

M. C. SMITH.

SAFETY-PINIONS FOR WATCHES.

No. 179,074.

Patented June 20, 1876.

Fig. 1.

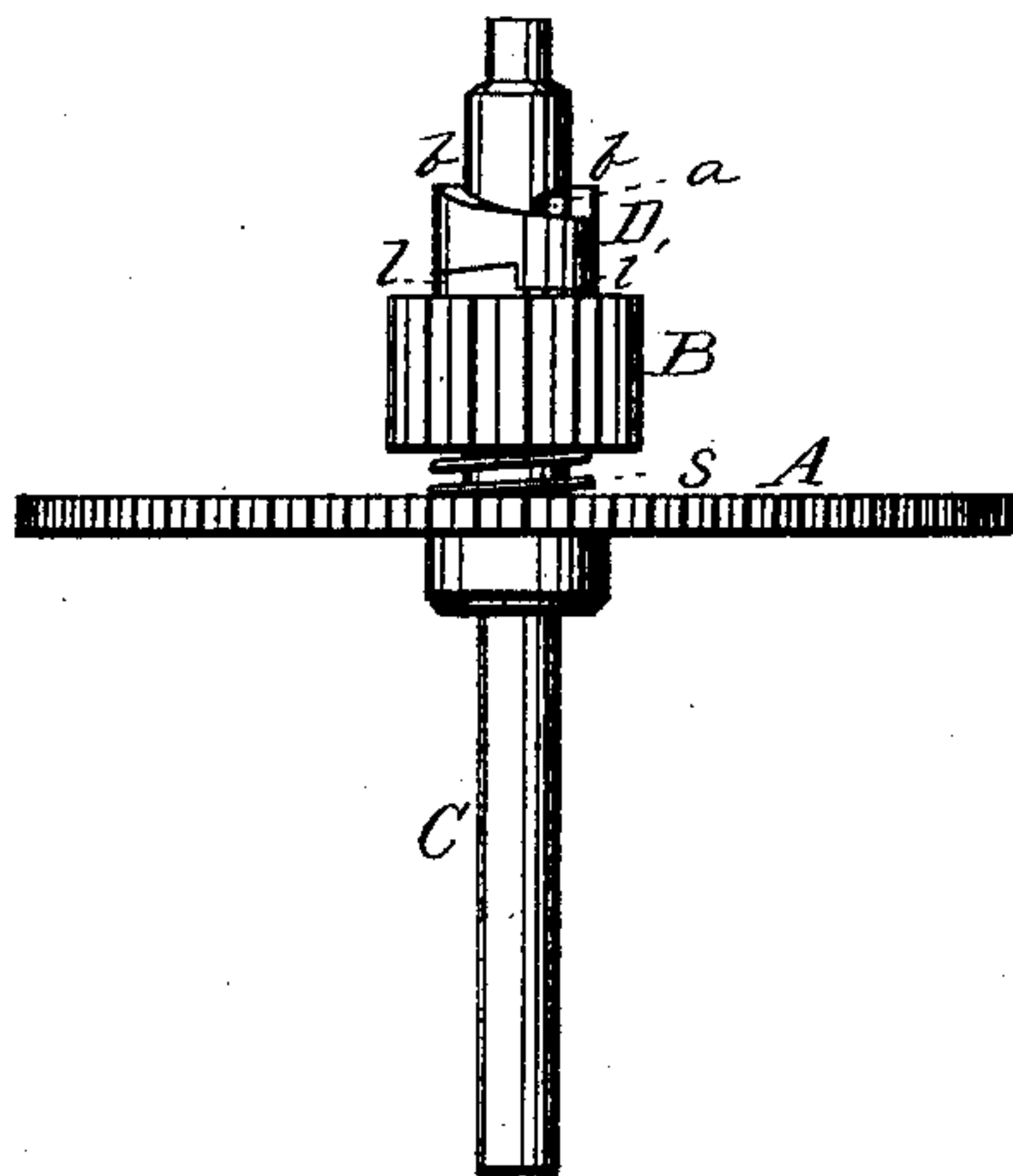


Fig. 2.

