

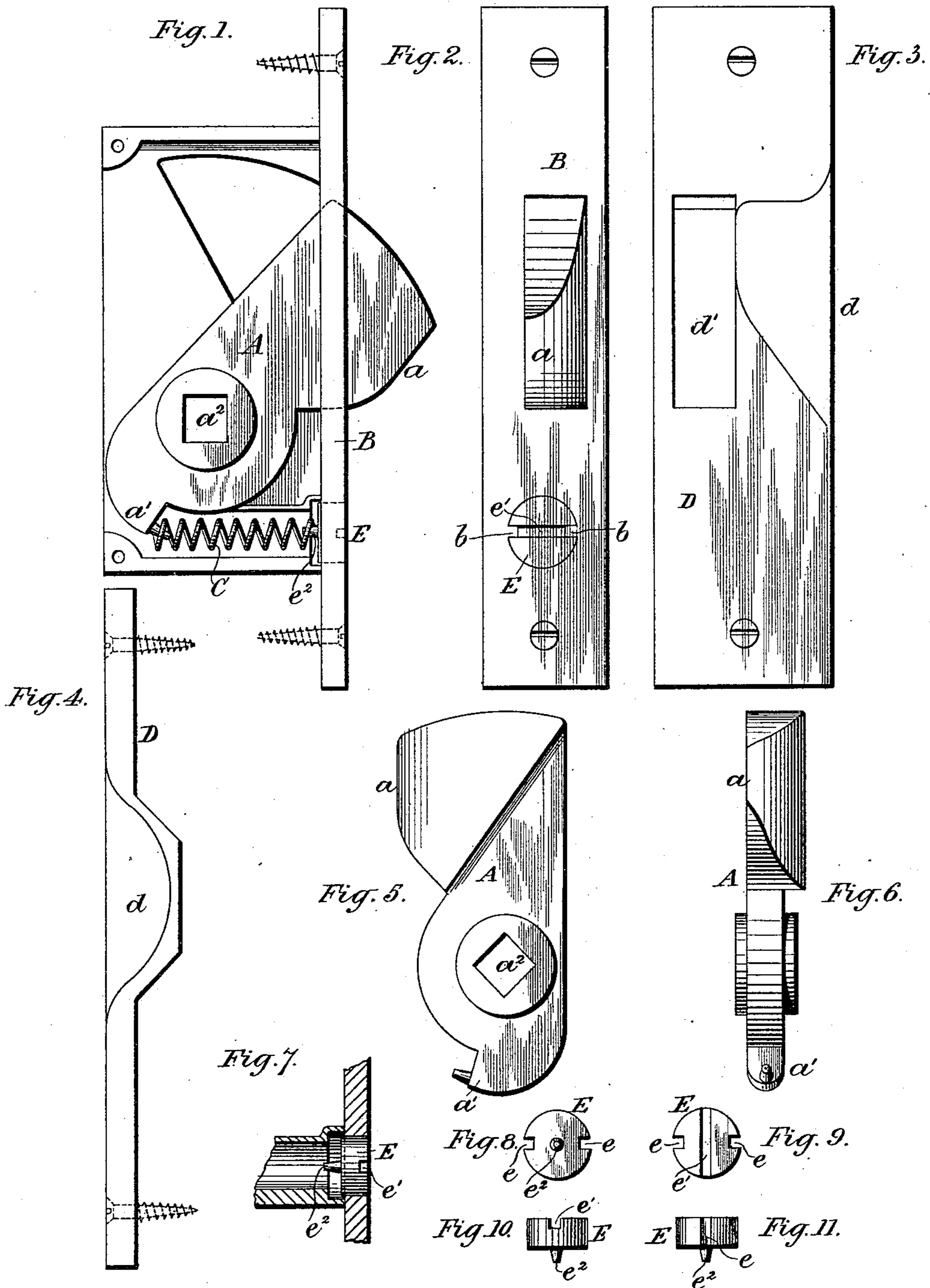
(No Model.)

3 Sheets—Sheet 1.

J. M. MATTHEWS.
LATCH.

No. 464,478.

Patented Dec. 1, 1891.



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Fig. 12.

