

**No. 661,728.**

**Patented Nov. 13, 1900.**

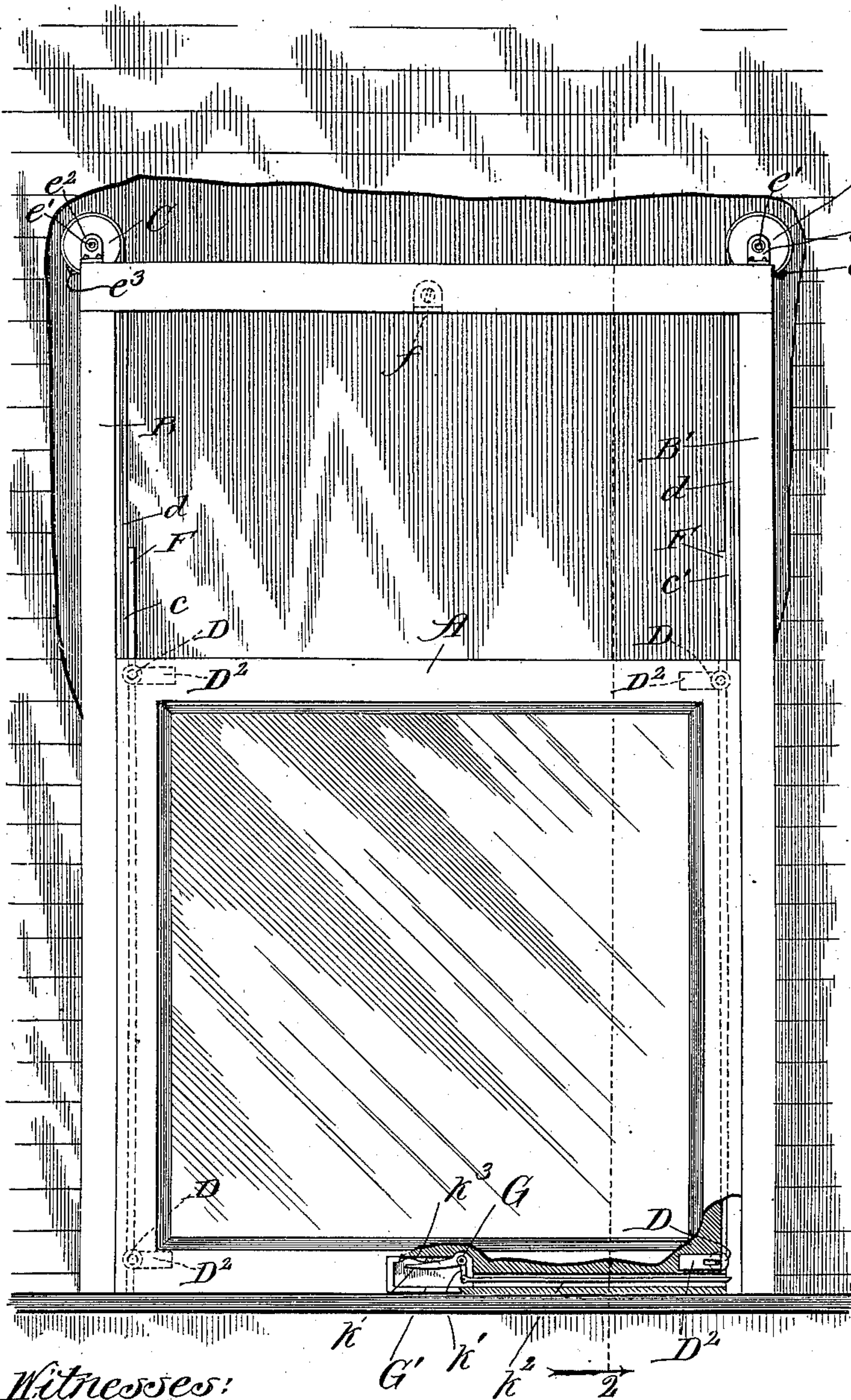
W. AGAR.  
SASH HOLDER.

