(No Model.)

D. D. PALMER.

CANNON PINION FOR WATCHES.

No. 395,754. Patented Jan. 8, 1889.

Fig: 1.

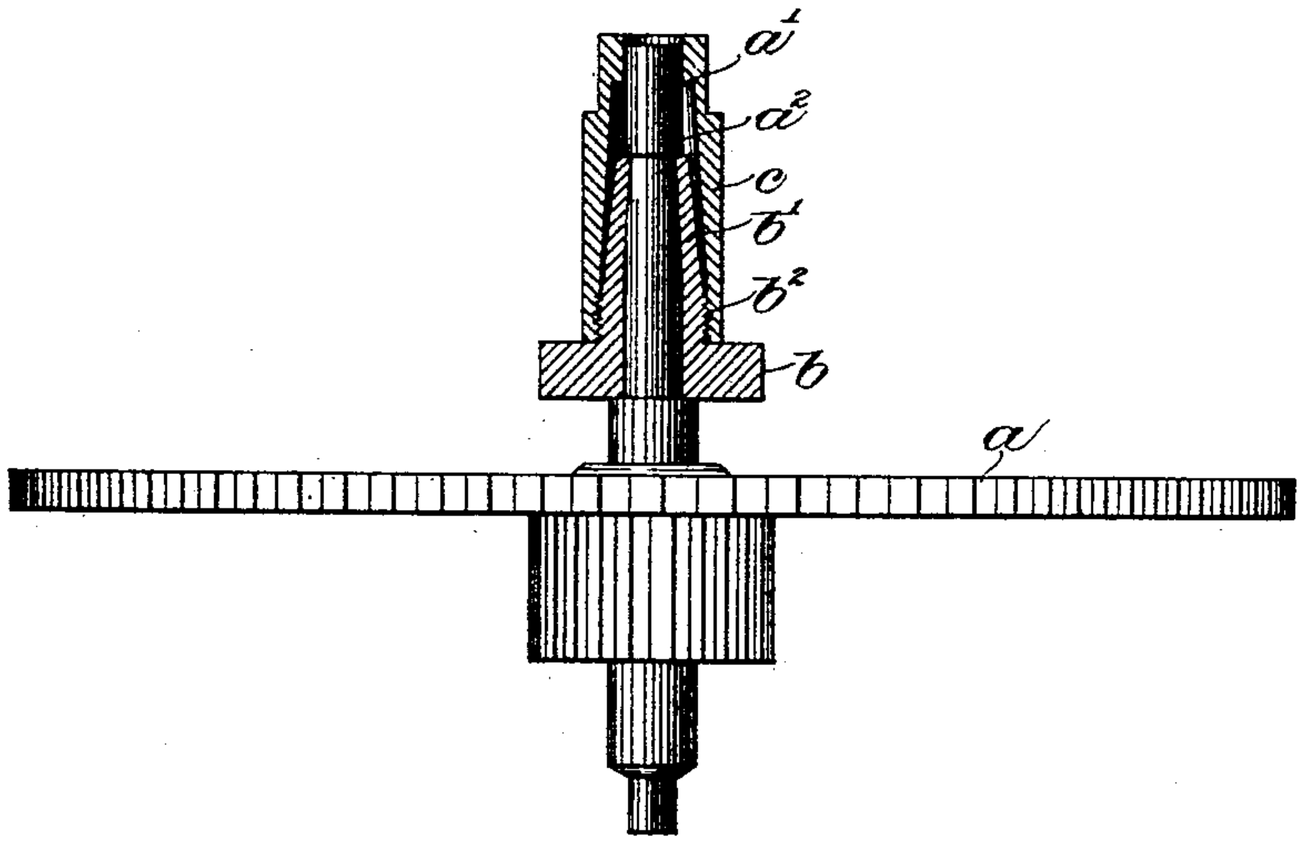


Fig: 2.

