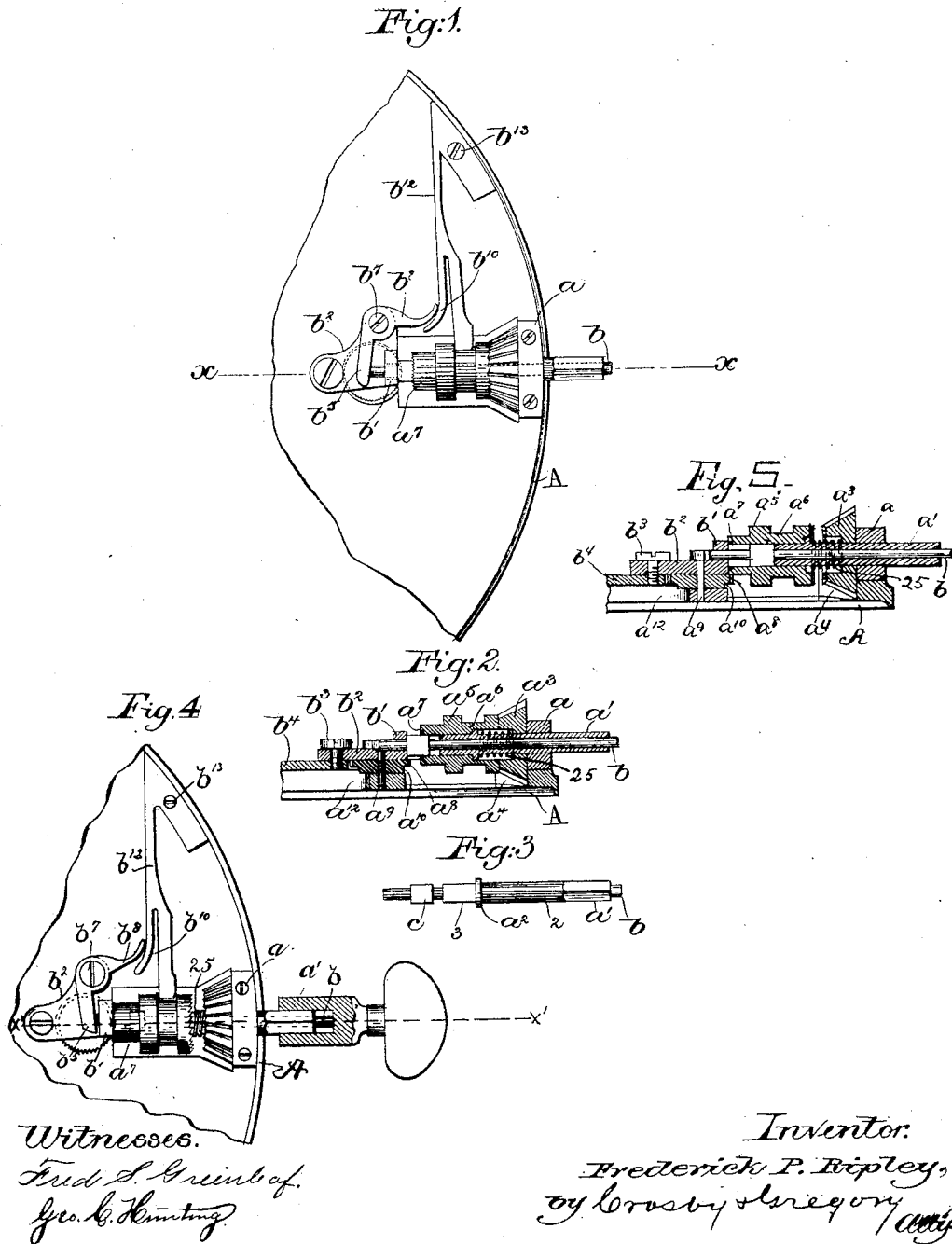


(No Model.)

F. P. RIPLEY.
STEM WINDING AND SETTING MECHANISM.

No. 455,025.

Patented June 30, 1891.



UNITED STATES PATENT OFFICE.

FREDERICK P. RIPLEY, OF WALTHAM, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN STARK, OF SAME PLACE.

STEM WINDING AND SETTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 455,025, dated June 30, 1891.

