

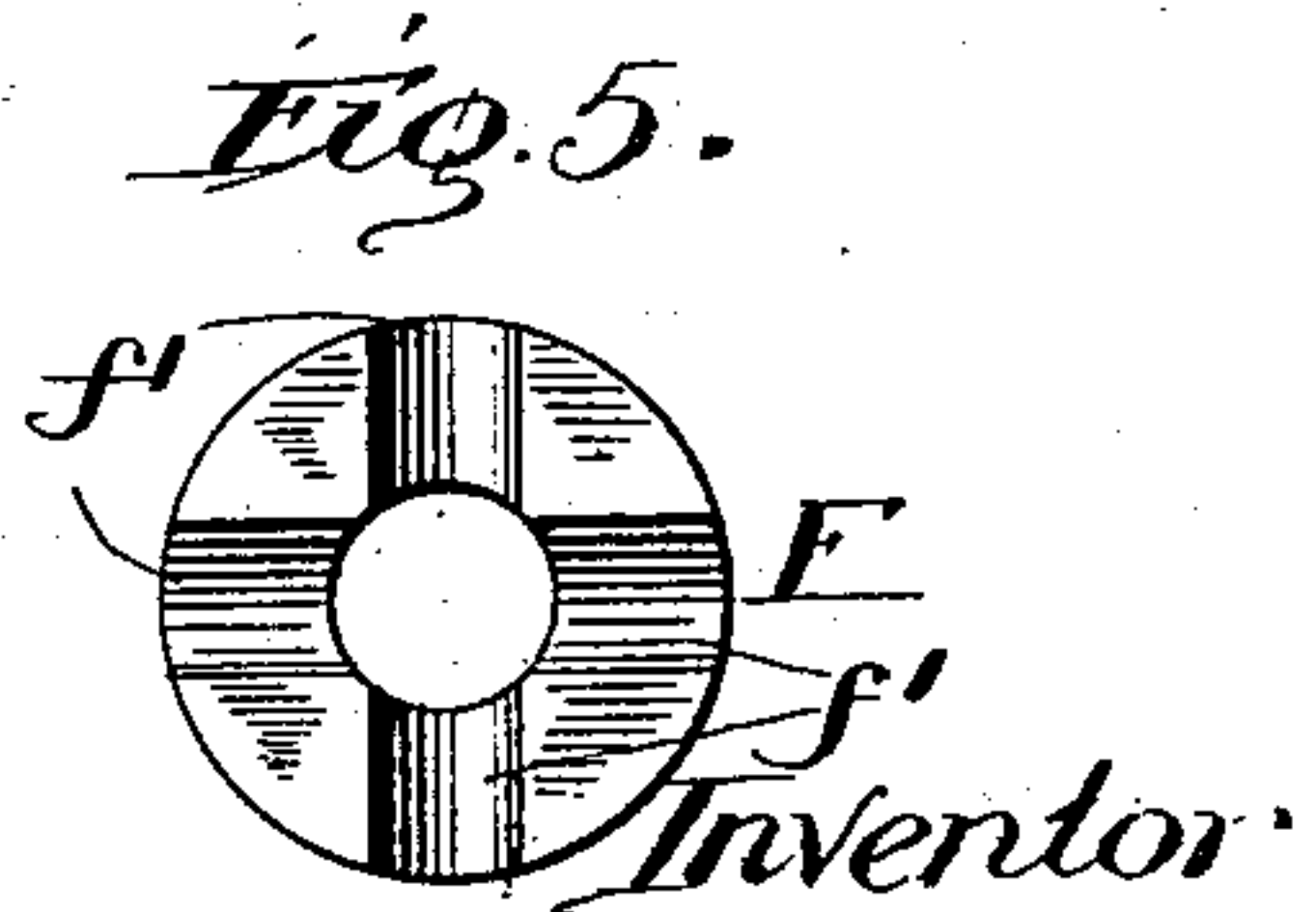
