

No. 641,888.

Patented Jan. 23, 1900.

W. E. PORTER.
STEM WINDING WATCH.
(Application filed May 29, 1899.)

(No Model.)

Fig. 1.

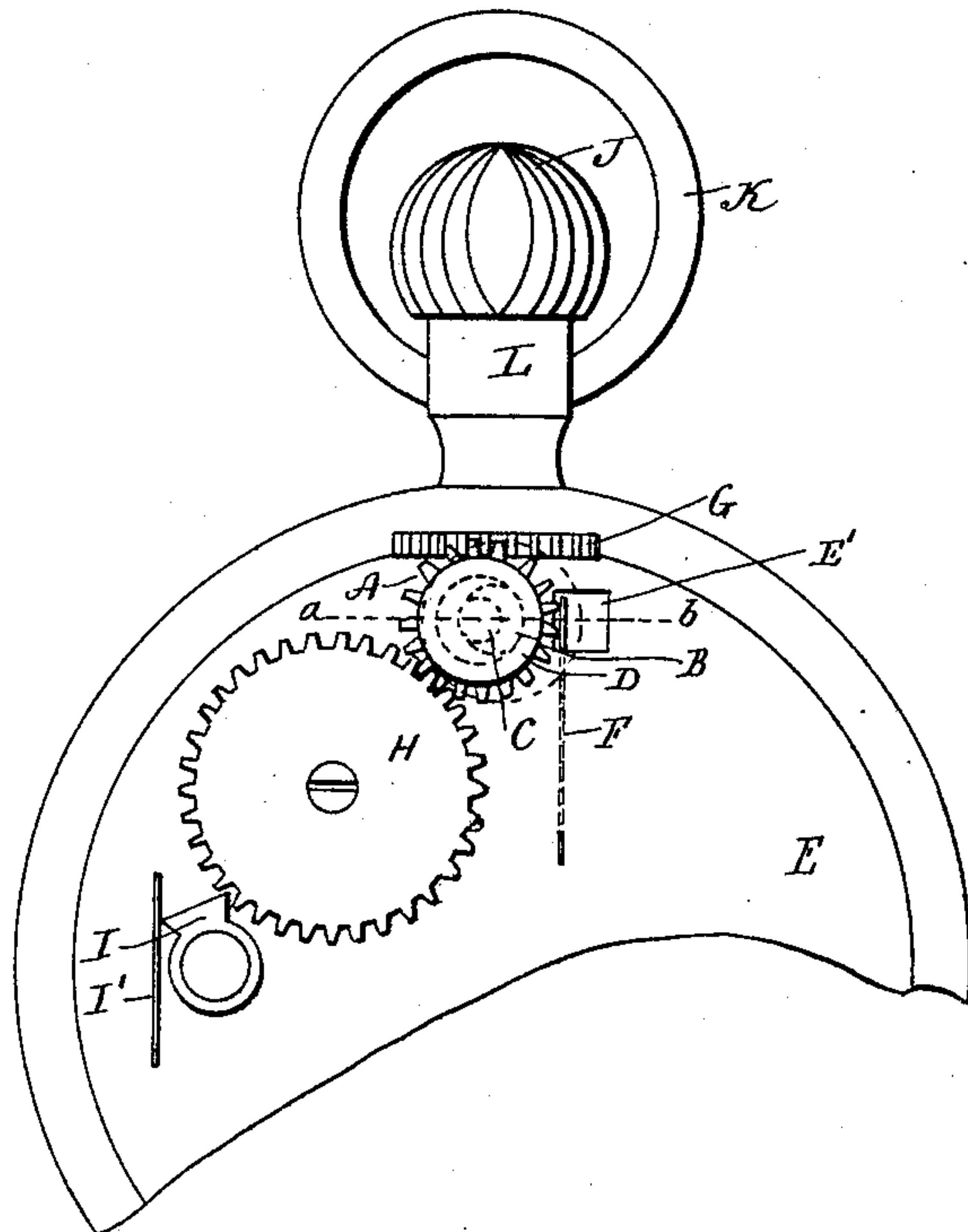


Fig. 2.

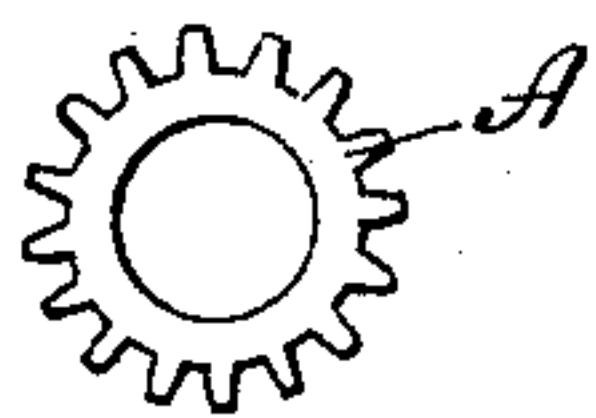


Fig. 3.