Application filed September 11, 1890. Serial No. 364,643. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK P. RIPLEY, of Waltham, county of Middlesex, State of Massachusetts, have invented an Improvement in Watch Winding and Setting Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention relates to mechanism for winding and setting the movements of watches, and has for its object to provide simple and effective mechanism of novel construction, as will be described, which may be applied to
15 any desired class or style of watch.

My invention is more particularly applicable to stem-winding watches as now commonly constructed, inasmuch as it can readily be applied without material change of parts.

20 In accordance with this invention the winding shaft or arbor, upon which is mounted the usual winding-gear and the clutch, adapted to be engaged with and disengaged from said winding-gear, is made hollow—that is, it is
25 provided with a longitudinal bore or hole through it, in which is placed a small rod or bar, which is connected with and adapted to move the clutch-sleeve.

The means herein shown for connecting the
30 clutch-sleeve with its actuating rod or bar consists of a shifting-bar connected with the clutch-sleeve and a lever arranged to act on said shifting-bar, said lever in turn being acted upon by the actuating rod or bar.

35 My invention therefore consists in the combination, with a hollow bar and winding gear or pinion on it and a clutch-sleeve, of an actuating rod or bar contained in the hollow winding-shaft and connected with the clutch-sleeve; also, in the combination, with a winding-bar having mounted upon it a winding
40 gear or pinion and a clutch-sleeve, of a shifting-bar for said clutch-sleeve, and a lever to act on said bar, and an actuating rod or bar to
45 act on said lever.

Other features of my invention will be pointed out in the claims at the end of this specification.

Figure 1 is a top or plan view of a sufficient
50 portion of a watch provided with my im-

proved mechanism to enable my invention to be understood, the parts being in position to wind the watch; Fig. 2, a longitudinal section on the line $x x$, Fig. 1, and Fig. 3 a detail to be referred to. Fig. 4 is a top or plan view
55 of a portion of a watch provided with my improved mechanism, the parts being in position to set the hands. Fig. 5 is a longitudinal section on the line $x' x'$, Fig. 4, the parts being in position to set the hands.

The plate A has secured to it near its circumference an upright a , through which is extended the winding bar or shaft a' , made hollow and provided substantially near its center with an annular collar a^2 , on one side
60 of which the said bar for a portion of its length is made round, as at 2, and on the other side of the collar the said bar is made square or of other than round shape, as at 3.

The winding-bar a' has mounted on its round portion 2 a winding gear or pinion a^3 , herein shown as beveled, the said pinion meshing into a bevel gear or pinion a^4 , forming part of the winding mechanism, which is and may be of any usual or well-known construction common to watches. The winding-shaft a' has mounted on its square portion 3 a clutch-sleeve a^5 , provided, as shown, with an annular groove a^6 on its periphery. The
70 clutch-sleeve a^5 is provided at its front end with teeth a^7 to engage with a gear a^8 , mounted on a stud a^9 , the gear a^8 forming part of the train of gears for setting the hands, which train of gears may be of any usual or well-known construction, it being herein represented as a pinion a^{10} , secured to the gear a^8
85 and a gear not shown, which may be the minute-wheel in mesh with the pinion a^{10} .

The hollow winding-shaft a' has extended through it an actuating-rod b for the clutch
90 mechanism, the said rod having its inner end extended through a bearing lug or upright b^1 on a plate b^2 , secured, as by screw b^3 , to a plate or bar b^4 , forming part of the framework of the watch. The inner end of the rod
95 b , as herein shown, engages the arm b^5 of a bell-crank lever, pivoted as at b^6 , and having its other arm b^8 preferably made curved at its outer end, the said curved end preferably bearing against a curved finger b^{10} on a clutch-
100

shifting bar b^{12} , pivoted as at b^{13} , the end of the said bar being fitted into the annular groove a^6 in the clutch. The shifting-bar b^{12} is preferably made of steel and possesses sufficient spring action to normally move the clutch a^5 toward the left in Fig. 1 to engage the teeth a^7 on the clutch with the gear a^8 . The winding-shaft a' beyond the rounded portion 2 is preferably made square or of other than round shape to receive the usual thumb-piece or sleeve, (not shown,) by which the said shaft is rotated to set the hands or wind the watch, according to the position of the said sleeve on the winding-shaft.

As shown in Fig. 1, the actuating-rod b is in its normal or innermost position, into which it is pushed by the head of the thumb-piece or sleeve (not shown) when the latter is pushed in on the winding-shaft.

