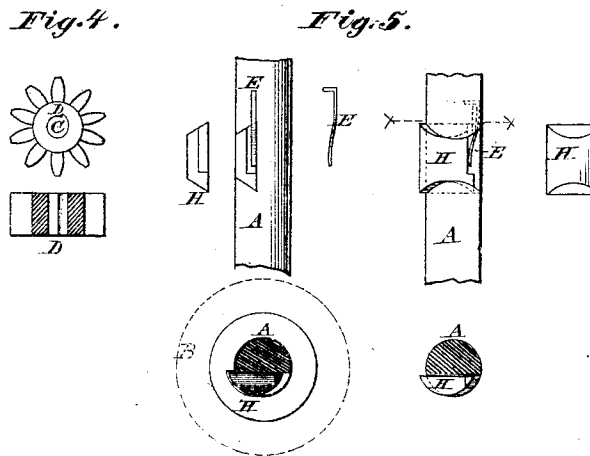
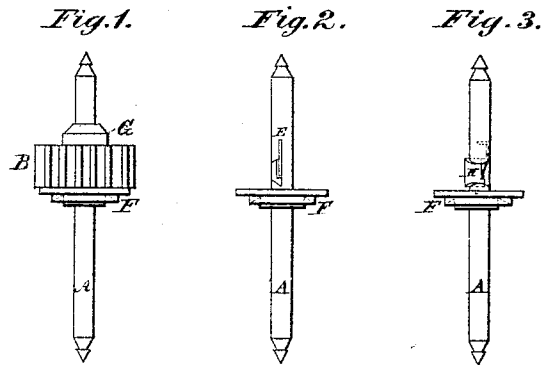


F. PICKERT.

Reversible Pinions for Watches.

No. 138,187.

Patented April 22, 1873.



Witnesses.
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UNITED STATES PATENT OFFICE.

FERDINAND PICKERT, OF CONCORD, NEW HAMPSHIRE.

IMPROVEMENT IN REVERSIBLE PINIONS FOR WATCHES.

Specification forming part of Letters Patent No. **138,187**, dated April 22, 1873; application filed March 24, 1873.

To all whom it may concern:

Be it known that I, FERDINAND PICKERT, of Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Center-Wheel Pinion for Watches, of which the following is a specification:

This invention relates to an improved method of attaching the center-wheel pinion of a watch to its arbor or shaft so that in the event of the breakage of the mainspring the recoil of the latter will cause the pinion to turn in a reverse direction, and independently of its arbor, thus preventing all injury of the operative mechanism; and to this end the invention consists in the provision of a pawl or catch, which is inserted or dovetailed in the arbor of the pinion, and so disposed in relation to a groove or notch in the axial bore of the latter that when the spring-barrel is moving in the proper direction the pinion is locked to its arbor for transmitting motion to the remainder of the operative gearing; and when the recoil of the spring-barrel, owing to the breakage of the spring, takes place, the pinion is disengaged from its retaining-catch, and caused to turn loosely or independently of its arbor, thus preventing all injury of the operative mechanism.

In the drawing, Figure 1 is a side view of the pinion and its arbor. Figs. 2 and 3 are detail views of the arbor, representing the pinion-retaining catch in two different positions. Figs. 4 and 5 are detached views of the pinion, arbor, retaining-catch, &c.

A designates the arbor, which carries the usual center-wheel for transmitting the power derived by the pinion B from the spring-barrel to the train of gearing comprising the operative mechanism of a watch. The pinion B is made with an axial bore, C, in which is formed a vertical groove or recess, D, as shown clearly in Figs. 4 and 5. The axial bore enables the pinion to be readily applied to its arbor, and for locking it to the same, so as to transmit the force of the spring to the operative gearing. I employ a catch-plate or pawl, H, which is inserted into a horizontal seat or recess, preferably of a dovetail shape, formed in the arbor A, and combined with a flat spring, E, or its equivalent,

bearing on its heel portion, which causes the front end of the catch to project from its seat so as to engage with the vertical groove in the bore of the pinion, in order to firmly lock the latter to the arbor. The spring catch or pawl H, which is of a curved shape in order to conform with the surface of the arbor, has its ends widened or of a dovetail form, so as to be inserted into corresponding grooves in the arbor, such an arrangement of parts preventing all lateral displacement of the catch, while the spring E, bearing upon the heel of the latter, together with the pinion itself, retains the catch always in proper relation of the latter. The pinion is held in proper position on the arbor, or prevented from moving in a vertical plane, by a lower fixed collar, F, and an upper friction-nut, G, or analogous device.

It will be apparent that during the proper movement of the spring-barrel the pinion will be locked to its arbor for transmitting motion to the remaining gearing; but in the event of the rupture or breakage of the spring, the recoil or reverse movement of the barrel will be only transmitted to the center-wheel pinion, as the latter is allowed to slip or turn loosely on its arbor, and thus the movement of the remaining gearing is arrested, and all injury and breakage thereof obviated.

The reverse or independent movement of the pinion is due to the fact that the spring or detaining catch is capable of locking the pinion only when the latter is moving in the proper direction, which brings the notch in the axial bore in proper relation to the catch; but when the pinion is moved in a reverse direction by the recoil of the spring, the notch in the pinion will be moved away from the catch in the arbor, throwing the pinion out of gear.

The invention above described, while being simple in construction, easily applied and detached, and effective in operation, does not possess the complex and comparatively ineffective devices heretofore proposed for accomplishing the result sought by me.

I claim—

1. The pinion retaining or locking catch or pawl H, provided with dovetailed or enlarged ends, inserted into a corresponding seat in the

arbor A, in combination with the pinion B, having a notch or groove on its interior periphery, substantially as described, for the object specified.

2. In combination with the arbor and catch, the spring E, bearing upon the heel of the catch, as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of March, 1873.

FERDINAND PICKERT.

Witnesses:

ALBERT H. NORRIS,
JAMES L. NORRIS.