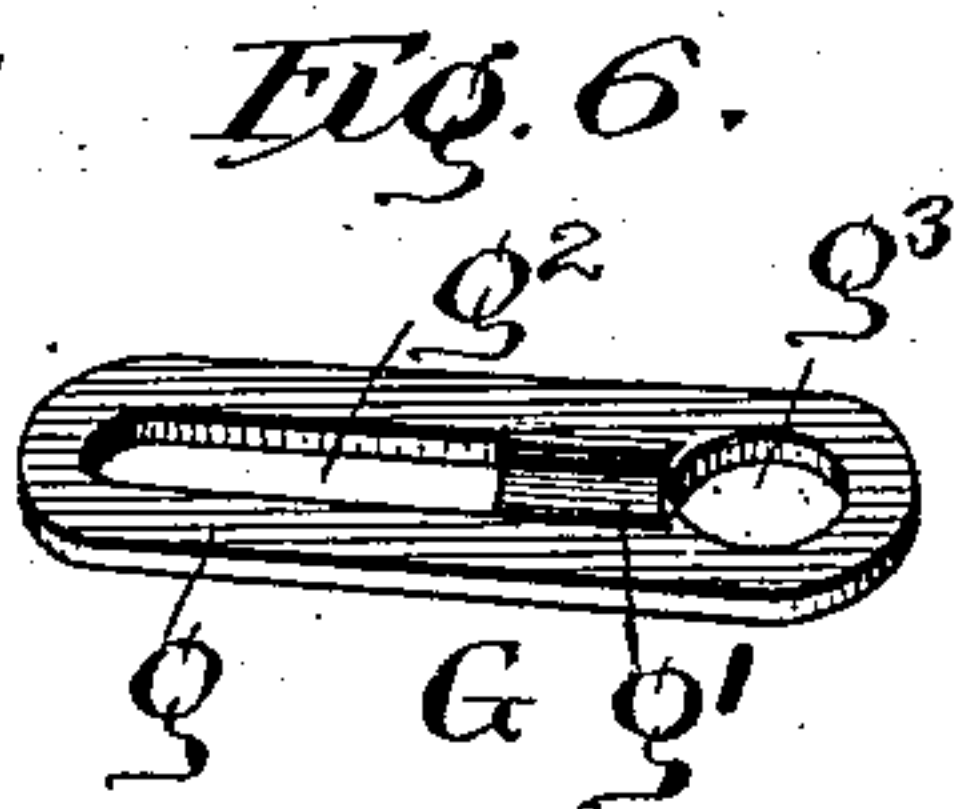
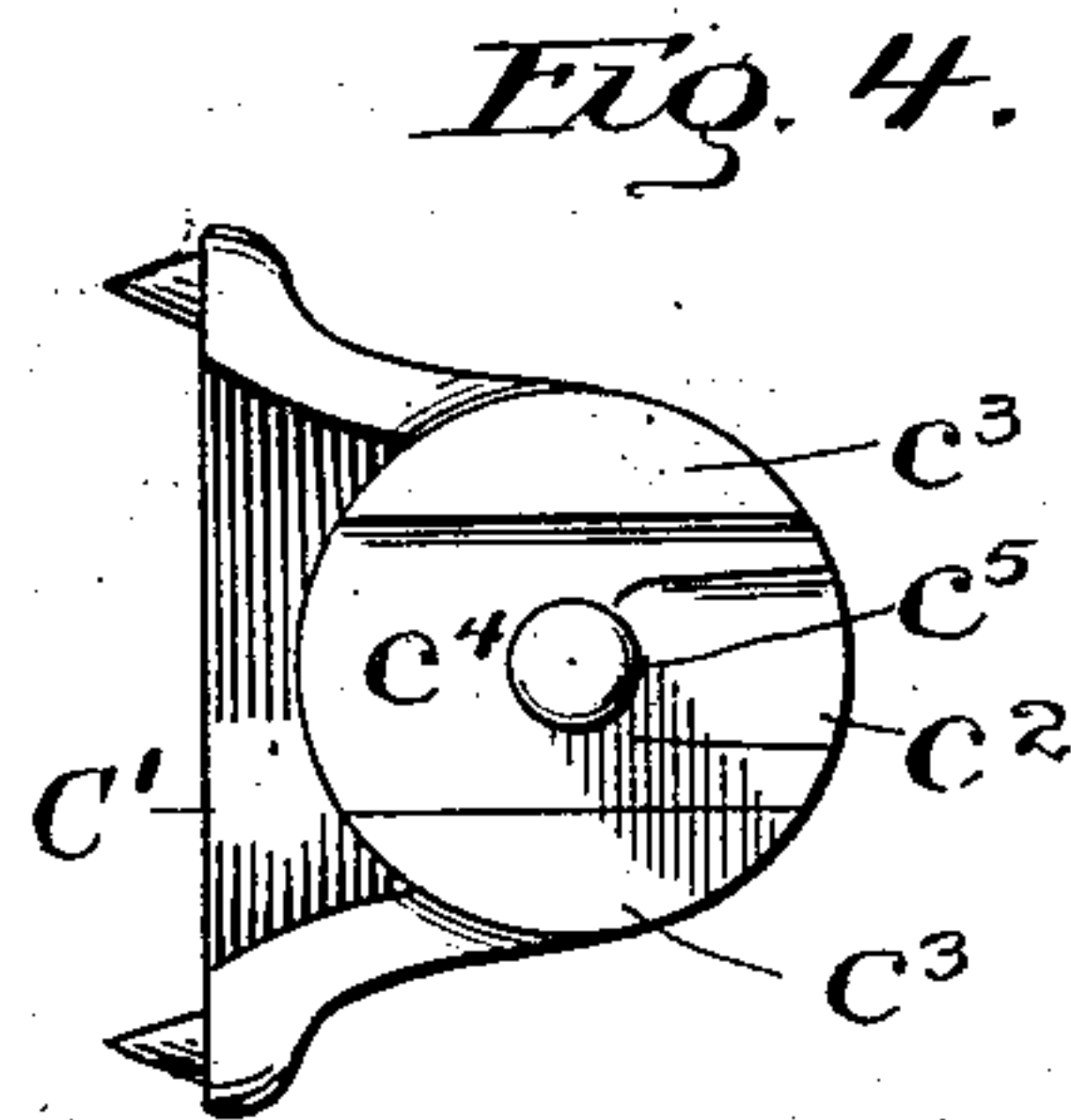
