No. 878,220. PATENTED FEB. 4, 1908.

R. MANTHEY.

STEM WINDING WATCH.

APPLICATION FILED APR. 5, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

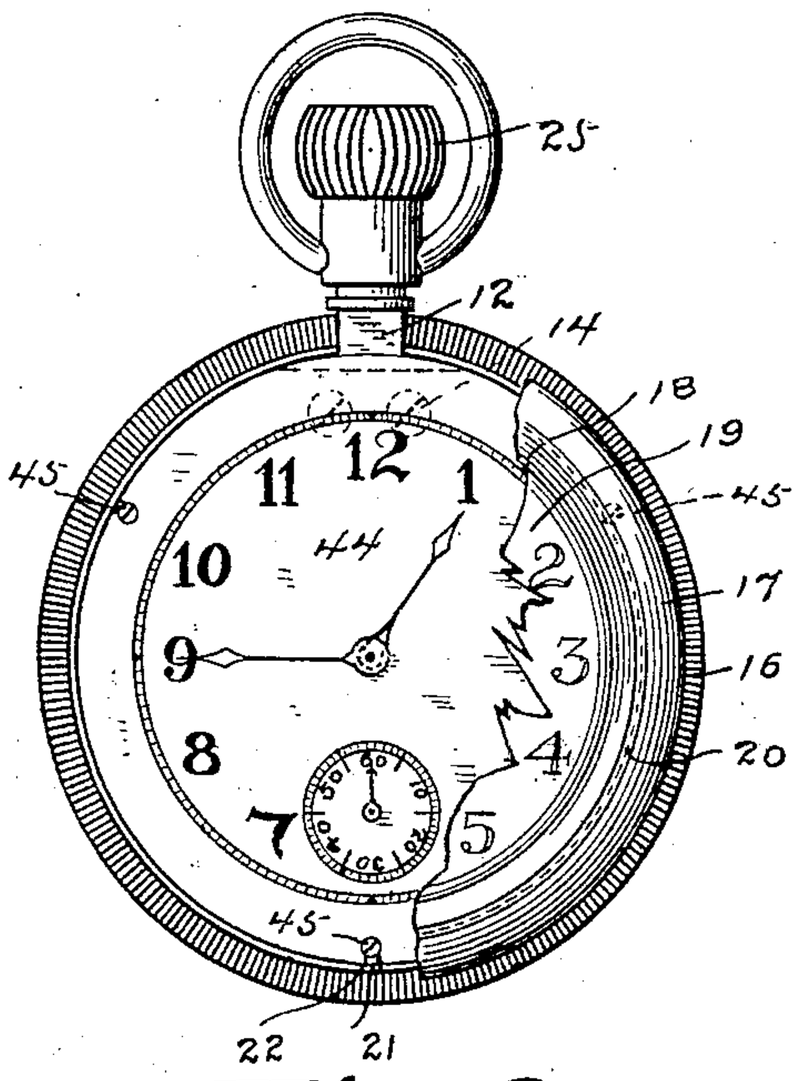


Fig. 2.

