COLUMBUS WATCH CO. et al. v. ROBBINS et al.

(Circuit Court of Appeals, Sixth Circuit. October 8, 1894.)

No. 46.

1. PATENTS—VALIDITY—INFRINGEMENT.
Reissued patent No. 10,631, granted to Duane H. Church, August 4, 1885, for improvement in stem-winding watches, *held* valid, and infringed by the defendants. 50 Fed. 545, affirmed.

2. SAME—PATENTABILITY OF COMBINATION.
The patentability of the combination is not affected by the fact that the elements severally were old. It involved patentable invention to see that their union would have a beneficial result.

3. SAME—CLAIMS FUNCTIONAL IN FORM.
Claims functional in form construed to be for the combination of devices by which the function is performed.

4. SAME—CONSTRUCTION.
Substitution of the expression "intermediate device" for "loose or sliding device" does not enlarge the scope of the patent, when properly construed.

5. SAME—CHANGES IN FORM TO AVOID INFRINGEMENT.
Changes in the form of the elements do not avoid infringement, where the principle of the invention is copied, and the substituted elements are mechanical equivalents of the elements for which they are substituted.

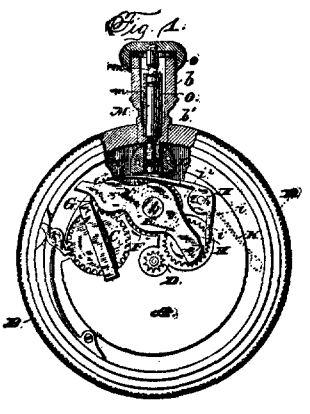
6. COURTS—APPEAL FROM INTERLOCUTORY DECREE—HEARING ON MERITS.
Although the appeal was taken, under the seventh section of the court of appeals act, from an interlocutory decree awarding an injunction, and the court had held that on such an appeal it could not hear and finally determine the merits of the controversy as to the validity of the patent and its infringement (52 Fed. 337, 3 C. C. A. 103, 6 U. S. App. 275), yet it found itself obliged to consider those questions in order to determine whether the court below exercised a proper discretion in granting the injunction appealed from.

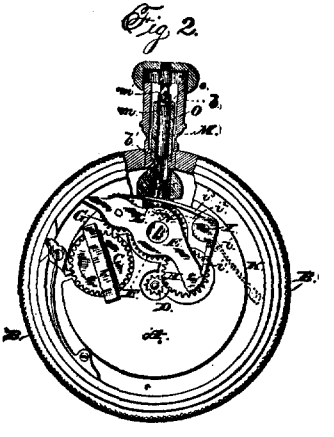
Appeal from the Circuit Court of the United States for the Southern District of Ohio.

This was a suit by Royal E. Robbins and Thomas M. Avery against the Columbus Watch Company, David Green, and William J. Savage, for infringement of certain letters patent. A decree was rendered for complainants as to one of the patents, directing an injunction perpetual in form, and referring the cause to a master to take an account of damages and profits. 50 Fed. 545. From this interlocutory decree an appeal was taken, both parties uniting in an application requesting the circuit court of appeals to hear and finally determine the merits of the controversy. The court held, however, that under section 7 of the judiciary act of March 3, 1891, its power was limited to determining the question whether the injunction was improvidently granted in the exercise of a legal discretion, and as to the other questions the cause was certified to the supreme court. 3 C. C. A. 103, 52 Fed. 337. The supreme court dismissed the certificate upon the ground that it did not contain the expression of a desire for an instruction as to the proper decision of a specific question or questions requiring determination in the proper disposition of the particular case. 148 U. S. 266, 13 Sup. Ct. 594. The cause is now before the court upon the appeal from the decree of the circuit court, as originally presented.

This was an appeal from a decree of the circuit court enjoining the infringement of a patent for an improvement in stem-winding watches. The bill averred that the defendants were infringing two patents owned by the complainants; one of them, a patent granted to Duane H. Church, and the other issued to C. K. Colby. The circuit court held that the Colby patent was not infringed by the defendants, and dismissed the bill so far as it related to that patent. From this action in respect to the Colby patent no appeal was taken. The issues on this appeal were confined to the Church patent, which was a reissued patent, No. 10,631, dated August 4, 1885. The original patent, No. 280,719, was applied for September 16, 1882, and was granted July 3, 1883. The reissue was granted to Duane H. Church as assignor by mesne assignments to Royal E. Robbins and Thomas M. Avery, trustees for the American Waltham Watch Company and the Elgin National Watch Company, who were the complainants below and the appellees. The Columbus Watch Company was a corporation engaged in the manufacture of watch movements in Columbus, Ohio, and Dietrich Gruen and William J. Savage were its principal officers. The three were the defendants below and the appellants.

The Church invention, as shown in the specifications for the reissued patent, appears in the following drawings, which disclose the plan view of a watch containing the improvement; the dial being removed, and the pendant and a portion of the center band being in section. Figure 1 shows the position of the parts when the watch may be wound, and figure 2 when the watch may be set.