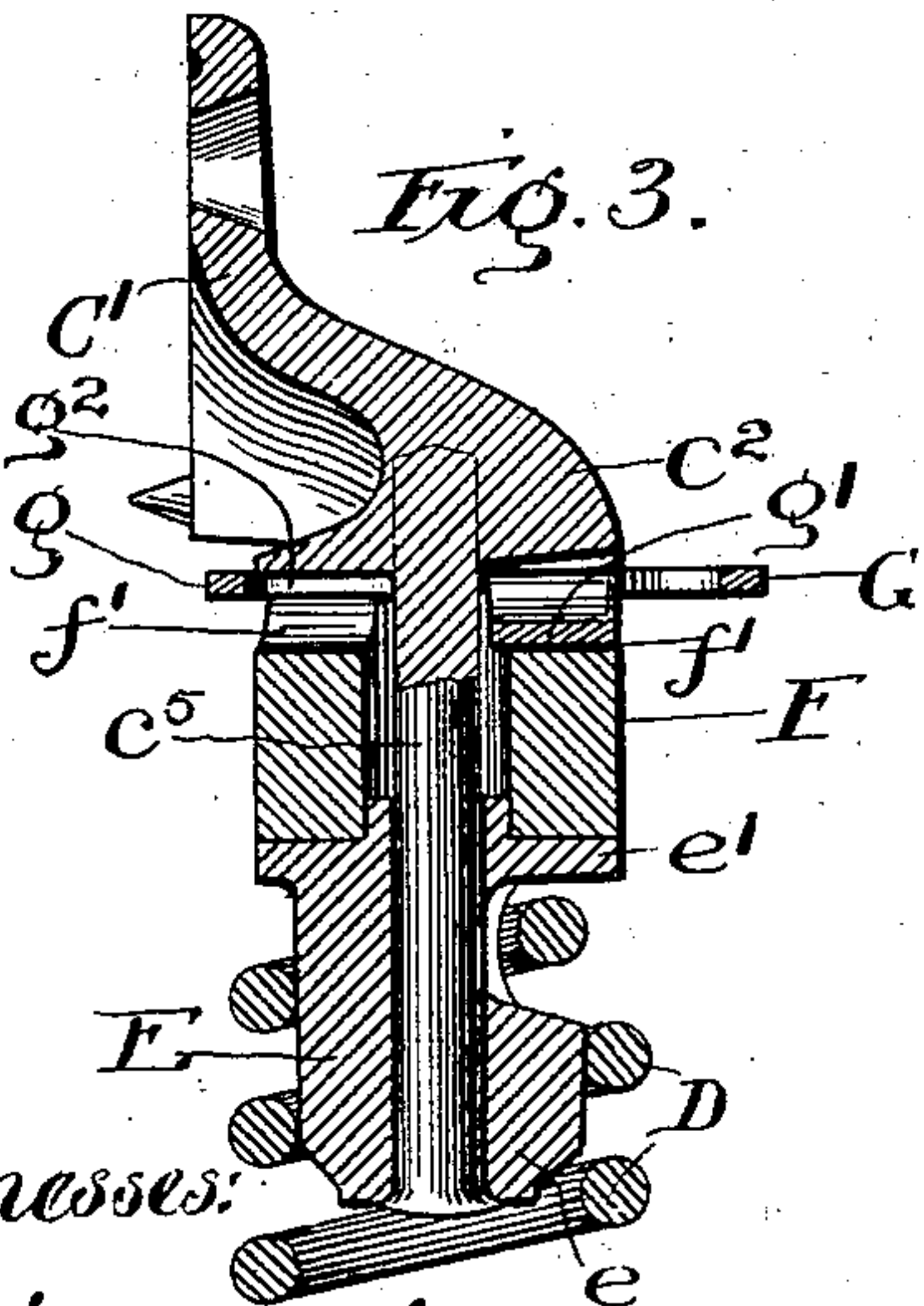