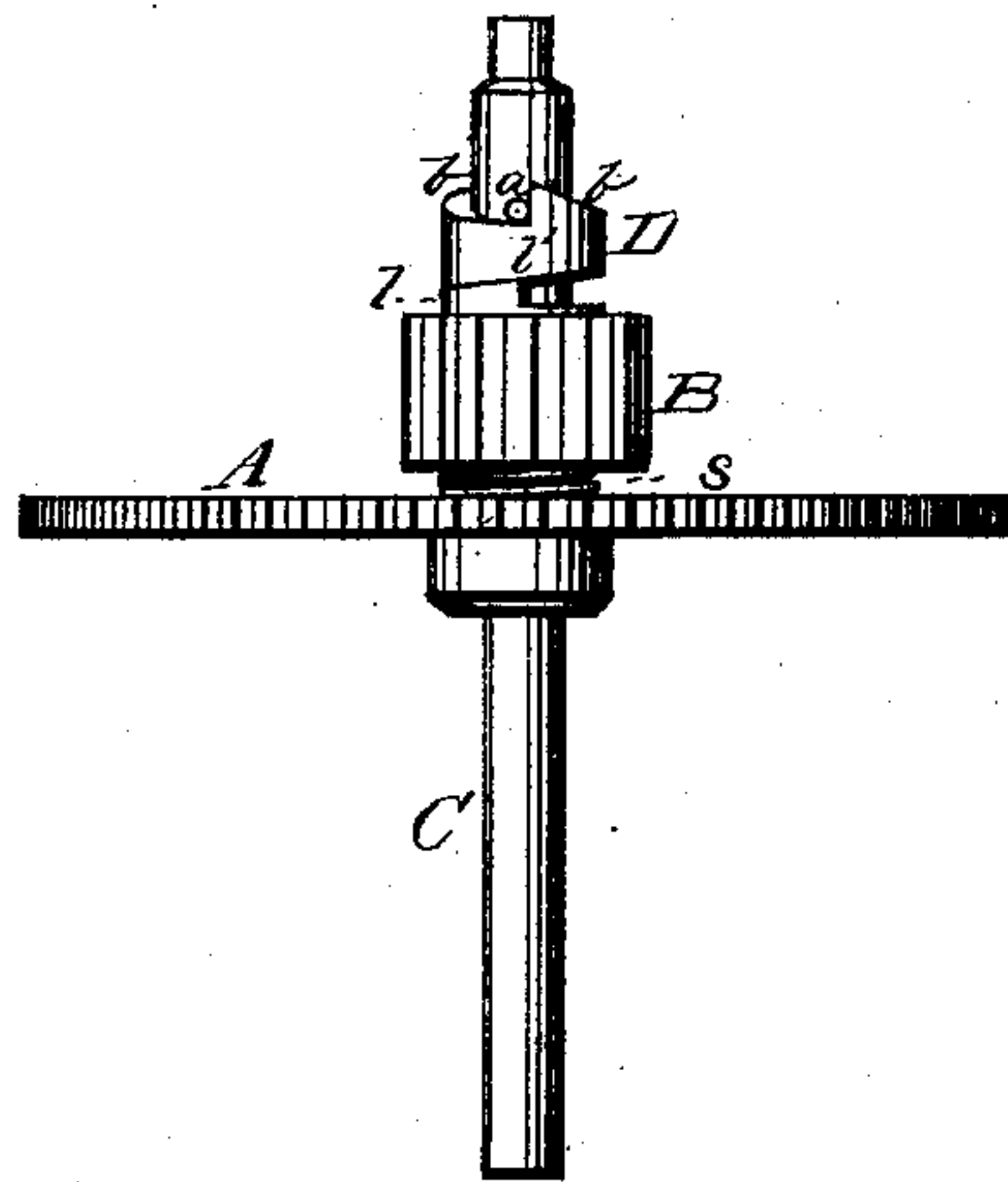


Fig. 3.

