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Cawood Patent

Cawood Patent

SooperKanoon Citation : sooperkanoon.com/83177

Court : US Supreme Court

Decided On : 1876

Appeal No. : 94 U.S. 695

Appellant : Cawood Patent

Judgement :

Cawood Patent - 94 U.S. 695 (1876)
U.S. Supreme Court Cawood Patent, 94 U.S. 695 (1876)

Cawood Patent

94 U.S. 695

APPEALS FROM THE CIRCUIT COURT OF THE UNITED

STATES FOR THE NORTHERN DISTRICT OF ILLINOIS

SYLLABUS

1. This Court, in affirming the validity of the letters patent No. 15,687, granted to Joseph D. Cawood Sept. 9, 1856, for

"an improvement in the common anvil or swedge block for the purpose of welding up and reforming the ends of railroad rails when they have been exfoliated, or

become shattered from unequal wear occasioned by the inequalities of the road,"

&c.;, which were before it in *Turrill v. Michigan Southern Railroad Co.,* 1 Wall. 491, holds, in addition to what was declared in that case, that they embrace a bottom support for the rail on the anvil, and that they are infringed by the machines known as the "Illinois Central," the "Etheridge," and the "Whitcomb," but not by those known as the "Bayonet vise," the "Michigan Southern," and the "Beebe and Smith."

2. Where an account for the infringement of letters patent is prayed for and decreed, the record filed here should set it forth. This Court should not be called upon to perform the duties of a master.

3. Considering the number of feet of rails mended by the respondents in the use of the machines covered by said letters patent, and of those which infringe them, the gain in mending, compared with the cost of mending on the common anvil, and the saving in fuel and labor, the damages decreed by the court below are not excessive.

4. In settling an account between a patentee and an infringes of his letters patent, the question is not what profits the latter made in his business, or from his manner of conducting it, but what advantage he derived from his use of the patented invention.

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The facts are stated in the opinion of the Court.

MR. JUSTICE STRONG delivered the opinion of the Court.

These five cases may very conveniently be considered together, since they all present, in the main, the same questions.

The Cawood patent, for alleged infringements of which the suits were brought, has heretofore been the subject of consideration in this Court, where it has been at

least partially construed, and its limits have been defined. 68 U. S. 1 Wall. 491. It is a patent

"for an alleged new and useful improvement in the common anvil or swedge block, for the purpose of welding up and reforming the ends of railroad rails when they have exfoliated or become shattered from unequal wear."

Such is the general description given by the patentee in his specification, followed by a more detailed one, which needs careful consideration, in order to discover what the invention claimed distinctively was. The patentee refers to an annexed drawing, made a part of the specification, and claimed as giving a perspective view of the machine or invention. It represents a bed sill on which is placed an anvil or swedge block of cast iron, across the face of which there are recesses or dies shaped like the side of the rail to be repaired. A solid and fixed block, cast as a part of the anvil, is also represented, with its side face shaped to the side of the rail when placed in its natural position, and a movable press block held down upon the anvil by dovetailed tongues and grooves, and operated by two eccentric cams, moving it back and forward, toward and from, the fixed block. The face of the movable block is also shaped to fit the side of the rail next to it, and the two blocks grasp the rail on each side while its ends are being reformed, the movable one having sufficient travel to allow the rail to be extricated without altering its vertical position. A rail of the T form is also represented in position between the two press blocks. Having thus exhibited his invention by the drawing, the patentee proceeds to describe how he usually makes it, and the manner of

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its use. After having stated that he usually makes his improved anvil and swedge block between four and five feet long and sixteen inches wide across the face, with two forms or recesses at one end, right and left, of a form corresponding to the sides of the rail, he adds:

"Close to these is a cast or raised block nearly as high as the rail, and with its farther edge also shaped to fit the sides of the rail, when it lies across the anvil in

its natural position. Next this [says he] I attach to the face of the anvil, by dovetailed tongues and grooves, or in any other convenient manner, what I call a movable press block with a similar but reversed shaped edge, lying opposite the other, so as to enclose the rail between the two, as in the jaws of a vise. The blocks I work by eccentric cams on a shaft which is attached to the anvil by two standards, with bearings either cast on or bolted to the edge of the same, so that half a turn of the crank will move the press block over a space a little more than half the width of the rail."

