

No. 647,544.

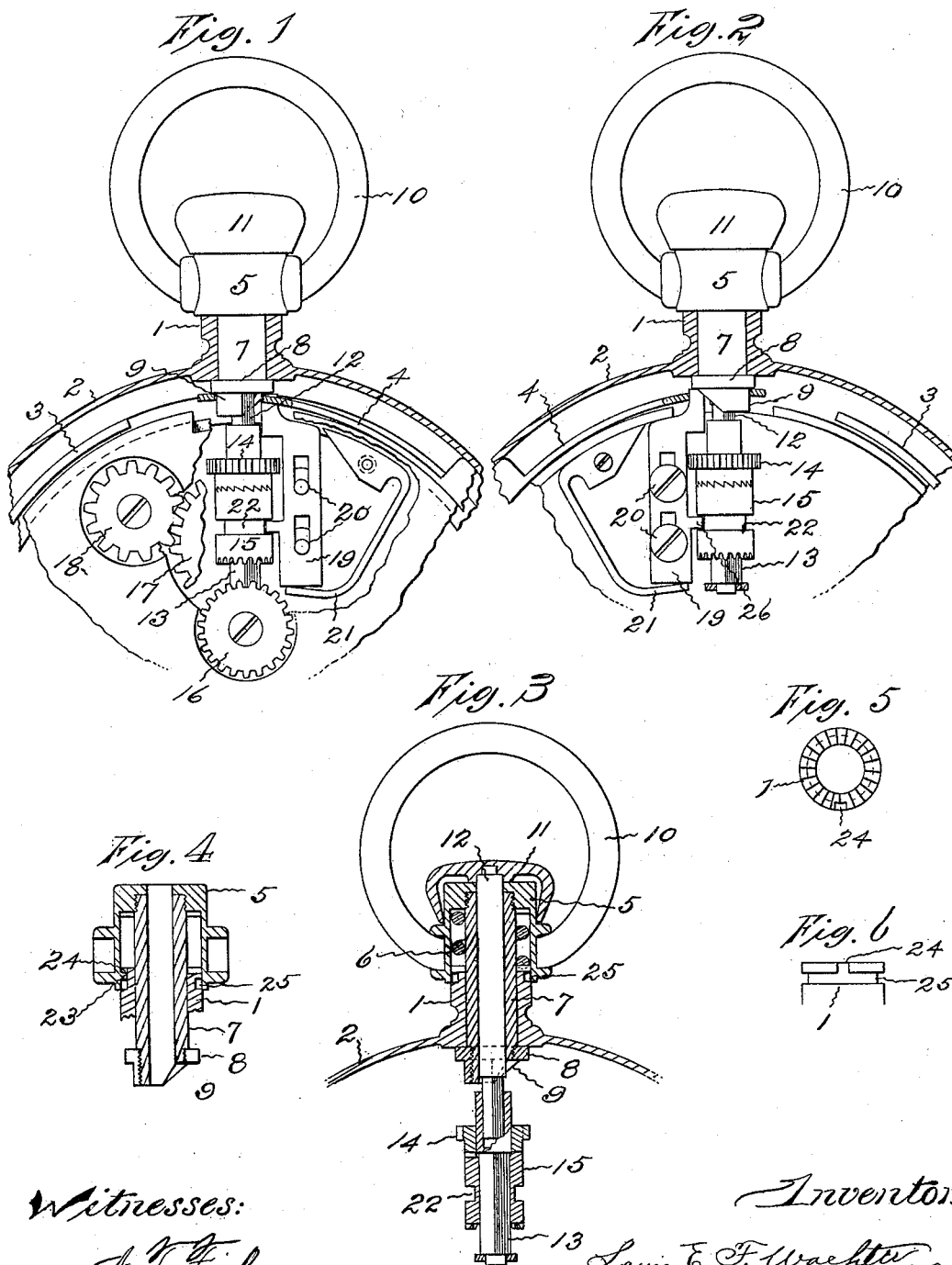
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L. E. F. WACHTER.

STEM WINDING AND SETTING MECHANISM FOR WATCHES.