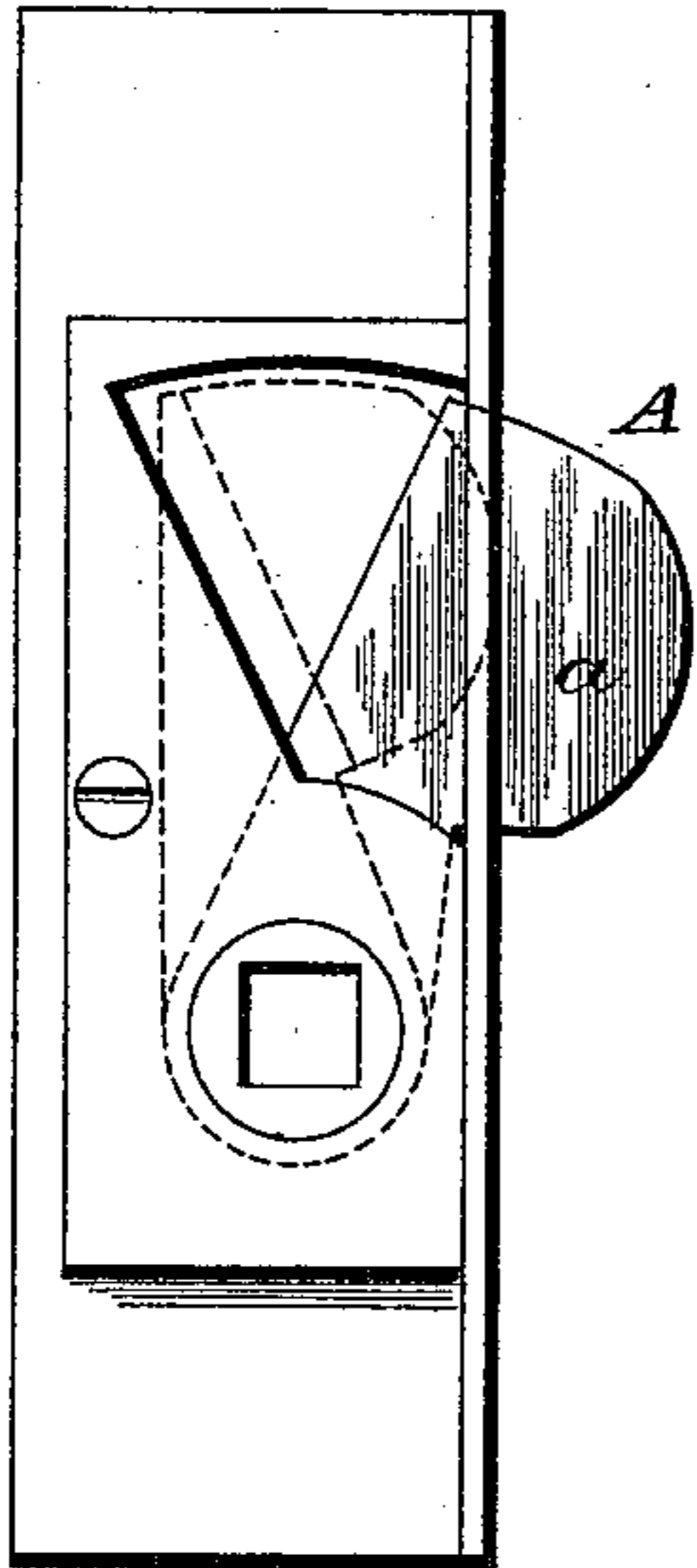


Fig. 13.