The mode of use is then described. The rail and the piece of iron to be welded on having been heated, the former is swung from the fire into the space between the blocks, when, by half a turn of the cams, the blocks are closed upon it. The welding piece is then laid on top of the rail and leveled up by a swage held by the smith, of the form of that section which projects above the blocks. Such is the description. It is succeeded by the claim, as follows:

"I do not claim the anvil block nor its recesses, but what I do claim as my invention and desire to secure by letters patent is the movable press block, having its edge formed to the sides of the rail in combination with another block with its edge of a similar but reversed form (the movable block to be operated by two cams, or in any other convenient manner), for the purpose of pressing between them a T or otherwise shaped rail, thereby greatly facilitating the difficult operation of welding and renewing the ends of such rails after they have been damaged, in the manner herein described and set forth."

What, then, in view of this specification and claim, was the invention patented? In *Turrill v. Michigan Southern Railroad Co.,* 1 Wall. 491, this Court declared it to be

"such a movable press block as is described, having its edge

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formed to the side of the rail, in combination with such other block as is described, with its edge of similar but reversed form, arranged as described, and combined and operating in the particular way described, for the special purpose of effecting

the desired result."

This was enough for that case as it then appeared. But the present case requires a more minute analysis. Viewing the claim as interpreted by the preceding description, to which it refers, and by the drawing, it is not difficult to discover what the patentee supposed he had invented. It was not any kind of movable press block combined and operating in any way, with any kind of fixed block, to effect any useful result. His avowed purpose was to form a mechanism for welding up and reforming the ends of exfoliated and crushed rails, or rather to hold them in a convenient position for such welding and reforming, at the same time preserving their shape. His manner of accomplishing this result was evidently considered by him as of the very essence of his invention. On one side of the rail, when on the anvil, it is to be supported by a fixed block, part of the anvil itself, shaped reversely so as to fit the shape of the rail, and on the other it is to be supported and held in place by a movable block with a face adjusted to the shape of the rail on that side, the movable block capable of advance towards the fixed blocks, and of retrogradation after the rail is placed on the anvil. The rail is also, when in place, to be supported under its base by the anvil. This is fairly deducible from the manifest purpose of the inventor, from his drawing, and from his specification. It is necessary to the result supposed to have been obtained, for unless supported at the base, the heated end of the rail would be in danger of being driven downward between the blocks by the blows of the sledge or hammer used in welding, while the part of the rail not operated upon, being cooler, would remain suspended between the blocks. And that the invention contemplates a bottom support for the rail on the anvil is made clear by the drawing. That shows no space between the anvil and the base of the rail. On the contrary, it exhibits a bottom support on the anvil, as well as lateral support by the modeled faces of the two blocks. The rail is thus confined on three of its sides, as in a mould. And the words of the specification,

fairly construed, convey the same meaning. Thus it is said the fixed block is cast nearly as high as the anvil, with its farther edge shaped to fit the side of the rail,

when it lies across the anvil in its natural position. The rail, then, is to lie upon the anvil, having the anvil as a bottom support. Unless it does, the shaped edge of the blocks cannot fit its side.

Having thus endeavored to ascertain what is the true idea of the patent, we are prepared to examine the devices which the appellants contend were in existence and use before Cawood made his invention. Of these there are three only that have been pressed upon our attention. The first is the angle iron machine. Between this and the Cawood machine there are points of resemblance, but there are also very substantial differences. The purposes and objects sought to be accomplished by the machines are entirely unlike. It is always of importance to consider the object an inventor of a machine had in view, because thus the operation of its different parts and the functions performed by each can be better understood. The purpose of the angle iron machine is to facilitate making angle iron. That of the Cawood is to aid in mending rails already made. The angle iron machine is a device to assist in welding together, at right angles with each other, two iron bars, making a fillet in the interior angle to strengthen the rail when made. To effect this, the fixed block on the anvil has necessarily a peculiar construction, unlike that in the Cawood machine. It is beveled or rounded off at the top of the face opposite the movable block, so as to give room for the formation of the fillet. Consequently, that face cannot answer reversely to the face of the movable block. And not only is the face of the fixed block uniformly and necessarily unlike that of the fixed block in the Cawood machine, but its function is entirely different. It is to furnish support for one of the two bars designed for the formation of the angle iron. One entire limb of the angle iron is laid upon top of the block, unconfined laterally, and there exposed to the hammer, the block being the anvil. The iron is thus left free to spread out in both directions, instead of being prevented from spreading laterally by the press block, as in the Cawood machine. There is nothing to preserve a shape already formed. The other bar of the angle iron, or its other limb,

