A. WADSWORTH.

Watch.

No. 55,750. Patented June 19, 1866.

Fig. 1.

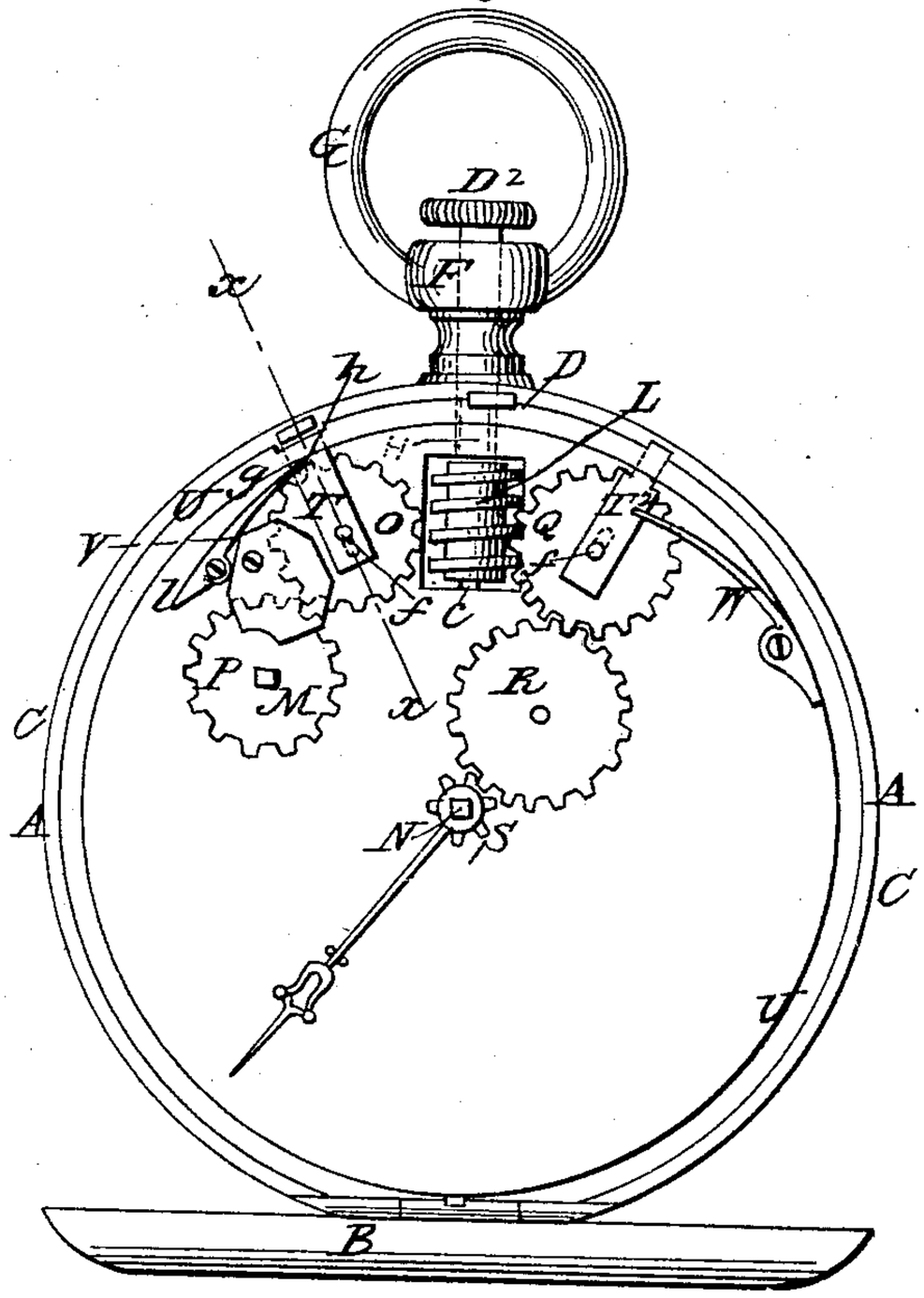


Fig. 2.