A represents the top plate of a watch movement contained within the center band, B, of a watch case, with the usual stem or pendant, b. O is a shaft, called the "stem arbor," fitting in the hollow of the stem, and having a milled head at its outer end, called a "crown." E is the yoke or train carrying at its center a toothed wheel, F, and at each end the wheels, G or H, in engagement with and driven by the wheel, F. A shifting of the yoke on its center will bring the wheel, G, into engagement with the wheel, C, the winding wheel, while a shifting of the yoke in the other direction will bring the wheel, H, into engagement with the dial wheel, D. Journaled in the plate, A, is an arbor, I, the end of which is seen in the drawing. Below the plate, A, this shaft or arbor has a lug, i, which engages with the spring, K, also below the plate, A, as shown by dotted lines in the drawing. From the end of the arbor, I, seen in the drawing, extends the arm, i^1. When the spring, K, is allowed to act, uncontrolled, upon the lug, i, it turns the arbor, I, and the arm, i^1, into the notch, c, near the dial-wheel end of the yoke, and carries the wheel, H, of the yoke into engagement with dial wheel, D, as seen in Fig. 2. In line with the stem, and adjacent to it, is a pinion, L, which meshes with the wheel, F.

It is provided with an axial opening adapted to receive the squared end of the stem arbor, M, which is journaled within the pendant or stem, and when rotating therein sets in motion the pinion, L, and the wheels on the yoke. From the side of the arbor, I, already referred to, and opposite to the lug, i, beneath the plate, A, is an arm, i^2, shown by dotted lines which extend radially outward from the arbor, I, under and opposite to the opening in the center of the pinion, L. In this position a loose or sliding piece, N, within the hollow of the stem-winding arbor, as a continuation of the stem arbor, will rest upon the arm, i^2, and when the stem arbor is thrust into the watch will turn the arbor, I, throwing the dog, i^1, out of engagement with the notch, i, and pressing the spring arm of the arbor, I, marked in the figure i^3, against the other end of the yoke, effecting its engagement with the winding wheel, the force of the spring, K, being overcome. When, however, the stem arbor is withdrawn, and the loose sliding piece, N, in the center of the winding arbor, does not press upon the arm, i^2, the spring, K, shifts the yoke back again into engagement with the dial wheel. O is a spring retainer formed by partially splitting a tube lengthwise, and securing its whole end within the inner end of the axial recess, b^1, of the pendant, b, and turning inward the ends of the split portion. The stem arbor has two peripheral grooves, m and m^1, the first of which is engaged by the jaws, o, of the spring retainer when the stem arbor is at the inner limit of its motion, while the groove, m^1, is engaged by the spring jaws when the stem arbor is at its outer limit of motion. The inward spring of the jaws, o, is sufficient to cause them to hold the stem arbor in either groove firmly enough to prevent accidental displacement, but not enough to prevent moving the arbor from one to the other when desired. When the stem arbor is drawn to the outer limits of its motion, its inner end projects into the pinion, L, only so far as to enable it to rotate said pinion for the purpose of setting the hands, and in such position offers no obstruction to the removal of the movement from the case or to its insertion in the case, and is ready for use as soon as a movement is in place.

The patentee, in his specifications, uses this language: "This invention relates to watches in which the winding and hand-setting train is operated entirely by means of a rotatable stem arbor that is adapted to be moved longitudinally for the purpose of causing said train to engage with the winding wheel or dial wheels. Heretofore, in watches of this class, said winding and hands-setting train has been normally in engagement with the winding wheel, and disconnected from the dial wheels, so that an outward movement of the said stem arbor has been necessary in order to change the engagement of said train, and adapt it for setting the hands. Such construction has required that there should be a positive connection between the stem arbor and the winding and hands-setting train, to enable said arbor, when drawn outward, to effect the necessary change in the engagement of said train, which positive connection has made said stem arbor virtually a part of the movement, and has prevented, or rendered very difficult and expensive, the changing of said movement from one case to another. The object of my invention is to render watch movements and cases readily interchangeable. * * *" Again he says: "While the mechanism between the stem arbor and the winding and dial wheels is preferably employed, my invention is not limited to these particular devices, as any of the well-known forms of intermediate mechanism may be used." In the specifications and claims, the patentee describes his stem arbor as having no positive connection with the winding and hands-setting train, by which he says he wishes to be understood "as meaning such construction as causes said arbor to be contained within the pendant of a watch case, and to form a part of such case, in contradistinction to an organization in which the stem arbor is journaled in the movement, and is so connected therewith as to be removed from the case with said movement."

The claims of the patent are as follows: (1) As an improvement in stem winding and setting watches, a winding and hands-setting train which is adapted to be placed in engagement with the winding wheel or the dial wheels by the longitudinal movement of a stem arbor that has no positive