hangs suspended from the upper edge of the fixed block, and is not supported against the blows of the hammer at any other part of its height than the under side

of the limb which lies on the block, instead of being supported concurrently at two parts of its height by the grasp of the two blocks, and supported also under its base. In the Cawood machine, the hammering is not over the blocks or upon them, but exclusively on the rail between them. The fixed block in that is not cast quite so high as the rail, and the new piece is welded on and shaped, not on or over either block, but yet above the surface of that part of the anvil that constitutes the block. The patentee, after stating that the raised block of the anvil is cast "nearly as high as the rail" (the two blocks thus being made to support the under side of the crown of the rail, and confining the lower half of the crown laterally), says,

"the welded piece is laid on top of the rail in the usual way, and leveled up and shaped by a swedge held by the smith, of the form of that section which projects above the blocks."

Thus the iron is not permitted to spread laterally under the blows of the hammer over the press blocks and down between them. In fact, the blocks have nothing to do with the formation of that section of the rail that projects above them. It is very evident, therefore, that the fixed block in the angle iron machine is not intended or adapted to perform the office which the fixed block does perform in the Cawood. In fact, it cannot perform it. Besides, in the angle iron machine, no provision is made for a bottom support of a rail. The height of the blocks above the body of the anvil is not regulated with reference to any bottom support, and the bar between the jaws is held as in a vise. Support beneath the flange or base of the rail, when in place for reparation, is, as we have seen, a feature of the Cawood improvement. It would defeat the purposes and uses of the angle iron machine. The bottom serves for an anvil in the Cawood, to resist the downward force of the blows on the top of the rail and to prevent forcing the heated iron into the neck of the rail and increasing its length. But one of the objects, and a result secured in the angle iron machine, is increasing the length and width of that portion of the bar operated upon by the hammer, the part which lies upon the fixed block. There is also a wide difference

in the functions of the movable blocks of the two machines. That of the angle iron machine is principally to act as one of the jaws of a vise to hold the bar against the fixed block or raised part of the anvil, while the welding is being made and while the fillet is being informed in the interior angle. It is not to preserve the shape of an already formed rail or to resist the lateral pressure caused by the hammering. Yet such are the functions of the Cawood movable block. We think therefore that if the purposes of the two devices be considered as well as their possible modes of use, the arrangement of their several parts respectively to each other, and the different functions of those parts, it cannot be held that the angle iron machine contained the invention or involved the principle of the invention described in the patent granted to Cawood.

The second device, which the appellants insist anticipated the Cawood invention, is what is denominated the bayonet machine, used at the Springfield Armory before 1850 and since for forging parts of bayonets. In some particulars there are resemblances between the devices. but there are obvious dissimilarities not only in the purpose and results sought to be obtained, but in the relation of the parts to each other, in the work to be done by those parts, in the manner and effect of their combination, and in their mode of operation. The differences are sufficient, in our opinion, to justify the conclusion that the machines are different devices, embodying distinct principles. The bayonet machine is in form and in substance nothing but a hinge vise, with a peculiar shape of the jaws, intended to facilitate operations upon the shank and socket of a bayonet. The jaws are fitted to hold the bayonet in place, while the shank is turned upward, through and above their upper surface, in order that a flat piece of iron may be welded upon the shank and prepared to be afterwards converted into a socket. The lateral surfaces of the jaws come into actual contact with each other except for a short space equal to the diameter of the bayonet shank. They hold only the lower segment of the shank, allowing the upper segment to project a considerable distance above the upper surface. The inner surfaces do not constitute a mould. They do not maintain the shape of the shank, enclosed within and between them during the process of

