among a great many other machines in the third story of the Brown shops. There was evidence, also, that a second machine like the one brought into court was partly made by Brown about the same time.

There can be no doubt that, under the decisions of the supreme court, if these witnesses are to be believed, the making of the machine, and its public use, in 1882 and 1883, more than two years before the complainant's patent was applied for, would constitute a complete anticipation. Aiken v. Dolan, 3 Fish. Pat. Cas. 197, Fed. Cas. No. 110; Coffin v. Ogden, 18 Wall. 120; Worley v. Tobacco Co., 104 U. S. 343; Manning v. Glue Co., 108 U. S. 465, 2 Sup. Ct. 860; Magin v. Karle, 150 U. S. 388, 14 Sup. Ct. 153; Brown v. Davis, 116 U. S. 237, 6 Sup. Ct. 379. It must be conceded that this testimony seems quite cogent and convincing, being given by so many witnesses, with so much circumstantiality of detail, and corroborated by documentary proof identifying the time, and by the actual presence of the machine in court. The court, no less than a jury, should find facts according to the weight of the testimony. If the evidence on the question of anticipation were conflicting or doubtful, then, no doubt, the circumstance that Brown had never applied for a patent or continued the manufacture of the machine might be allowed to turn the scale. But, in the circumstances of this case, we think this court would be unwarranted in allowing that one circumstance, accounted for and explained as it is by the witnesses for appellants, to overrule the sworn and uncontradictory testimony of six unimpeached, and, to all appearances, credible, witnesses.

It was suggested by counsel on the argument that this machine may have been made since this suit was brought by the selection from Brown's garret of parts from different pieces of machinery, but this is a suggestion without any warrant in the evidence, is highly improbable, and against all chances, and scarcely worthy of serious consideration.

There are other interesting questions raised by the record, especially the one in regard to the validity of complainant's invention, it being admittedly a combination of different devices in one machine, all of which are admitted to have been old. But we do not find it necessary to consider any of these questions.

The decree of the circuit court is reversed, and the case remanded, with instructions to enter a decree in favor of the appellants, dismissing the bill for want of equity.

STOVER MFG. CO. v. MAST, FOOS & CO.

(Circuit Court of Appeals, Seventh Circuit. July 26, 1898.)

No. 486.

1. PATENTS—APPEALS FROM PRELIMINARY INJUNCTIONS—EFFECT OF PRIOR DECISIONS.

A circuit court of appeals, when reviewing a preliminary injunction granted on the strength of a prior decision by a circuit court of appeals of another circuit, is not precluded, by such prior decision, from inquiring into the validity of the patent, on the merits.

2. SAME—SCOPE OF REVIEW.
On appeal from an order, made on ex parte affidavits, granting a preliminary injunction, the court may, if of opinion that the bill has no equity to support it, reverse the order and direct the dismissal of the bill.

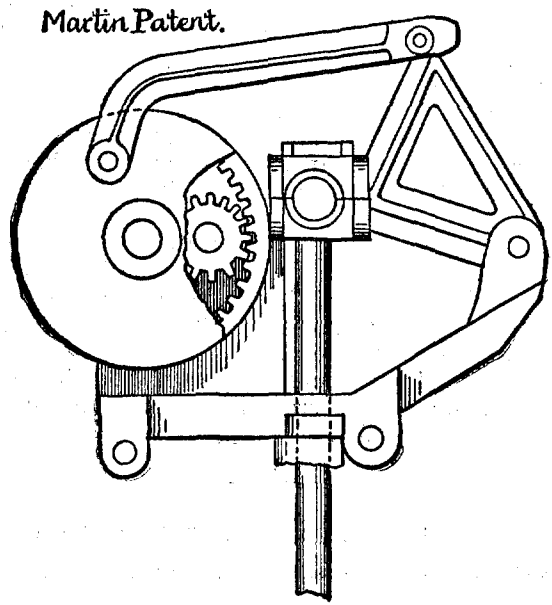
3. SAME—INVENTION.
The substitution of an internal for an external toothed spur wheel, in connection with the driving shaft of a windmill, producing only improved effects long known to mechanics to be the result of using that form instead of the others, involved no invention, where internal gearing was already in use in another part of the same machine.