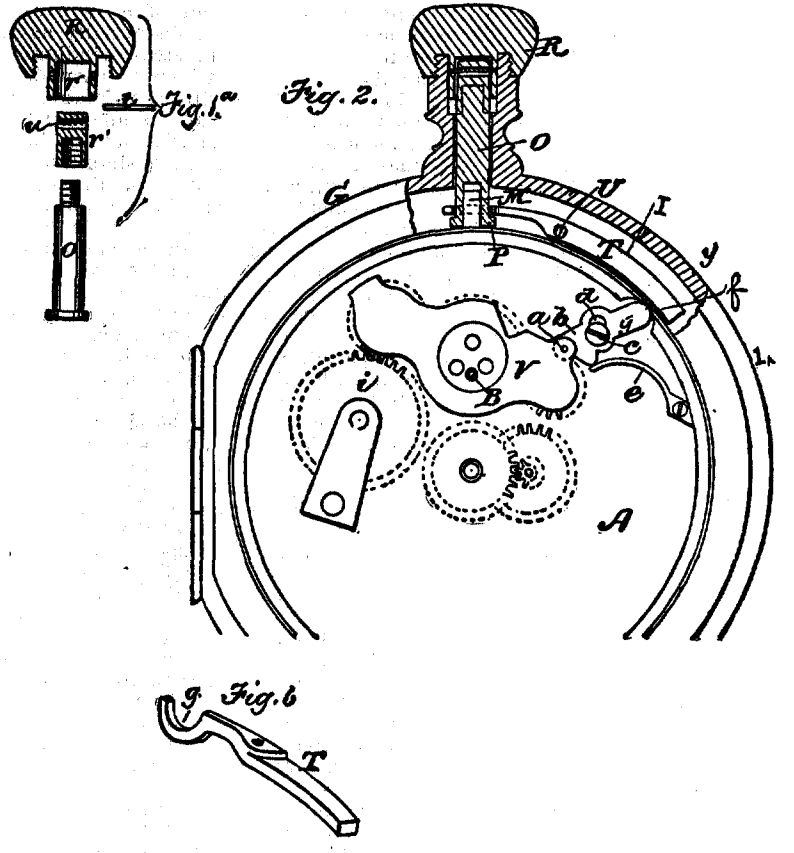
connection with said train, substantially as and for the purpose specified. (2) As an improvement in stem winding and setting watches, a winding and hands-setting train which is adapted to be placed in engagement with the winding wheel or the dial wheels, and is normally in engagement with said dial wheels, substantially as and for the purpose shown. (3) As an improvement in stem winding and setting watches, a winding and hands-setting train which is adapted to be placed in engagement with the winding wheel or the dial wheels by the longitudinal movement of a stem arbor, and is normally in engagement with said dial wheels, substantially as and for the purpose set forth. (4) As an improvement in stem winding and setting watches, a winding and hands-setting train which is normally in engagement with the dial wheels, in combination with a rotatable stem arbor that has no positive connection with said train, and is adapted to be moved longitudinally within the case stem to cause said winding and hands-setting train to engage with the winding wheel, and to be simultaneously disengaged from said dial wheels, substantially as and for the purpose shown and described. (5) As an improvement in stem winding and setting watches, a winding and hands-setting train which is normally in engagement with the dial wheels, in combination with a rotatable longitudinally movable stem arbor that has no positive connection with the watch movement, and, when moved longitudinally to the inner limit of its motion, will cause said winding and setting train to be disengaged from said dial wheels, and engaged with the winding wheel, and, when moved longitudinally to the outer limit of its motion, will permit said train to be disengaged from said winding wheel, and engaged with said dial wheels, substantially as and for the purpose specified. (6) As an improvement in stem winding and setting watches, the combination of a winding and hands-setting train which is normally in engagement with the dial wheels, a stem arbor having no positive connection with said train, and an intermediate device which is adapted to communicate the longitudinal inward movement of said stem arbor to said winding train, and cause the same to engage with the winding wheel, substantially as and for the purpose shown and described.

As already stated, this was a reissued patent. The specifications under the reissued patent and the drawings were substantially the same as those contained in the original. In the original patent a claim was made for the device by which the stem arbor was held in the stem, and moved within fixed limits from one groove to another by means of the jaw spring. On an application for the reissue, an interference was declared by the patent office between Church and one C. K. Colby in reference to the stem arbor device, and priority was awarded to Colby, who secured the patent. The Colby claims related solely to the mechanism within the stem for fixing the limits of the inward and outward movement of the stem arbor without interfering with its rotary motion. In the reissue to Church, therefore, no reference was permitted in the claims to the peculiar form of stem arbor employed. The claims of the original Church patent, which did not include the peculiar stem-arbor device, were the first and second, and they were as follows: (1) "In a pendant winding and setting watch, a movement having winding and setting mechanism adapted to be operated by the endwise movement of a winding bar or key, and normally in position to operate the hands, whereby a positive connection between the movement and winding bar is avoided, as set forth." (2) "In a pendant winding and setting watch, a movement having winding and setting mechanism normally in position to operate the hands, a winding bar or key having no positive connection with said mechanism, and a loose or sliding device adapted to communicate the inward end thrust of the winding bar to the device for engaging the winding portion of said mechanism with the main winding wheel as set forth."

The defenses were (1) that the patent was void for the want of novelty; (2) that the claims of the reissued patent were void because they were framed to obtain the exclusive right to functions or results, rather than the means or mechanism for accomplishing such results; (3) that the reissued patent was void because the original patent was not inoperative or defective by reason of inadvertence or mistake, and the reissued patent

was procured for the purpose of unduly enlarging the claims of the original patent; (4) that the device of the defendants is not an infringement of the patent.