(Application filed May 13, 1899.)

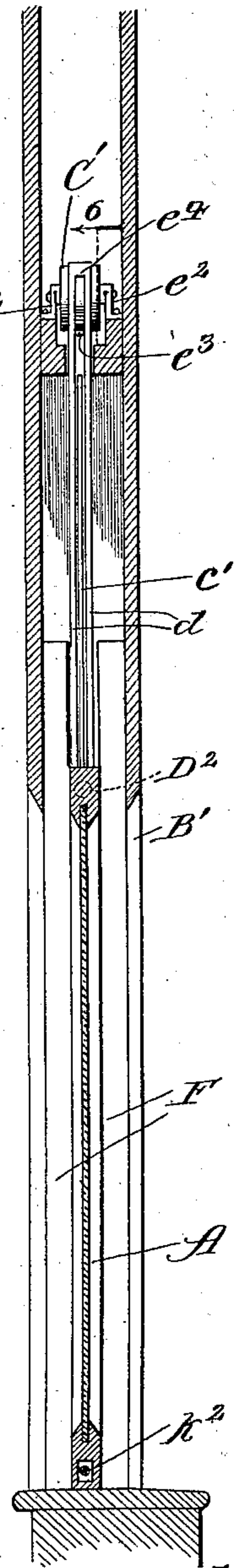
(No Model.)

**2 Sheets—Sheet 1.**

Fig. 1.