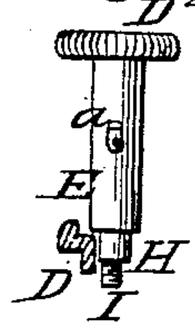


Fig. 3

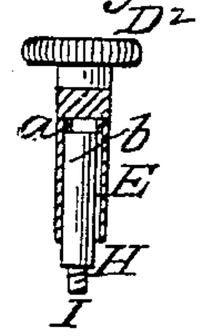
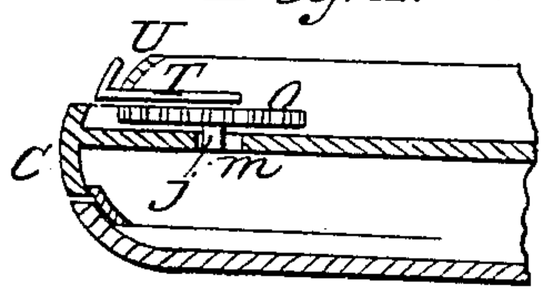


Fig. 4.



Witnesses:

B. F. B. Carrington

Wm. Trewin

Inventor:

Arthur Wadsworth

Per Munn & Co Attys.

UNITED STATES PATENT OFFICE.

ARTHUR WADSWORTH, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN WATCHES.

Specification forming part of Letters Patent No. **55,750,** dated June 19, 1866.

To all whom it may concern:

Be it known that I, ARTHUR WADSWORTH, of Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to that class of watches for the winding and setting of which no key is required, and in which both operations are performed by simply turning a part of the pendant of the watch-case; and it principally consists in a novel arrangement of devices for connecting such portion of the pendant with the mainspring axis and the pinion of the hand spindle or arbor of the watch-movement, whereby the two operations can be performed independently of each other by turning the pendant in the proper direction, the connecting devices for the mainspring axis with the pendant being thrown into connection with the same by the closing of the watch-case and disconnected when opened, thus leaving the pendant free, with which, if then so desired, the hand spindle or arbor of the watch-movement can be connected by simply pushing or pressing and holding in, with the finger or thumb of the hand, an arm slightly projecting beyond the edge of the bezel-ring of the watch-case. When turning the pendant either to the right or left the hands can be moved around and upon the dial-face of the watch, and thus set at any desired point. When removing the pressure upon said arm the connection established by it, as stated, is broken and the pendant again left free, but with which, by the then closing of the watch-case, the mainspring axis or shaft is then connected, as before stated, so that by turning such pendant the watch can be wound without opening the case.

In the accompanying plate of drawings my improvements in watches are illustrated, Figure 1 being an inside view of a watch with the dial-face removed, showing the arrangement of parts through which connection is established with the pendant of the watch-case for the purposes of the present invention; Figs. 2 and 3, detail views of a portion of the watch-case pendant, which will be hereinafter particularly referred to, and Fig. 4 a detail section taken in the plane of the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

A in the drawings represents a watch-case, which is of the ordinary construction of the case of that class of watches commonly known as a "hunting" watch; B, the front cover of the watch-case, hinged to its ring C in the usual manner, so that it can be swung open or closed at pleasure, it being held, when closed, by the spring-catch D, arranged in the ordinary mode in the case-ring C, before referred to, which spring-catch is released from the said plate B by pushing or pressing upon the milled head D^2 on the outer end of a hollow shaft or sleeve, E, extending in a radial line through the center of the pendant F, by which, or a ring, G, hung in it, the watch is suspended to or connected with a chain, this sleeve, when so pressed upon, coming to a bearing by its inner end upon the said spring-catch, and thus pushing it in sufficiently to disengage it from the watch-cover, which then springs open, as in similar watch-cases. This hollow sleeve E plays upon a spindle, H, (see Figs. 2 and 3,) passing through the case-ring C, in which it turns, and is connected with said spindle by a slot, *a*, extending in the direction of its length, in which fits a fixed stud or pin, *b*, of the spindle, so that while the said sleeve can play up and down upon the spindle by pressing upon its thumb and milled head D^2, by turning such milled head either to the right or left the said spindle will also be turned in conjunction therewith. The inner end, I, of the said spindle H is screwed or otherwise secured in one end of a short worm-gear, L, hung at its other end, by its pivot *c*, in a suitable bearing of the plate or frame-work for the watch-movement, between which worm L and the mainspring axis or shaft M and hand arbor or spindle N of the watch-movement a connection is respectively established by and through a gear-wheel, O, engaging with the gear P of the mainspring axis and the two gear-wheels Q and R interposed between said worm and the hand-arbor, the latter gear R of which is so hung in the plate-work of the watch-movement as to en-

gage with the pinion S upon the hand arbor or shaft N.