The actuating-rod b is provided, as herein shown, with a collar c near its inner end, which abuts against the bearing upright b' and limits the inward movement of the said controlling-rod, and thereby prevents the bell-crank lever from being turned sufficiently far to press upon the shifting-bar with sufficient force to break the same, the clutch at such time being in engagement with the winding-pinion a^3 , thus making the same fast on the winding-shaft, so that when the said shaft is rotated in the proper direction the gear a^4 of the time movement will be revolved and the watch wound up. If it is desired to set the hands of the watch, the sleeve or thumb-piece (not shown) is drawn out on the winding-shaft, thereby relieving the pressure upon the controlling-rod and permitting the shifting-bar by its spring action to move toward the left in Fig. 1 and slide the clutch on the winding-shaft until the teeth a^7 on the clutch mesh with the teeth of the gear a^8 , the collar c then abutting against the inner end of the winding shaft or stem, limiting the outward movement of the controlling-rod. As the clutch is moved toward the left in Fig. 1, the finger b^{10} turns the bell-crank lever and moves the controlling-rod b outward or to the right in Fig. 1 into its position, as shown in Fig. 4. The clutch a^5 is now removed from the bevel-pinion a^3 , and the latter is free to turn loosely on the round portion 2 of the winding-shaft. With the teeth a^7 on the clutch in engagement with the gear a^8 the hands of the watch may be set by turning the winding-shaft.

My improved mechanism may be applied to any of the different styles of watches now commonly constructed, and the ordinary stem-winding watches, having what is known as a "lever-setting" mechanism, may readily be changed by boring the winding-stem and inserting therethrough the controlling-rod and providing the lever at the inner end of the rod to act on the shifting-bar.

I have herein shown a spiral spring 25 surrounding the winding-stem a' and interposed between the bevel-pinion a^3 and the annular

shoulder a^2 on the said winding-stem, the said spring acting to keep the bevel-pinion always in its proper position against the upright a , as shown.

While I have herein shown the clutch-sleeve as connected with the actuating rod or bar b by means of a shifting bar and lever, I do not desire to limit my invention to any particular means for connecting the clutch-sleeve to or adapting it to be operated by the actuating rod or bar.

I claim—

1. In a watch winding and setting movement, the combination, with a hollow winding shaft or stem having mounted on it a winding gear or pinion, and a clutch-sleeve, of an actuating-bar extended through said hollow winding shaft or stem, a lever acted upon by said bar, and a clutch-shifting bar contacting with said lever to normally press the controlling-rod outward, to operate substantially as described.
2. In a watch winding and setting movement, the combination, with a hollow winding shaft or stem having mounted on it a winding gear or pinion, and a clutch-sleeve, of an actuating-bar extended through said hollow winding shaft or stem and provided with a collar to limit its movement in both directions, a lever acted upon by said rod, and a spring-acting clutch-shifting bar, to operate substantially as described.
3. In a watch winding and setting movement, the combination, with a hollow winding shaft or stem provided with a round portion and a polygonal portion, a winding gear or pinion loose on said round portion, and a clutch-sleeve on said polygonal portion, a spring-acting shifting-bar to engage said clutch-sleeve, and a lever to act on said shifting-bar, of an actuating-rod extended through said hollow winding-stem and through a bearing, and a collar on the inner end of said rod to abut against the said bearing and limit the inward movement of the controlling-rod, substantially as described.
4. In a watch winding and setting movement, the combination, with a hollow winding shaft or stem having an annular shoulder, a winding gear or pinion, and a clutch-sleeve mounted on said stem, of an actuating-rod extended through said hollow winding-stem, a spring encircling said stem between said winding-gear and annular shoulder, a lever acted upon by said rod, and a spring-acting clutch-shifting bar, to operate substantially as described.
5. In a watch winding and setting movement, the combination, with a winding shaft or stem having mounted on it a winding gear or pinion and a clutch-sleeve, a shifting-bar for said clutch, and a lever to act on said shifting-bar, of an actuating-bar to act on said lever, substantially as described.
6. In a watch winding and setting movement, a hollow winding shaft or stem having

mounted on it a winding gear or pinion, and
a clutch-sleeve, combined with an actuating
rod or bar contained within said hollow wind-
ing shaft or stem and connected with and
5 adapted to operate the clutch-sleeve, substan-
tially as described.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

FREDERICK P. RIPLEY.

Witnesses:

WILLIAM H. JOHNSON,
JOHN A. TOLMAN.