*Fig. 2.*



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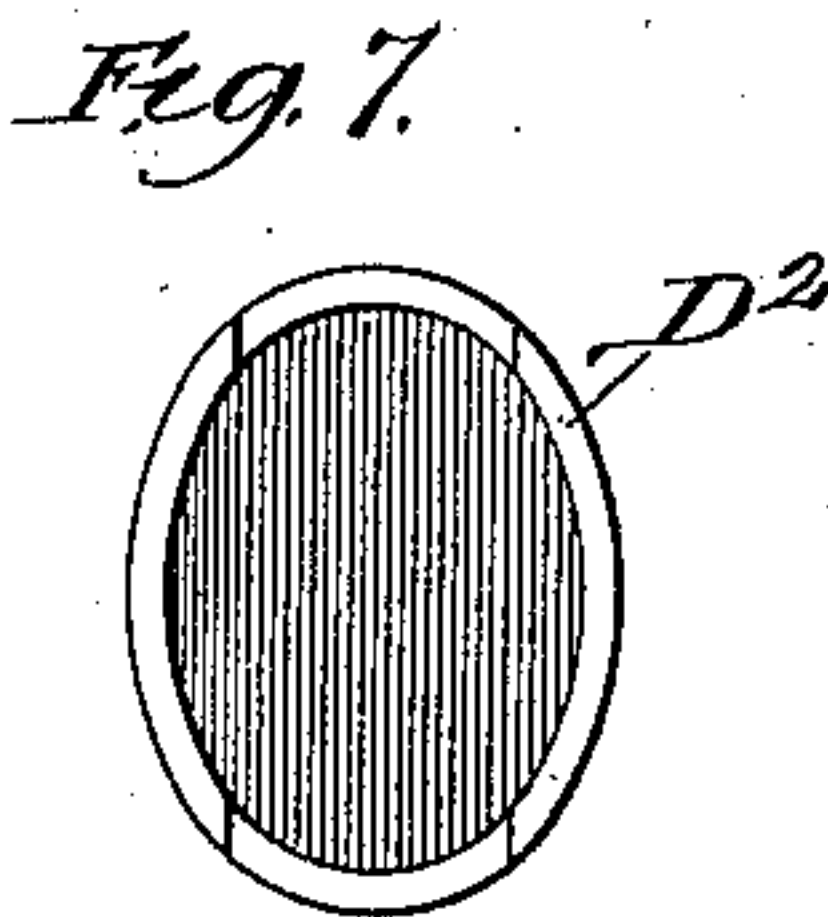