(Application filed Aug. 28, 1899.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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STEM WINDING AND SETTING MECHANISM FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 647,544, dated April 17, 1900.

Application filed August 28, 1899. Serial No. 728,676. (No model.)

To all whom it may concern:

Be it known that I, LOUIS EDWARD FRANK WACHTER, a subject of the Emperor of Germany, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Watch Winding and Setting Mechanisms, of which the following is a specification.

This invention relates to a watch winding and setting mechanism which is adjustable for winding or setting, as desired, by a rotary turn of the bow and pendant sleeve.

The object of this invention is to provide a mechanism of this nature which is simple in construction and inexpensive to manufacture, which is easy to manipulate, which will not become disarranged, and which will be durable in service.

In the embodiment of the invention which is illustrated in the accompanying drawings the slide that moves the clutch longitudinally of the crown-stem for engaging with the winding-pinion or setting-pinion, as the case may be, is arranged to be moved outwardly by a spring and inwardly by a cam on the end of the tubular stem secured to the pendant-sleeve, to which the bow is attached. The bow and pendant-sleeve, if forced inwardly, can be rotated, and when the bow is rotated into one plane the cam is turned so that by the spring the clutch is caused to engage the pinion meshing with the mainspring-train, and when the bow is rotated into another plane the cam is turned so the clutch is forced into engagement with a pinion meshing with the hand-train.

In the views the invention is represented as applied to a hunting-case watch.

Figure 1 is a view of the mechanisms looking from the front, with parts of the plates broken away to better show the arrangement. Fig. 2 is a view of the same looking from the back. Fig. 3 is a central vertical section of the pendant, pendant-sleeve, pendant-sleeve stem, crown, and clutch. Fig. 4 is a sectional view of the pendant-sleeve stem and the pendant-sleeve. Fig. 5 is a plan of the end of the pendant, and Fig. 6 is a side view of the end of the pendant.

The pendant 1 is formed on the rim 2 of the case in the usual manner, and in the rim of

this hunting-case form, as common, are the spring 3 for throwing open the cover, and the spring 4, bearing the catch, for holding the cover shut.

The pendant-sleeve 5 is movable in and out along the end of the pendant, and when forced in, so that the stud 23 passes from the slot 24 into the groove 25 around the end of the pendant, the bow and pendant-sleeve may be rotated. Of course when the stud is in the slot the pendant-sleeve and bow cannot be rotated. A spring 6 is placed in the pendant-sleeve and thrusts the pendant-sleeve outwardly, and the end of the pendant may be notched, as may be the bottom of the recess in the pendant-sleeve, for the engagement of the ends of the spring, so as to cause friction, which will hold the pendant-sleeve from rotation until the proper force is exerted.

The tubular-stem 7, secured to the interior of the pendant-sleeve, extends through the pendant into the case, and attached to the sleeve-stem just inside the end of the pendant, so as to prevent the removal of the sleeve-stem, is a collar 8, that bears a cam 9. The cam is of such a small size that it will freely pass through a perforation in the cover catch-spring 4; but the collar is so large that it will engage and force inwardly this spring when the crown and pendant-sleeve and its stem are pressed inwardly for allowing the cover to fly open.

The bow 10 is attached to the pendant-sleeve in the common manner, and over the end of the pendant-sleeve is the usual crown 11, projecting from which into the case is the crown-stem 12. The crown-stem is cylindrical where it passes through the pendant-sleeve stem and cam, so that it will rotate freely in these parts; but near its end the crown-stem is squared for rotating the crown-stem extension 13, which has a rectangular socket for receiving the squared end of the crown-stem.

Free to rotate upon the crown-stem extension is a pinion 14, while upon the squared part of the extension, so that it may be moved longitudinally of, but must rotate with, the extension, is a clutch 15. This clutch is provided with teeth at one end arranged to engage with teeth on the hub of the pinion 14,

and on the other end the clutch has teeth arranged to engage with the teeth of the gear 16.

The pinion 14 meshes with the gear 17, that is in mesh with a gear 18, which is adapted to turn a gear attached to the arbor of the mainspring. The gear 16 is adapted to mesh with a pinion connected with the hand-arbor.

