

mistake in the wording of the original claim; and that the reissue was obtained because, upon further consultation and advice, it was concluded that he had erred in judgment in not attempting to make a different and broader claim than the one he conceived to be expedient. He patented what he intended to, and by the reissue sought to patent a broader invention. Applying the settled doctrine of the adjudications of the court of last resort, we must adjudge the claim of the reissue to be void.

The decree of the circuit court is reversed, with costs, and the cause remanded to the circuit court, with instructions to dismiss the bill.

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HARMON et al. v. STRUTHERS et al.

(Circuit Court, W. D. Pennsylvania. September 4, 1893.)

No. 2.

1. PATENTS FOR INVENTIONS—INFRINGEMENT—MECHANICAL EQUIVALENTS—REVERSING GEAR FOR STEAM ENGINES.

Letters patent No. 248,277, granted to Frank L. Bliss, October 18, 1881, for an improvement in reversing gear for steam engines, by which the vibration produced by the movement of the reversing link is prevented from being transmitted to the elbow lever by means of a slot formed in the upper end of the lifting bar at its connection with the link, are for an invention of a primary character; and a device which accomplishes the same result by elongating the ordinary slot of the reversing link, so that when the elbow lever is at rest on its stop there is a slot in the reversing link itself above the valve-stem pin, infringes the Bliss patent by the substitution of mechanical equivalents.

2. SAME—PUBLIC USE.

More than two years before his application for a patent, an inventor, without profit to himself, and for the sole purpose of testing the efficiency of his invention by practical use, placed his device on engines manufactured by his employers, who sold them with a view to experimental use. *Held*, that there was no public use or sale, within the meaning of the patent law.

In Equity. Bill to restrain infringement of patent. Decree for complainants.

For prior report, see 48 Fed. Rep. 260.

W. Bakewell & Sons and A. Wentworth, for complainants.

D. F. Patterson and James C. Boyce, for defendants.

Before ACHESON, Circuit Judge, and BUFFINGTON, District Judge.

ACHESON, Circuit Judge. This suit is upon letters patent No. 248,277, granted October 18, 1881, to Frank L. Bliss, for an improvement in reversing gear for steam engines, in which the claim is:

"The elbow lever and link having a slotted connection, as described, for adjusting the link, D, in combination with the stop or set screw for relieving the lever from the vibration due to the movement of said link, D, substantially as described."

"We had occasion to consider this patent in a previous suit between these same parties. *Harmon v. Struthers*, 43 Fed. Rep. 437. We there held that Bliss was the original and first inventor of the device described in his patent; that the invention was highly meritorious, and of a primary character; and that the reversing gear which the defendants were then manufacturing was substantially the patented device,—the apparent difference being structural, and involving the mere substitution by the defendants of equivalent mechanical expedients. For our views upon these points, together with an explanation of the nature of the invention and a statement of the prior state of the art, we refer to the opinion in that case. To those views we adhere, notwithstanding the additional proofs in the present record.

After the decision in the former suit the defendants abandoned the use of the specific device which the court had there enjoined, and made a change in the method of accomplishing the desired result, which they insist has freed them from the imputation of infringement. But that change is simply this: In Bliss' device the vibration produced by the movement of the reversing link is prevented from being transmitted to the elbow lever by means of a slot, which, as illustrated by his patent drawing, is formed in the upper end of the lifting bar at its connection with the link, whereas in the defendants' present device the slot to effect that purpose is formed by elongating the ordinary slot of the reversing link, so that when the elbow lever is at rest upon its stop there is a slot in the reversing link itself above the valve-stem pin. The defendants' apparatus, then, has a slotted connection formed by the elongated link slot and the pin on the valve stem which fits therein, in combination with the stop for relieving the elbow lever from vibration. Mr. Heisler, the plaintiffs' expert, upon this subject, testifies thus:

"I find in the defendants' device all the elements of the Bliss claim, that is, the elbow lever, slotted connection, and stop, performing the same work in substantially the same way, and doing a special and peculiar work, (reversing an oil engine quickly and positively from a distant point, remote and independent of the engine and its foundation,) which could not have been done successfully by any device known before Bliss' invention. The only change the defendants have made is a mere change in location of the slot, but this is a change merely in position. It does not change the result, or the principle of the operation, for in both the defendants' and Bliss' device the principle is that of a slotted connection slidingly pivoted on a suitable pin for the purpose of preventing the vibration of an elbow lever."