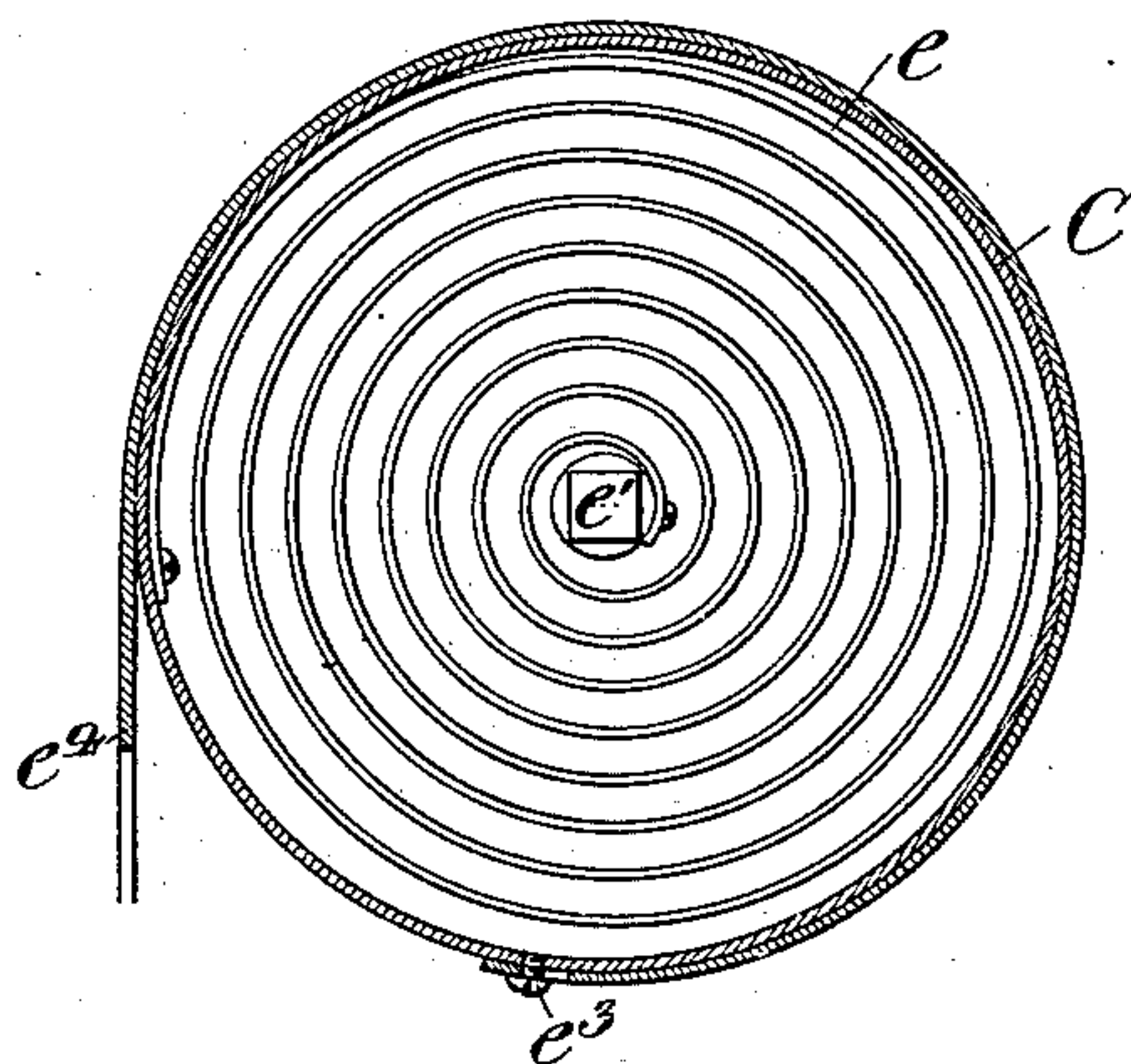
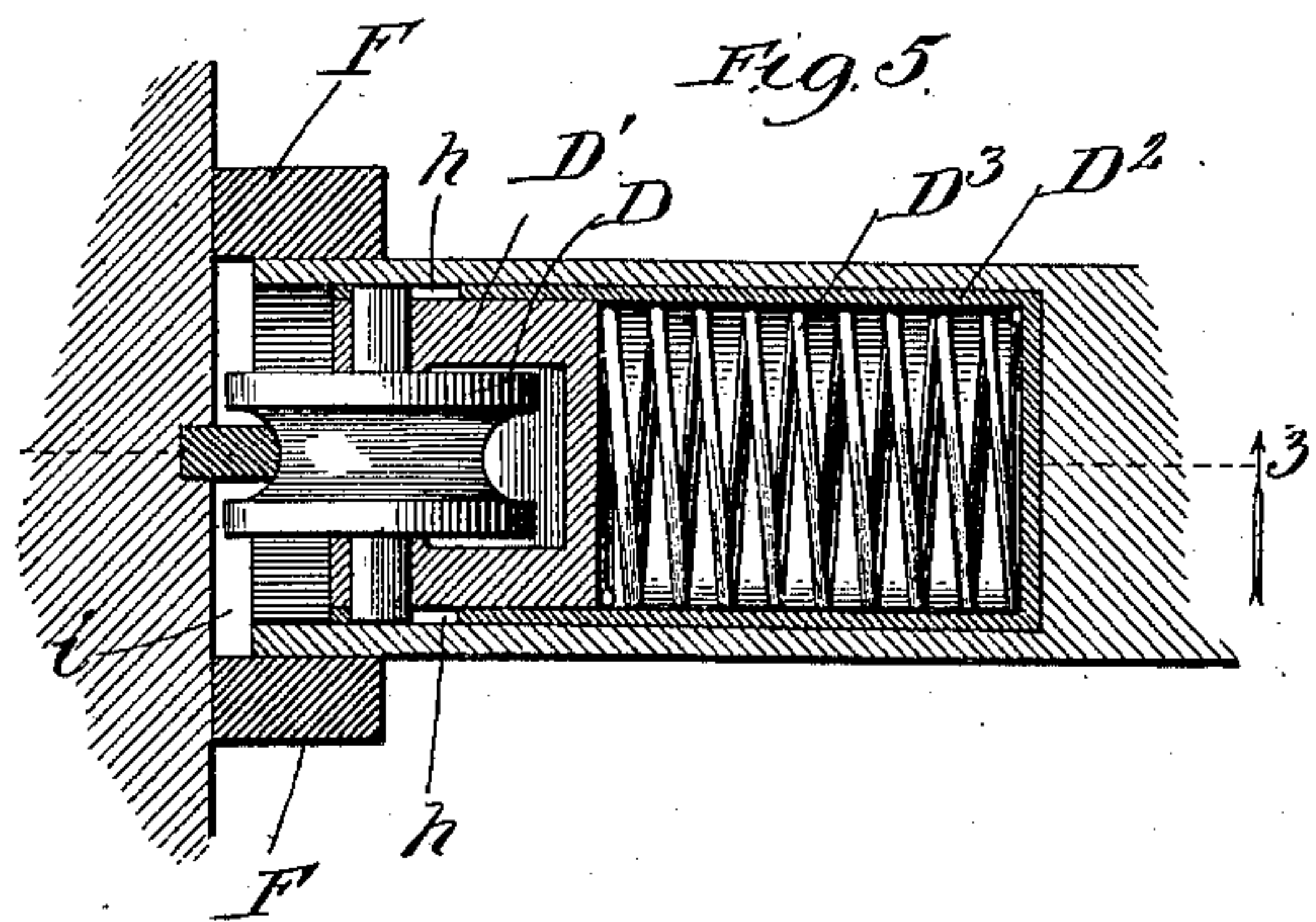