It will be of assistance to give rather a full description of one of the prior patents which were claimed to anticipate the Church combination. It was that of Charles V. Woerd, which was applied for April 10, 1882. The drawing of the Woerd watch is given below:



In this drawing, T represents a lever, pivoted at U to the inner side of the inwardly projecting flange, I, of the case, and lying, when in its normal position, entirely within the space formed by said flange, and outside the space occupied by the movement. M is the winding arbor, which fits into the stem arbor or pipe, O, and, extending down into the movement in a way not shown in the drawing, imparts the rotary motion of the stem arbor to a terminal pinion engaging with the wheel of the yoke, V. To the swinging yoke, V, which carries the pinions that impart motion from the winding arbor, respectively, to the winding wheel, i, and the hand-setting train, is pivoted, at a, a slide plate, b, secured to the plate, A, of the movement, by a screw, c, passing through a slot, d. The plate, b, is thus adapted to slide towards and from the center of the plate, A, and is pressed outwardly by a spring, e. At the outer end of the plate, b, is an arm, f, against which one end of the lever, T, bears. The opposite end of the lever, T, has a recess, g, which partially incloses the key or pipe, O. When said key or pipe is drawn outwardly, its flange, P, bears

against the lever, T, and turns the lever upon its pivot, thereby pressing its opposite end against the arm, f, pushing the plate, b, inwardly, and swinging the yoke, V, so that the hand-setting train is connected with the winding arbor, and the winding wheel, i, is disconnected therefrom. The key or pipe, O, being released, the spring, e, restores the plate, b, yoke, V, and lever, T, to their normal positions. The crown, R, is screwed onto the stem so that the pipe, O, can be withdrawn to operate the lever, T, only when its crown is unscrewed from the stem. It will be observed that the location of the lever, T, entirely outside of the space occupied by the movement enables the movement to be inserted and removed without interference with the lever.

There were other patents relied on as anticipations. Of these, the Colby and the Wheeler patents are referred to sufficiently in the opinion.

The following four figures show the defendants' watch movement, which was charged and found by the circuit court to be an infringement of the Church patent. Fig. 1 is the front of the movement when in setting engagement, Fig. 2 is the back of the same engagement, Fig. 3 is the front of the movement in winding engagement, and Fig. 4 is the back in the same engagement.

Fig. 1.

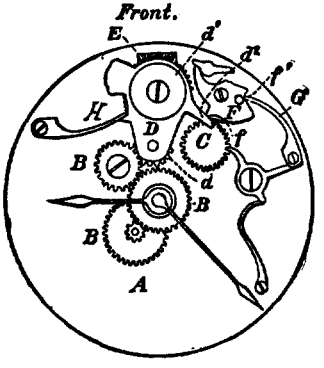


Fig. 2.

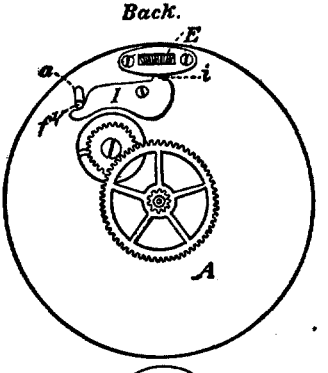


Fig. 3.

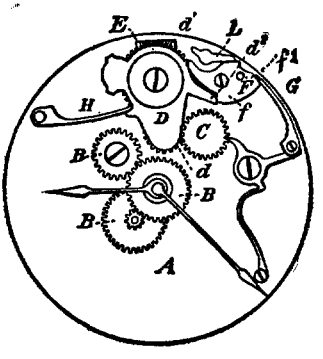
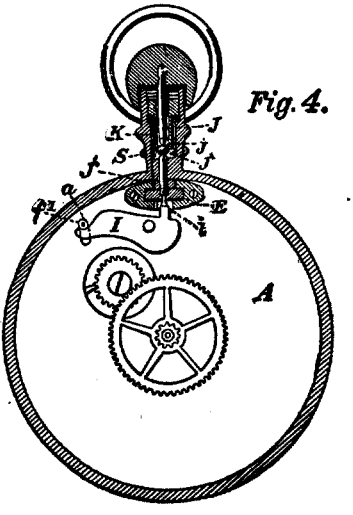


Fig. 4.



A represents the pillar plate of a watch; B, B, B, the dial wheels pivoted to said plate; C, the winding wheel connected with the mainspring; D, the swinging yoke plate, carrying at its free end the wheel, d, which may be swung into engagement either with the dial wheels, B, or the winding wheel, C. d^1 is the yoke wheel, which has its axis coincident with that on which the yoke plate swings, and engages the wheel, d, while it is itself engaged and driven by the hollow pinion, E, which is rotated by the stem arbor. F is the cam plate pivoted to the pillar plate, A, and provided with a projection, f, which bears upon a projection, d^2, of the yoke plate, D. G is a spring which bears upon the cam plate, F, and, through said cam plate, normally swings the yoke and yoke train into engagement with the dial wheels. H is a weaker spring which bears upon the yoke plate, D, and tends to throw its wheel, d, into engagement with the winding wheel, C. I is a lever pivoted between its ends to the back of the pillar plate, A, and bearing at one end against a stud, f^1, which projects from the cam plate, F, through a slot, a, in the pillar plate. i is a projection of lever, I, which slides within the initial wheel, E, of the winding and setting train, whereby the stem arbor may act upon the lever, I. J is the stem arbor provided with notches at j, j^1, with which engage the free ends of springs, K, fixed in the stem, S, of the watch. The inner end, J^1, of the stem arbor, is squared, and projects into the initial wheel, E, of the winding and setting train.

