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Limited in this way, it is clear the defendants do not infringe, making use, as they do, of springs, which are not only quite different from the Kirkpatrick springs in their design, but omit the important particular of projecting in front of the steering post.

There was no error in the action of the court below, and its decree is, therefore, *Affirmed.*

POPE MANUFACTURING COMPANY *v.* GORMULLY
& JEFFERY MANUFACTURING COMPANY. (No. 4.)

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR
THE NORTHERN DISTRICT OF ILLINOIS.

No. 208. Argued March 10, 11, 1892. — Decided April 4, 1892.

Pope Manufacturing Company v. Gormully, ante, 224, applied to this case so far as the claim for recovery based upon contract is concerned.

Claims 2 and 3 in letters patent No. 249,278, issued November 8, 1881, to Albert E. Wallace for an axle bearing for vehicle wheels are void for want of novelty.

Claims 2 and 3 in letters patent No. 280,421, issued July 3, 1883, to Albert E. Wallace for an improvement upon the device covered by his patent of November 8, 1881, are also void for want of novelty.

THIS was a bill in equity for the infringement of letters patent No. 249,278, issued November 8, 1881, to Albert E. Wallace, for an axle bearing for vehicle wheels; and patent No. 280,421, issued July 3, 1883, to the same person and for a similar device. In addition to the usual allegations of the bill for an infringement, it was alleged that the defendants were bound by certain covenants in the contract of December 1, 1884, entered into with the plaintiff, in which they acknowledged the validity of these patents, and agreed not to manufacture ball bearings such as described and shown, and made the subject matter of its claim, and that they are, therefore, estopped to deny the validity of such patents; and that it was also stipulated in said agreement that the devices such as were being made by the defendant were contained in said

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patents, and covered by the claims thereof, whereby the defendants were estopped to deny infringement.

The court below held that the defendants were not estopped by this contract; that the patents were invalid; and that, if valid, they were not infringed; and dismissed the bill, from which decree the plaintiff appealed to this court. 34 Fed. Rep. 896.

Mr. Lewis L. Coburn and *Mr. Edmund Wetmore* for appellant.

Mr. Charles K. Offield for appellees. *Mr. W. C. Goudy* was with him on the brief.

MR. JUSTICE BROWN delivered the opinion of the court.

As we have already held, in the case between the plaintiff and defendant Gormully, No. 204, that the contract of December 1, 1884, did not operate to estop the defendants from contesting the validity of these patents, it is not necessary to consider this case any farther so far as the claim for recovery based upon this contract is concerned. The case must be tried as an ordinary suit in equity for the infringement of a patent.

(1) Patent No. 249,278, to Albert E. Wallace, is for an improvement in axle bearings for vehicle wheels. The object of the invention seems to have been the construction of a ball bearing in two parts in such manner as to admit of the wear of the balls being taken up gradually, as the wear progresses, in order to keep the bearings tight. In reference to this he says in his specification:

"Heretofore many anti-friction bearings have been made and described, including various forms of ball bearings, and the latter class have been constructed so as to be adjustable for wear by having the bearing-box made in two or more parts, and so that they may be made to approach each other to tighten the bearings. In respect to bearings for light wheels, particularly for bicycles, it is desirable to make the

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parts as light and snug and of as little material as possible, consistently with strength. To make them true — that is, so that the balls shall be perfect spheres — and of even diameter, and that the bearing surfaces in which they revolve shall be of even distance apart, and of even curvature and shape, and shall be kept so, and that in putting together and adjusting the bearing parts shall be made to approach each other with perfect evenness. It is also desirable to make the parts and their joints as few as possible, so that the structure composed of them when put together and in operation shall not be liable to displacement, breakage or accident.

“It is the object of my improvement to secure these desirable qualities in an adjustable anti-friction ball-bearing, and to obviate the difficulties and imperfections existing in previous attempts in this direction.”