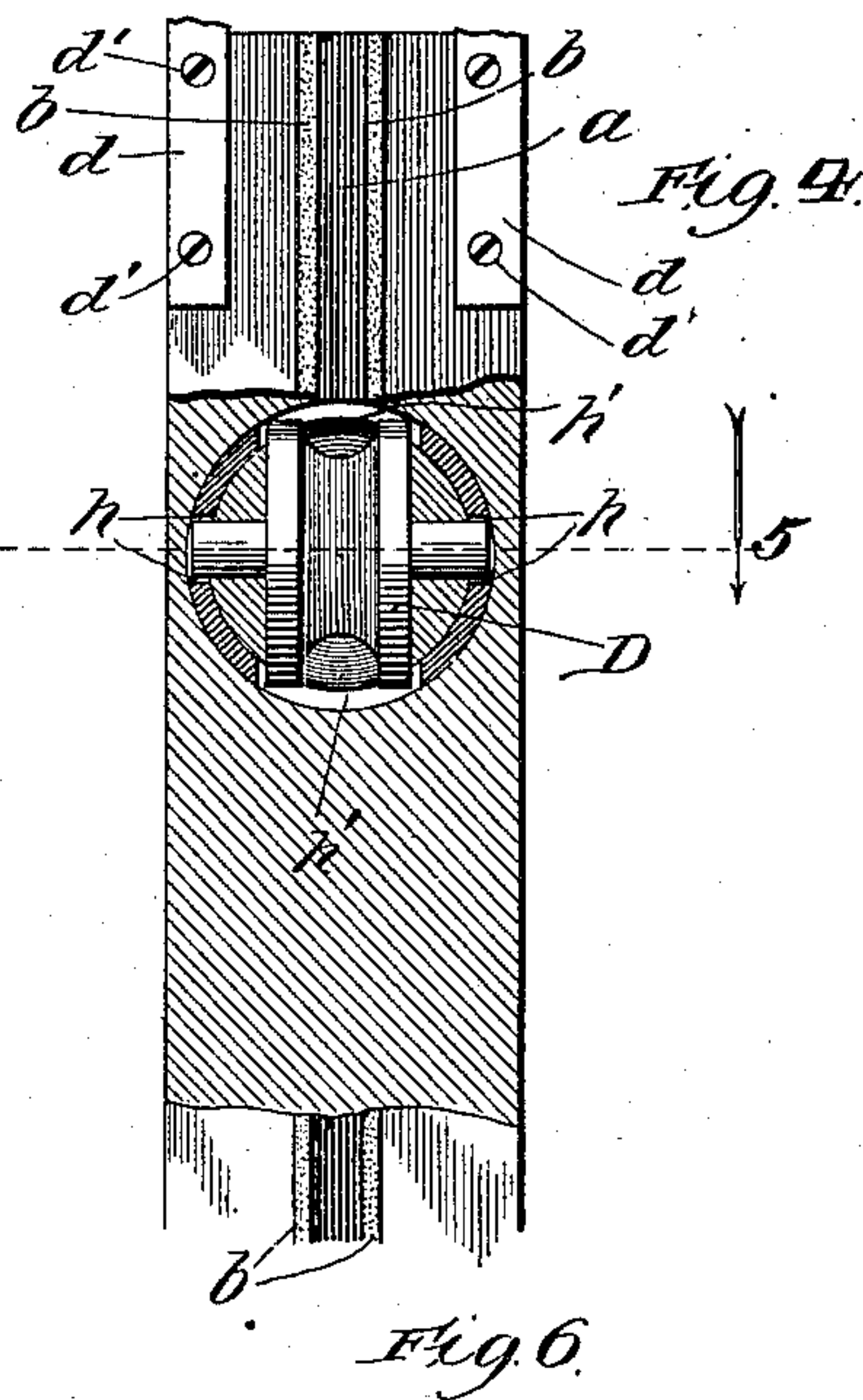
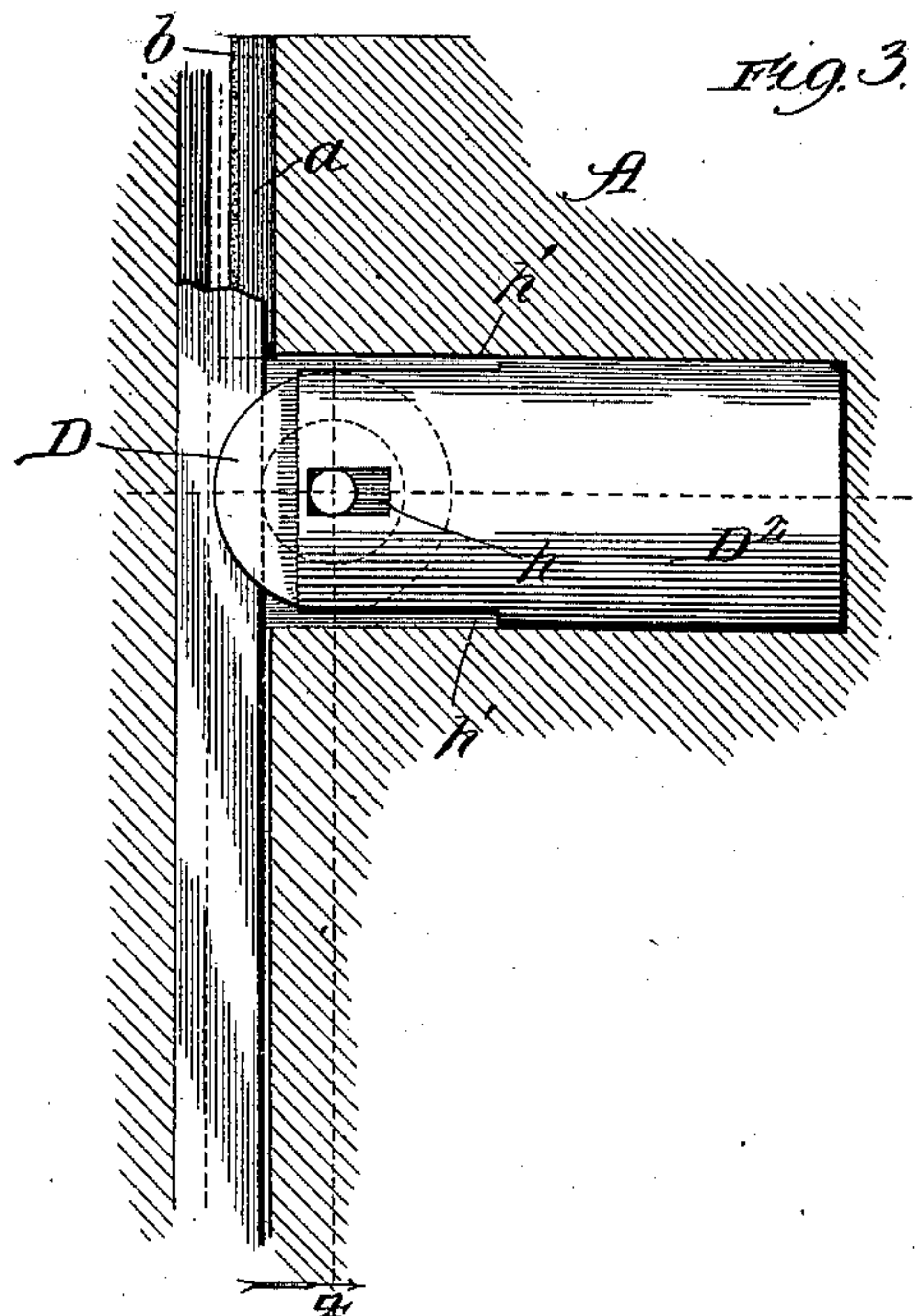
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(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

