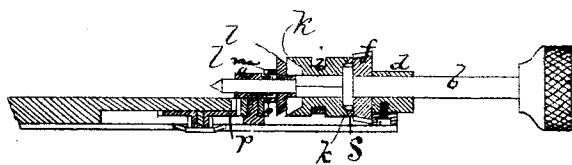
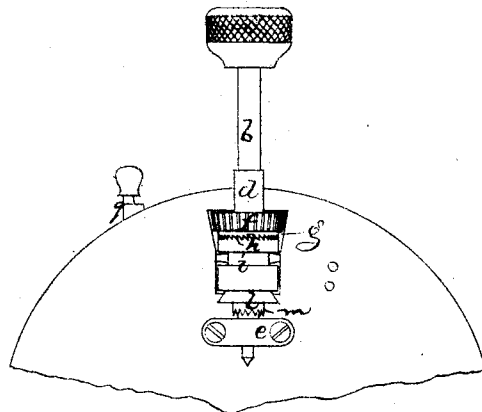
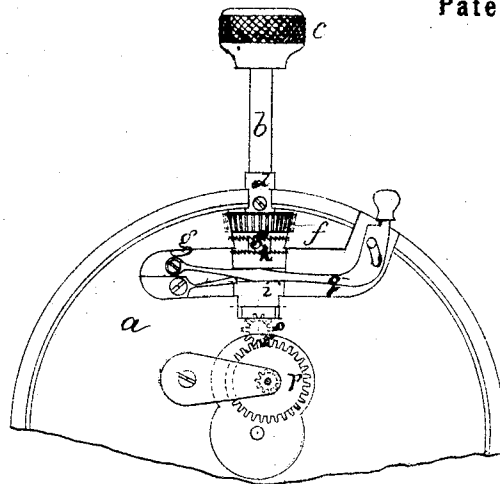


Chas V. Woerd.
 Impl in Watches,

No. 118,415.

Patented Aug. 22, 1871.



Witnesses: { M. W. Frothingham.
 C. H. Latimer,

Charles V. Woerd.
 By his attys.
 Crosby & Gould

UNITED STATES PATENT OFFICE.

CHARLES V. WOERD, OF WALTHAM, MASSACHUSETTS.

IMPROVEMENT IN STEM-WINDING WATCHES.

Specification forming part of Letters Patent No. 118,415, dated August 22, 1871.

To all whom it may concern:

Be it known that I, CHARLES V. WOERD, of Waltham, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Stem-Winding Watches; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention, sufficient to enable those skilled in the art to practice it.

My invention relates to the construction and method of operation of the winding and hand-setting mechanism of that class of stem-winding watches in which both the winding and setting are effected by the stem or finger-piece on the end of the spindle.

In such mechanism, as now constructed, the winding-arbor carries a gear mechanism, which is normally held in engagement with the winding-wheel, and which is thrown out of such engagement and into engagement with the time-movement or hand-moving wheels when the hands are to be set or changed, and in such watches a crown-wheel is used to connect or gear the arbor with the hand-moving train. In attempting to move this wheel into such connection its teeth often strike on the top of the gear-teeth of the time-wheel and fail to engage properly or immediately therewith, straining the parts and injuring the respective gear-teeth, so that they soon become inoperative or but imperfectly operative.

In my invention I employ, to make the connection between the operating-spindle and the hand-moving wheels, a friction-clutch mechanism which is normally out of gear with said wheels, but which, when the hands are to be set, is thrown into such connection, (by the same manipulation which disconnects the winding-wheel from the winding-spindle or arbor,) the time-gear directly operated by the sliding friction-clutch being always in connection with the pinion that operates the minute-wheel, so that there are no gear-teeth to be strained or unduly worn by throwing the operating gear into engagement with the time-moving wheels.

It is in the combination with the rotating winding and setting-arbor or spindle of a friction-clutch mechanism, by which the time or hand-moving gears are connected with and disconnected from the winding-arbor without throwing the connecting gear-wheels into or out of engagement, that my invention consists.

The drawing represents, enlarged, a watch mechanism embodying the invention.

a denotes one of the pillar or movement-plates; *b*, the winding-spindle or arbor, having the finger-head *c* fast on its outer end, the arbor turning in boxes or bearings *d e*. Turning loosely on the spindle is a gear-pinion, *f*, the teeth of which mesh into and drive the spring-winding wheel on the barrel-arbor. On the inner end of this gear-pinion is a circle of ratchet-teeth, *g*, engaging with which are teeth *h* on the end of a sliding sleeve, *i*, which is splined to and is rotated by and with the spindle and slides endwise upon it. The opposite end of the sleeve is made with a beveling or conical inner surface, *k*, which, when the sleeve is thrown in toward the center of the plate, extends over and impinges against the conical periphery of a wheel, *l*, turning loosely on the spindle *b*, the gripe or friction of the clutch-ring or sleeve upon the cone *k* causing the spindle and cone to rotate together or as one piece. On the inner face or end of the cone and forming part of it is a crown-wheel, *m*, the teeth of which engage with teeth *n* of a pinion, *o*, the teeth of which pinion *o* mesh into and rotate the minute-wheel *p*. The teeth of the pinion *o* and wheel *p* are always in connection, as are also the teeth of the pinion *o* and wheel *m*, and the clutch-sleeve is normally in position for winding, the parts being held in relative position by a suitable spring.

When the watch is to be set the sleeve *i* is thrown down by a lever, *q*, or by any other suitable device, thereby causing the conical recess *k* of the friction-sleeve to encompass and embrace the cone *l*, when, by turning the spindle, the hands may be set.

It will, therefore, readily be seen that as the gears *m o* are always connected no damage can result to the gear-teeth, and (what is of great importance) no starting of the hands can take place by or in the act of connecting the gears, as in ordinary stem-winding and setting watches.

I claim—

A stem-winding and setting watch, in which the teeth of the time-changing gear-wheels are constantly in gear, the connection of the same with the stem being made by a sliding friction-clutch sleeve, substantially as shown and described.

Witnesses:

CHAS. V. WOERD.

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S. B. KIDDER.