(No Model.)

D. H. CHURCH.

WATCH CASE PENDANT.

No. 484,177. Patented Oct. 11, 1892.

Fig. 1.

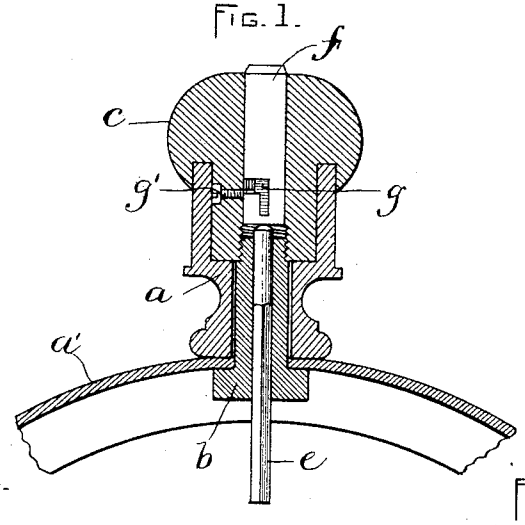


Fig. 4.

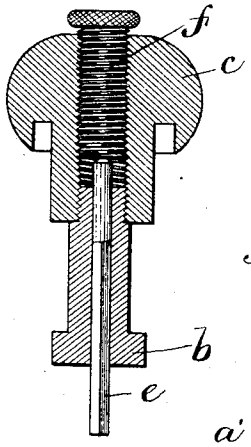


Fig. 2.

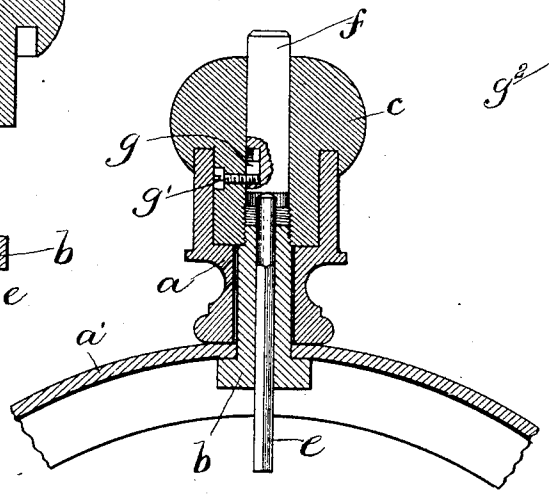
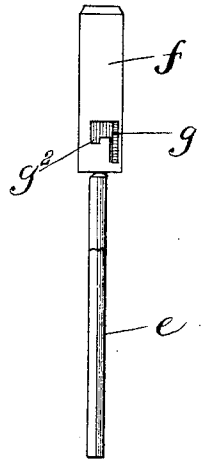


Fig. 3.



WITNESSES:

W. W. Jackson

A. D. Harrison.

INVENTOR

D. H. Church

by Wright Brown Quinby & Atty.

UNITED STATES PATENT OFFICE.

DUANE H. CHURCH, OF NEWTON, MASSACHUSETTS.

WATCH-CASE PENDANT.

SPECIFICATION forming part of Letters Patent No. 484,177, dated October 11, 1892.

Application filed June 6, 1892. Serial No. 435,697. (No model.)

To all whom it may concern:

Be it known that I, DUANE H. CHURCH, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Stem Winding and Setting Watches, of which the following is a specification.

This invention relates to stem winding and setting watches of the Church type, in which the winding and hand-setting train to which motion is imparted by the winding-bar rotated by the crown on the pendant is normally in engagement with the dial-wheels, so that under normal conditions the rotation of the crown will cause the setting of the hands. In watches of this type the crown is usually attached to a winding-bar which passes through the pendant and is engaged at its inner end with the devices which communicate motion to the winding-wheel or to the dial-wheels, according to the longitudinal position of the said bar, the bar and crown being longitudinally movable, so that the operator may hold the bar in either its winding or its hand-setting position and move it from one position to the other by an outward or inward movement of the crown. An objection to the prevailing construction of watches of this type arises from the fact that considerable force is required to move the winding-bar and crown from one position to the other, so that people having delicate fingers cannot easily effect the required change of position to shift the winding-bar from its winding to its setting position.

My invention has for its object to enable the connection between the crown and the winding and setting wheels to be shifted without a longitudinal movement of the crown and by devices capable of being operated with less expenditure of force than those now in use.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming part of this specification, Figure 1 represents a longitudinal section of the pendant of a watch-case and a portion of the case-center, said view showing, also, the crown, the key-pipe, and the longitudinally-movable coupling-bar or key and its adjusting device, the said coupling-bar being shown in its inner or winding position. Fig. 2 represents a similar view showing the coupling-bar and its adjusting device pressed outwardly and in the normal or hand-setting position. Fig. 3 represents a side view of the coupling-bar or key and its adjusting device removed from the key-pipe and crown. Fig. 4 represents a sectional view similar to Fig. 1, showing a different form of coupling-bar or key and adjusting device.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a pendant of a watch-case, which is attached to the case-center *a'* in the usual or any suitable way.

b represents the tubular key-pipe, which is adapted to rotate in the pendant *a* and has secured to its outer end a crown *c*.

