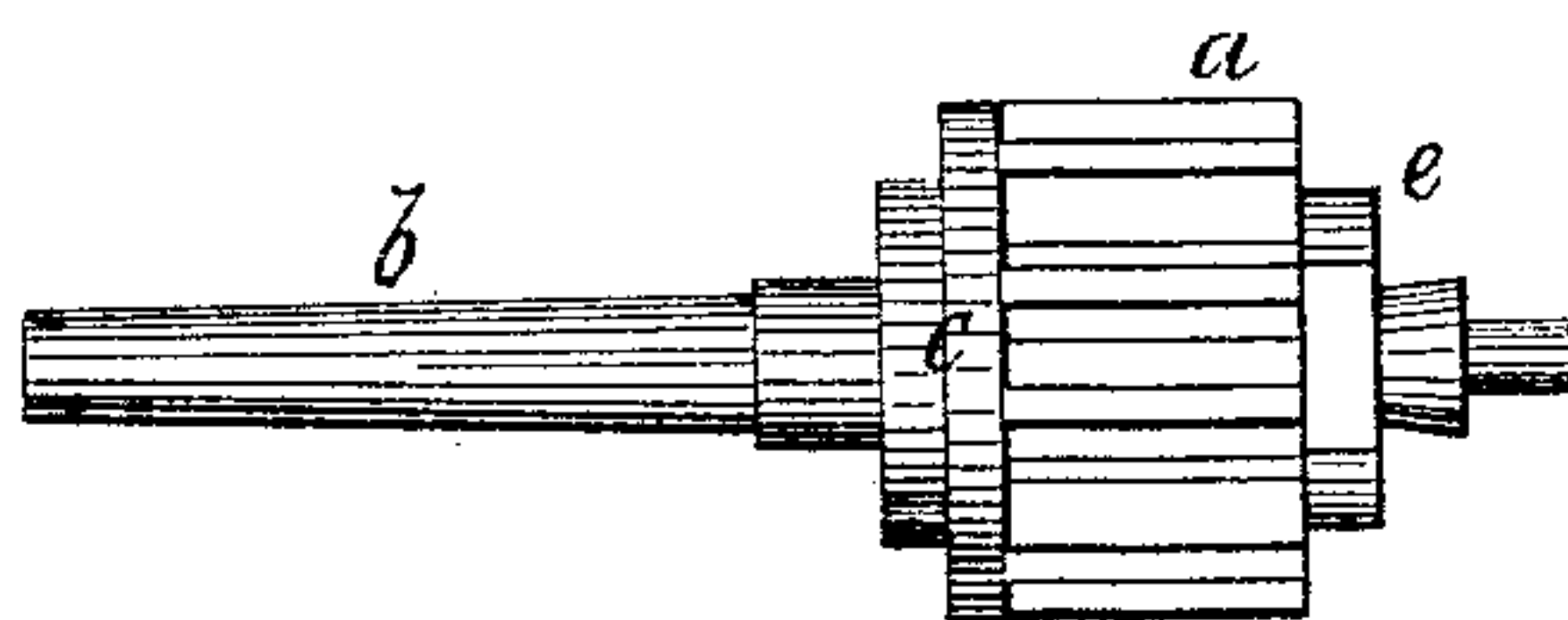


C. S. MOSELEY & A. BITNER.  
Safety-Pinion for Watches