top welding and shaping. They are intended for no such purpose, nor are they fitted for it. Their sole function appears to be to sustain the shaft of the bayonet in an upright position while a flat piece of iron is being welded upon its end. It is only in a very limited sense that the machine can be called an anvil. One side of it is stationary, the upper portion of its front forming what may be called a fixed jaw. The other side, being merely an arm, vibrates upon a hinge or upon journals attaching it to the fixed side at or near its base. Such are the leading features of the machine. Comparing them and the operation of the machine with those of the Cawood, it is very evident the devices are not substantially the same. The Cawood is an improved anvil, not a vise. It has a fixed block cast upon an anvil, and its movable block rests upon the anvil, attached to it, and moving towards and from the fixed block horizontally, in a plane parallel with the anvil's upper surface, instead of moving on the arc of a circle. The two blocks together form a mould, and they are combined with each other through the anvil. These are very substantial differences from the bayonet machine. The combination through the anvil is essential for the work intended to be done. It gives the immediate support of the anvil to the bottom of the rail as its tread or crown is being hammered, while in the bayonet machine the iron enclosed is supported from beneath, during the process of welding, exclusively by the jaws, at a considerable distance from the point of connection between them. Again, in the Cawood, the inner surface of the blocks is designed and fitted to maintain the shape of the rail while it is hammered -- an office not contemplated for the jaws of the bayonet machine. The bayonet socket is fashioned to its desired shape after the release of the iron from the jaws. So also the relation of the blocks and jaws to the rail or iron, when in place to be operated upon, is different in the two machines. In the Cawood, the blocks come nearly to the top of the rail, affording lateral support to almost the whole of each side, while in the other there is no such lateral support. And the hammering is entirely between the blocks, instead of being partly over or upon them.

Still another important difference is apparent. In the bayonet machine, the movable jaw is pushed back by a spring

interposed between the two arms of the vise, and forced forward by leverage sufficient to overcome the resistance of the spring and hold it compressed while the jaws are in contact with each other. It is obvious that no such means of moving the movable block would answer for Cawood's machine. It is true he did not claim operating it by cams exclusively. He claimed moving the block by cams, or "in any other convenient manner," but that meant by means adapted to the work the machine was intended to perform. These several differences are too many and too great to be considered merely formal. Not only the object of Cawood's device was novel, but so also was the function of the blocks, their combination with each other, and the mode of operation. The general appearance of the bayonet machine, and, as we have said, its distinctive character, was that of a vise. We think, therefore, it cannot be regarded as containing the principle embodied in the Cawood invention. We cannot think it could teach how to make the improvement in the common anvil or swage block for reforming and welding the ends of railroad rails, which was devised by Cawood and which has gone into large use.

It is next contended that the patent was anticipated by the Church machine, patented in England in 1846. We have before us the specification and a model constructed from that specification. It requires but little attention. It is described as a machine which may be usefully employed for straightening and flattening the rails for railways, as well as other similar uses. As the model represents it, the machine is totally incapable of performing the work of the Cawood machine. It is not an anvil. There is no fixed block cast as a part of an anvil. There is a stationary die, part of a frame against which one side of the rail is placed to resist the lateral pressure exerted upon it by a sliding lateral die on the other side of the rail, and above is a horizontal bar which is forced downwards by a series of jointed levers, carrying another die upon the upper surface of the rail. It is plain this description and this model could never have informed any one of the device Cawood invented. It does not show how the blocks or jaws can be combined so as to leave the upper face of the rail to be repaired exposed for the action of a swage and a hammer. It is said, however, if the upper

horizontal bar with its die and jointed levers were taken away, a mechanic might understand how the remnant could be altered and employed as a Cawood machine is employed, and for the same uses. That, however, evades the question to be answered, which is whether the specification was sufficient to enable a mechanic skilled in mechanical arts to construct and carry into practical use the Cawood machine, or in other words whether whatever is essential to the Cawood machine could be read out of the prior specification. We think no such information was given by the English patent.

That the old slide vise contains the principle of the Cawood machine has not been contended with much earnestness, and certainly it cannot be successfully. Nothing, then, is found in the case sufficient to show that the patent is void for want of novelty of the invention, and the court was not in error in holding it valid.