WILLIAM AGAR, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO WILLIAM H. CLEGG, OF SAME PLACE; JESSIE AGAR ADMINISTRATRIX OF SAID WILLIAM AGAR, DECEASED.

## SASH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 661,728, dated November 13, 1900.

Application filed May 13, 1899. Serial No. 716,695. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM AGAR, a citizen of the United States, residing at Chicago, (Pullman,) in the county of Cook and State of Illinois, have invented a new and useful Improvement in Window-Adjustments, of which the following is a specification.

My invention relates particularly to an improvement in adjustment means for windows, though the invention is applicable to screen-sashes also.

My primary object is to provide simple and effective means for permitting the sash to be raised or lowered freely to any desired position without possibility of binding, and yet so arranged that the sash will remain where placed even under a constant jarring action.

The adjustment is of peculiar value when used in connection with a car-window and is illustrated in the accompanying drawings as applied to such a window.

In the drawings, Figure 1 is a broken interior view of the side wall of a car supplied with a window equipped with my improvements; Fig. 2, a broken vertical section on line 2 of Fig. 1; Fig. 3, an enlarged broken vertical section of the sash, exposing one of the spring-held guide-rollers employed, the section being taken as indicated at line 3 of Fig. 5; Fig. 4, a broken vertical section at line 4 of Fig. 3; Fig. 5, a plan section at line 5 of Fig. 4; Fig. 6, an enlarged vertical section at line 6 of Fig. 2, and Fig. 7 a view of a modified form of roller-spring barrel.

In the preferred construction the movable sash A is provided at its vertical edges with vertical slots *a*, lined with felt *b*. The pulley-stiles B B' are provided with metallic guide-strips *c c'*, projecting into the lined grooves *a* and preferably fixed to the pulley-stiles by being inserted firmly in longitudinal grooves therein. The sash is suspended by metallic strips of tape *d*, flanking the grooves *a* and passing about hollow spring-actuated rollers C C', located some distance above the sash, and the sash balanced and guided and the tension at the rollers C C' counteracted by spring-held guide-rollers D, located near the four corners of the sash. The tape strips *d* are conveniently secured to the sash by screws

*d'*, as shown in Fig. 4. Each roller C C' is actuated by a coil-spring *e*, Fig. 6, fixed at one end to the interior of the roller and at the other end to a fixed shaft *e'*, on which the roller rotates and which in turn is supported by brackets *e''*. No pawl is necessarily employed at the roller, as the necessary tension can be provided by passing the tape about the roller while the sash is in its elevated position and then turning the roller against its spring somewhat by hand before passing its perforated end over a screw *e'''* on the outer surface of the roller. The same result is attained by locating the rollers above the height to which the sash normally rises and then having the sash above its normal position when the tapes are wound onto the rollers. Figs. 2 and 6 show the two strips of tape as formed from a single slotted piece, being united at *e''''*.

The pulley-stiles are connected by a slotted cross-piece E, supplied with a sash-stop *f* for limiting the upward movement. Outer and inner stops F may be provided, if desired. The spring-actuated rollers C C' may be replaced by pulleys and counterweights.

Each guide-roller D is preferably journaled in a horizontally-movable block D' on a pin *g*, the ends of which project beyond the sides of the block. The block itself moves within a barrel D<sup>2</sup>, having a closed inner end and provided with slots *h*, into which the ends of the pin project. A spring D<sup>3</sup>, confined between the block and the bottom of the barrel under considerable pressure, serves to hold the block in its outer position. It will be observed that the parts thus described can be readily put together and that the pin will be limited in its movement by the outer ends of the slots *h*, as shown in Fig. 5. Where the roller is of sufficient diameter to require it, the barrel is provided with slots *h'* to permit horizontal movement of the roller.