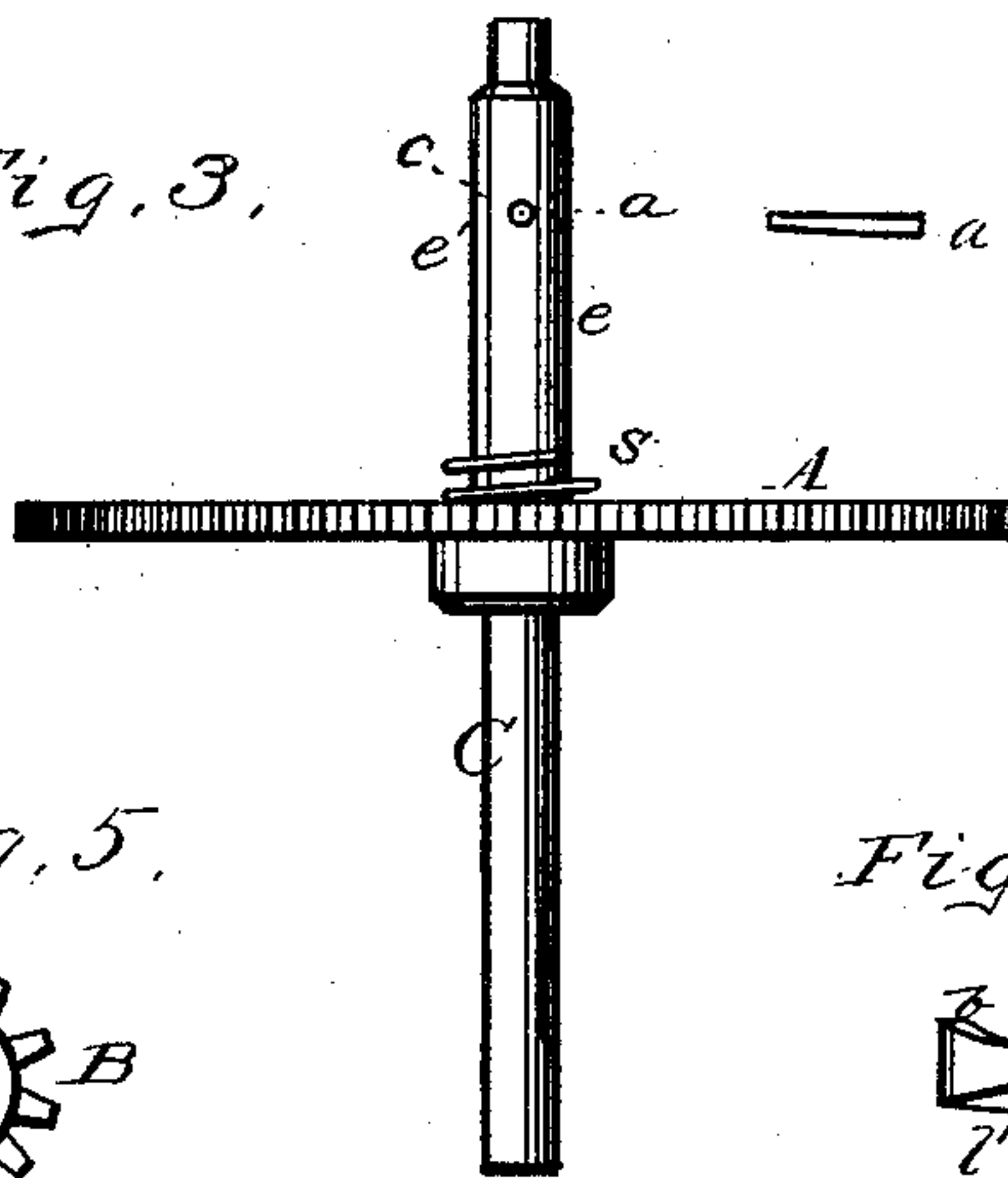


Fig. 4.

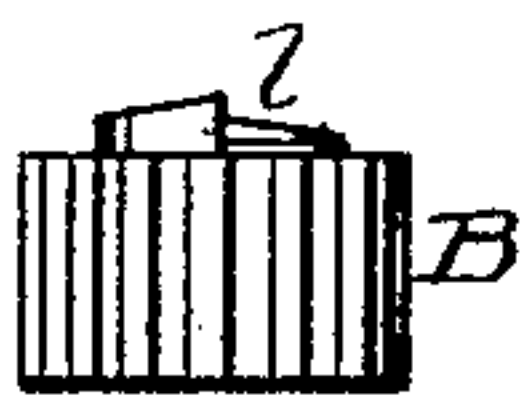


Fig. 5.

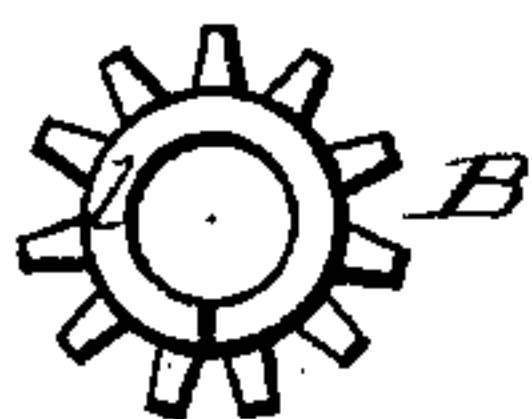


Fig. 6.