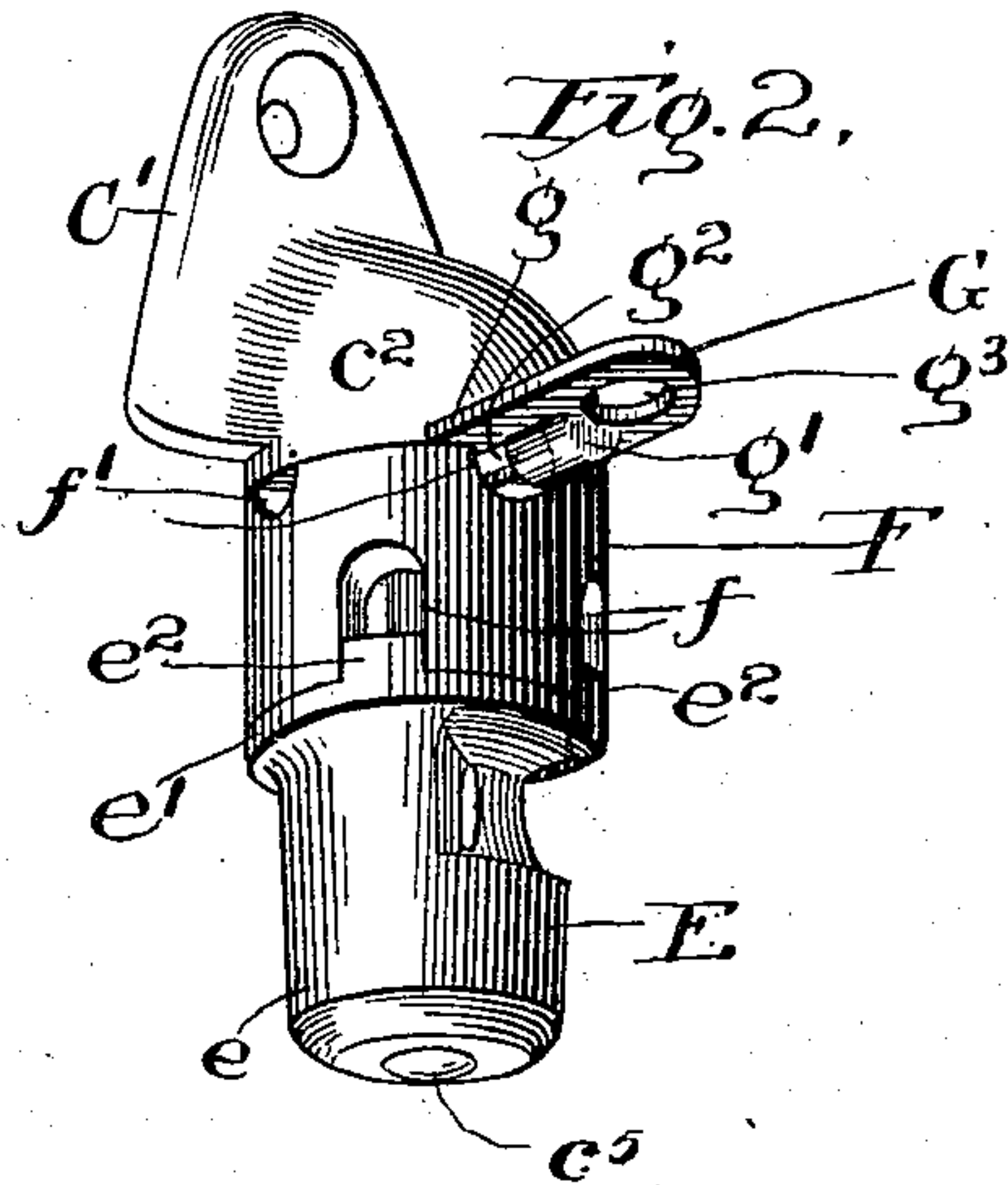