The spring-held guide-roller and attendant parts, after assembling, are inserted, barrel foremost, into a socket in the vertical sash edge. The roller is preferably grooved, and its groove forms practically a continuation of the sash-groove *a*. The bottom of the roller-groove projects somewhat beyond the groove



in the sash, however, and bears firmly against the metallic vertical guide  $c$  or  $c'$ , as the case may be. The sash edge itself does not contact with the pulley-stile, as shown by the space at  $i$ , Fig. 5. Thus it appears, since the rollers are held under sufficient tension to prevent the sash contacting at any point on its vertical edges with the pulley-stiles, that wedging of the sash is impossible. The tension of the guide-roller spring, in fact, is sufficient to overcome the force of the lifting-rollers and cause the sash to remain in any desired position.

To lock the sash in its closed position and further aid in preventing the sash from settling down under a jolting action, such as is peculiar to railway-trains, a peculiarly-arranged spring-held locking device is provided. This comprises a bell-crank  $G$ , pivotally secured in a casing  $G'$ , set into the bottom part of the sash and provided with a nearly-horizontal arm  $k$  and a depending arm  $k'$ , a rod  $k^2$  joined at its inner end to the depending arm of the bell-crank and provided at its outer end with an angular part engaging a notch on the guide-piece  $c'$ , and a spring  $k^3$  serving normally to hold the rod  $k^2$  in its locking position. Upon inserting the fingers at the part  $G'$  for the purpose of raising the sash they first engage the arm  $k$  of the bell-crank and unlock the sash, after which it is raised with extremely slight effort. At the desired position the hand-pressure on the bell-crank is released and the free end of the rod  $k^2$  bears against the track  $c'$ , contributing a frictional force tending to prevent settling of the sash. If desired, of course, a notch may be provided at an elevated position for the end of the rod to enter, though this is ordinarily an unnecessary precaution.

The device is usefully applicable to vertically-sliding sashes in many situations. Any desired number of guide-rollers may be provided, though there should be at least two at each vertical edge of the sash to prevent wedging.

Fig. 7 shows a barrel of elliptical cross-section, which may replace the one of circular cross-section where it is desired to use a narrow sash.

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

1. The combination with two pulley-stiles provided with projecting vertical guide-bars having smooth inner edges, a sash provided at its vertical edges with grooves receiving said guide-bars, and spring-held grooved rollers carried by said sash, the grooves whereof project slightly beyond the bottoms of said sash-grooves and bear throughout their traverses upon the smooth adjacent edges of said guide-bars, substantially as and for the purpose set forth.

2. The combination with two pulley-stiles provided with projecting vertical guide-bars, a sash provided at its vertical edges with grooves receiving said guide-bars, draft-excluding lining of felt, or the like at said sash-grooves, contacting with said guide-bars, and rollers carried by said sash and projecting into said sash-grooves and bearing upon said guide-bars, substantially as and for the purpose set forth.

3. The combination with two pulley-stiles, each provided with a central projecting guide-bar and with stops parallel to and flanking said guide-bar, of a sash confined between said stops and provided at its vertical edges with barrel-receiving sockets and grooves receiving said guide-bars, said vertical sash edges being out of contact with the pulley-stiles, barrels  $D^2$  in said sockets provided with slots having outer ends affording stops, roller-carrying blocks  $D'$  in said barrels, springs confined between the blocks and the inner ends of the barrels and tending to force said blocks outward, rollers for said blocks having grooves projecting normally beyond the bottoms of the sash-grooves and bearing upon said guide-bars, and pins affording axes for the rollers and having their ends projecting beyond said blocks into said slots, whereby the outward movement of the blocks is limited when the sash is removed, substantially as and for the purpose set forth.

WILLIAM AGAR.

In presence of—

CHARLES SMITH PETERS,  
OTTO HASTELEEHLER,