and Clocks.

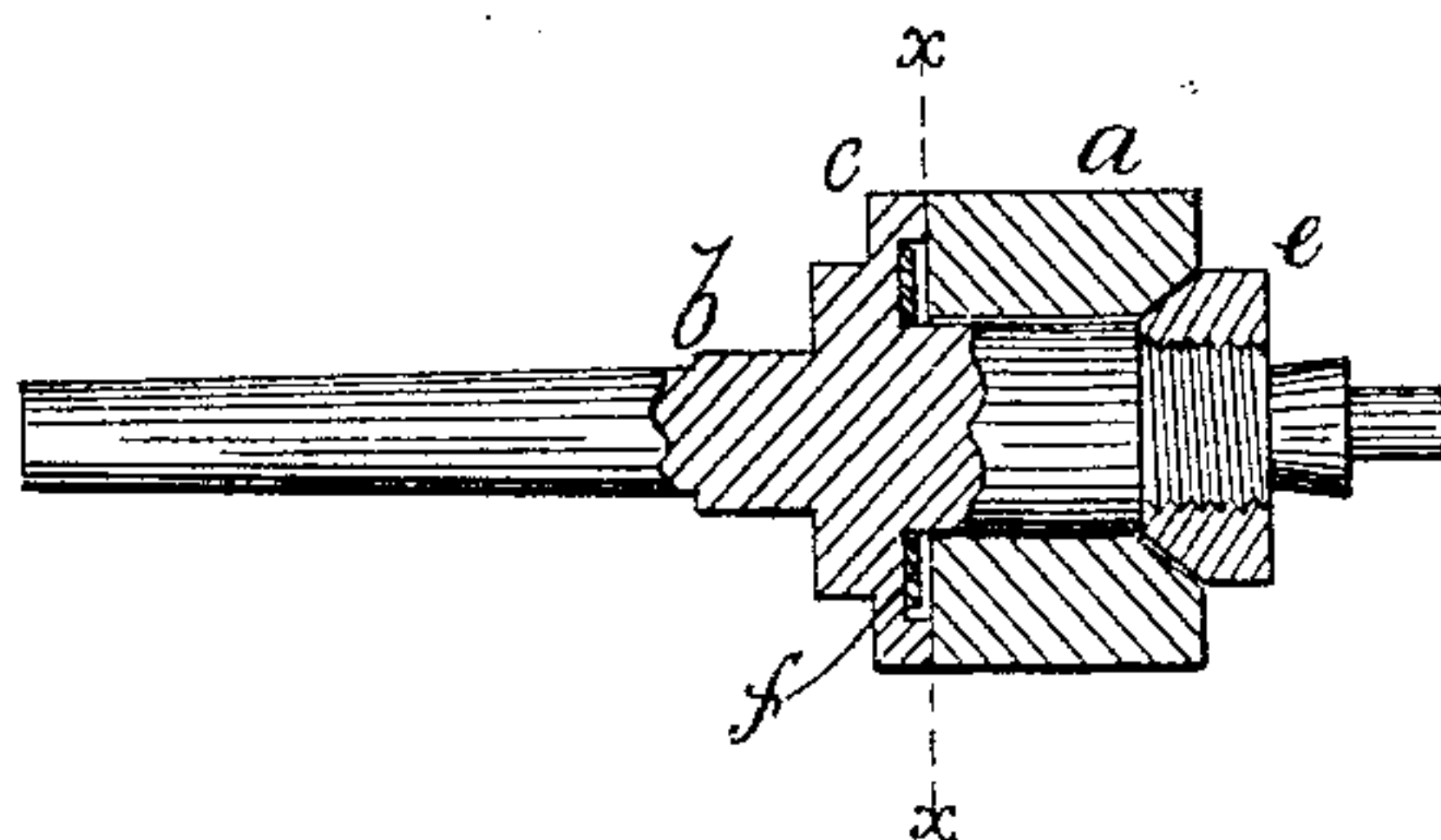
No. 218,556.

Patented Aug. 12, 1879.