We come next to the question whether machines employed by the defendants in repairing the ends of railroad rails are infringements of the patent. Those which have been used by the several companies defendants, and which are claimed to have been infringements, were, in addition to the Cawood, seven in number. They were the "Illinois Central," the "Etheridge," the "Whitcomb or Cleaveland block," the "Michigan Southern," the "Bayonet vise," the "Beebee and Smith," and the "Blaine reversible rolls," all of which except the last were held by the circuit court to be infringements. Of these, the Illinois Central Railroad Company has used only the "Illinois Central," the "Bayonet vise," and the "Beebee and Smith;" the Pittsburg, Fort Wayne, and Chicago Railroad Company has used the Whitcomb or Cleaveland block; the Chicago and Alton Railroad Company as used only the Whitcomb; the Chicago, Burlington, and Quincy Railroad Company has used only the Cawood and the Etheridge; and the Michigan Southern and Northern Indiana has used only the Beebee and Smith, the Bayonet vise, and the Whitcomb. We have had before us models and drawings of them all, and we have considered the testimony respecting them which is found in the records. It is but faintly contended, if at all, that the Illinois Central, the Etheridge, and the Whitcomb machines are not

infringements of the Cawood. The principle of each of them, the object sought for, the combination and arrangement of the parts and the mode of operation for the purpose of effecting the described result are so manifestly the same as that described in the complainant's patent that a detailed examination of them is unnecessary. But it is earnestly insisted that neither the use of the Bayonet vise, nor that of the Michigan Southern machine, nor that of the Beebee and Smith, used by some of the defendants, can rightfully be held to infringe the patent, and such is our opinion. We have already called attention to the fact that a very limited construction must be given to the claim of the Cawood patent in view of the state of the art when the patent was granted and of the explanations contained in the specification. It was said in *Turrill v. Michigan Southern Railroad Company, supra,*

"special devices are described as combined and arranged in a particular manner, and operating only in a special and peculiar way, for a special purpose, and to effect a special result."

To repeat the definition of the invention given in that case, it is

"of such a movable press block as is described, having its edge formed to the side of the rail, in combination with such other blocks as is described, with its edge of similar but reversed form, arranged as described, and combined and operating in the particular way described, for the special purpose of effecting the desired result."

If the claim be thus limited, if such was the invention Cawood made, the use of the Bayonet vise and of the Michigan Southern cannot, we think, be regarded as an infringement. Both the machines were manifestly copied from the Springfield machine, which we have endeavored to show did not anticipate or contain the principle of Cawood's invention. Each is substantially a vise, and not an anvil. The combination of the blocks is unlike that of the Cawood improved anvil. It is not through the anvil, and the rail when in place for welding and shaping does not rest on the anvil. The iron to be hammered rests upon the jaws, and consequently it is much more liable to displacement than it would be if arranged as described by Cawood. In each, only a part of the force of the blows reaches the anvil, for the

movable block is supported by an arm attached by a hinge, or by journals, to the base of the block. It is true that by the

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change in the shape of the jaws one of the functions of the Cawood machine is secured -- that of preserving the shape of the rail during the process of hammering; but that is only one of the elements of the Cawood. Neither of these two machines can be said to be an improved anvil or swage block. In neither are the two blocks combined by means of an anvil. In neither is a raised block cast as a part of the anvil. In neither is there any such movable press block attached to the anvil as is described in the Cawood patent, combined and operating with the other parts of the machine in the manner described. And in neither of them is there any part of an anvil immediately below and fitted to support the rail when in place for being repaired. Each of them has, however, all the parts and substantially the arrangement and combinations of the Springfield machine, and in principle they are identical with it, the only appreciable difference being in the shape of the jaws. If, therefore, they are infringements of the Cawood patent, that patent is void for want of novelty, for it was anticipated by the Springfield. If, on the other hand, the Cawood machine was novel, as we think it was, if it was not anticipated by the Springfield, the conclusion is inevitable that neither the Michigan Southern nor the Bayonet vise is an infringement.