4. SAME—WINDMILLS.
The Martin patent, No. 433,531, for an improvement in windmills, is void for want of invention. 85 Fed. 782, reversed.

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

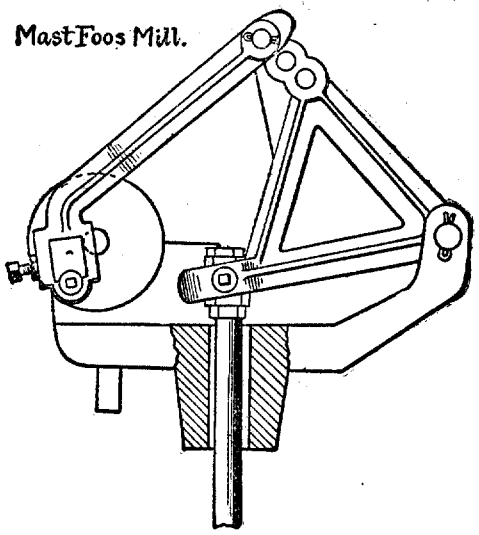
This appeal is from an interlocutory order of injunction against infringement of the first claim of letters patent No. 433,531, granted on August 5, 1890, to Samuel W. Martin for improvement in windmills. 85 Fed. 782. The claim and a reduced form of the drawing of the patent are as follows:

"The combination with a windmill driving shaft, and a pinion thereon, of an internal toothed spur wheel, mounted adjacent to the said shaft and meshing with said pinion, a pitman connected with this spur wheel, and an actuating rod connected with the pitman."

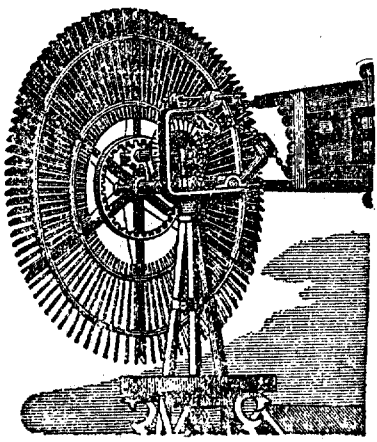


As illustrative of the different types of windmills and of the development of the art, the appellant put in evidence the following letters patent issued at various dates prior to and on November 2, 1880: No. 182,394, to E. Williams; No. 189,132, to D. Nysewander; No. 207,189, to Samuel W. Martin; No. 233,134, to G. M. Beard; No. 233,-

928, to G. C. Harris; and also a sketch here reproduced of a windmill made by Mast, Foos & Co., referred to in the patent in suit:



To show the prior use of internal gear wheels in windmills, the following letters patent were put in evidence, the last bearing date October 29, 1889: No. 2,215, to Perry Davis; No. 254,527, to G. H. Andrew; No. 267,440, to M. R. Martin; No. 271,635, to W. H. & C. A. Holcombe; No. 273,226, to P. T. Coffield; No. 283,109, to W. H. & C. A. Holcombe; No. 317,731, to Colman & Turner; No. 320,182, to D. & W. W. Shilling; No. 321,750, to G. H. Pattison; No. 346,674, to H. G. Newell; No. 414,113, to J. T. Hostler; and also a sketch of the Perkins windmill, which was in use before the date of Martin's conception, the relevant parts of which are shown in the following drawing:



Other proof was offered of the use of internal gear wheels in the mechanic arts generally, including Schenk's patent, No. 380,697, for a mechanical movement; the Berrigan patent, No. 273,705, for improvement in lawn mowers; the Hall & Town patent, No. 97,393, for a sawing machine; the Wilson patent, No. 232,384, for a treadmill; and from the book entitled "507 Mechanical Movements," published in 1871, cut 34, and the following description thereof:

"An internally toothed spur gear and pinion. With ordinary gears the direction of rotation is opposite; but with the internally toothed gear the two rotate in the same direction, and with the same strength of tooth the gears are capable of transmitting greater force, because more teeth are engaged."