Watson, Burr & Livesey and M. D. Leggett, for appellants.
Prindle & Russell and Lysander Hill, for appellees.

Before TAFT and LURTON, Circuit Judges, and RICKS, District Judge.

TAFT, Circuit Judge (after stating the facts). It may be well, before discussing the questions raised upon this appeal to make a few general remarks concerning the subject-matter under examination. In stem-winding or keyless watches, the mainspring is wound and the hands are set by the rotation of the shaft or stem arbor which extends from the outside of the case, through the hollow stem, into the movement of the watch. The rotating force applied to the stem arbor by the action of the fingers of the operator upon its exterior head or crown is communicated to the winding wheel or to the setting wheel by an intermediate device of varying form in different patents, which is generally called the "winding and hand-setting train." It is usual, in all watch-movement patents, for the stem arbor to carry at its winding end a clutch or pinion which communicates the rotating motion of the stem arbor to the wheels of the winding and hand-setting train with which it engages. That the rotation of the stem arbor should at one time wind the mainspring, and at another set the hands, the train must be shifted so that its wheels shall at one time engage with the winding wheel, and at another with the hand-setting wheel, at the will of the operator of the watch.

There are three well-known forms of the winding and hand-setting train in the art: one is the yoke, another is the breguet key or clutch, and the third is the rising and falling pinion. Of these we have, in this case, to do only with the yoke form of train. That is a pivoted, edgewise swinging plate in the movement of the watch, carrying one wheel, centered upon the pivot of the plate, not varia-

ble in position, and constantly in gear with the pinion or clutch at the end of the stem arbor. The plate also carries one and sometimes two wheels constantly in gear with its center wheel, and shifting by a movement of the plate into and out of gear with the winding wheel or the setting wheel. By this means the rotating movement of the stem arbor is communicated, through its terminal pinion, to the center wheel of the yoke, and from that wheel to the terminal shifting wheel or wheels carried by the yoke, and from them to the winding wheel or the setting wheel as engagement is had with either. The mechanism by which the operator, at will, quickly and easily shifts the yoke from one engagement to the other, varies in different watches, and many patents have been issued for such devices. Generally, they may be divided into two classes, in one of which the yoke is shifted by the outward and inward movement of the arbor in the stem, while in the other the shifting is brought about by the outward and inward movement of a finger bar or piece which extends, not through the stem, but through the side of the case. Watches having a device of the former class are called "stem or pendant set watches." Those having a device of the latter class are called "lever-set watches."

It is obvious that when the watch is in the pocket the engagement of the train should be with the winding wheel, rather than with the setting wheel, because, if the engagement is with the setting wheel, any accidental rotation of the crown of the stem arbor would change the hands, and destroy the time-keeping qualities of the watch, whereas such accidental disturbance, resulting in a slight winding of the mainspring, would be of no injury whatever. It is also evident that the stem arbor is more likely to be disturbed accidentally when it is pulled out than when its crown is close to the outer end of the stem. For this reason, in watches which are stem or pendant set, the inward movement of the stem arbor is generally made to produce the engagement of the winding wheel, while the outward movement brings about the engagement with the setting or dial wheels. The usual method, before the Church invention, by which engagement with the dial wheels was produced through the outward movement of the stem arbor, was to fasten the stem arbor to the movement, so that the shifting could be effected by the direct pull of the arbor. The result of this arrangement was that the movement could not be removed from the case without also releasing the stem arbor. This was objectionable, because watch movements are made separately from their case, and it is of great trade advantage to have the movement capable of easy separation from the case, so that one movement may fit in a great number of cases, and a case be useful for any number of movements. The ready interchangeability of movements and cases is one of the well-known objects sought for by inventors in the watch-making field, and this, as he states in his patent, was the chief object of Church's invention.

To describe Church's patent in a general way, it has a stem arbor which reaches but a short distance into the movement, and is

not connected with the movement by hook or pin, or in any other way that prevents its quick and easy separation from the movement when that is to be taken from the case. The winding and hand-setting train or yoke is arranged in the movement with a spring, which, when uncontrolled by force applied through the stem arbor, keeps the yoke in constant engagement with the dial or setting wheels. The stem arbor is prolonged into the movement by a hollow winding arbor into which the square end of the stem arbor fits. The winding arbor ends in a pinion with a hollow center, through which, by means of a loosely-fitted and sliding stud moving in the hollow center, the pressure applied by the fingers to the stem arbor at its crown is communicated to a lever journaled in the movement of the watch, and thereby the train is shifted into engagement with the winding wheel, and the action of the spring tending to maintain the setting engagement is overcome. In this way, when the stem arbor is pressed into the movement of the watch, and held there as it is held by a jaw spring in the stem itself, the winding engagement is brought about; but when the stem arbor is pulled out the spring in the movement is allowed to have full force, and the engagement with the setting wheels is restored. This latter engagement is called by the inventor the "normal engagement," by which he means that it is the engagement produced by the automatic operation of the movement itself, when not affected by extraneous pressure through the stem arbor. With this arrangement the shifting function of the stem arbor is performed wholly by pressure in its in-thrust, and no pulling force is exerted through it. Thus, it is possible to dispense altogether with any positive connection between the stem arbor and the movement of the watch, while the intermediate device or movable stud makes it possible to have a short stem arbor, reaching but a little distance into the movement, and capable of being so withdrawn that the movement itself can be lifted out of the watch, or replaced in it, by a slight tilting.