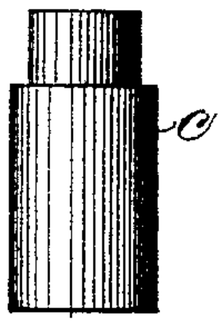
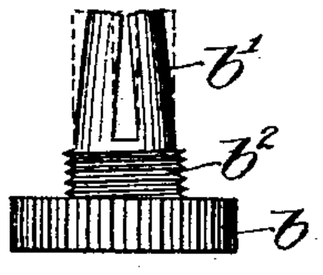


Fig: 3.



Witnesses.
Frederick L. Emery.
Howard F. Eaton.

Inventor.
Delphas D. Palmer,
by Emery & Gregory Attys.

UNITED STATES PATENT OFFICE.

DOLPHAS D. PALMER, OF WALTHAM, MASSACHUSETTS.

CANNON-PINION FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 395,754, dated January 8, 1889.

Application filed June 2, 1888. Serial No. 275,815. (No model.)

To all whom it may concern:

Be it known that I, DOLPHAS D. PALMER, of Waltham, county of Middlesex, State of Massachusetts, have invented an Improvement in Cannon-Pinions for Watches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the construction of cannon-pinions for watches.

In accordance with this invention two or more spring-like arms are formed integral with the pinion which engages a shoulder formed upon the arbor of the center wheel, and a tubular internally-screw-threaded cap is placed upon the arbor inclosing the spring-armed portion of the cannon-pinion, said cap serving as the staff of the cannon.

Figure 1 shows in vertical section a cannon-pinion constructed in accordance with this invention, the center wheel and arbor being shown in elevation; Fig. 2, a side elevation of the cap which forms the staff of the pinion; and Fig. 3, a side elevation of the pinion, the cap or staff being removed to show the spring-arms.

The center wheel, a, having the arbor a', is as usual. The arbor a' is cut away, reduced, or tapered, to present an annular shoulder, a^2. The cannon-pinion b and its staff c are made of independent pieces. The pinion b has formed integral with it a screw-threaded hub, b^2, and two or more spring-acting arms, b', which, when the pinion b is placed upon the arbor a' in proper position, the said spring-arms b' enter the reduced or tapered portion of the arbor beneath the shoulder a^2. The staff c, which is made tubular, is internally screw-threaded at one end to engage the screw-threaded hub b^2, and when said staff is in proper position upon the screw-threaded hub b^2 the spring-acting arms b' are inclosed within said staff. The staff and pinion are prevented from working off when being rotated (by the hand-setting gear, not shown) by the said shoulder a^2. One end of the staff c and the opposite end of the pinion b act as a guide to hold it in place and cause it to run true in rotating.

Before tempering the spring-arms b' are closed in, which causes them to bind on the arbor a' under the shoulder a^2, which allows the holes in the staff c and pinion b to be drilled several degrees larger than the arbor a'. The friction of the spring-arms b' causes the pinion to move with the arbor a' when the watch is running and allows it to move freely in setting the hands. The shoulder a^2 being beveled allows of the cannon-pinion being removed at will.

By this construction the cannon-pinion will frictionally engage the arbor a', yet may be turned independently of the arbor when desired, and the pinion b is not slitted, as is now common; also, by this method of construction the parts are made entirely interchangeable, thereby dispensing with the necessity of fitting, as in all other forms known to me each pinion has to be fitted to its own arbor. This feature is a very important one, as the fitting of the pinion to the arbor costs more than the manufacture of the pinion.

I claim—

1. A cannon-pinion for watches, consisting of the pinion b, having the spring-acting arms b' and the independent tubular staff c, substantially as described.

2. A cannon-pinion for watches, consisting of the non-slitted pinion b, having the screw-threaded hub b^2 and spring-acting arms b', and the independent tubular staff c, substantially as described.

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

DOLPHAS D. PALMER.

Witnesses:
BERNICE J. NOYES,
F. L. EMERY.