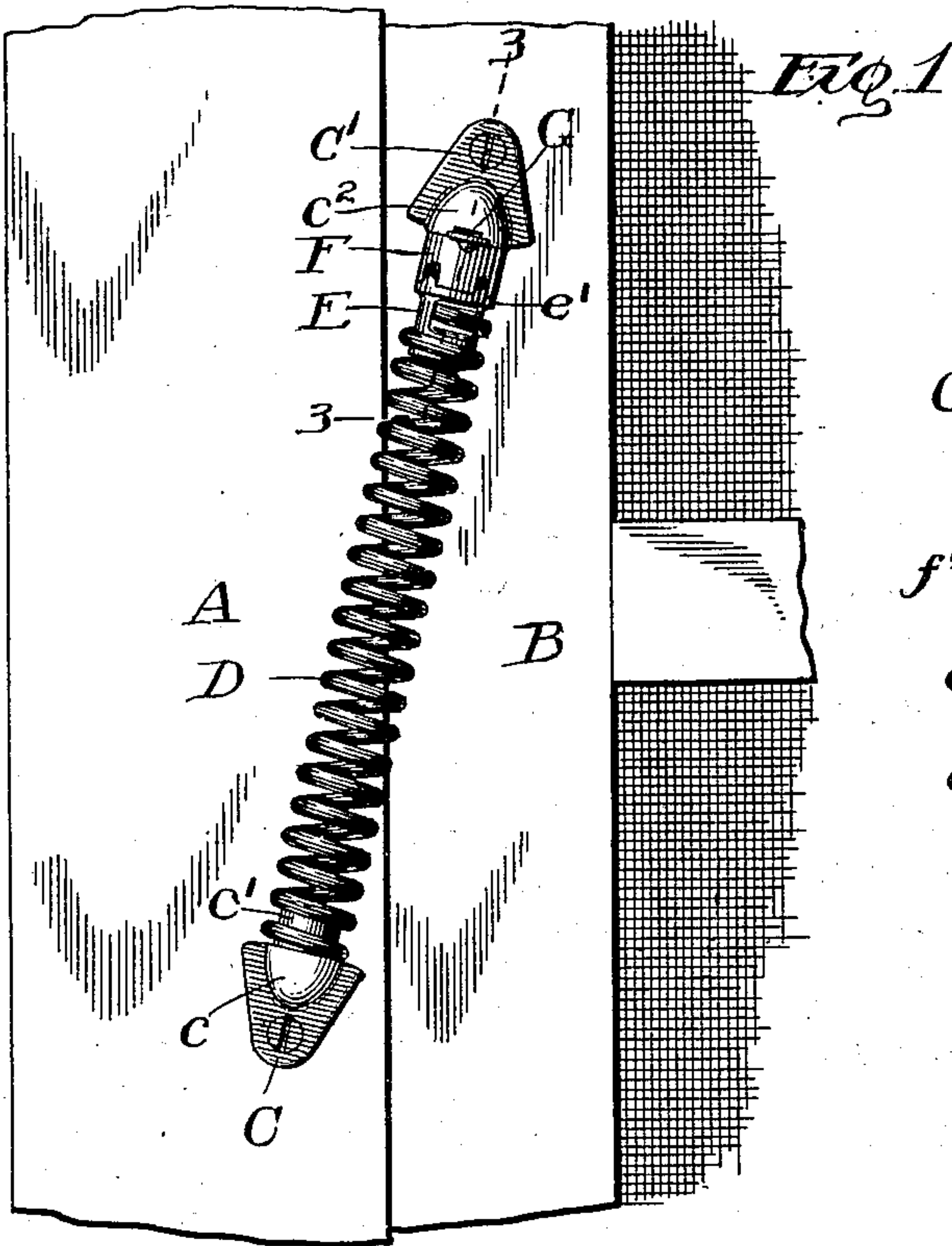
No. 698,744.