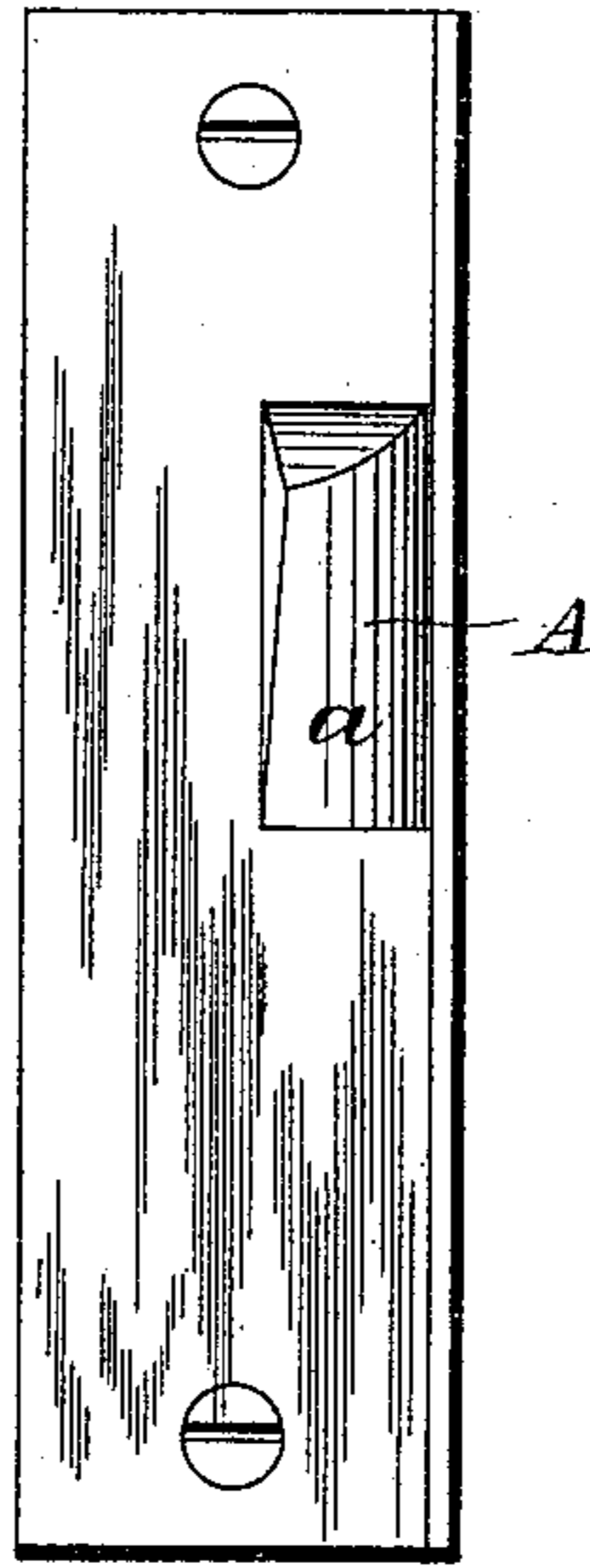
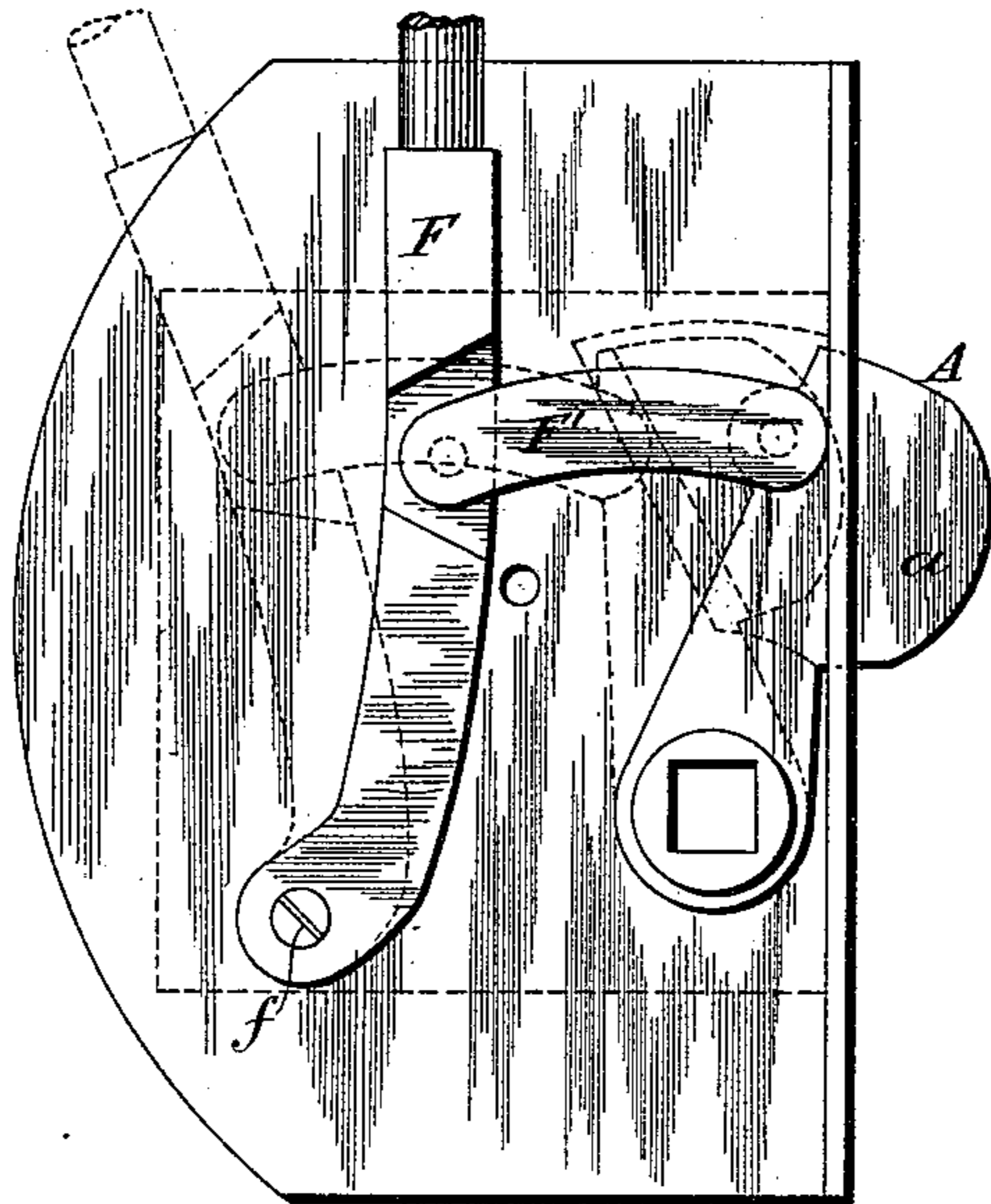


Fig. 14.