C. C. Linthicum and C. K. Offield, for appellant.

H. A. Toulmin and Lysander Hill, for appellee.

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

WOODS, Circuit Judge, after making the foregoing statement, delivered the opinion of the court.

It is objected at the threshold that this court is not at liberty on this appeal to inquire into the validity of the first claim of the Martin patent, because, before the hearing was had in the court below, the validity of that claim had been determined by the United States circuit court of appeals for the Eighth circuit in the case, which will here be called the "Dempster Case," of Mast, Foos & Co. v. Dempster Mill Mfg. Co., 49 U. S. App. 508, 27 C. C. A. 191, and 82 Fed. 327. The court below, in obedience to the opinion of this court in Electric Mfg. Co. v. Edison Electric Light Co., 18 U. S. App. 641, 10 C. C. A. 106, and 61 Fed. 834, deemed itself bound to follow the earlier decision, and now it is insisted that this court must affirm the order entered without inquiry into the question of the patentable novelty of the claim or into any question decided by the court in the Eighth circuit.

The decisions touching the practice on appeals from interlocutory orders, under the judiciary act of 1891, have not been in entire harmony; but in the recent case of Smith v. Vulcan Iron Works, 165 U. S. 518, 17 Sup. Ct. 407, where the decisions touching the subject are collected, the supreme court has defined clearly the scope of the review which the act was intended to authorize. After declaring that the appeal, which by section 7 of the act may be taken from an "interlocutory order or decree granting or continuing such injunction," is an appeal "from the whole of such interlocutory order or decree, and not from that part of it only which grants or continues an injunction," the court proceeds to say that the manifest intention of the provision was "not only to permit the defendant to obtain immediate relief from an injunction, the continuance of which throughout the progress of the cause might seriously affect his interest, but also to save both parties from the expense of further litigation, should the appellate court be of opinion that the plaintiff was not entitled to an injunction because his bill had no equity to support it." The comprehensive terms of this expression forbid the suggestion that it does not apply when the appeal is from an order made upon affidavits, and not from a decree ordering both an injunction and an accounting, entered as the result

of a hearing upon full proofs. If there is ground for a distinction in that respect, it is in favor of the appeal from a preliminary order made upon ex parte and imperfect showings at the commencement of litigation, rather than an appeal from an injunction perpetual in terms granted after a full hearing, which is called interlocutory only because there remains to be taken an accounting, upon which the evidence adduced cannot ordinarily affect the injunction. This being the scope of the appeal, the logical inference would seem to be that every application to a circuit court for an injunction or temporary restraining order should be considered on its merits, and that a ruling or opinion of another court upon any question involved should be given only its just and reasonable weight according to the circumstances. The statute gives the right of appeal; the supreme court has determined that the review, so far as may be, shall extend to the merits; and it is not consistent to say that the decision of an inferior court must be pronounced on one basis and reviewed on another.

In respect to the merits: It was stated in the opinion of the court in the Dempster Case, and we think correctly, that "the essential element" of the first claim of the patent was "the internal toothed spur wheel or spur gear meshing with and driving the pinion which actuated the pitman and pump rod"; and at the same time it was conceded to be "true that internal toothed spur wheels, their effect, and their relative advantages over external toothed wheels had been familiar to mechanics time out of mind." In view of that concession, and of the obvious cogency of the dissenting opinion of Judge Thayer, it is to be inferred that the court could not have found in the patent the novelty essential to invention but for the presence of features of evidence not apparent in this record. For instance, in that case only one patent on windmills, No. 182,394, granted on September 19, 1876, to Edward Williams, was offered as anticipating Martin's, and that showed a pitman actuated by two eccentric external toothed gear wheels. Accordingly the court, after rejecting as unsatisfactory the testimony of the one witness by whom it was attempted to show prior use, dismissed from further consideration the defenses of prior use and nonutility, and, in considering the question of infringement, declared, upon the proof before it, that, prior to Martin's invention, "all windmills had been driven by external toothed spur wheels"; that in the mills so constructed, as the cogs and other parts wore away, a pounding and racking of the machinery was caused "as the pitman connection passed over the center, and the motion changed from a pulling to a pushing one, and vice versa, shortening the life of the mill, and sometimes stripping the cogs from the pinion"; and, after quoting from the specification the statement that "a plurality of the pinion teeth are always engaged with the internal spur gear, resulting in giving a perfectly uniform and smooth and noiseless reciprocating motion to the actuating rod, thereby prolonging the life of the machine by saving it from constant jarring and preventing wear and tear," the court added: "The evidence is undisputed that this invention completely accomplished its purpose." Certainly a remarkable success, as stated, and well worthy of a patent. But the proof in the present record shows no such merit. In that case the record