It is contended on behalf of the appellants that the Church patent has no novelty in it whatever, because every feature of it is old. It is quite true that the stem arbor which is used in the Church patent was the invention of Colby. It is also true that the winding and hand-setting train used by Church was a common form, well known to the art. It is also true that in the Wheeler patent of March 1, 1881, the same winding and hand-setting train is shown in normal engagement with the dial wheels, and that the winding engagement in the Wheeler patent is brought about by extraneous force applied to the movement to overcome the effect of the spring, and thus produce the normal engagement with the setting wheels. It is also true that the intermediate loose or sliding device may have been suggested by the analogous use of such an intermediate device in the patent of J. D. Brez, of July 20, 1875, where it was used to communicate pressure from the stem arbor to the spring holding and releasing the hinged case of the watch. But notwithstanding the fact that all the parts are old, in the sense that each of them may

be found in previous patents, the combination of parts in the Church patent brings about a new result, and involves patentable invention. Colby, the inventor of the stem arbor, disclosed no method by which it could be used in a stem or pendant set watch. His specifications and drawings indicated that the stem arbor was to be used only to wind the wheels of the movement after the yoke or train has been shifted by some other agent than the stem arbor. The Wheeler patent, having the normal engagement of the train with the dial wheels, was a lever-set watch, in which the stem arbor played no part in shifting the yoke into either engagement. Except in a case where the stem arbor is to be the means of shifting the yoke or train, the normal engagement with the setting wheel has little or no significance. It is the normal engagement with the setting wheel that makes it possible to have a stem arbor disconnected from the train, and performing its only functions by pressure, and not by a pull. Church's object, as already stated, was to secure, in a watch in which the stem arbor imparted to the watch movement both the wheel-winding and the train-shifting motion, such a relation between the stem arbor and the movement as to make it possible easily to take the movement out of the case without disturbing the stem arbor. To do this, it is necessary to have a short stem arbor, and one disconnected from the movement. Church was the first to discover and utilize the fact that the normal setting engagement made possible a shifting stem arbor, having no positive connection with the movement. He was able to keep his arbor short by using the intermediate device, borrowed, it may be, from the Brez patent, and applied to a different use. We are very clear that the arrangement of all these elements to secure the object stated involved patentable invention of a high order. No patent, of all those which we have had occasion to examine, shows the combination of elements just recited. It is said that the Church patent is nothing but a combination of the Wheeler patent with the Colby stem arbor, which any mechanic of skill could have arranged for practical operation. Drawings and a model have been submitted, showing how easy it is to unite the Colby stem arbor with the Wheeler patent. In our view, this is but wisdom after the fact. We cannot concur in the view that, even if it were known that a combination of the Wheeler patent with the Colby stem arbor would have an advantageous result, mere mechanical skill would enable one to make the combination. The combination shown in the drawings and model submitted is a combination suggested by the Church patent, and which, but for the Church patent, would seem much more difficult than it now does. More than this, it involved patentable invention to see that a union of the elements of the Wheeler patent with those of the Colby patent would have a beneficial result.

The only patent disclosed in the record for a watch movement in which the winding and shifting are both done by the stem arbor, and in which the movement may be removed from the case without disturbing the stem arbor, is the patent granted to N. Woerd, February 6, 1883, a description and drawing of which appear in

the statement of the case. The Woerd patent accomplishes the same general result as that sought and accomplished by Church, but the result is not reached in the same way. In the Woerd patent, a lever which structurally is a part of the movement is removed from the movement, and fixed in the side of the case. One end of this lever is permanently connected with the stem arbor, while the other end, without any positive connection with the yoke, presses against an arm of the yoke, and shifts it into the setting engagement, against the operation of a spring, which, when the pressure of the lever is withdrawn, restores the winding engagement. The lever is moved by the outward pull of the stem arbor. There is therefore no normal engagement with the setting wheels in this patent, as in the Church patent. Another difference is in the awkward construction, by which a piece which is structurally part of the movement is pivoted in the side of the case, permanently connected with the stem arbor, and separated from the movement. It can be seen at a glance that the manufacture of a case with such a lever in the side of it would be much less simple and easy than where it has nothing but the short stem arbor. It is a clumsy arrangement, and is not an anticipation of, or a suggestion of, the novel features of Church's patent, already alluded to. Church did not discover the fact that a stem arbor having no positive connection with the train or movement in a stem-set watch would greatly facilitate the interchangeability of movements and cases, and the easy removal of a movement from the case. That was self-evident, and was not patentable. Woerd tried one method by which the stem arbor should not be connected with the movement, and yet have at the same time a shifting and a winding function. Church devised another and different and a better way of reaching the same result. For these reasons, we are of the opinion that Church's invention was not anticipated by any of the patents disclosed in the record, and that the combination of old elements involved patentable invention, for which he was, under the law, entitled to the monopoly.