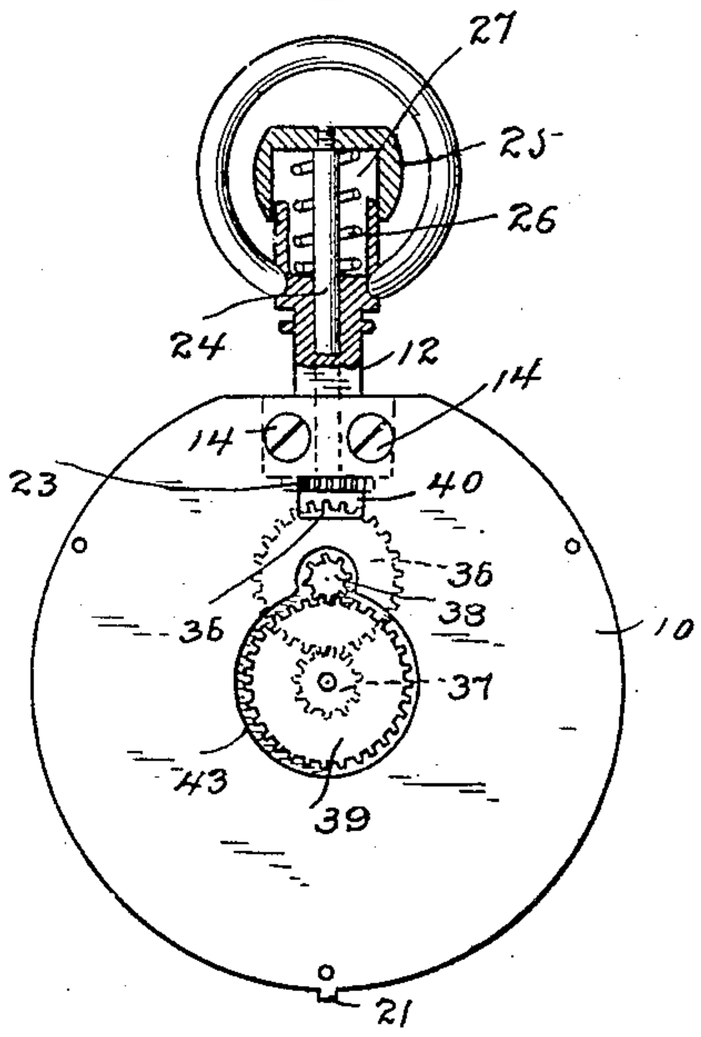


Fig. 3.

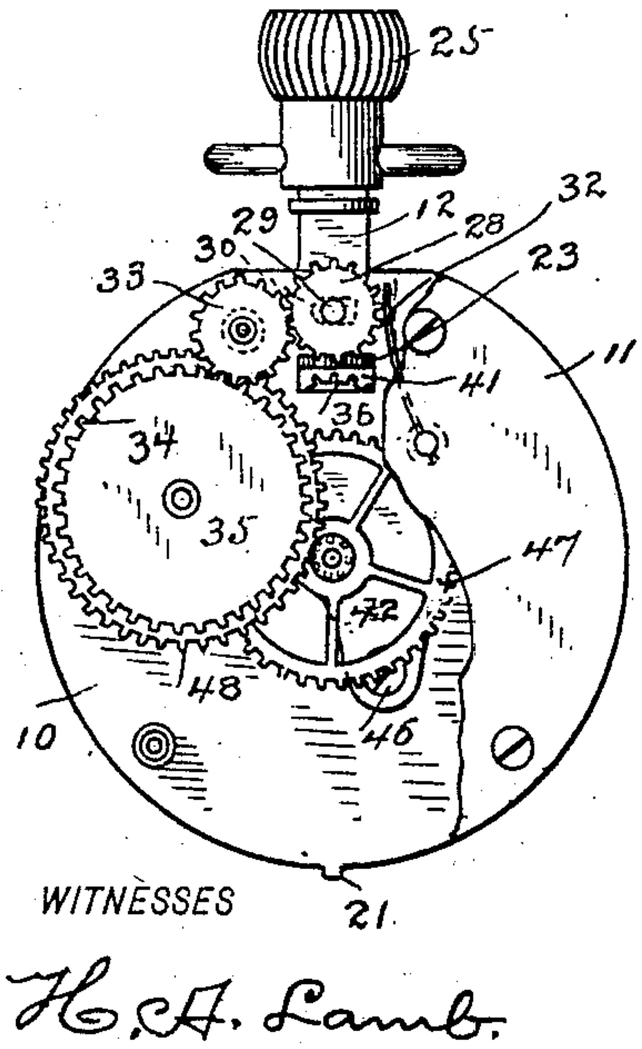
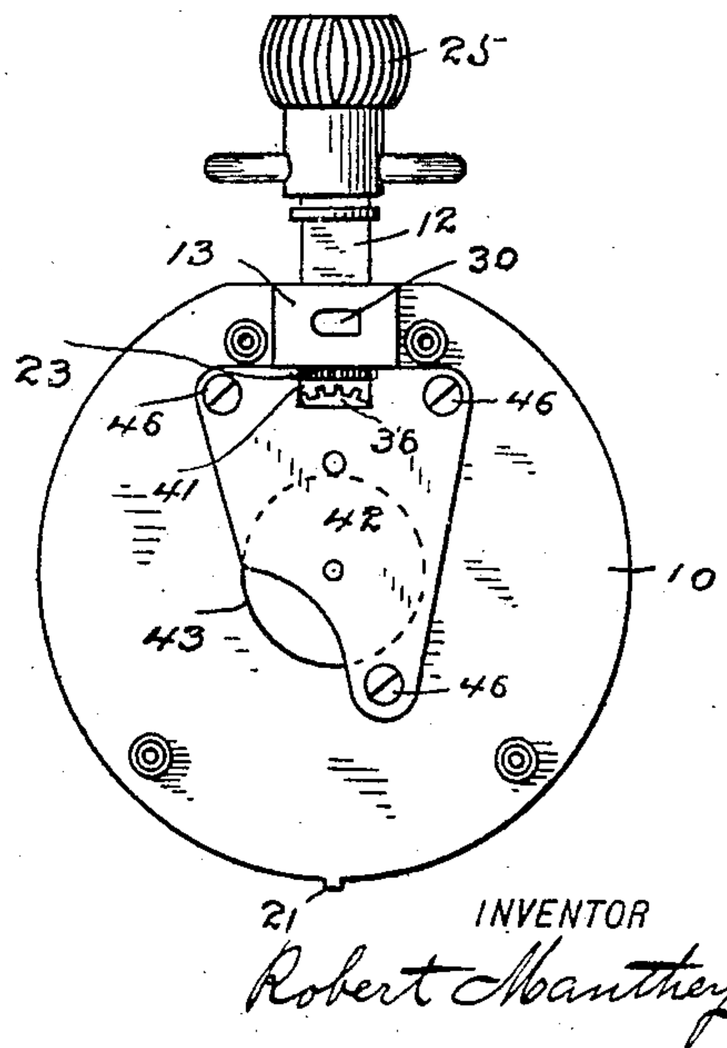