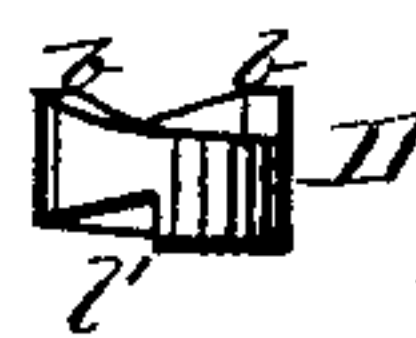
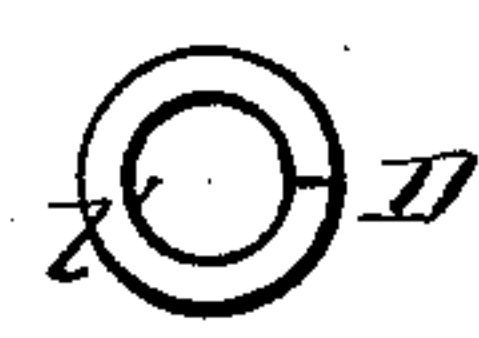


Fig. 7.



WITNESSES

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# UNITED STATES PATENT OFFICE.

MARTIN C. SMITH, OF EARLVILLE, ILLINOIS.

## IMPROVEMENT IN SAFETY-PINIONS FOR WATCHES.

Specification forming part of Letters Patent No. **179,074**, dated June 20, 1876; application filed July 17, 1875.

*To all whom it may concern:*

Be it known that I, MARTIN C. SMITH, of Earlville, in the county of La Salle and State of Illinois, have invented a new and valuable Improvement in Clock and Watch Pinions; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figures 1, 2, and 3 of the drawings are representations of plan views of my pinion, and Figs. 4, 5, 6, and 7 are detail views thereof.

This invention has relation to means for preventing damage to the mechanism of clocks and watches from the breakage of the mainspring; and it consists in the construction and novel arrangement of the center-wheel, its post and pinion, the cam-collar and the transverse locking-pin. Also, in connection with these devices, of the spring on the center-wheel post under the pinion, all as hereinafter fully shown and described.

In the accompanying drawings, the letter A represents a center-wheel, which is keyed on its setting-post C, and B designates a center-wheel pinion, which is applied on the post C at *e*, and constructed with a full inclined plane *l* at one end. D represents a collar, which is applied on the post C at *e'*. This collar has a full inclined plane, *l'*, on the end adjacent to the pinion B, which corresponds to and engages with the inclined plane on said pinion. On the other end of the collar D are formed two inclined planes, *b b*, each of which is semicircular, as shown in the drawings. *a* represents a pin, which is inserted through a hole, *c*, which is drilled through the post C, said pin serving to form bearings for the inclined planes *b b* of the collar D, which, pressing against the projecting ends of said pin, tighten the pinion B. Under the pinion B, and between said pinion and the center-wheel A, is arranged a spring, *s*, which is applied on the pivot C. The shape of this spring is not material; it may have the spiral, corrugated, elliptic, or other form suitable for the purpose.

The above-mentioned parts are placed on

the part C in the following order: the spring *s*, pinion B, collar D, and pin *a*. The pinion B is then turned in a direction corresponding to that given to it by the mainspring of a watch or clock when such spring is wound up. The beveled or inclined surface *b b* will bear against the pin *a* and force the collar D snugly against the pinion B. The collar and pinion being locked by the engagement of the shouldered end of these inclined planes, the latter is forced against the spring *s*, which reacts and holds the pinion in a steady position on the post C. In case the mechanism is wound too tight, the spring *s* allows the pinion B to revolve with the collar D until it is under proper tension, to prevent the breakage of the mainspring, at which point it will remain until some unusual strain revolves it again. In case the mainspring breaks, the recoil of this spring will turn back the collar D, and thus loosen the pinion B from its bearings and allow it to turn freely. In this construction the spring *s* serves to counteract the evil effect of winding the mechanism too tightly in breaking the mainspring, as well as the damage liable to occur when the mainspring breaks at its outer end, when the shock is much lighter than when it breaks at its inner end, in which case the disengagement of the collar and its engaging-pin permits the disconnection from the pinion B of the train.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the center-wheel and its perforated post, of the locking-pinion B, cam-collar D, having inclined planes on both edges, and the locking-pin *a*, substantially as specified.

2. The combination, with the center-wheel and its post, having stop *a*, of the pinion B, cam-collar D, engaging therewith by suitable inclines, and the contracting-spring *s*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MARTIN C. SMITH.

Witnesses:

DAVID L. BARNARD,  
ELWIN C. ESTES.