These views, we think, are correct, and it seems to us that the Bliss device and the defendants' apparatus accomplish the same identical result in substantially the same way; that they both alike differ, in the same respects, from the prior state of the art; and that, in so far as there is any variance between the two devices, it is in the employment by the defendants of known mechanical equivalents.

Now, where the invention, as here, is one of a primary character, and the mechanical functions performed by the device are,

as a whole, entirely new, the established rule is that all subsequent machines which employ substantially the same means to accomplish the same result are infringements. *Consolidated Safety-Valve Co. v. Crosby Steam Gauge & Valve Co.*, 113 U. S. 157, 5 Sup. Ct. Rep. 513; *Morley Sewing-Mach. Co. v. Lancaster*, 129 U. S. 263, 9 Sup. Ct. Rep. 299. Hence, in *Royer v. Belting Co.*, 135 U. S. 319, 324, 10 Sup. Ct. Rep. 833, where the specification of a patent for a machine for converting raw hides into leather described an upright slotted shaft and compressing weights, and the claim was: "The vertical shaft, B, with a slot, B<sup>1</sup>, and set screws, b, b, b, said shaft having a forward and back motion, substantially as and for the purpose described,"—and in the defendants' apparatus there was a horizontal cylinder, in which was a horizontal revolving shaft, without weights, compression being accomplished by screw mechanism, it was held that, if the patented invention was in fact "one of a primary character," (within the ruling in *Morley Sewing-Mach. Co. v. Lancaster*, *supra*,) these differences in construction were not conclusive upon the question of infringement. In *Winans v. Denmead*, 15 How. 330, 342, the rule is thus laid down:

"It is generally true, when a patentee describes a machine, and then claims it as described, he is understood to intend to claim, and does by law actually cover, not only the precise forms he has prescribed, but all other forms which embody his invention, it being a familiar rule that to copy the principle or mode of operation described is an infringement, though such copy should be totally unlike the original in form or proportions."

This rule was enforced in the recent case of *Hoyt v. Horne*, 145 U. S. 302, 308, 12 Sup. Ct. Rep. 922, where the court said:

"It is insisted by the defendant in this connection that there is no infringement of the first claim of the Hoyt patent, since the pulp is not circulated in vertical planes, nor is it delivered by the beater roll into the upper section of the vat, as specified in that claim. Literally it is not. A technical reading of the specification undoubtedly required that the mid-feather should run horizontally instead of vertically; but the object of this was that the pulp should be received and delivered by the beater roll along its entire length, viz. across the entire width of the tub, and this is accomplished in the same way in both devices. \* \* \* The substitution of a vertical for a horizontal mid-feather at the inoperative end of the tub is merely the use of an old and well-known mechanical equivalent, and obviously intended to evade the wording of the claims of the Hoyt patent."

We hold, then, and are well warranted by the cited authorities in so doing, that the reversing gear which the defendants are now manufacturing comes within the claim of the patent in suit.

The defendants, however, allege, and earnestly press as a defense, that Bliss' patented device was in public use and on sale more than two years before his application for a patent, which was filed March 8, 1881. This defense was set up in the other suit, and was overruled. In so far as the present defense rests upon the "push reverse," the transactions with respect to which we found to have been wholly of an experimental nature, and the device itself a failure when subjected to practical test, we here reassert our former conclusion, referring to the opinion of the court in the prior case (43 Fed. Rep. 437) for our reasons for such determination.