Fig. 4.



WITNESSES

H. A. Lamb.

S. W. Atherton.

INVENTOR

Robert Manthey

BY

A. M. Wooster

ATTORNEY.

No. 878,220. PATENTED FEB. 4, 1908.

R. MANTHEY.

STEM WINDING WATCH.

APPLICATION FILED APR. 5, 1907.

2 SHEETS—SHEET 2.

Fig. 5.

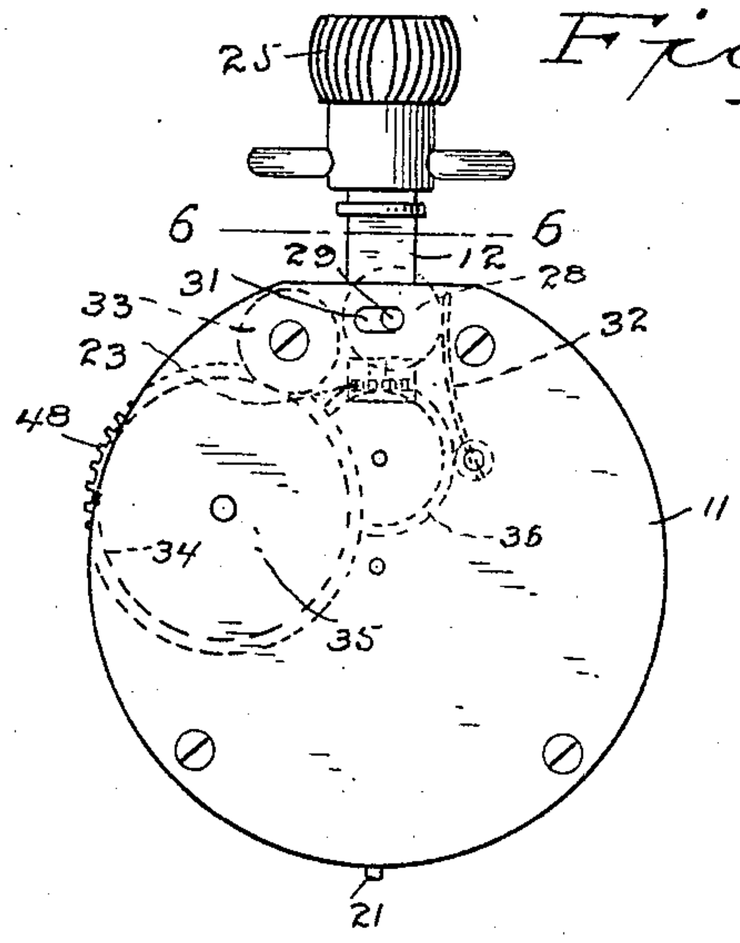


Fig. 7.