The gears O and Q are respectively hung to and upon a short projecting pin or pivot, *f*, of the under side of arms T T^2, each of which arms extends through and projects beyond the bezel-ring U of the watch-case, the one, T, being turned or bent up at its outer end, so that as the cover B of the watch is closed it will allow it to freely pass over it, while at the same time it will push or slide it in sufficiently to cause the gear O, hung to it, as explained, to be thrown into connection with the pendant-worm G of the watch, (said gear being so arranged upon the plate or framework of the watch as to be always in connection with the gear P of the mainspring axis,) so that by then turning the pendant-head D^2 in the proper direction the watch can be wound up without opening the case, the usual arrangement of parts being provided for the mainspring axis or arbor to prevent its being turned in the wrong direction. When the watch-case is opened the arm T, to which the gear O is hung, is, by a bent spring, V, interlocked at one end, *g*, with its notch *h*, and fixed at its other end, *l*, to the plate-work of the watch-movement, then thrown out sufficiently to destroy or break the connection between its gear O and the pendant-worm G, thus leaving the pendant-worm free, with which, if then so desired, the hand-arbor can be connected by simply pressing in the arm T^2, to which the gear Q is hung, (said gear being so arranged upon the plate-work of the watch-movement as to be always engaged with the gear R, interlocking with the hand-arbor pinion S, as before explained,) sufficiently to throw such gear Q into connection with the worm, when, there holding it by turning the pendant in the proper direction, either to the right or left, as the case may be, the hands of the watch will be correspondingly moved around and over its dial-plate, and thus set at any desired point; this arm T^2, when the pressure is removed from it, being thrown out by means of the bent spring W, similarly arranged in connection with it to that explained for the arm T.

Each pivot *f* of the arms T and T^2 plays in a similar slot, *m*, of the watch-plate, the direction of which slots corresponds to the line of play of the respective arms T T^2.

From the above description of my improvements in watches, it is plainly apparent that, first, without necessarily opening the watch, its works or movement can be wound up by simply turning the pendant in the proper direction therefor; second, that by opening the watch the hands can be set in a similar manner to that in which the watch is wound, both operations being entirely independent of each other, and yet operated through a common and the same portion of the watch-pendant; third, that by the peculiar arrangement and construction of the pendant the watch-case can be opened without interfering with or producing the least effect upon the connecting operating devices for winding and setting the watch through the means of the pendant; fourth, that each and all the above-stated results are accomplished in an extremely simple and practical manner, adding but very little to the cost of an ordinary watch, to wind and set which it is necessary to use an independent key, and yet greatly increasing the ease, facility, and convenience with which it can be wound and set.

It may be here remarked that, although I have described my improvements in connection with a watch having a hunting-case, it is obvious that, with but slight modifications, they can be applied to other styles of watches and to any of the known kinds of watch-movements, and therefore I do not intend to limit myself to any one particular application of them.

It may be also here remarked, in conclusion, that the arm T^2, to which the gear Q is hung, should not project so far beyond the bezel-ring of the watch-case that the cover of the watch when closed will impinge against or move the same in the least if the other arm, T, is arranged so as to then establish a connection between the pendant and the mainspring axis; but if the arm T is not so arranged the arm T^2 may be then similarly arranged thereto, and the arm T similar to the arm T^2, it being only necessary that care should be taken to have only one of the arms, T or T^2, as may be desired, arranged so that its respective gear, O or Q, will be thrown into connection with the watch-pendant when the watch is closed; for if both connections were then established both the hands would be set and the watch wound up, if the pendant were turned, which, as is obvious, would occasion trouble and annoyance; but I prefer the arrangement of the parts herein particularly explained and shown in the drawings, as to set the watch it is always necessary to open the case, while it can be wound up as well shut as open.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the gear-wheels O and Q, respectively hung to arms T and T^2, with the pendant-spindle H, mainspring axis M, and hand-arbor N of a watch-movement, when arranged together so as to operate substantially as and for the purpose described.

2. The combination of the spindle H and pusher-sleeve E, arranged together substantially in the manner described, and for the purpose specified.

The above specification of my invention signed by me this 20th day of January, 1866.

ARTHUR WADSWORTH.

Witnesses:

ALBERT W. BROWN,

M. M. LIVINGSTON.