But the additional and fuller proofs now before us show that the witnesses, when testifying in the first suit, fell into some mistakes as to dates, and otherwise, and it now appears that some engines equipped with Bliss' pull reverse—i. e. his device in the form in which it was eventually patented—went out from the shop of Harmon, Gibbs & Co. into the oil field more than two years before the application for a patent; that is, before March 8, 1879. The earliest instance of this is an engine, No. 14, which was sold and delivered to E. A. Culver on May 20, 1878. Mr. Culver states that he bought this engine from George H. Gibbs, through George Sheffield, and that it was "a straight purchase, without any condition whatever." Gibbs having died a few months afterwards, we are without his testimony. Sheffield cannot remember what occurred between himself and Culver, but says, "I was anxious to sell the engine, and get it out on trial."

James W. Ford, who had charge of the Culver wells, states:

"After the engine came upon the lease, and before it was set up, Mr. Culver came up there, and we looked the engine over, and talked about it. It had a pull reverse attached to it. This was something new in oil-well engines. I was afraid of it. I told him I did not like the looks of it, and was afraid it would not do the work. Mr. Culver told me he saw Mr. Gibbs on the train as he was going home a few days before to get a new engine. He said he had taken the engine of Mr. Gibbs, *subject to approval*. He told me to set it up and *give it a good trial*. I did set it up at this No. 1 well, and we used it *a couple of days* in pulling the well. The link broke while we were, pulling it, and I took the link to a machine shop at Summit city, and had it fixed. We drilled upon that lease three other wells, but this engine remained at No. 1 until some time in April, 1879, when we moved it, and commenced drilling No. 3 with it. We finished No. 3 May 25, 1879. No. 1 flowed, and this engine did no work from the time it pulled the well, as I have mentioned, until we commenced drilling this No. 3. While drilling this No. 3 the link broke several times, and I finally went to Harmon, Gibbs & Co.'s shop, and got a new link. The elbow lever on this engine also broke near the knuckle or place where it was attached to the lug while drilling this well. I repaired it by putting a brace across from the long to the short arm of the lever. \* \* \* But we had difficulty. Before breaking, the lever would spring, and, after the brace was put across, the lever would still spring when the link started hard. I think the spring of the lever is what caused the link to break. When the link did start, it went quick, and struck hard on the roller or block, as it came up. There was so much delay and trouble with this reverse gear that I had difficulty with the men drilling the well. They kept kicking about it. As the well was being drilled by contract, they complained at the delay they were put to. The engine worked well. The difficulty was with this reverse gear. \* \* \* When this first engine came upon the lease, it attracted considerable attention with this new reverse. Quite a number of people engaged in the oil business, and putting down and operating oil wells, came to see it. There was a general expression of doubt about its working successfully,—the reverse gear,—and considerable fun was made of it. We were the first ones in our locality that had the sand to try it. I understood Mr. J. J. Carter was going to give it a test, or was then testing it, and with that exception I knew of none that were in the field."

The direct testimony, as a whole, taken in connection with all the surrounding circumstances, would quite justify the conclusion that, as between the immediate parties to the transaction, the sale to Culver was for the purpose of test.

Between the date of George H. Gibbs' death, in September, 1878, and March 8, 1879, 10 other engines equipped with Bliss' pull reverse went out from the shop of Harmon, Gibbs & Co. into the oil field, but the evidence, we think, shows that they were all sold to J. J. Carter, the brother of George H. Gibbs' widow, or through him to friends, out of the ordinary course of trade, upon special terms, and with a view to experimental use. But, at any rate, so far as Frank L. Bliss himself was concerned, all these transactions were purely experimental. He was not a vendor of these engines or of the reversing gear. He merely allowed his device to be put on the engines for the sole purpose of testing it. Of this the proof is positive and convincing. He was not a member of the firm of Harmon, Gibbs & Co., nor was he pecuniarily interested in the sales or business of that firm. He was simply an employe in their shop; nor had the firm any right to, or pecuniary interest in, the invention at that time. The situation was as thus stated by Bliss:

"I had no means except my day wages in the shop, and I had a family to support. I could not have tested it or patented it myself. Harmon, Gibbs & Co. furnished the money to procure the patent for me. I had no shop. I had no engines upon which I could put them for trial or experiment. I had no oil well at which I could give them a trial. I had no means of testing the reverse gear, except as they were put upon the complainants' engines and those of George H. Gibbs."

