No. 857,667. PATENTED JUNE 25, 1907.

W. E. PORTER.

WATCH.

APPLICATION FILED JUNE 8, 1906.

Fig. 1

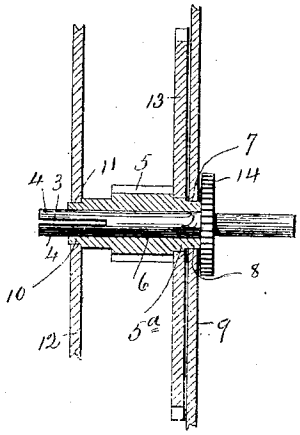

Fig. 2

Fig. 3

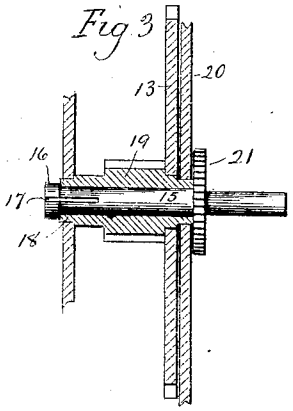

Fig. 4

Witnesses.
J. H. Shumway
Clara L. Reed

Wilson E. Porter.
Inventor.
By Atty Seymour & Earle

UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO NEW HAVEN CLOCK CO., OF NEW HAVEN, CONNECTICUT, A CORPORATION.

WATCH.

No. 857,667. Specification of Letters Patent. Patented June 25, 1907.

Application filed June 8, 1906. Serial No. 320,707.

To all whom it may concern:

Be it known that I, WILSON E. PORTER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in 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 an enlarged broken sectional view of a watch-movement constructed in accordance with my invention. Fig. 2 a detached view of the center-shaft thereof. Fig. 3 a view corresponding to Fig. 1, showing a modified form of my improvement. Fig. 4 a detached view of the center-shaft thereof.

My invention relates to an improvement in watches, the object being to provide them with improved "center-frictions" constructed with particular reference to economy of space, accuracy and efficiency of performance, and superior convenience.

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

In carrying out my invention as herein shown, I employ a center-shaft 2 having its rear end formed with a longitudinal slit 3 forming, as it were, two spring-fingers 4 which are very slightly spread apart so that when sprung together they will secure a friction-hold upon a center-pinion 5 having a longitudinal bore 6 through which the shaft is introduced from front to rear. The forward end of this pinion has a front bearing 7 entering a bearing-hole 8 in the front movement-plate 9, while its rear end has a rear bearing 10 entering a bearing-hole 11 in the rear movement-plate 12. The center-wheel 13 lies directly back of the front movement-plate 9 and is staked upon a shoulder 5^a formed on the pinion 5 contiguous to its front bearing 7 aforesaid.

The cannon-pinion 14 is driven in the usual manner upon the projecting front end of the shaft 2 and bears against the projecting front end of the front bearing 7. It will be particularly observed that in my improved construction the center-pinion 5 bears directly in the front and rear movement-plates rather than the center-shaft which has a long bearing in the center-pinion but no direct bearing in the movement-plates. The center-pinion 5 with the center-wheel 13 in place upon it is first mounted in the movement-plates. Then the center-shaft 2 with the canon-pinion rigidly mounted upon it is forced from front to rear through the bore 6 of the center-pinion 5. Now if it is desired at any time to remove the center-shaft, that can be done by simply pulling it out without taking the watch apart which is ordinarily necessary. To thus remove the center-shaft without pulling the watch apart is oftentimes a matter of great convenience and effects a great saving of time.

By my improved construction I secure an economy of space as I am not obliged to provide the room required for the collet and spring ordinarily employed to secure a friction coupling between the center-shaft and the center-pinion, this being the ordinary construction of cheap watches for which my invention is particularly designed. I also secure superior accuracy of performance, and therefore efficiency because the bearings are formed directly on the ends of the center-pinion and are relatively near together and do not depend upon the position of the shaft in the pinion. As the pinion itself bears in the plates rather than the shaft, the running of the center-wheel is made very true.

In the modified construction shown by Figs. 3 and 4 of the drawings, the rear end of the center-shaft 15 is formed with a head 16 and a slot 17. This construction is in no wise different from the construction already described except in the single particular that the rear end of the center-shaft is formed with the head 16 which must be slightly smaller in diameter than the rear bearing 18 of the center-pinion 19 so that if desired the rear movement-plate 20 may be slipped off over the head 16. In this modified construction the center-shaft must be introduced from rear to front and the cannon-pinion 21 staked onto it after it has been positioned rather than before as in the construction of Figs. 1 and 2. This modified construction has the advantages claimed for the con-

struction above referred to, particularly in that the bearings are transferred from the shaft itself to the pinion.

My improved construction enables a watch to be made very thin, inasmuch as economy in the length of the center-shaft is secured by discarding the collet and spring ordinarily employed for frictionally coupling the center-shaft and the pinion.

I claim:—

1. In a watch, the combination with the front and rear movement-plates thereof, of a hollow center-pinion having its ends bearing directly in the said plates and having a central longitudinal passage, a center-wheel fixed upon the said pinion, a center-shaft passing through the said pinion and at its rear end terminating in two spring fingers, and a cannon-pinion driven upon the projecting forward end of the said shaft, the said spring-fingers frictionally coupling the center-shaft with the center pinion by which the shaft is rotated.

2. In a watch, the combination with the front and rear movement-plates thereof, of a hollow center-pinion having its ends bearing directly in the said plates and formed with a central longitudinal passage, a center-wheel fixed upon the said pinion, a center-shaft passing from front to rear through the said center-pinion and at its rear end terminating in two spring-fingers enlarged at their ends to form a head not larger in diameter than the said rear-bearing of the said center pinion, and a cannon-pinion driven upon the projecting forward end of the said shaft, the said fingers frictionally coupling the center-shaft with the center-pinion by which the shaft is rotated and permitting it to be removed from the hollow center pinion by drawing it from rear to front.

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

WILSON E. PORTER.

Witnesses:
CLARA L. WEED,
GEORGE D. SEYMOUR.