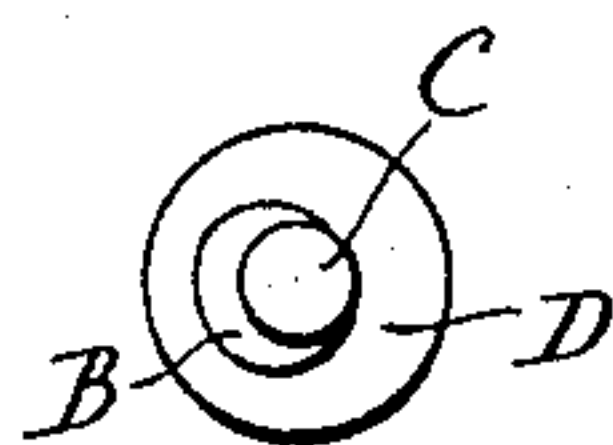
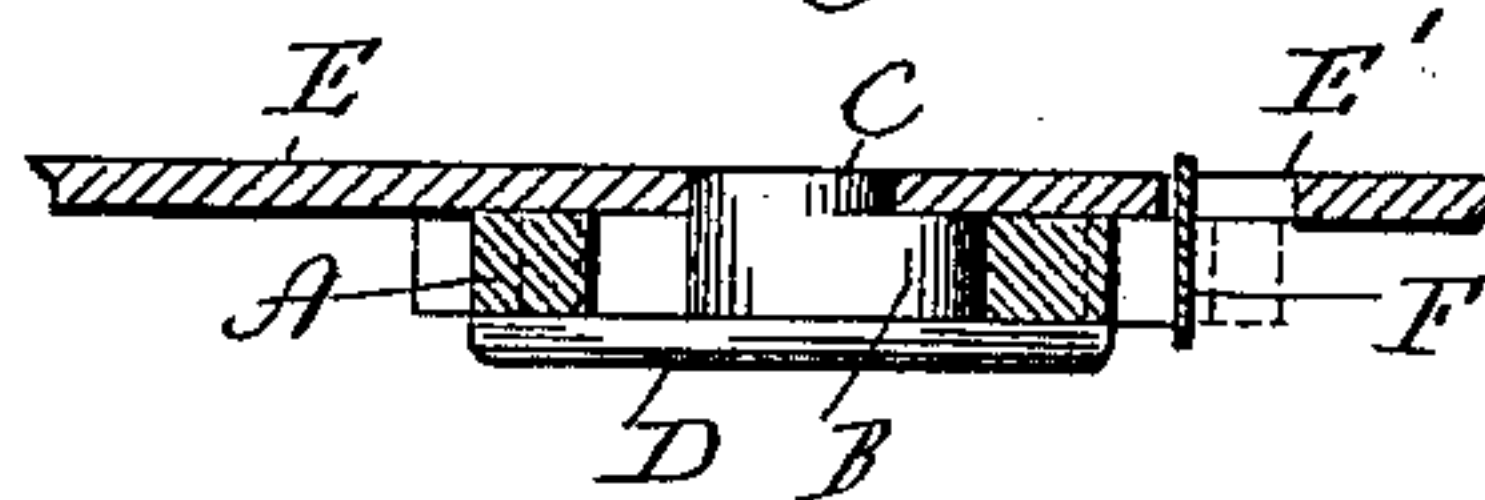


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
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STEM-WINDING WATCH.

SPECIFICATION forming part of Letters Patent No. 641,888, dated January 23, 1900.

Application filed May 29, 1899. Serial No. 718,676. (No model.)

To all whom it may concern:

Be it known that I, WILSON E. PORTER, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Stem-Winding and Stem-Setting Watches; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a broken view in elevation, showing the rear or outer face of the rear movement-plate of a watch containing my invention; Fig. 2, a detached view of the vibratory intermediate winding-wheel; Fig. 3, a detached view, in inside elevation, of the stud with its eccentric; Fig. 4, an enlarged broken sectional view on the line *a b* of Fig. 1, showing the intermediate winding and setting wheel in its normal relation to the eccentric of the stud.

My invention relates to an improvement in stem-winding and stem-setting watches of the general type shown and described in United States Patent No. 590,856, granted under date of September 28, 1897, to the New Haven Clock Company, as my assignee, the object of my present invention being to make simple and durable provision for what is known as "ratcheting back," which is nothing more than turning the crown and winding and setting stem from left to right, which is done in winding the watch as a matter of convenience in manipulating the crown between the fingers.