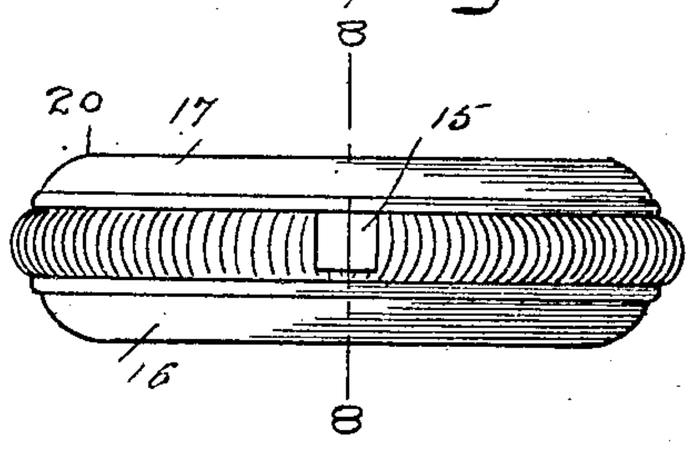


Fig. 8.

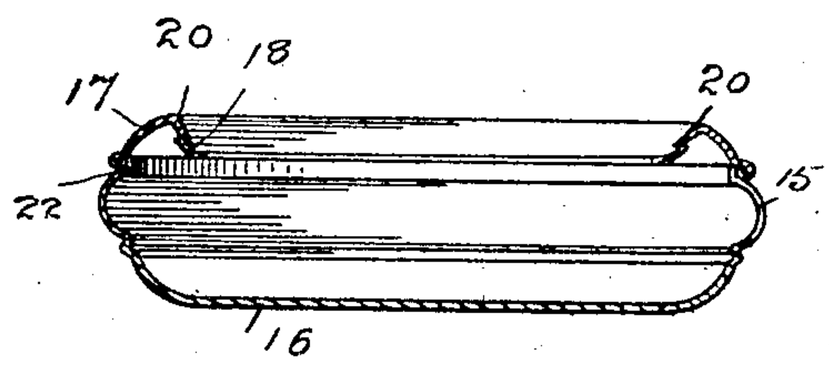


Fig. 6.

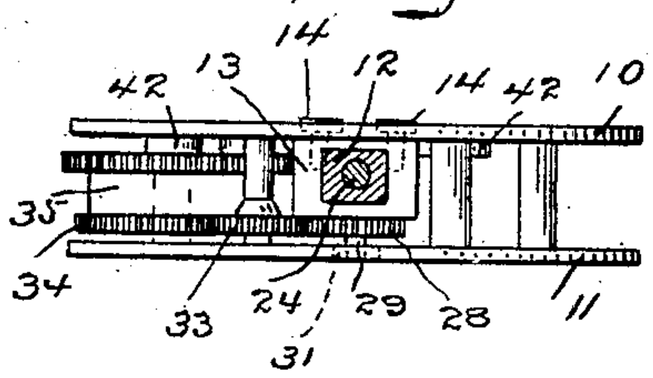
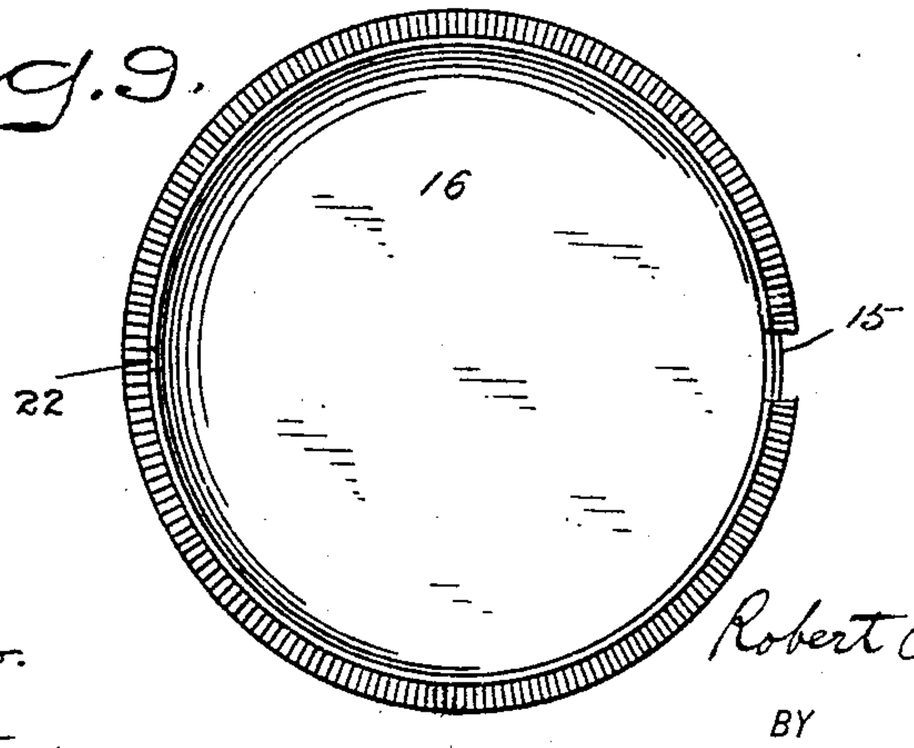