The strongest evidence that the Church invention is a useful one is the fact that to-day considerably more than half of all the watches that are manufactured in the United States with open faces are made under it, and embody the combination of elements which is set forth in its specifications. This fact is said to lose significance because the owners of the Church patent, the Waltham and Elgin Watch Companies, are able to control the business of watch-case making and watch making to such an extent, by their enormous output, as to foist upon the public, and compel the purchase of, a poor device. We must assume that the two companies referred to, with the large resources at their command in purchasing patents and using them, would exercise ordinary business discretion, and would be guided by the demands of the public for the best watch movement, and must hold that, no matter how large the control or business of the two companies which own this patent is, that its very extensive use is strong evidential weight of its useful character.

There has been much discussion on the briefs and in the arguments as to whether it was not a useful feature of the Church patent that the setting engagement was made by the operation of the spring gently, and with no danger of injuring the delicate dial wheels, instead of by a direct pull of the stem arbor, said to be likely to break the points of the wheels in a faulty intermeshing. We do not find it necessary to consider this question, because, in our opinion, without respect to the possible benefit from this arrangement, the Church patent has not been anticipated by any other, in the ease and simplicity with which is accomplished by it the chief object of the inventor, namely, the ready interchangeability of movements and cases. This is a sufficient ground for sustaining the patent, and we need look for no other.

But it is said that the claims of the reissued Church patent are void because they seek to appropriate results or functions, rather than means or devices for accomplishing results. Unless the claims are to be restricted by construction, this criticism is a just one. The inventor, in his first claim, seeks to monopolize a train "adapted" to be placed in engagement with the winding or setting wheels by the longitudinal movement of a stem arbor having no positive connection with the train. Is this to be construed to claim for the patentee the right to keep all others from using a train which is in any way adapted to engage with the winding or setting wheels by the in and out movement of a stem arbor not having positive connection with the train? We think not. The only adaptation capable of appropriation by the inventor is that which is shown in the specifications and drawings of his patent, and this is the necessary limiting effect of the words, "substantially as and for the purpose specified." In this way the court may sustain the validity of the claims, as it is its duty to do when possible. In the Corn-Planter Case, 23 Wall. 181, 225, 226, one of the claims was as follows:

"What I claim under this patent is a seed-planting machine wherein the seed-dropping mechanism is operated by hand or by an attendant, in contradistinction from mechanical dropping, the mounting of said attendant upon the machine in such a position that he may readily see the previously made marks upon the ground, and operate the dropping mechanism to conform thereto, substantially as herein set forth."

Referring to this claim, Mr. Justice Bradley, speaking for the court, says:

"The first of these claims, if construed simply as claiming the placing of the seed dropper on the machine, would probably be void, as claiming a mere result, irrespective of the means by which it is accomplished. But, if construed as claiming the accomplishment of the result by substantially the means described in the specification, it is free from that objection; and we ought to give a favorable construction, so as to sustain the patent, if it can fairly be done. By reading the claim in connection with the final qualifying clause, thus, 'the mounting of said attendant upon the machine,' etc., 'substantially as herein set forth,' the fair construction would seem to include the means and manner of placing him upon the machine."

Construing the claims in the Church patent in the light of the Corn-Planter Decision, it is evident that they must be limited to

the particular mechanism set forth in the specifications for accomplishing the result or securing the adaptation referred to in the claim.

The objection that the reissued patent is void for unduly enlarging the claims of the original patent cannot be sustained. The sixth claim of the reissue is quite the same as the second claim of the original. They are both for a combination of the following elements: (1) The winding and hand-setting train normally in engagement with the setting wheels, as set forth. (2) The stem arbor or key, having no positive connection with the train, as set forth. (3) The intermediate loose or sliding device for communicating the force of the in-thrust of the arbor to the train, by which the train is shifted into the winding engagement, as set forth. The change in the reissue from the words "loose or sliding device" to "intermediate" device is not to be construed as widening the scope of the claim. If, in any alleged infringement, that which communicates the stem arbor's in-thrust to the train is not a loose or sliding device, or its manifest and well-known mechanical equivalent, it certainly is not an intermediate device, "substantially as and for the purpose set forth" in the specifications and drawings of the patent. It is not necessary to examine closely the other claims of the reissued patent, to see whether they unduly expand the scope of the monopoly of the reissued patent beyond that of the original, because a construction of them in the light of the specifications and drawings, and the history of the art, requires either that they should be rejected as invalid, or treated as combination claims with the same elements as those contained in the sixth claim given above.