With these ends in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

Inasmuch as my invention relates to the single feature of ratcheting back, I have chosen to show and describe only that feature with such allied instrumentalities as are necessary for clearness.

In carrying out my invention as herein shown I employ an intermediate winding-wheel A, having a large central opening adapting it to be set over and to rotate upon a fixed eccentric-shaped or cam-shaped bearing B, formed upon a stud C, having a large

flat head D, which engages with the outer face of the said wheel A, as shown in Fig. 4, and holds the same in place, the inner end of the said stud passing through the rear movement-plate E of the watch and being headed down upon the inner face thereof, as clearly shown in the said figure. By comparing Figs. 2 and 3 it will be noticed that the curve of the main or high portion of the cam-shaped bearing B corresponds to the curvature of the central opening of the said intermediate wheel A, which normally has bearing upon the said portion of the bearing B, which therefore is necessarily related to a circle much larger in diameter than the diameter of the stud itself. A spring F, secured to the inner face of the rear movement-plate E, projects outward through an opening E', formed therein, and engages with the said wheel A, which it exerts a constant effort to push from right to left, whereby the said wheel is caused to normally bear upon the high portion of the cam-shaped bearing B aforesaid and to be maintained normally in mesh with the winding-wheel G and the ratchet-wheel H, which latter coacts with a ratchet I, operated by a spring I'. The winding-wheel G is arranged in a plane at a right angle to the planes of the intermediate winding-wheel A and the ratchet-wheel H and is operated in being rotated in one direction or the other by a longitudinally-movable and rotatable winding and setting stem, which is not shown, but which may be understood to be of the general character of the corresponding part in my prior patent referred to at the outset of this description. The said stem is furnished with a crown J, located within a ring K, secured to a pendant L. As to the ratchet-wheel H and ratchet I and as to the winding-wheel G and the means employed for operating it they may be varied according to the dictation of circumstances.

It will be observed by reference to Figs. 1 and 4 that the high portion of the bearing B of the stud C is located to the right of the center of the stud and that a clearance-space is therefore left between the left-hand side of the stud and the adjacent portion of the wall of the central opening of the vibratory intermediate winding-wheel A.

When the crown J is turned from right to left for the purpose of winding the watch, the intermediate winding-wheel is rotated upon the cam-shaped bearing B with the same effect as though the same were circular instead of cam-shaped and occupied the entire portion of its central opening. On the other hand, when the crown is turned from left to right for the purpose of ratcheting back, the winding-wheel G will move the intermediate winding-wheel from left to right against the tension of the spring F away from the high point of the cam-shaped bearing B and toward the low point thereof. When the intermediate winding-wheel has been moved sufficiently from left to right, as described, to clear one of the teeth of the ratchet-wheel H, it will be "snapped back," so to speak, into its normal position by the action of the spring F. This rapid movement of the intermediate wheel from left to right under the influence of the winding-wheel G and its being snapped back into its normal position under the action of the spring F effects, so to speak, the vibration of the intermediate winding-wheel and provides for ratcheting back.

I would have it understood that in carrying out my invention I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes as fairly fall within the spirit and scope of my invention. I am aware, however, that it is old to locate an intermediate winding-wheel over a stud cut away to permit the wheel to vibrate in ratcheting back and do not claim such a construction broadly.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a stem-winding watch, the combina-

tion with the winding-wheel and the ratchet-wheel thereof, of a vibratory intermediate winding-wheel normally engaging with both of the said wheels, and having a relatively-large central opening, a stud passing through the said intermediate winding-wheel and provided at its outer end with a large head for holding the same in place, and a cam-shaped bearing located upon the said stud, larger than the same in diameter and occupying the large central opening of the intermediate winding-wheel affording a large bearing therefor during the winding rotation thereof, and permitting the same to vibrate in "ratcheting back."

2. In a stem-winding watch, the combination with the ratchet-wheel thereof, of a winding-wheel located at a right angle to the plane of the said wheel, and rotated in one direction or the other by the stem of the watch, a vibratory intermediate winding-wheel located in the plane of the said ratchet-wheel, normally engaging with both of the said wheels, and having a relatively-large central opening, a stud passing through the intermediate winding-wheel, and provided at its outer end with a large head which holds the said wheel in place by engaging with its edge, and a cam-shaped bearing located upon the said stud, and occupying the large central opening of the intermediate winding-wheel, affording a large bearing therefor during the winding rotation thereof, and permitting the same to vibrate in "ratcheting back."

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILSON E. PORTER.

Witnesses:

GEORGE D. SEYMOUR,
LILLIAN D. KELSEY.