Fig. 9.



WITNESSES

H. A. Lamb.

S. W. Atherton.

INVENTOR

Robert Manthey

BY

A. M. Wooster

ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT MANTHEY, OF JERSEY CITY, NEW JERSEY.

STEM-WINDING WATCH.

No. 878,220. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed April 5, 1907. Serial No. 366,538.

To all whom it may concern:

Be it known that I, ROBERT MANTHEY, a citizen of the United States, residing at Jersey City, county of Hudson, State of New Jersey, have invented a new and useful Stem-Winding Watch, of which the following is a specification.

This invention is adapted to watches generally, and one of the principal objects is to provide a construction which enables the works or movement to be quickly and conveniently removed from the case without disturbing the relationship of any of the parts of the works or movement, the said works being open whereby the parts may be freely inspected when so removed; this construction also enabling the works or movements to be readily transferred from one case to another of different style or value.

While the invention is, in the above respect, adapted to watches generally, it is also and especially adapted to the cheaper grades of watches, and to this end other objects are to simplify and cheapen the construction, and to lessen the number of parts as well as to effect an important saving of time in handling, winding, adjusting and casing the movements. Heretofore, both the dial and the pendant have usually been secured to the case. In my novel watch, I attach the dial to the front plate and make the pendant rigid with a block or bridge piece and attach said block or bridge piece to the front plate so that the complete movement or watch proper, including the dial and the pendant, is wholly separate from and independent of the case, the movements and the cases are made easily interchangeable, the movements may be handled and inspected and regulated before casing and may be wound by their own winding mechanism, the movements are made stronger and may be secured in the cases without the use of screws, and the necessity for removing the dial to uncase and examine a watch that has stopped is done away with. I furthermore so design and construct the movement that a single wheel upon the stem serves both as a winding wheel and a setting wheel, thereby reducing the number of parts and saving much expense and labor and making the set more accurate on account of the long bearing which prevents slip in use.

With these and other objects in view I have devised the novel stem winding watch of which the following description in connection with the accompanying drawings is a specification, reference characters being used to indicate the several parts:

Figure 1 is a face view of my novel watch with a portion of the case and crystal broken away; Fig. 2 a front view of the movement detached with the dial removed and the pendant and crown in section; Fig. 3 a rear view of the movement with a portion of the back plate broken away; Fig. 4 a rear view of the front plate and block or bridge piece, the back plate and works being removed; Fig. 5 a rear view of the movement detached, the engagement of the winding and setting wheel with the main setting wheel in the operation of setting being indicated by dotted lines; Fig. 6 a top plan view of the movement with the pendant in section on the line 6—6 in Fig. 5; Fig. 7 an edge view of the case with the movement removed; Fig. 8 a section of the case on the line 8—8 in Fig. 7; and Fig. 9 is an elevation of the case with the movement removed.

