

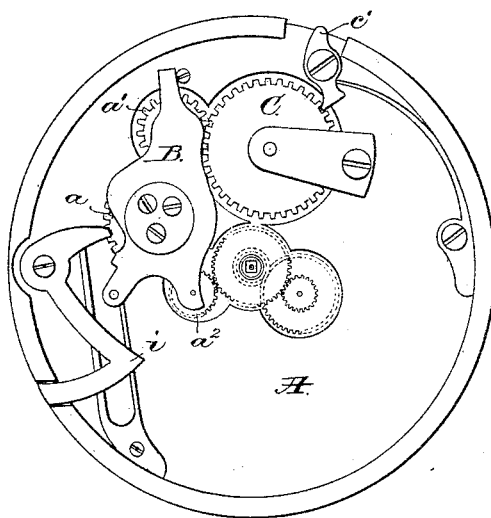
(No Model.)

G. C. MOOR.  
CANNON PINION FOR WATCHES.

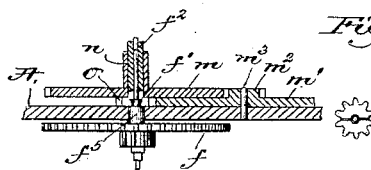
No. 345,800.

Patented July 20, 1886.

*Fig. 1.*

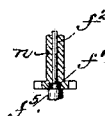


*Fig. 2.*

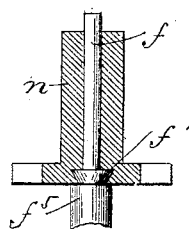


*Fig. 3.*

*Fig. 4.*



*Fig. 5.*



Witnesses

John F. C. Frinter  
and L. Emery.

Inventor

George C. Moor  
by Crosby & Ingham attys.

# UNITED STATES PATENT OFFICE.

GEORGE C. MOOR, OF WALTHAM, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN STARK, JR., OF SAME PLACE.

## CANNON-PINION FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 345,800, dated July 20, 1886.

Application filed January 18, 1886. Serial No. 188,964. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. MOOR, of Waltham, county of Middlesex, and State of Massachusetts, have invented an Improvement in Friction Devices for Watch-Movements, 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 provide a watch-movement with an improved friction device, whereby the hands of the watch may be moved irrespective of the movement of the train, and yet firmly retain their relative position to be moved by the train.

In accordance with this invention the usual cannon-pinion mounted upon the arbor of the center-wheel is split or slitted diametrically, said slit extending vertically a short distance into the staff thereof, and the arbor of the center-wheel is provided with a hub, over or upon which the slitted cannon-pinion is sprung, thereby bearing firmly upon the hub.

The invention consists in the combination of the center-wheel and its arbor, having a hub thereon, with a cannon-pinion slitted diametrically and for a short distance vertically, to thereby permit the said cannon-pinion to be sprung over upon the hub of the center-wheel, all as will be hereinafter more fully described.

Figure 1 shows in plan view a portion of a watch-train constructed in accordance with this invention; Fig. 2, an enlarged transverse section of the cannon-pinion, the minute and hour wheels co-operating therewith, the center-wheel being shown in elevation; Fig. 3, an under side view of the cannon-pinion alone; Fig. 4, a vertical section of the cannon-pinion, and Fig. 5 an enlarged view of Fig. 4.

The bevel-gear *a*, shifting-lever *i*, main-spring-gear *C*, its spring-controlled pawl *c'*, intermediate *a'*, yoke *B*, and toothed gear *a''* are all as usual, forming component parts of a setting mechanism of a watch-movement.

The center-wheel *f*, (see Fig. 2,) having an arbor, *f''*, and bottom pivot, *f'''*, is of usual construction, and is provided with a hub or boss, *f'*, at the portion of the arbor contiguous to the plate *A* and just above the bottom pivot, *f'''*,

that portion of the said hub or boss *f'* next the bottom pivot, *f'''*, being somewhat reduced in diameter as compared with its opposite end.

The leaves *o* of the usual cannon-pinion are split diametrically, said slit also extending vertically for a short distance into the staff *n*, to thereby permit the two portions of the pinion thus split to yield or separate from each other, in order that the same may be slipped upon the arbor *f''* of the center-wheel and sprung over the hub or boss *f'*, the said hub or boss *f'* being of sufficient diameter to occupy a space cut in the lower end of the cannon-pinion, to thereby cause the said cannon-pinion to turn frictionally thereon with considerable resistance.

The hour-wheel *m* is mounted upon the cannon-pinion in usual manner, and the minute-wheel *m'*, having a toothed hub, *m''*, and meshing, respectively, with the cannon-pinion and hour-wheel, is of usual construction and turns on a pivot, *m'''*.

The cannon-pinion, slitted as described, may be made to turn upon the boss *f'*, formed on the arbor of the center-wheel, as firmly as desired, its tension being regulated by the diameter of the boss *f'*. By constructing the hub or boss *f'* of conical shape or tapering, as described, the cannon-pinion, once sprung over, cannot readily be thrown off, unless moved positively.

By the friction devices herein described the cannon-pinion and its co-operating parts may be moved freely, yet resistingly, upon the arbor of the center-wheel, irrespective of the movement of the train, the resistance being amply sufficient to cause the said cannon-pinion to be moved by the train.

I am aware that a cannon-pinion has been slitted at its upper end, and the interior of the bore of the pinion has been provided with a projection which enters a groove around the staff of the center-wheel; but such construction I do not herein claim, as I deem it impractical because of the expense attending its manufacture, and owing to the fact that as the hand is applied to this portion of the cannon-pinion it is difficult to construct the same so that the hand may be readily applied to the

slitted end, which naturally yields without interfering with the frictional result desired.

I claim—

- 5 1. In a watch-movement, the combination of the center-wheel, its arbor, and the hub or boss  $f'$  thereon, contiguous to the center-wheel, with a cannon-pinion slitted diametrically at its lower end contiguous to the center-wheel, and recessed, as described, and  
10 placed upon the arbor of the said center-wheel, the slitted and recessed portion of the said cannon-pinion being sprung over and upon the said hub or boss  $f'$ , all substantially as described.
- 15 2. In a watch-movement, the combination of the center-wheel, its arbor, and the conical

or tapering hub  $f'$  thereon, contiguous to the center-wheel, with a cannon-pinion slitted diametrically at its lower end contiguous to the center-wheel, and recessed, as described, and  
20 placed upon the arbor of the said center-wheel, the slitted and recessed portion of the said cannon-pinion being sprung over and upon the said hub or boss  $f'$ , all substantially as described.

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

GEORGE C. MOOR.

Witnesses:

BRADSHAW S. TOLMAN,  
ROBERT M. STARK.