The slide 19, that is movably held by screws 20, which turn into the front plate, is thrust outwardly by a spring 21. The outer end of this slide is arranged to project in the plane of the cam 9, and the projection 26 from one edge of the slide is arranged to extend into the groove 22 in the clutch.

When the crown and crown-stem are pressed inwardly, the case catch-spring is forced in, as usual, so that the cover will open, and the pendant-sleeve and bow are moved inwardly, so that they may be rotated. With the bow standing as represented in the drawings the pendant-sleeve is so turned and the cam is in such position that the slide is forced outwardly to its extreme outward position by the spring and the clutch-teeth are engaged with the teeth on the hub of the pinion that meshes with the winding-train. With the parts in this relation rotating the crown will wind the mainspring. If the bow and pendant-sleeve are turned half around, as they may be after being pressed inwardly, the cam will force the slide inwardly and cause the clutch-teeth to be disengaged from the teeth on the hub of the winding-pinion and to become engaged with the setting-pinion, and then when the crown is rotated the hands will be revolved and may be set to indicate any hour. The spring arranged between the pendant-sleeve and pendant prevents the accidental turning of the bow.

For an open-face watch of course the cover opening-spring and catch-spring are not employed.

By means of the construction described the engagement of the parts for winding or setting by the crown and crown-stem is accomplished by a single inward pressing and then turning of the bow, which is a part that is convenient to grasp and easy to turn. As the bow is large enough to be conveniently grasped and turned, the mechanisms may be arranged very firm and stiff, so that they will be durable and cannot be turned accidentally.

I claim my invention—

1. A watch winding and setting mechanism, consisting of a rotary pendant-sleeve, a rotary bow attached to the pendant-sleeve, a cam attached to and rotarily movable with the pendant-sleeve and bow, a clutch movable into and out of engagement with the winding and setting trains, a part adapted to be engaged by the cam and engaging the

clutch, a crown at the end of the pendant-stem, and a crown-stem for rotating the clutch, substantially as specified.

2. A watch winding and setting mechanism, consisting of a rotary pendant-sleeve, a rotary bow attached to the pendant-sleeve, a cam attached to and rotarily movable with the pendant-sleeve, a slide in engagement with the cam, a clutch engaged by the slide and movable into and out of engagement with the winding and setting trains, a crown at the end of the pendant-stem, and a crown-stem for rotating the clutch, substantially as specified.

3. A watch winding and setting mechanism, consisting of a rotary pendant-sleeve, a rotary bow attached to the pendant-sleeve, a cam attached to and rotarily movable with the pendant-sleeve, a slide in engagement with the cam, a spring for moving the slide outwardly, a crown at the end of the pendant-sleeve, a crown-stem attached to the crown, a crown-stem extension connected with the crown-stem, a pinion rotatable upon the stem extension, a clutch engaged by the slide and movable longitudinally of the stem extension into and out of engagement with the pinion on the extension, and a pinion at the end of the stem extension and arranged to be engaged by the clutch, substantially as specified.

4. A watch winding and setting mechanism, consisting of a rotary and longitudinally-movable pendant-sleeve and bow, a spring for thrusting the pendant-sleeve and bow outwardly, a tubular stem extending inwardly from the pendant-sleeve, a cam attached to the end of the pendant-sleeve, a slide in engagement with the cam, a clutch engaged by the slide, a stem for rotating the clutch, and a crown for rotating the stem, substantially as specified.

5. A watch winding and setting mechanism, consisting of a rotary and longitudinally-movable pendant-sleeve and bow, a spring thrusting the pendant-sleeve and bow outwardly, a pendant projecting outwardly from the rim of the case into the pendant-sleeve, a groove in the end of the pendant, a stud extending from the pendant-sleeve into a slot in the pendant, a tubular stem extending inwardly from the pendant-sleeve, a cam attached to the end of the pendant-sleeve, a slide in engagement with the cam, a clutch engaged by the slide, a stem for rotating the clutch, and a crown for rotating the stem, substantially as specified.

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