10 denotes the front plate, 11 the back plate, 12 the pendant and 13 the block or bridge piece. It is an important feature of the present invention that the pendant and block or bridge piece are made integral and that the said bridge piece is rigidly secured to the front plate as by means of screws 14. This enables me to assemble the movements complete, winding mechanism and all, wholly independently of the cases, and to secure the movements to the cases without the use of screws so as to make the works conveniently removable and interchangeable, and to inspect the works between the front and back plates when uncased. The pendant is made angular in cross section and closely engages a correspondingly shaped recess 15 in the edge of the case. The case is shown as made in two parts, the back part being indicated by 16 and the front part by 17 recess 15 being wholly in part 16. In practice the parts of the case may be hinged or screwed together or may be fitted together with a snap fit, as indicated in the drawings. Part 17 of the case is provided with the usual opening to disclose the face and with a bezel 18 to receive a crystal indicated by 19. The high portion of the face of part 17 of the case is a raised circular rib indicated by 20, and the bezel is placed below the rib so that the surface of the crystal is below the top of the rib and is protected thereby. At the lower edge of front plate 10, directly opposite to the

pendant, is a lug 21 which engages a corresponding recess 22 in part 16 of the case. In order to case a movement it is simply necessary to open or separate the parts of the case, place lug 21 on the front plate of the movement in engagement with the recess 22 in the back plate of the case, then place the pendant in engagement with recess 15 and then close the parts of the case. To uncase a movement, it is simply necessary to open or separate the parts of the case and then slip the movement out, there being no screws to remove.

Another important feature of the invention is that both the winding and setting operation are performed by a single wheel 23 which for convenience I term the winding and setting wheel and which is rigidly secured to the stem, indicated by 24. The stem passes through the block or bridge piece and the pendant, and the crown, indicated by 25, is rigidly secured to its upper end, the crown, stem and winding and setting wheel being retained in the raised position by means of a spring 26 lying within the crown and within a recess 27 in the upper end of the pendant. The winding and setting wheel normally engages a back winding wheel 28 carried by a staff 29 one end of which lies in a slot 30 in the bridge piece and the other in a slot 31 in the back plate. A spring 32 acts to retain the back winding wheel in engagement with an intermediate wheel 33 which in turn engages barrel wheel 34 (see Fig. 3), the barrel being indicated by 35 (see Fig. 6).

The operation of winding is effected by turning the crown forward, movement being transmitted to the barrel wheel by means of winding and setting wheel 23, back winding wheel 28 and intermediate wheel 33. When the crown is turned backward, the winding and setting wheel will be rotated in the opposite direction and will move the back winding wheel backward out of engagement with the intermediate wheel against the power of the spring, staff 29 sliding backward freely in the slots in the winding bridge and back plate. As soon as the crown is turned forward again the back winding wheel will again engage the intermediate wheel and rotate the barrel wheel as before.

In the operation of setting, the crown is pushed inward in the usual manner. This moves winding and setting wheel 23 inward out of engagement with the back winding wheel and places it in engagement with a wheel which I term for convenience the main setting wheel and which is indicated by 36. This wheel engages the cannon pinion, indicated by 37, and carries a setting pinion 38 which engages the minute wheel indicated by 39.

40 denotes a recess in the front plate and 41 a recess in a bridge 42 (the purpose of which will presently be explained) to provide clearance for the winding and setting wheel. It will be obvious that when the crown is pushed inward and the winding and setting wheel moved from the position shown in Fig. 2 into engagement with the main setting wheel, as indicated by dotted lines in Fig. 5, the cannon pinion and minute wheel, with which the hands move, may be rotated in either direction to set the hands.

The front plate is provided with a recess 43 which receives the minute wheel and the setting pinion, as clearly shown in Fig. 2, said wheel and pinion lying flush with or slightly below the surface of the plate. Winding and setting wheel 23 does not project through recess 40 in the front plate so that the surface of the front plate is left perfectly smooth. This enables me to attach the dial, indicated by 44, directly to the front plate by means of screws indicated by 45, so that the dial as well as the pendant and winding mechanism is made a part of the movement and is wholly independent of the case. The minute wheel and cannon pinion are journaled in bridge 42 which is secured to the front plate by screws 46. The center wheel, indicated by 47, lies back of the bridge 42 and is journaled therein and in the back plate (see Fig. 3). 48 denotes the main wheel, the train being omitted for the sake of clearness and because it forms no portion of the present invention.

Having thus described my invention, I claim:

1. In a watch, the combination with the front plate which furnishes bearings for the train works, of a block or bridge piece secured thereto and a pendant made integral with the said block or bridge piece.

