teeth had been attached to tooth-bars by devices which permitted them to be adjusted thereon, but it does not appear that the bars themselves were adjustable. Adjustable rigid teeth had, however, been attached to adjustable bars. The patent to Reed, No. 201,946, shows an adjustable spring-tooth. The patent to Waterbury and Miller, No. 205,449, for which the application was filed in 1877, and not in 1878, as the complainant's counsel inadvertently supposes, shows "means of fastening and adjusting the tooth (spring) to the standard" so that, "any elevation or depression of the tooth may be obtained." The patents to Easterbrook and Hochstein, numbered respectively 49,867 and 79,829, show axial bars for rigid teeth pivoted to the frame bars so as to set the teeth at any desired angle. In the former patent the specification says:

"This invention consists mainly in fixing the teeth of harrows in pivoted cross-bars, which are connected by a rod or rods to a hand lever by which they may be set and secured in any desired position, either for dragging heavy or light soil or 'quack grass,' weeds, etc."

The patent also shows an attachment by which the teeth can be raised and lowered in the eye bolt. In the Hochstein patent the claim is as follows:

"The combination of the adjustable teeth-supporting beams B, independent of each other, and the set-screws b', b', substantially as and for the purpose described."

Various patents showing similar combinations are in proof, but it is unnecessary to multiply references. Unquestionably the adaptation of spring-teeth to harrows was a pioneer invention of great value. When, however, this basic principle had been established it required only the skill of the mechanic to do with spring-teeth precisely what had previously been done with rigid teeth. The improved results were due to the elastic teeth and not to the mechanism used in fastening them to the frame. If Reed had attached spring-teeth to the Easterbrook frame by his fastening-clip he would have had the Cobb combination. If spring-teeth had been known when Hochstein made his harrow he would certainly have attached them to his adjustable beams instead of the teeth then in use. Cobb knew the value and efficiency of adjustable beams and of spring-teeth, he took out the old teeth and substituted the new ones, Reed showing him how to fasten them to the beam. It cannot be pretended that Cobb invented any of the valuable features of the harrow described in his patent; he simply took a well-known tooth and fastened it to a well-known frame by well-known means. There was nothing original in this; it was what any skilled operator would do after the value of the spring-tooth became apparent. The claim must, therefore, be held invalid for lack of invention. The court is of the opinion that the defendants are not estopped in this action from insisting upon this defense by reason of their relations with Hench and Dromgold and the latter's relations with the complainant. The bill is dismissed.

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NATIONAL HARROW CO. v. WESCOTT et al.  
(Circuit Court, N. D. New York. January 27, 1898.)  
No. 6,346.

**PATENTS—VALIDITY—SPRING-TOOTH HARROWS AND CULTIVATORS.**

The Davis patent, No. 329,371, for improvements in roller spring-tooth harrows and cultivators, is to be construed as covering a harrow composed of separate frames detachably connected, each provided with spring teeth, and supported independently by rollers, and each, when supplied with ordinary handles, capable of separate use as a cultivator. Thus construed, the claim was not anticipated by the prior art.

This was a suit in equity by the National Harrow Company against Pulaski D. Wescott and others for alleged infringement of a patent for improvements in roller spring-tooth harrows and cultivators.

Edwin H. Risley, for complainant.

Strawbridge & Taylor, for defendants.