(No Model.)

N. A. TERRELL.

CENTER ARBOR FOR WATCHES.

No. 478,528. Patented July 5, 1892.

Fig. 1.

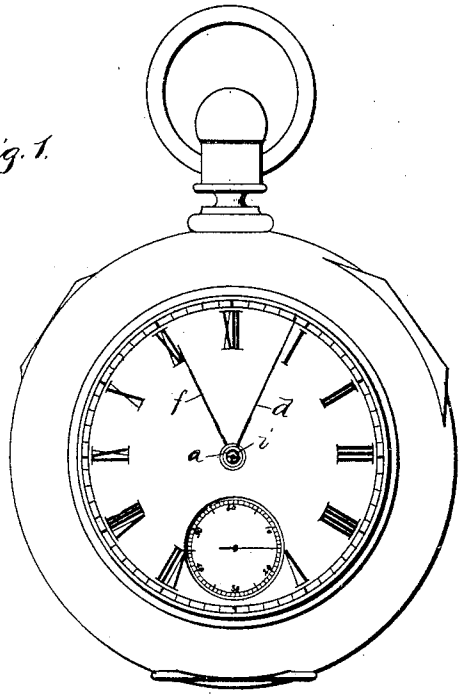


Fig. 2.

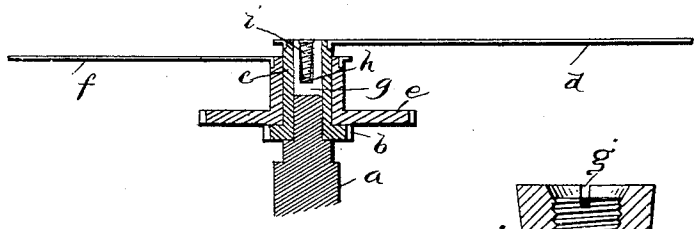
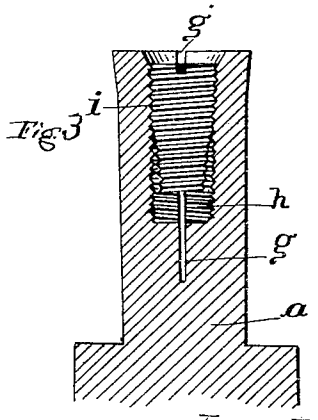


Fig. 3



Witnesses:
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UNITED STATES PATENT OFFICE.

NATHANIEL A. TERRELL, OF CHARLOTTESVILLE, VIRGINIA, ASSIGNOR TO HIMSELF, T. S. KELLER, AND JOHN ARUNDALE, OF SAME PLACE.

CENTER ARBOR FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 478,528, dated July 5, 1892.

Application filed September 10, 1890. Serial No. 364,560. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL A. TERRELL, of Charlottesville, in the county of Albemarle and State of Virginia, have invented certain new and useful Improvements in Watches; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in center arbors or shafts for watches.

The object of the invention is to provide improved means for so binding or locking together the cannon-pinion and center arbor or shaft as to prevent all lost or independent movement between the same, and also so that all wear can be taken up and the frictional contact constantly and permanently maintained, thereby greatly increasing the time-keeping qualities of the watch.

These objects are accomplished by and this invention consists in certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a face view of a stem-winding watch provided with the present improvement. Fig. 2 is a sectional view showing the center arbor, cannon-pinion, hour-wheel, and hands. Fig. 3 is an enlarged longitudinal section of the center arbor, taken in a plane at right angles to the plane of the section of Fig. 2.

In the drawings the reference-letter *a* indicates the center arbor or shaft. *b* is the cannon-pinion mounted on said arbor *a* and having the upwardly-extending hub *c*, to the upper end of which the minute-hand *d* is secured, as usual. *e* is the hour-hand wheel mounted on the cannon-pinion hub and having the hub to which the hour-hand *f* is secured. The operating and connnecting means for these parts are not herein shown, as they form no part of this present invention, which lies in the construction to frictionally maintain the cannon-pinion and center arbor located together.

The cannon-pinion bore and hub are preferably cylindrical and not perforated, and in carrying out my invention the outer end of the center arbor, which can be and preferably is made of soft steel, is split longitudinally and centrally, as shown by *g*, a suitable portion of its length, and the outer end of the arbor is also longitudinally and centrally tapped to form the central internal threaded opening *h*, having its outer end slightly countersunk. A tapered screw *i* is located in the said tapped opening. This screw preferably has no head and is threaded throughout its length and is so proportioned in relation to the tapped opening that when screwed down into the opening it will expand the outer end of the arbor, so that the cannon-pinion fits the same with the desired degree of tension, while the outer end of the screw is located in the countersink and does not project beyond the end of the arbor. The split *g* extends to a point below the threaded bore or opening *h* to give greater flexibility to the arms formed by the split, so that they can spread out to such an angle as to fit and engage an extended surface of the screw.

When by wear or otherwise the tension of the arbor on the cannon-pinion relaxes it can be maintained constant by merely removing the crystal or glass of the watch and giving the screw a partial turn in the right direction, which will again expand the arbor.

Great advantages are attained and many defects are overcome by this invention.

Heretofore various means have been devised for preventing the lost motion between cannon-pinion and arbor in stem-winding watches; but after continued practical use they have proved unsatisfactory, rendering the most expensive and very finest stem-winding watches unreliable in time. This defect has been widely recognized. As before stated, various means to obviate these disadvantages have been employed, such as forming a spring-tongue in the cannon-pinion hub to fit a groove in the central arbor or forming a slight depression in the said hub to engage the arbor by a punch, or by forming the arbor of hardened spring-steel and splitting it longitudinally to form two laterally-springing ends which bear against the interior of the cannon-pinion hub. All of these devices have

been applied to practical use, and it is obvious that the metal in time soon gradually weakens and wears and loses its spring, so as to permit the cannon-pinion to slip on the arbor, besides they are quite expensive.

This invention clearly and fully obviates this disadvantage and can be quickly and cheaply applied to watches and does not require parts of hardened spring-steel.

What I claim is—

1. In a timepiece, the combination of the cannon-pinion, the center arbor having its outer end split, tapped longitudinally, and countersunk, forming the threaded opening, and the tapered headless continuously-threaded screw fitted in said opening and so proportioned in relation to said opening as to expand the arbor when the screw is forced in.

2. The combination, in a cannon-pinion tension for watches, of the central arbor having the internally-screw-threaded bore and longitudinally split to a point below said bore and countersunk, and a tapered screw so proportioned to fit the bore of the arbor when expanded, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

NATHANIEL A. TERRELL.

Witnesses:
R. P. VALENTINE,
JOHN M. WHITE.