Much of what we have said is applicable to the Beebee and Smith machine, the use of which the circuit court also held to be an infringement of the Cawood patent. To the inquiry what constitutes an infringement of that patent it is indispensable to keep in mind what the invention patented is. It is not, we repeat, any mode by which the result sought and obtained is secured, but a machine that attains the desired end by means of described agencies, combined in a described manner and operating in a described way. Thus the patent was considered in 1 Wallace. Now, we think the Beebee and Smith machine, though arriving at the same result, does not profess to attain it by means of the agencies described in the Cawood patent, or any agencies that can be regarded as equivalents combined in the manner described by Cawood, and operating in the same or an

equivalent way. True, it is a machine for holding a rail while the exfoliated or crushed end thereof is undergoing reparation, but it performs its functions in a manner

peculiar to itself, unlike the mode in which the Cawood operates. The construction of the two machines is very dissimilar. In the Beebee and Smith, there is no fixed block or jaw a part of the anvil. Neither is there any movable block or jaw attached in any manner to the anvil, or connected in any manner with a fixed block or with the anvil. There are two jaws sliding up and down in a V-shaped notch in an anvil entirely unconnected with each other, and kept in place only by their own weight and that of the superincumbent rail. They are not advanced towards each other or retired by cams or any equivalent mechanism. When by force of gravity they descend into the V-shaped cavity, and thus approach each other, the rail rests upon them and not on the anvil, and when grasped by them, all the force of the blows necessary in welding is expended upon them through the rail, and only remotely upon the anvil. Bringing the jaws together by their gravity cannot be said to be an equivalent for cams or levers or any other mechanical device. The Beebee and Smith machine, then, has neither such a fixed block nor such a movable press block as is described in the Cawood machine, nor are the two blocks combined in substantially the same way, and the mode of operation is substantially unlike that described by Cawood. It is impossible, therefore, to hold that its use is an infringement of the complainant's patent.

We do not care to expend much time in refuting the argument of the appellee that a bottom support for the rail in the use of the Cawood invention is injurious, and that it is therefore no essential part of the device patented to him. Considerable evidence has been given tending to show that the face of the anvil under the jaws has been chipped off, or cut out, and that thus altered the thing invented works as well, if not better, than it would if the alteration had not been made. In the nature of things, this is impossible, and no amount of testimony can convince us that such is the fact. Manifestly, the chipping off was made to evade the patent. The best mode of using the device would doubtless be to construct the blocks so as to fit exactly

the sides of the rail. Thus, its shape and its height would be maintained during the process of hammering and shaping the crown. But this exact fit may not always occur, and whenever it does not, the bottom support on the anvil is of

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importance. This is made evident by the fact that when experiments have been made by chipping off the anvil at the bottom of the blocks or jaws, if more than about three eights of an inch was removed, it has been found advisable to support the rail by a roller, as in the Cleaveland vise, or by introducing a key. It proves nothing to show that rails may be repaired without any support at their base. Because the invention has been used in an imperfect condition, or altered slightly in one particular without serious loss, is no proof that it was no invention, or that the use of it in its altered condition was no infringement.

It follows from what we have said that the decrees must be reversed and set aside, so far as the defendants have been held accountable for the use of the Beebee and Smith machine, or the Bayonet vise, or the Michigan Southern. But so far as the Whitcomb, the Etheridge, the Cawood, or the Illinois Central have been used, the defendants are answerable to the complainant.

We come, then, to the inquiry whether there was error in the ascertainment of the profits made by the use of those devices. This inquiry is exceedingly embarrassed by the very unusual manner of proceeding in the court below. After having determined that the Cawood patent was valid, the court, instead of deciding whether there had been any infringement, by a decretal order referred to a master to find what machines used by the defendants were infringements, and to state an account between the parties. In obedience to this order, the master reported that seven machines used by the defendants infringed the patent, and on that assumption he returned stated accounts. This report the court corrected, holding that one of the seven machines was not an infringement, and sent the case back to the master to report the damages sustained by the plaintiff from the use by the defendants of the other machines, giving him liberty to reconsider his finding as to the cost of fuel and labor in repairing rails on the common anvil and the plaintiff's

machine, with liberty also to hear additional evidence, and report such conclusions as might be warranted by the whole testimony. Under this second reference, the master submitted another report, to almost the whole of which exceptions were taken. The court sustained those which