also disclosed, and the court laid stress upon the fact, that the president of the infringing company, before abandoning the external and adopting the internal gearing, had seen one of the mills made under the Martin patent in operation, and had appropriated that form of construction on the advice of his pattern maker, who had been in the employ of an earlier infringer. "The inevitable conclusion to which these facts lead," the court declared, "could not be escaped by asking that the broad terms of the first claim be confined to the meaning of the restricted terms of the other claims"; and the contention that the substitution of internal for external gearing in a windmill, in view of the common use of both forms of gearing in other machines in familiar use, was not invention, the court answered by declaring it passing strange, if naught but the skill of the mechanic was required to make the improvement, "that no mechanic ever made it until after Martin discovered and described it." "Moreover," the court added, "the combination of Martin immediately went into general use. More than three thousand windmills which contain his combination have been manufactured and sold since 1890." That opinion was handed down on August 2, 1897, and the suggestion is obvious that the sale of the number of mills stated in a period of more than seven years was not phenomenally large for a strong and energetic establishment. The proof in this case shows that the prior form of construction was by no means superseded by the new, which, according to the evidence here presented, constitutes not more than 15 per cent. of the total output on the market. It is evident, too, that the supposed defects of the external gearing had been exaggerated; that their tendency to friction and to wear and tear, if constructed with adequate strength and properly adjusted, is not essentially different from that of the other form; and, if cogs have ever been stripped off, it was due to faulty construction or maladjustment. This seems to us to be the reasonable view of that phase of the question; and instead of it being true here, as in the Dempster Case, that the alleged infringer appropriated Martin's construction after seeing it in operation, the testimony of the president of the Stover Company is that the adoption by that company of the internal gear for operating the actuating rod of its windmill was a mere accident or incident of construction in the first instance, without any knowledge of the Martin patent or mechanism, and was accomplished simply by transferring the internal gear from other machines made by the company side by side with its windmills, such as power feed mills driven by horse power. No reason is shown to discredit this testimony, and it follows that, if Martin made an invention, the appellant is entitled to the credit of making the same discovery. The more reasonable conclusion is, as it seems to us, that neither can be credited with the exercise of more than ordinary mechanical skill. That the internal gearing employed to actuate the pitman of a windmill has some advantages, and therefore may be properly called an improvement over external gearings, there can be no doubt, but in a windmill the advantages are not different in kind from what they are in other machines which have a dead point, the passing of which involves a constant change from pulling to pushing and vice versa in the application of the operative force. The advan-

tages are the same "relative advantages" which, it is conceded, had been familiar to mechanics time out of mind. That the improvement was not incorporated in windmills sooner, on the proof here made, is not strange. It is shown, and without proof would be inferred, that it is a matter of expense and inconvenience to remodel and recast any part of a machine, though in itself trivial; and upon this ground, as well as by reason of that inertia which disposes manufacturers to let well enough alone, a manifestly desirable change in the structure of a machine, already in successful use, will go unmade until forced in order to meet the competition of a new or more enterprising rival. The first to make such an improvement is not in fact an inventor, and to infer invention merely because it had not been produced sooner would be to reach a false conclusion by an argument neither persuasive nor plausible. See Parlin & Orendorff Co. v. Moline Plow Co., 89 Fed. 329.