2. In a watch, the combination with the front and back plates which furnish the bearings for the train works, and winding and setting mechanism carried thereby, of a block or bridge piece and pendant secured to the said front plate, a stem and a wheel carried thereby and adapted to actuate either the winding or setting mechanism.

3. In a watch, the combination with the front and back plates which furnish the bearings for the train works, and winding and setting mechanism carried thereby, of a block or bridge piece and pendant secured to the said front plate, a stem and a wheel carried thereby which is normally in engagement with the winding mechanism and may be disengaged therefrom and placed in engagement with the setting mechanism.

4. A watch movement having front and back plates which furnish the bearings for the train works, the space between the plates around the works being open to permit the works to be inspected when the movement is uncased, and a pendant rigidly connected with the movement to serve as a support for

the entire movement when removed from a case.

5. In a watch, the combination with front and back plates which furnish the bearings for the train works, a block or bridge piece secured to the front plate and a pendant made integral with the said bridge piece, said bridge piece and back plate being provided with slots, of a back winding wheel having a staff engaging said slots, an intermediate wheel, a spring for normally retaining the back winding wheel in engagement with the intermediate wheel, a stem and a wheel carried thereby and engaging the back winding wheel, so that forward movement of the wheel upon the stem will actuate the back winding wheel and backward movement of the wheel upon the stem will move the back winding wheel out of engagement with the intermediate wheel against the power of the spring.

6. In a watch, the combination with front and back plates, which furnish the bearings for the train works, a block or bridge piece secured to the front plate and a pendant made integral with the said bridge piece, of a main setting wheel, a stem and a wheel carried thereby and engaging the main setting wheel, substantially as described, for the purpose specified.

7. In a watch, the combination with front and back plates which furnish the bearings for the train works, a block or bridge piece secured to the front plate and a pendant made integral with the said bridge piece, of a minute wheel, a cannon pinion, a main setting wheel engaging the cannon pinion, a pinion carried by the main setting wheel and engaging the minute wheel, a stem and a wheel carried thereby and engaging the main setting wheel, whereby rotation in either direction may be imparted to the cannon pinion and minute wheel by rotation of the stem.

8. In a watch, the combination with front and back plates which furnish the bearings for the train works, a block or bridge piece secured to the front plate and a pendant made integral with the said bridge piece, said winding bridge and back plate being provided with slots, of a back winding wheel having a staff engaging said slots, an intermediate wheel, a spring for normally retaining the back winding wheel in engagement with the intermediate wheel, a main setting wheel, a stem, a winding and setting wheel carried by the stem and a spring for normally retaining the winding and setting wheel in engagement with the back winding wheel but permitting the winding and setting wheel to be placed in engagement with the main setting wheel, substantially as described, for the purpose specified.

9. In a watch of the character described, the combination with front and back plates which furnish the bearings for the train works, of a block or bridge piece, secured to the front plate, a pendant made integral with the said bridge piece and a dial secured to the front plate, substantially as described, for the purpose specified.

10. In a watch of the character described, the combination with a front plate having a lug at one edge and furnishing bearings for the train works, a block or bridge piece, secured to the front plate opposite to the lug and a pendant made integral with the said bridge piece, of a case having a recess to receive the lug and opposite thereto a recess to receive the pendant, whereby the movement is secured to the case without screws.

11. In a watch of the character described, the combination with a front plate having a lug at one edge and furnishing bearings for the train works, a block or bridge piece secured to the front plate opposite to the lug and an angular pendant made integral with the said bridge piece, of a case having a recess to receive the lug and opposite thereto an angular recess to receive the pendant.

12. In a watch of the character described, the combination with a front plate having a lug at one edge and furnishing bearings for the train works, a block or bridge piece secured to the front plate opposite to the lug, a pendant made integral with the winding bridge and a dial secured to the front plate, of a case having a recess to receive the lug and opposite thereto a recess to receive the pendant.

13. The block or bridge piece 13 adapted to be secured to a watch-movement plate and having formed integral therewith a pendant 12, substantially as described, for the purpose specified.

14. The front plate 10 having secured thereto a block or bridge piece and a pendant made integral therewith.

15. The front plate 10 having secured thereto a dial and a block or bridge piece having a pendant made integral therewith.

In testimony whereof I affix my signature, in presence of two witnesses.

ROBERT MANTHEY.

Witnesses:
W. L. McDermott,
Clinton E. Fisk.