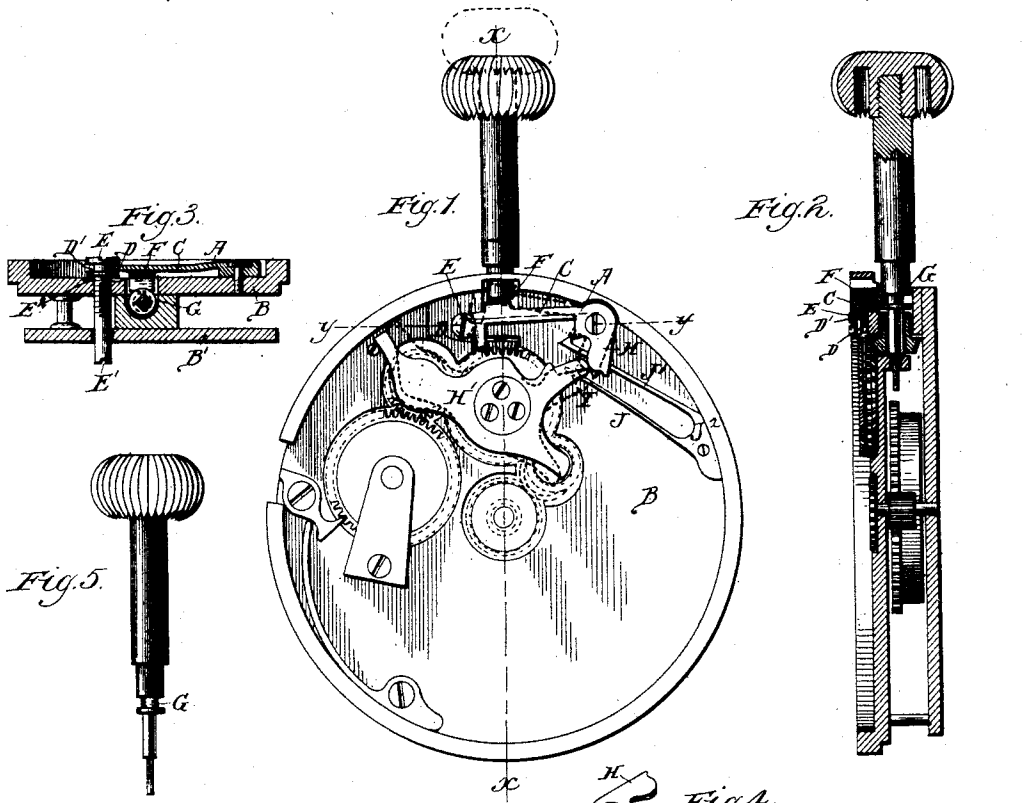
(No Model.)

J. JOHNSON.

STEM WINDING AND SETTING WATCH.

No. 445,182. Patented Jan. 27, 1891.



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STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 445,182, dated January 27, 1891.

Application filed July 13, 1885. Serial No. 171,425. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOHNSON, a citizen of the United States, residing at Baton Rouge, parish of East Baton Rouge, and State of Louisiana, have invented certain new and useful Improvements in Pendant-Sets for Stem-Winding Watches, of which the following is a specification.

This invention relates to improvements in hand-setting devices for stem-winding watches in which the hand-setting devices are normally disengaged from the stem-winding mechanism, but which may be connected therewith for the purpose of utilizing said stem-winding mechanism for setting the hands of the watch and without operating the watch-actuating mechanism.

The objects of this invention are to provide means for detaching the stem or key-pipe from the movement, whereby the said movement may be removed from the case; to provide for detaching the stem from the movement by means of the actuating-lever for the hand-setting device; to have a flexible lever-connection between the yoke and key-pipe, whereby the actuating-lever by means of its flexibility may be withdrawn from connection with said key-pipe without disturbing its fulcrum or connection with the yoke; to provide means for connecting and disconnecting the spring-lever from the key-pipe without interfering with the operation of the lever as a lever, whether connected or disconnected, and to provide certain details of construction hereinafter more fully described, and illustrated in the accompanying drawings.