Other considerations aside, the proof of the prior art in this record is different from and far more extensive than it was in the Dempster Case. Besides the Williams patent, a number of patents are in evidence showing windmills with both external and internal gearings. The fact was pointed out and deemed material by the court below that the internal gear shown in each of the patents in evidence "had no function relating to the driving of the shaft, or the creation of reciprocal action"; the function in nearly all the cases being, it was said, "merely to keep the wheel in the wind." In the Eighth circuit the court, accepting it as true that prior to Martin's invention all windmills had been driven by external gearings, held that, though the like use of such gearings in other machines had long been familiar, the adaptation or transfer thereof to the windmill evinced invention; and the court below, on proof that such gearing had been in common use in windmills, but not in immediate connection with the driving shaft or to produce reciprocating motion, was constrained, as already explained, to hold that the difference between the cases was not such as to justify a different conclusion. It may be that the presence of the internal gearing in other parts of a windmill ought to be regarded as of little or no more significance in respect to the particular combination covered by Martin's claim than such gearing in familiar use in machines used for sawing wood, mowing, and other purposes, especially since in some of the latter the use was to produce reciprocating motion; but in view of the fact that in the windmill of Perkins and in numerous others, on which patents had been granted before the date of Martin's application, external and internal gearings were in common use side by side, we find it impossible to credit with invention a patentee who did nothing but put one of the forms in the place of the other in a machine where both were already present, producing by the change no new result, but only improved effects or relative advantages long known to mechanics to be the result of using that form instead of the other. Such an exchange or substitution of one of two forms of gearing for another in a machine, where both are in familiar use side by side, is no more to be called invention than would be the substitution, under like circumstances, of one familiar make of pulley for another.

The customary reference has been made to such cases as Crane v. Price, Webst. Pat. Cas. 393, 409; Electric Co. v. La Rue, 139 U. S. 601, 11 Sup. Ct. 670; and Potts & Co. v. Creager, 155 U. S. 597, 15 Sup. Ct. 194,—but the distinction is clear. In Crane v. Price the discovery was of the susceptibility of anthracite to the action of the hot blast. 1 Rob. Pat. § 266, note. Martin discovered no new quality in internal gear wheels, and applied them to no use which can be properly called new. In Electric Co. v. La Rue the invention related to telegraphic keys, and consisted "in substituting for the trunnions or pivots upon which the lever vibrates a torsional spring or strip of metal"; the spring not only taking the place of the pivots or trunnions, but, when used in connection with certain adjusting screws, taking the place of the ordinary retractile spring. The court, after stating that there was nothing in the exhibits in the case to show "the use of a torsional spring in a telegraphic instrument," and that the invention "did not seem to be one of great importance," said: "We think the adaptation of this somewhat unfamiliar spring to this new use, and its consequent simplification of mechanism, justly entitles the patentee to the rights of an inventor." There was there not simply the substitution of one known form of spring for another. The retractile spring was displaced by the torsional spring, and, if there had been nothing more, it would have been essentially like the putting of the internal gear wheel in the place of the external; but the replacement of a fixed and inflexible pivot or trunnion with a torsional spring was an essentially different achievement, rising, as the supreme court considered, to the dignity of invention. But that conclusion, it is to be observed, was reached on the grounds that the torsional spring was somewhat unfamiliar, had never before been employed in a telegraphic instrument, and, as introduced, subserved a new use. Here, the contrary is true in every particular. The internal gearing, its effect, and its relative advantages over the other form had been familiar. It had been in use in windmills side by side with the external wheel, and if, as employed in the Martin combination, it served a use which, in any sense, was new, it was, in the language of the opinion in Potts & Co. v. Creager, "so nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill."

It is not perceived that further proofs are possible of a character to change the result. The decree or order below is therefore reversed, with directions to dismiss the bill for want of equity.

HILL v. CURTIS.

SAME v. HORNTHAL et al.

(Circuit Court, N. D. Illinois. June 27, 1898.)

No. 480.

PATENTS FOR INVENTIONS—INFRINGEMENT—METALLIC CASKETS.

Letters patent No. 482,557, issued September 13, 1892, for an improvement in metal caskets, consisting of a metallic plate top having slitted ends and continuing sides, provided with strengthening ribs, is not infringed by a device having no such ribs except such as run around the slitted end.