W. P. HUNTOON.

Reversible Pinion for Watches.

No. 200,831. Patented March 5, 1878.

Fig. 1.

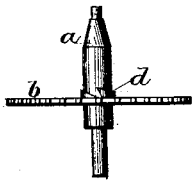


Fig. 2.

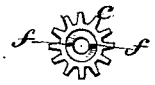
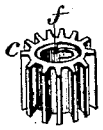


Fig. 3.



Attest.

Frank W. Heers.

R. G. Orwig

Inventor.

William P. Huntoon.

By Thomas G. Orwig.

attorney.

UNITED STATES PATENT OFFICE.

WILLIAM P. HUNTOON, OF STUART, IOWA.

IMPROVEMENT IN REVERSIBLE PINIONS FOR WATCHES.

Specification forming part of Letters Patent No. **200,831**, dated March 5, 1878; application filed December 19, 1877.

To all whom it may concern:

Be it known that I, WILLIAM P. HUNTOON, of Stuart, in the county of Guthrie and State of Iowa, have invented an Improved Watch-Pinion, of which the following is a specification:

My invention relates to that class of devices that are designed to secure a reversible pinion to an arbor and center wheel in such a manner as to prevent it from revolving independently, and also from sliding upwardly on the arbor, while the center wheel is moving forward, and to be automatically released to move independently backward, or reversely, when a spring breaks.

It consists in forming a spiral hook or hooks on the arbor, and a corresponding recess or cavities in the base and bore of the pinion, as hereinafter fully set forth.

Figure 1 of my drawing is a side elevation of a center wheel and arbor, showing a spiral hook formed integral therewith or rigidly attached thereto. Fig. 2 is an end view of a pinion having spiral recesses adapted to receive the spiral hooks on the arbor. Fig. 3 is a perspective view of an inverted pinion having spiral recesses in its base and bore. Together they illustrate the construction and operation of my complete invention.

a represents the arbor; *b*, the center wheel, and *c* the pinion. *d* is a spiral-shaped hook projecting horizontally from the circumference of the arbor, like the angular thread of a male screw. It may be formed integral with the arbor, or formed separately, and then rigidly attached in any suitable way. I prefer having two of these hooks *d* on opposite sides of each other on the arbor *a;* but one hook will suffice to accomplish the results contemplated.

f f represent the cavities formed in the under side and bore of the pinion to receive the hooks *d*. They conform in size and shape with the hooks, and are placed in such relation to the hooks and the center wheel that when the hooks are inserted the bottom of the pinion will rest solidly upon the upper face of the center wheel.

In the practical operation of my invention, when the watch motor-spring is compressed and the mechanism moving forward, the forward motion of my self-adjusting pinion will cause the spiral hooks *d* on the arbor *a* to engage the spiral cavities *f* in the pinion, and to perform the functions of a screw in drawing the pinion down upon the center wheel, and then holding it rigidly in place, as required, during the continuance of the forward motion of the machinery; and in the event of the motor-spring becoming uncoupled or broken, the backward or reverse motion of the pinion resulting therefrom will cause the hooks *d* to disengage, and their spiral form will again perform the functions of a screw in elevating the pinion on the arbor, and detach it from the center wheel, as required, to allow recoil, and to prevent the straining and damaging of the delicate watch mechanism.

I am aware that ratchets and pins, and inclined planes having shoulders, have been combined with watch pinions and arbors in various ways to accomplish the results contemplated by my invention; but I claim my manner of forming spiral-form hooks on the arbor and corresponding spiral-form cavities in the pinion is a new and valuable improvement.

I am also aware that ratchets and clutch-teeth have been used to engage a pinion to the arbor in the forward movement of a center wheel, but not in such a manner as to prevent the vertical movement of the pinion. I am also aware that an eccentric having a beveled edge has been used to hold a pinion to its arbor in such a manner as to prevent vertical movement, and to accomplish the results contemplated by my improvement. But the eccentric has lateral friction, is liable to bind, and too often requires force to unlock it, and consequently will not release the pinion as readily and instantly as my spiral-form hooks, that stand out radially from the arbor, to engage corresponding shoulders in the cavities of the pinion, to alternately draw it down and hold it fast, and to elevate and free it, without any lateral pressure or friction.

I claim as my invention—

In watch mechanism, the combined arbor and center wheel *a b*, having the spiral-form hooks *d*, in combination with the reversible pinion *c*, having the spiral-form cavities *f* in its under side and bore, substantially as and for the purposes shown and described.

WILLIAM P. HUNTOON.

Witnesses:

CHRISTIAN RATHMANN,

MICHAEL RYAN.