It clearly appears that Bliss' device could only be tested by practical work in the oil field. Then, again, the device was a mere appendage to the engine, which was complete without it. It was not the principal subject-matter of sale, but a mere incident. Furthermore, it is shown that Bliss derived no profit whatever from the use of his device, or from any sales of engines made prior to the grant of his patent. This, then, is the case: Bliss' device could only be tested by putting it on his employers' engines, and sending it out into the oil field for practical use, and this his employers permitted him to do, without profit to him. Did he thereby forfeit his invention? It would be a hard thing so to hold. We do not think the law demands such a conclusion.

The experimental use of an invention by the inventor or by persons under his direction, if made in good faith, solely in order to test its qualities, has never been regarded as a public use. *Elizabeth v. Pavement Co.*, 97 U. S. 126, 135. In *Winans v. Railroad Co.*, 4 Fish. Pat. Cas. 1, 10, Mr. Justice Nelson charged the jury thus:

"If the use be experimental, to ascertain the value, or the utility or the success of the thing invented, by putting it into practice by trial, such use will not deprive the patentee of his right to the product of his genius. The plaintiff, therefore, in this case, had a right to use his cars on the Baltimore and Ohio Railroad by way of trial and experiment, and to enter into stipulations with the directors of the road for this purpose, without any forfeiture of his rights."

It has been held that, if necessary in making tests, an inventor may sell a machine on trial so as to get it fully and fairly tested by practical use by the class of persons for whose use it is intended, and such sale or use, even for more than two years, if made for the

purpose of practical test, will not invalidate the patent. *Graham v. McCormick*, (per Drummond, C. J.,) 10 Biss. 39, 43, 11 Fed. Rep. 859; *Graham v. Geneva, etc., Manuf'g Co.*, (per Dyer, J.,) 11 Fed. Rep. 138. In *Smith & Griggs Manuf'g Co. v. Sprague*, 123 U. S. 249, 256, 8 Sup. Ct. Rep. 122, it is said:

"A use by the inventor, for the purpose of testing the machine, in order by experiment to devise additional means for perfecting the success of its operation, is admissible; and where, as incident to such use, the product of its operation is disposed of by sale, such profit from its use does not change its character, but where the use is mainly for the purposes of trade and profit, and the experiment is merely incidental to that, the principal, and not the incident, must give character to the use. The thing implied as excepted out of the prohibition of the statute is a use which may be properly characterized as substantially for the purpose of experiment."

The saving principle of these decisions, we think, is justly applicable to the case in hand, where the acts of the inventor were without any profit to him, and for the single purpose of testing the practicability of his invention by needed trial and experiment. It is very certain that, if Bliss could not safely make the test in the manner in which he did, he could not have made it at all.

The evidence clearly satisfies us that the test, both as respects the number of engines employed and the duration of the use, was altogether reasonable. During the years 1878 and 1879 numerous complaints of the reversing gear were made at the shop of Harmon, Gibbs & Co., and Mr. Shave, a machinist there, testifies that "Mr. Bliss kept changing it to overcome these alleged defects." Mr. Bagley, then an employe at the shop, states:

"Mr. Bliss continued during 1878 and 1879 in experimenting and making changes to overcome the defects, as they became known, and to make the reverse gear effective. He was diligent in his efforts to accomplish that result."

It was not before late in the fall of 1879 that the practically operative success of the device was demonstrated.

Upon the whole, we are of opinion that the plaintiffs are entitled to a decree.

BUFFINGTON, District Judge, concurs.

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EDISON ELECTRIC LIGHT CO. et al. v. MT. MORRIS ELECTRIC LIGHT CO. et al.

SAME v. UNITED ELECTRIC LIGHT & POWER CO.

(Circuit Court, S. D. New York. September 19, 1893.)

1. PATENTS FOR INVENTIONS—INFRINGEMENT—LACHES—INJUNCTION.

The test case involving the validity of the Edison patent for incandescent electric lamps (No. 223,898) was brought in May, 1885, and prosecuted with all due diligence. After its determination the present suit was begun against defendant corporations which were not organized until a year or two after the commencement of the test suit, and did not begin active operations in incandescent lighting until three years after