The second and third claims only are alleged to have been infringed. They are as follows :

“2. The described anti-friction bearing for a wheel and axle, consisting of a one-part bearing-box and a two-part sleeve, having a circular row of balls within said box and between bearing surfaces in the box and on either part of the sleeve, and adapted for adjustment for wear and securement in position on an axle by a screw-thread at the outer end of one part of the sleeve, operating to draw it toward and from the other part, substantially as set forth.

“3. The described anti-friction bearing for a wheel and axle, consisting of a two-part collar or sleeve adapted to inclose the axle, a one-part bearing-box inclosing said sleeve and containing a recess with bearing surfaces, between which and a bearing surface on either part the said sleeve is held, a circular row of balls combined and constructed essentially as shown and described, for securement in position and adjustment for wear by the pressure of one part of the sleeve against the hub of the wheel, and by an external thread on the other part of the sleeve operating in an internal thread in a boss secured to the axle on the opposite side, substantially as set forth.”

In reference to the adjustability of his device he says that “it is obvious that this bearing will be readily adjustable to

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compensate for any wear of the bearing parts by simply loosening the set screws, and turning the collar S^1 , so that the thread shall force it farther into the bearing-box, the impinging of the surface, p^1 , upon the balls tending to send them to and a properly close bearing upon the surfaces, qq and pp^1 , as in putting the parts together."

The essence of this patent, as we gather from the drawings and the application, consists of two sleeves sliding upon the axle from opposite directions, the inner ends of which are each bevelled, so that when the ends are brought together, or nearly so, they will form a V-shaped groove upon the axle, the inner one of these sleeves resting upon the hub of the axle, and the outer one connected with the crank, both the crank and the sleeve being threaded with a screw. Upon the axle is fitted a solid bearing-box with a similar V-shaped groove containing metallic balls, and adapted to be partly retained in the groove upon the axle formed by the two bevelled sleeves, one of which is made adjustable, so as to approach very near to or in contact with the other sleeve, and thus take up the wear of the balls by narrowing the V-shaped groove in which they are contained.

The use of ball-bearings for bicycle and other wheels was so common at the date of this patent that it is needless even to allude to the large number of prior patents upon this subject.

Bearing in mind that the peculiarity of this patent consists in a sleeve of two parts adapted for adjustment for wear and securement in position by a screw-thread at the outer end of one part of the sleeve, operating to draw it toward and from the other part, we find practically the same device in the English patent to James Bate, for improvements in velocipedes, dated November 14, 1878. Figure 20 of this patent indicates in section a method of affixing and adjusting the cones of a velocipede front or back axle bearing. A fixed cone corresponding to the plaintiff's sleeve, S , is screwed on to a spindle, and has a sleeve formed solid therewith, and screwed inside and out. Another adjustable cone, corresponding to plaintiff's sleeve, S^1 , is screwed upon the sleeve and is locked by a nut or collar, also screwed upon the sleeve. The groove corre-

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sponding to the V-shaped groove of the plaintiff's patent is formed by the contact of these two cones, precisely as in the Wallace patent, and the feature of adjustability is attained by screwing the adjustable cone upon the sleeve as far as necessary to tighten the bearings, and even up to actual contact with the fixed cone. So far as the object to be accomplished is concerned, it makes no difference which one of these cones is adjustable, so long as it affords opportunity for a gradual tightening of the bearing. If there be any difference between this and the Wallace patent, it is not such a difference as affects the essential feature of both, namely, that of adjustability, or such as to involve any patentable novelty.

The English patents to Lewis, of 1879, and to Bown and Hughes, of March, 1880, also exhibit a somewhat similar device of a loose adjustable cone, but the resemblance to the Wallace patent is not so obvious as in case of the Bate patent.

As the Bate patent anticipates every valuable feature of the second and third claims of the Wallace patent, it is unnecessary to consider the question of infringement.