Figure 1 represents an enlarged face view of a watch-movement, showing my invention applied thereto; Fig. 2, an enlarged section on line *x x*, Fig. 1; Fig. 3, a detail section on line *y y*, Fig. 1; Fig. 4, a detail perspective of spring-lever for connecting the key-pipe and hand-setting mechanism; Fig. 5, a detail view of the key-pipe; Fig. 6, an enlarged face view of a watch-movement, showing a modification of my invention; Fig. 7, a section on line *a a*, Fig. 6, and Fig. 8 a detail section on line *b b*, Fig. 6; Fig. 9, a detail perspective of the connecting-lever; Fig. 10, a detail view of the key-pipe; Fig. 11, a detail perspective of a modification of the connecting-lever.

Similar letters of reference indicate the same parts in the several figures of the drawings.

A indicates a bell-crank spring-lever pivoted at a suitable point upon the movement-plate B, and having upon one of its arms C a projection or guide D, adapted to engage a groove D′, formed upon an elevating-screw E, for the purpose hereinafter described.

Depending or bent down from the arm C, Figs. 2 and 4, just to the rear of the guide, is the projection F, adapted to engage the groove G, formed upon the key-pipe. It is obvious that two small pins or any equivalent device might be employed instead of the projection on the arm C. The projection F, working in the said groove G, not only permits the free rotation of the key-pipe, but also serves to form a connection between the bell-crank lever and the key-pipe, whereby the engaging end of said lever may be actuated by reciprocating the key-pipe. The stem or key-pipe illustrated (see Fig. 2) in connection with this movement is designed to be used with a female winding-pinion, and the employment of my device in connection with a male winding-pinion is illustrated in Figs. 6, 7, and 8, and will be described hereinafter. The other arm H of the bell-crank lever is adapted to engage a projection I, formed on the yoke H′, so that when the actuating-arm C is drawn out by means of the stem the arm H will cause the projection I to be depressed, and thus throw the spring-winding mechanism out of gear and at the same time throw the hand-setting device into gear, when any rotation of the stem will cause the hand-setting device to operate and set the hands at any desired point. Bearing respectively against the yoke and the lever are spring-arms J J′, projecting from a base J^2 and serving to press said yoke and lever away from each other when the key-pipe is in its normal position—that is, not drawn outwardly, as shown in dotted lines in Fig. 1.

As a means for detaching lever A entirely from the key-pipe, for removing the movement, and for maintaining the said lever in its operative position when a movement is set in the case, I have provided a screw E, which works in the movement-plate B and projects through the bottom plate B′. The end of the

screw projecting above the top plate is provided with an ordinary screw-head, while its other end without the usual head is grooved, as shown at E′, for the reception of a screw-driver, for in practice it is more convenient to actuate the screw from this end, because the upper end will be covered by the dial. Below the head proper is a shoulder E^2, which may serve to limit the movement of the screw, but is mainly for the purpose of forming a connection with the head-groove D′ for embracing the end D of the lever-arm C, projecting therein, so that when the screw is moved in either direction it will correspondingly actuate the lever. The said arm C of this lever is preferably a spring-arm, and when the screw E is elevated it carries with it the spring-arm C, lifting the depending projection F on said arm free from the groove on the stem or key-pipe, thereby permitting the ready removal of the key-pipe from the case.

The upper end of the elevating screw-head, as shown, may be provided with a star-shaped head similar to that shown in Fig. 6, and thus render the said screw capable of operation by hand or otherwise from the face of the movement when employed in connection with the movement of an open-faced watch.

The projection or guide D is made of sufficient length to permit the full movement of the arm C without becoming disengaged from the groove D′, formed in the head of the screw E, as before described.