Patented Apr. 29, 1902.

M. SCHWARTZ.
ADJUSTABLE DOOR SPRING.

(Application filed July 15, 1901.)

(No Model.)



Witnesses:

Chas. O. Shorvey,
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UNITED STATES PATENT OFFICE.

MICHAEL SCHWARTZ, OF CHICAGO, ILLINOIS, ASSIGNOR TO EDWARD
PAYSON, OF CHICAGO, ILLINOIS.

ADJUSTABLE DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 698,744, dated April 29, 1902.

Application filed July 15, 1901. Serial No. 68,278. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL SCHWARTZ, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Adjustable Door-Springs, of which the following is a specification.

My invention relates to certain improvements in adjustable door-springs of the class in which a loose pin or rivet is employed to secure the relatively-movable parts between which the adjustment is made in position when the required adjustment is effected. Great annoyance is caused in the use of the ordinary door-springs of this class by the loss of the loose pin, either because the same works out in operation or because it is mislaid when the spring is taken off and laid away for a time.

The purpose of the invention is to provide means whereby accidental loss or working out of position may be absolutely prevented and also whereby the relatively-movable parts may be more securely and certainly put into and held in the desired relative positions.

To such ends the invention consists in certain characteristic novel features, the preferred construction and arrangement of which will be described in connection with the complete door-spring and the essential portions of the same pointed out in the claims.

In the drawings, Figure 1 is an elevation of portions of a door-casing and door, showing a complete door-spring in position thereon. Fig. 2 is a perspective view of the devices at the upper end of the spring for securing said end to the door and for rotatively adjusting that end of the spring relatively to the piece that is fastened to the door. Fig. 3 is an oblique section in the line 3-3 of Fig. 1 longitudinal of the door-spring and also diametrical thereof. Fig. 4 is an under plan of the upper portion, which is fastened to the door. Fig. 5 is a plan of the portion just below that fastened to the door; and Fig. 6 is a perspective of an intermediate slide by means of which the door-plate and adjustable nut are secured together in any desired adjustment.

Referring to the drawings, A is a portion of the door-casing, and B the door.

C is a lower fastening-plate usually secured to the casing, and C' an upper or door plate usually fastened to the door. The plate C is provided with a post *c*, having a reduced portion *c'* parallel with the face of the plate and outwardly removed therefrom, which furnishes a seat for the lower end of a coiled spring D, which is secured to said seat in any ordinary manner. The door-plate C' has a post *c''* extending outwardly from the door and provided with a preferably flat face *c'''* at right angles to the face of the plate and containing a diametrical groove *c''''*. Said post also has secured in it a pin *c'''''* normal to the face *c'''* and extending therefrom in the direction of the lower plate C. Upon the end of this pin is secured, preferably by riveting, an upper spring-seat E, having a reduced portion *e* to enter the spring and a flange *e'* to furnish an end bearing therefor, said spring-seat being provided upon its face with a series of projecting lugs *e''*. Between the spring-seat and the post is a nut F, centrally perforated to accommodate the pin *c'''''* and having a series of notches *f* around the lower margin adapted to receive the lugs *e''* and afford openings beyond the same, in which a pin or nail may be inserted to forcibly rotate the nut and wind up the end of the spring. It is evident that the spring-seat E and the nut F may be cast in one piece and the holes *f* afterward drilled through the piece; but I prefer to use a two-piece spring-seat, for the reason that it is considerably cheaper to cast it in two pieces and afterward fit the parts together than it is to cast it in one piece and drill the holes. Around the upper margin of the nut is a second series of notches *f'*, and a sliding bolt G is inserted between the nut and the lower face *c'''* of the post, a portion *g* of which is fitted to the groove *c''''* in the post, a downwardly-projecting lug *g'* of which is fitted to the notches *f'*, and a central portion of which is longitudinally slotted at *g''* to accommodate the pin *c'''''*. The outer end of the slide is preferably perforated at *g'''*, so that a convenient tool may be inserted to forcibly draw the slide outward. The lug *g'* is so limited as to longitudinal extent as to clear the nut when the slide is drawn outward to its limit of movement, as seen in Fig.