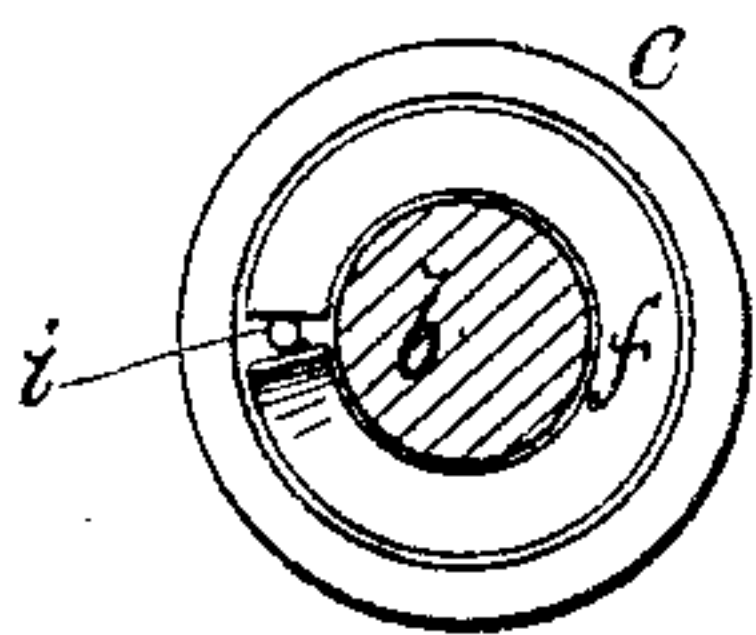
*Fig. 1.*



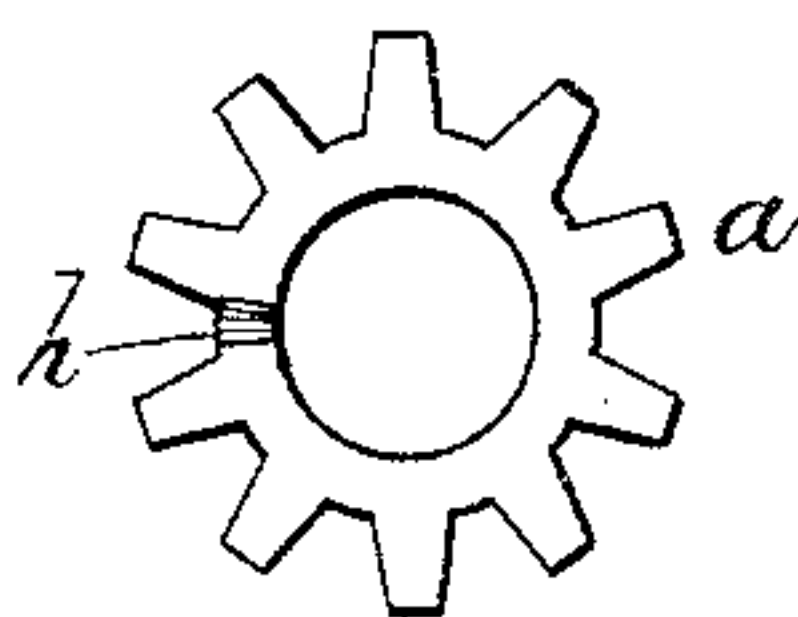
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

CHARLES S. MOSELEY AND ABRAHAM BITNER, OF LANCASTER,  
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## IMPROVEMENT IN SAFETY-PINIONS FOR WATCHES AND CLOCKS.

Specification forming part of Letters Patent No. **218,556**, dated August 12, 1879; application filed May 9, 1879.

*To all whom it may concern:*

Be it known that we, CHARLES S. MOSELEY and ABRAHAM BITNER, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and Improved Safety-Pinion for Watches and Clocks, of which the following is a specification.

The object of our invention is to prevent injury to a watch or clock train by the breaking of the mainspring.

Various devices have been proposed heretofore for this purpose, wherein the center-pinion has been connected to its arbor, so as to permit independent backward movement of the pinion; but they have either proved impracticable when made of the small size required for a watch, or else when a screw is used to slide the pinion an injurious pressure is caused on the watch-plates.

Our invention relates to a safety-pinion, that is caused to move its arbor in one direction by a spring-catch of peculiar construction, and permits free movement of the pinion in the opposite direction without effect upon the arbor.

Figure 1 is a side view of a pinion constructed in accordance with our invention. Fig. 2 is a sectional view taken on line of the arbor. Fig. 3 is a cross-section on line *xx* of Fig. 2. Fig. 4 is a side view of the pinion, detached from its arbor.

These figures are in enlarged size, and similar letters of reference indicate corresponding parts.

The invention may be applied in connection with any wheel and arbor in the train of a watch or clock.

The pinion (shown at *a*) is upon an arbor, *b*. The arbor *b* is formed with a flange or collar, *c*, and with a boss, upon which the pinion *a* fits snugly, but so as to turn freely, with one end of the pinion taking against flange *c*.

Upon the arbor *b*, at the outer side of the pinion, is a nut, *e*, that is formed with a conical end, that enters a correspondingly-shaped recess in the pinion, to prevent end movement of the latter on the arbor, and, to prevent binding, the arbor is formed with a shoulder, against which the nut impinges.

The pinion may be held in place by other devices in place of nut *e*—as for instance, by a cross-pin—and we do not limit ourselves in that particular.

In the side of the flange *c* next to the pinion there is formed an annular recess to receive a flat spring, *f*, that fits closely in the recess and extends to a complete circle, or, more or less short of it, as desired.

One end of spring *f* is bent outward, or in spiral form, and the other end takes against a nick or projection, *i*, in the bottom of the recess to prevent the spring from turning.

In the end of pinion *a* a nick or projection, *h*, is made, with its edge in a direction for being caught by the raised end of the spring *f*.

It will now be understood that the pinion, when turned in one direction or forward, carries the arbor with it, while if it be turned backward, as is the case when the mainspring of the watch breaks, the pinion would pass freely over the spring-catch without effect on the arbor.

The spring is supported by the sides of the recess, whereby it can stand the strain without breaking, which feature is important in connection with the minute springs required for a watch. The spring is readily and quickly applied and adjusts itself to the proper position.

If desired, the spring may be held fast by a screw-pin or rivet; but we prefer the construction shown, as it is less expensive.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The flat spring *f*, fitted in an annular recess of arbor-flange, *c*, bent spirally at one end and taking with the other end against a projection in the bottom of said recess, in combination with the loose pinion *a*, having an end projection, *h*, adapted to be caught by a raised end on said spring, as shown and described.

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Witnesses:

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