Fig. 1 of the drawings represents the spring-winding mechanism in gear, and if now it is desired to set the hands the operation is as follows: The key-pipe is drawn out by means of the crown, and carries with it the actuating-arm of the lever, connected thereto by the depending projection formed near the end of said arm, engaging the groove in the end of the key-pipe. The outward movement of the actuating-arm of the lever causes the other arm to come in contact with and depress the projection on the yoke, thereby causing the yoke to assume the position shown by dotted lines in Fig. 1, throwing the spring-winding mechanism out of gear and the hand-setting device into gear ready for operation by the stem.

Figs. 6, 7, and 8 represent a modification of my device when employed in connection with a movement having a male winding-pinion. In Fig. 1 the lever employed is of the first class, while in this case the lever *a* is of the third class, and has a pin *b* on its free end engaging a suitable notch formed in a projection on the yoke *c*, as clearly illustrated in Fig. 6. This projection also has a second notch *b*′, in which seats the pin *b* when the lever is at the extreme of its forward movement to form a lock for the lever when in that position and obviating the necessity of a retaining-spring. The depending projection *d* engages a suitable groove *e*, formed between two flanges on the end of the key-pipe *f*. The elevating-screw is located between the key-pipe and fulcrum of the lever, and in cases where the back and center of the watch-case are formed in one piece it is preferred to use the star-shaped head *g* on the elevating-screw flush with or projecting slightly beyond the dial, to be operated by hand or otherwise, in order that the elevation of the said screw, permitting the removal of the stem or key-pipe, may be effected from the upper side or face of the movement.

It is obvious that the elevating-screw could not be operated from the back of the movement, as in the first case, and this device is designed to overcome that objection.

The pin *h*, which forms the fulcrum for the lever, is of sufficient length to permit the elevation of the said lever until the projection *d* clears the groove on the stem or key-pipe without the said lever becoming disengaged therefrom.

I do not limit myself to the employment of the groove upon the key-pipe in which to engage the projection on the lever, for it is obvious that various forms of connection between the said members may be made without departing from the spirit of my invention, such, for instance, as shown in Fig. 11, by forming a single flange upon the key-pipe and providing a suitable notch upon a projection formed on the under side of the lever; or two pins might be employed instead of this notch and effect the same results.

It will be observed that the depending projection on the lever in connection with the groove on the key-pipe constitute a separable connection between the lever and key-pipe, whereby the said key-pipe may be detached from the movement.

In conclusion, it may be observed that either form of the hand-setting devices illustrated in the drawings may easily be adapted for use in connection with either a male or female winding-pinion without a departure from this invention, although I have illustrated them each respectively in connection with the winding-pinion they are preferably employed with.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a stem winding and setting watch, the yoke and the key-pipe, in combination with a flexible lever constituting a direct connection between said yoke and key-pipe, substantially as described.

2. The combination of the yoke, the key-pipe, the bell-crank lever, and the spring-arms J J′, one of said arms bearing against and actuating said yoke and the other arm bearing against and actuating the bell-crank lever, substantially as described.

3. In a stem winding and setting watch, the yoke and the key-pipe, in combination with a flexible lever forming a direct connection

between said yoke and key-pipe, and a set-screw for elevating and depressing said lever, substantially as described.

4. In a stem winding and setting watch, the yoke and the key-pipe, in combination with a flexible lever forming a direct connection between said yoke and key-pipe, and a set-screw projecting beyond the top and bottom plates of the movement and adapted to elevate and depress said lever, substantially as described.

5. In a stem winding and setting watch, the yoke and the key-pipe, in combination with a flexible and pivoted bell-crank lever, a grooved set-screw, and a projection on one end of the lever engaging said groove, substantially as described.

6. In a stem winding and setting watch, the yoke and the key-pipe, in combination with a flexible lever forming a direct connection between said yoke and key-pipe, a set-screw for elevating and depressing said lever, and a spring connecting the lever and yoke, substantially as described.

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