We come now to the question whether the defendants' watch movement is an infringement of the Church patent. A description and a drawing of the defendants' watch movement appear in the statement of the case. It is a movement in which the stem arbor to be used discharges the double function of winding the wheels of the movement, and of shifting the engagement from the setting to the winding wheels. It is a movement in which the normal engagement is with the dial wheels. This is denied by counsel for the appellants, but it certainly is true that whenever the pressure of the stem arbor is removed the force of a spring in the movement itself will produce engagement of the yoke or train with the dial wheels. That is the normal engagement, in the sense of the Church patent. The winding and hand-setting train in the defendants' movement is somewhat different from that of the Church patent; but Church, in his specifications, expressly states that the intermediate device for shifting the engagement may be in all the well-known forms of intermediate mechanism, and that his invention is not limited to the particular device shown. It is conceded that the yoke of the defendants' movement is a very old form, and may be found in the English patent of Nicole of 1844. The device by which the pressure of the short stem arbor is continued into the movement, and made to effect the shifting of the yoke, differs somewhat, in the defendants' movement, from that of the Church patent. The loose or sliding stud

of the Church movement, by which the pressure of the stem arbor is communicated to the lever shifting the yoke, is present in the defendants' movement. It slides within the hollow center of the terminal pinion of the winding arbor far enough to permit the short stem arbor to act upon it, and differs only from the stud in the Church movement in the fact that its lower end is fixed to the lever upon which the pressure of the stem arbor is to be exerted. This difference does not in any way change the operation of the stud, either in mode or result. In the Church device, the lever, acted upon by the stem arbor through the sliding stud, directly shifts the yoke. In the defendants' movement, the lever moves a pin that shifts a cam lever which locks out the spring holding the yoke in engagement with the setting wheels, and thus allows a weaker spring to shift the yoke into winding engagement. We do not think that the interposition of a cam lever and a spring between the lever upon which the stem arbor directly acts and the yoke to be shifted changes in any way the elements of the combination present in the Church patent which are also found in the defendants' movement. The use of two springs, one weaker than the other, to produce alternately the two engagements by locking out the stronger spring, was old. It is shown in the Wheeler patent, and others prior to the Church patent. It was therefore one of the mechanical equivalents that Church intended his patent should cover, and he used language in his specifications apt for the purpose. The stem arbor having no positive connection with the movement, the normal engagement of the winding and hand-setting train with the dial wheels, the intermediate device working in and through the hollow center of the winding arbor and its terminal pinion, by which pressure upon the short stem arbor is enabled to bring about the shifting of the yoke, are all present in the defendants' movement, operating in the same way, and accomplishing the same result as in the Church movement. Element for element, the combinations are the same, and the infringement is manifest.

The conclusion we have reached with reference to the validity of the Church patent, and the infringement by the defendants, is fully sustained by the decision of the circuit court of appeals for the Seventh circuit in the case of Watch Co. v. Robbins, 3 C. C. A. 42, 52 Fed. 215.

The decree below awarded a perpetual injunction against the infringement by the defendants, and referred the case to the master to determine the damages. That decree was appealed from, under the seventh section of the court of appeals act, as an interlocutory order granting an injunction; and the point was mooted whether we should examine the record as upon an appeal from a final decree, or only examine the question whether the court below had exercised proper discretion in the issuing of an interlocutory injunction. It was decided that we could not hear and finally determine the merits of the controversy as to the validity of the patent and its infringement. 6 U. S. App. 275, 3 C. C. A. 103, 52 Fed. 337. In looking into the record, however, to determine whether the discretion of the cir-

cuit court was properly exercised, we have found ourselves obliged to consider the validity of the patent, and its infringement, with the conclusion above stated. As the patent is valid, and it was infringed by the defendants, the court necessarily exercised proper discretion in granting the injunction appealed from, and its decree is affirmed.

DEVLIN et al. v. PAYNTER et al.

(Circuit Court of Appeals, Third Circuit. November 16, 1894.)

No. 8.

1. PATENTS—STEAM-PIPE UNION—NOVELTY.
A union for steam pipes, consisting of one member with an internal seat of soft metal having a concave face, and an opposing member with a convex face, thus forming a perfect connection without an accurate alignment of the pipes, constitutes a patentable invention. 63 Fed. 122, affirmed.

2. SAME—INFRINGEMENT.
A union for steam pipes, consisting of a head member having a seat of soft metal with a concave face, and a tail member having a convex face, is infringed by a union that differs only in the facts that the convex face is on the head member and the concave face is on the tail member, and that the soft metal is on the convex face instead of on the concave face.

3. SAME.
The Paynter patent, No. 367,725, for union for steam pipes, *held* valid and infringed. 63 Fed. 122, affirmed.

Appeal from the Circuit Court of the United States for the Eastern District of Pennsylvania.

In Equity. Bill by Edward P. Paynter and John K. Moore against Thomas Devlin and others, trading as Thomas Devlin & Co., for infringement of a patent. Complainants had decree (63 Fed. 122), and defendants appeal.

Hector T. Fenton, for appellants.
Connolly Bros., for appellees.

Before ACHESON and DALLAS, Circuit Judges, and WALES, District Judge.

ACHESON, Circuit Judge. The appellants, who were the defendants below, complain of the decree of the circuit court, sustaining as valid, and adjudging them to have infringed, the first claim of letters patent No. 367,725, for improvements in unions for steam pipes, etc., granted on August 2, 1887, to Edward P. Paynter, Jr., the inventor, and John K. Moore, his assignee of a part interest. The claim in question is in these words:

"(1) A union for steam pipes, comprising a threaded ring or nut, a member having a seat of soft metal with a concave face, and an opposing member with a rounded or convex end, substantially as shown and described."

The declared object of the invention is to provide a construction whereby the joint of the union of steam and other pipes will be