2, and when the parts are in this position the nut F and upper spring-seat E are freely rotatable about the pin c^5 to wind up the spring. When the spring has reached the desired tension, one of the notches f' is brought into line with the lug g' of the slide and the latter forced inward into the notch engaging the nut and door-plate against relative angular movement.

10 It should be noticed that the slide G has a bearing against angular movement on the face c^3 , extending entirely across said face. For this reason the bearing-faces of the lug g' and the side walls of the notches f' are kept squarely in line with each other, preventing any of the twisting or rocking that would be possible in the case of a pin or fastener having a short or limited radial bearing. It should also be noticed that the slide
20 s always in position for use, cannot become detached or work out of place, has convenient means of engagement with a nail or other simple device for pulling the slide outward, and is so arranged that in the final winding up of the spring continued pressure can be brought to bear upon the slide to force it inward, so that it will enter the next succeeding notch as soon as the nut is sufficiently far advanced to permit of the same.

30 The exact form and arrangement of the slide, while preferable, are not essential to the invention considered in its broadest sense, and for that reason I do not limit myself to the specific device shown and described.

35 I claim as new and desire to secure by Letters Patent—

1. The combination with a torsion-spring, provided with means for securing it against rotation at one end, of a fastening for the other
40 end consisting of a permanently-attached, radially-moving slide and two portions pivoted together longitudinally of the spring, and capable of relative angular movement with respect to each other around the pivot,
45 said portions being provided respectively upon their meeting faces with a radial guide adapted to receive said slide and permit said slide to move radially within it, and a series of radial openings adapted to be alternately
50 engaged and disengaged by said slide by the

radial movement of the latter; substantially as described.

2. The combination with a torsion-spring provided with means for securing it against angular movement at one end, of a fastening
55 device at the other end containing a nut suitably secured at one end to the spring and having a series of radial notches in the other end, a fastening-plate longitudinally pivoted to said nut and provided with a radial guide, 60 and a permanently-attached locking-slide having a portion fitted to said guide and radially movable therein, and a portion adapted to alternately enter and be withdrawn from said notches by the radial movement of
65 the slide; substantially as described.

3. The combination with a torsion-spring, of a fastening device for one end thereof containing a nut suitably secured at one end to the spring and containing a series of radial
70 notches in the other end, a fastening-plate centrally pivoted to said nut and containing a diametrical guide in the face adjacent thereto and a locking-slide fitted to said guide and diametrically movable therein, said slide embracing the central pivot and being secured
75 thereby against withdrawal and having a portion adapted to enter said notches to secure the nut and locking-plate against angular movement, and to be withdrawn therefrom
80 by the guided movement of the slide to permit of the adjustment of the nut with respect to the plate; substantially as described.

4. A means for securing one end of a torsion-spring against rotation, consisting of the
85 spring-seat, E, having the end lugs, e^2 , the nut, F, having the notches, f, f' , the fastening-plate, C', having the pin, c^5 , and the guiding-groove, c^4 , and the slide, G, fitted to said groove and having the lug, g' , adapted to enter
90 the notches, f' ; substantially as described.

In witness whereof I have hereunto set my hand, at Chicago, in the county of Cook and State of Illinois, this 5th day of July, A. D. 1901.

MICHAEL SCHWARTZ.

Witnesses:

CHAS. O. SHERVEY,
S. BLISS.