(2) Patent number 280,421, granted July 3, 1883, to the same party, is for an improvement upon the device covered by the prior patent, and consists in providing the inner sleeve of that patent, which surrounds the axle and rests against the hub of the wheel, with a flange annulus, and attaching to the hub and wheel a locking-button, which engages with notches or teeth on the edge of the annulus, and locks it to the hub so that the sleeve will always turn with the axle or hub. This construction also provided for an adjustment of the inner sleeve on the axle as well as the outer sleeve.

Another modification of this patent not contained in the first, consists in the construction of the bearing-box. In the first patent the bearing-box was attached directly to the frame of the machine, while in the second it is placed within a shell, which in turn is attached to the frame of the machine.

The claims of this patent alleged to be infringed are the second and third, which read as follows:

"2. Constructed and combined substantially as herein set forth, a two-part sleeve, a bearing-box, a row of balls, a ser-

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rated annulus, and a locking-button, with an axle and hub and flange, essentially as shown and described.

"3. The combination, in a ball-bearing device, of a free bearing-box G, and a shell-case E, substantially as set forth."

This patent contains in addition all the substantial features of the first patent. Neither of them presented any lateral or side bearing for the bearing-box, its entire bearing being through the balls, both to support the weight vertically and to resist the thrust. Both have two sleeves surrounding the axle. In the first patent, one sleeve was adjustable, while in the other the second sleeve was also made adjustable, and provided with an annular flange serrated on its circumference to engage with a locking-button to lock it at any desired adjustment to the flange. A similar serrated ring, with a corresponding locking device, is found in the English patent to Monks, of 1880, who states that he employs "a turned bush, conical at the outer end, and a somewhat similar one which is screwed upon the outside of the first said bush. In the V-shaped groove, which is formed by these two bushes, when in position, I arrange a series of balls which rotate between the bushes and the lower part of the fork, which forms a cap, somewhat circular, with a segmental groove in it for the balls to work in. . . . The outer end of the bush is formed into a milled or ratchet-head, and is prevented from turning round after adjustment by means of a pawl fastened to a plate, my object being adjustment in a simple and efficacious manner when required." The shell-case described in the third claim of this patent seems to be found in the Salamon bearing patent of 1880, and the Jeffery patent of 1883, under the latter of which the defendant is manufacturing. The patent, though issued the same year as the Wallace patent, antedates it, both in respect to the application and the patent itself. We agree with the conclusion of the court below, that "with these old devices found in the art it seems clear to us that the defendants had the right to use the ball-bearing boxes which are shown by the proof to have been embodied in their machine."

It may be said of both of these patents that they are mechanical adaptations of or variations from what had before

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been exhibited by the English patents, rather than inventions of anything essentially novel. They appear to involve such immaterial changes as would be required to adapt a known device to use in a combination with other elements already existing, and such as would occur to any skilled mechanic. Indeed, the object of these patents, and the same remark may be made of all, or nearly all, involved in these suits, seems to have been principally to forestall competition, rather than to obtain the just rewards of an inventor. It is true the defendants make use of devices similar in many particulars to those employed by the plaintiff, but they, too, seem rather to have adopted prior and known devices, and fitted them to the peculiar construction of their machine, rather than to have purloined them from the plaintiff.

These cases are not without their difficulties, owing somewhat to the complicated nature of some of the devices, the number of anticipating patents, the difficulty of determining how far the later ones are merely colorable variations of the prior ones, and how far they involve invention; but upon the best consideration we have been able to give them we have seen no reason to differ from the judgment of the court below in its estimate of their value.

The decree of the Circuit Court is, therefore,

Affirmed.

McLANE v. KING.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR
THE WESTERN DISTRICT OF TEXAS.

No. 235. Argued and submitted March 24, 1892. — Decided April 4, 1892.

In this suit the property of a corporation in a bridge constructed by it over the San Antonio River is held to have been lawfully transferred by the foreclosure of a mortgage upon it.

THIS suit was originally commenced in the District Court of Karnes County, Texas, on September 12, 1882, and thereafter