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related to the ascertainment of profits made by the defendants, and the measure thereof, and also sustained those which related to the allowance of profits for the use of the complainant's machine by the defendants before he had title to the patent, or any part or interest therein. The effect of this was to set aside the entire report of the master, so far as it stated an account between the parties. That subject was then all at large, and without further reference the court proceeded itself to find the amount of profits the defendants had respectively made by the use of the invention owned by the plaintiff, and found the same to be that for which the final decrees were subsequently entered. The decree in each of the cases was for much less than the master had reported. But how it was made up we are not informed. No account was stated accompanying the decrees. Though the bill prayed for an account, and though an account was decreed, the record shows no account. Nothing in the decree shows us how many fails had been repaired, or rails had been repaired, or in the decree exhibits what was the comparative cost of repairing with the patented machine and with the common anvil. The cases have come to us, therefore, in such a condition that we are called upon to perform the duties of a master. This ought not so to be; and probably we would be justified in reversing all the decrees, and sending the cases back for a statement of accounts. But the litigation has been long protracted, at great expense to the parties, and this consideration has induced us to examine the evidence submitted to the master, and reported by him, in order to discover whether there has been an overestimate of profits in those cases where the defendants used only the machines the use of which was a plain infringement of the Cawood patent. Without entering into details, we are constrained to say, that, in our opinion, there has been no such overestimate. We think the weight of the evidence leads to the conclusion that the number of feet mended on the infringing machines, the gain in mending, compared

with the cost of mending on the common anvil (which the court must have determined was about thirty-six cents per foot), considering the saving of labor and fuel, were such as justified the decrees that were made. There are undoubtedly great differences in the statements of

the witnesses, but we think it is not difficult to see where is the preponderance of the evidence. The master's estimate was manifestly too high. We cannot say that of the court was. And, after the action of the court upon the master's first report, it must be presumed that no profits were allowed for any use of the Cawood patent before the plaintiff became its owner.

There is nothing more in these cases that we feel called upon to notice, except the suggestion that repairing railroad rails was unprofitable, compared with what might have been done. It has been argued that it would have been better for these defendants, if, instead of repairing the crushed and exfoliated ends of the rails, they had cut off the ends and relaid the sound parts, or had caused the rails to be re rolled. Experience, it is said, has proved that repairing worn out ends of rails is not true economy, and hence it is inferred that defendants have derived no profits from the use of the plaintiff's invention. The argument is plausible, but it is unsound. Assuming that experience has demonstrated what is claimed, the defendants undertook to repair their injured rails. They had the choice of repairing them on the common anvil or on the complainant's machine. By selecting the latter, they saved a large part of what they must have expended in the use of the former. To that extent they had a positive advantage, growing out of their invasion of the complainant's patent. If their general business was unprofitable, it was the less so in consequence of their use of the plaintiff's property. They gained, therefore, to the extent that they saved themselves from loss. In settling an account between a patentee and an infringer of the patent, the question is, not what profits the latter has made in his business, or from his manner of conducting it, but what advantage has he derived from his use of the patented invention.

We will pursue the subject no farther. It follows from what we have said that in those cases in which the defendants have been charged with the profits made from the use of the "Bayonet vise," or the "Michigan Southern" machine, or the "Beebee and Smith" machine, the decrees of the circuit court are erroneous; while in the other cases, the defendants having used only the Cawood, or the Etheridge, or the Illinois Central,

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or the Whitcomb (the infringing machines), we discover no error. Our judgments, therefore, are as follows:

In *Illinois Central Railroad Company v. Turrill,* and *Michigan Southern & Northern Indiana Railroad Company v. Same,*

Decrees reversed, and causes remanded for further proceedings in accordance with this opinion.

In *Chicago & Alton Railroad Company v. Same, Chicago, Burlington & Quincy Railroad Company v. Same,* and *Pittsburgh, Fort Wayne & Chicago Railroad Company v. Same,*

Decrees affirmed.

MR. JUSTICE FIELD, with whom concurred MR. JUSTICE SWAYNE, dissenting.

I dissent from so much of the opinion and judgment in these cases as approves the estimate of damages made by the court below.

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