e represents the coupling-bar or key, which is movable longitudinally in the orifice of the tubular key-pipe *b* and is made of square or other equivalent polygonal form, the orifice in the key-pipe being of corresponding form, so that the key-pipe and the coupling-bar or key are always rotatively engaged. Hence the rotation of the key-pipe by the crown *c* will cause the rotation of the coupling-bar *e*. The inner end of the coupling-bar *e* is also square, and said bar is adapted to be engaged with the winding-pendant or winding-arbor of a stem winding and setting watch of the Church type, said engagement being the same as the engagement of the inner end of the winding-bar ordinarily used in watches of this type, and shown, for example, in reissued Letters Patent No. 10,631, the coupling-bar or key *e* and the tubular key-pipe engaged therewith being substituted for the winding-bar or "stem-arbor" M, shown in said patent. The coupling-bar or key *e* differs, however, from said stem-arbor in that it has no positive engagement with the crown *c* and is movable endwise independently of said crown. It is not necessary for the purposes of my invention that the crown *c* and the key-pipe have any longitudinal movement, although in hunting-case watches it is desirable that they have a sufficient endwise movement to operate the case-spring that holds the cover in its closed position.

I term the key or rod *e* a "coupling-bar"

because it connects or couples the crown-rotated key-pipe *b* with the devices within the watch to which rotary motion is imparted by the rotation of said key-pipe.

The longitudinal position of the coupling-bar or key *e* is controlled by an adjusting device *f*, which is located in an orifice in the crown *c* and extends through the crown, so that it may be operated from the exterior of the crown. The orifice in the crown is preferably in line with the orifice in the key-pipe, so that the coupling-bar or key *e* is in line with the adjusting device *f*. In Figs. 1 and 2 I show the adjusting device formed as a push-pin, the inner end of which bears upon the outer end of the coupling-bar, while its outer end projects slightly above the top of the crown and is adapted to be rotated by the operator's thumb or finger pressed upon the said outer end and given a turning movement. When the coupling-bar *e* is held in its normal or hand-setting position by the outward pressure exerted on it from within the watch-movement, said coupling-bar and the adjusting device occupy the position shown in Fig. 2, the adjusting device being caused to project considerably above the crown. When the operator desires to wind the watch, he presses inwardly on the adjusting device *f*, thus moving it and the coupling-bar *e* to the position shown in Fig. 1, which is the winding position of the coupling-bar.

Means are provided for positively securing the adjusting device and the couping-bar in the position shown in Fig. 1, said means in this instance being a bayonet-joint, one member of which is an angular groove *g*, formed in the periphery of the push-pin *f*, the other member being a stud or screw *g'*, inserted in the shank of the crown in position to enter said groove. At the outer end of the horizontal portion of the groove *g* is a depression g^2, which is engaged with the stud *g'* when the adjusting device is in the position shown in Fig. 1 and prevents rotation of said adjusting device.

When the operator desires to release the coupling-bar or key *e* and permit it to be forced to its normal position by the pressure within the watch-movement, the push-pin *f* is pressed inwardly to a slight extent, thus removing the depression g^2 from engagement with the stud *g'*, and then the pin *f* is partly rotated by a turning movement of the operator's thumb or finger until the vertical portion of the groove *g* is in line with the stud *g'*, the pin *f* and coupling-bar *e* being then free to move outwardly to the position shown in Fig. 2.

The outer end of the coupling-bar or key should be somewhat rounded, as shown, so that its bearing on the inner end of the adjusting device or push-pin *f* will be attended with the minimum of friction.

In Fig. 4 I show the adjusting device *f* as provided with a screw-thread adapted to engage a corresponding internal thread in the crown, the outer end of the adjusting device having a milled head, enabling it to be readily rotated to move it into or out of the crown. When the adjusting device is turned to move it into the crown, it forces the coupling-bar or key inwardly, and when it is turned to withdraw it from the crown it permits the outward movement of the coupling-bar or key. The screw-thread on the adjusting device and the corresponding thread in the crown constitute interlocking projections and recesses which are the equivalent of the pin or stud and angular groove shown in Figs. 1, 2, and 3.

I do not limit myself to the described devices for adjusting and securing the coupling-bar and may use any other suitable means which will enable the operator to exert inward pressure upon said coupling-bar from the exterior of the crown to move the coupling-bar to its winding position, to release said coupling-bar to permit it to assume its hand-setting position, and to hold said coupling-bar in either position.

I claim—

1. In a stem winding and setting watch, a coupling-bar or key which is longitudinally movable in the key-pipe and rotatively engaged therewith, a crown attached to the key-pipe and provided with an orifice, and a key-adjusting device movable in the orifice in the crown and adapted to be positively secured in different positions, as set forth.

2. In a stem winding and setting watch, the combination of a tubular key-pipe adapted to be rotated in the pendant, a coupling-bar or key longitudinally movable in said key-pipe, a crown attached to the key-pipe and having an orifice extending through it, and a coupling-adjusting device movable longitudinally in the orifice in the crown, the said adjusting device and crown having interlocking projections and recesses, substantially as described, whereby the adjusting device may be engaged with and held by the crown in different positions, as set forth.

3. In a stem winding and setting watch, the combination of a tubular key-pipe adapted to be rotated in the pendant, a coupling-bar or key longitudinally movable in said key-pipe, a crown attached to the key-pipe and having an orifice extending through it, and a coupling-adjuster consisting of a push-piece movable longitudinally in the orifice in the crown and provided with an angular groove in its periphery adapted to engage a stud or pin in the crown, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 31st day of May, A. D. 1892.

DUANE H. CHURCH.

Witnesses:
C. F. BROWN,
A. D. HARRISON.