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Fig. 15.

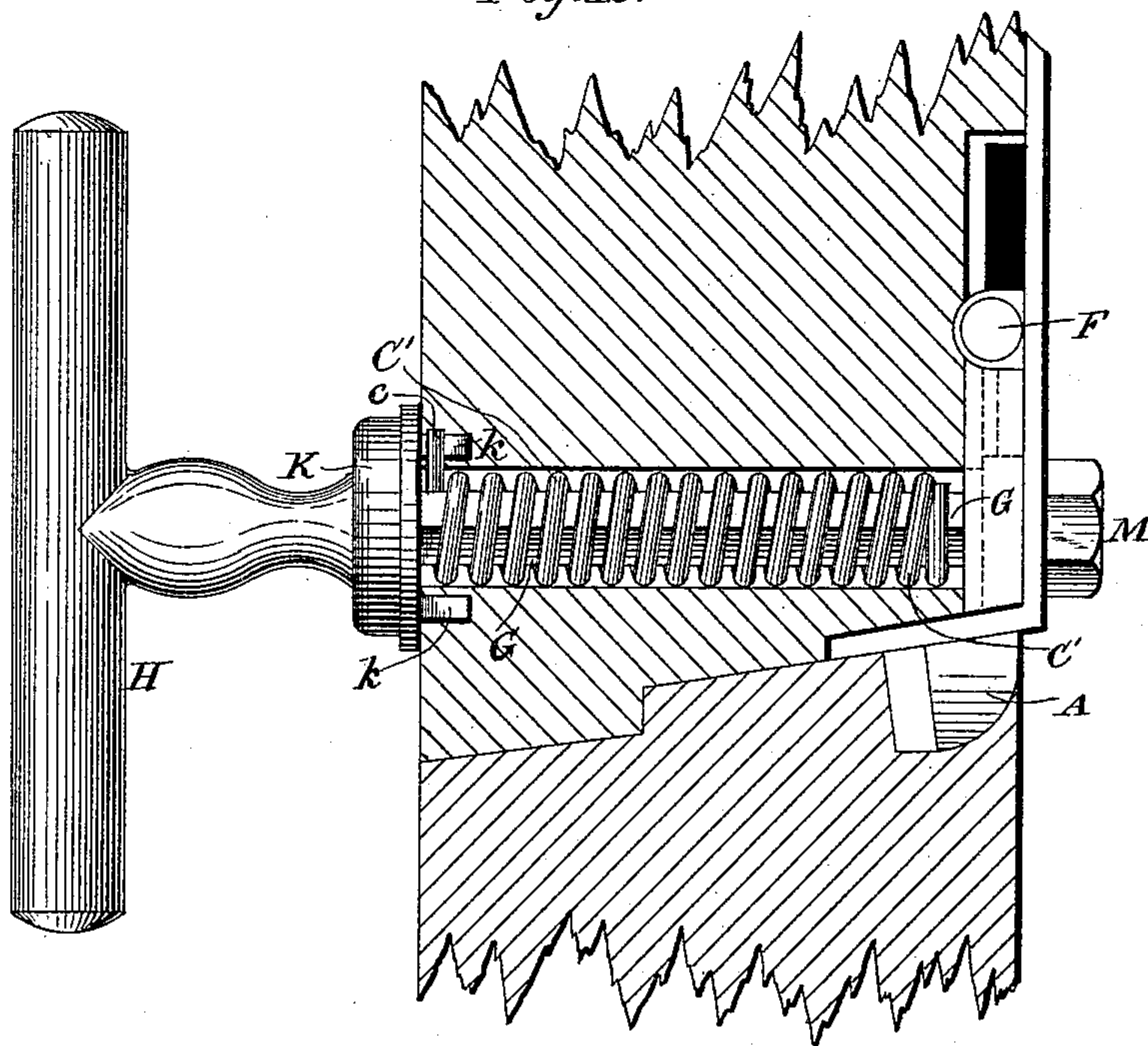


Fig. 16.

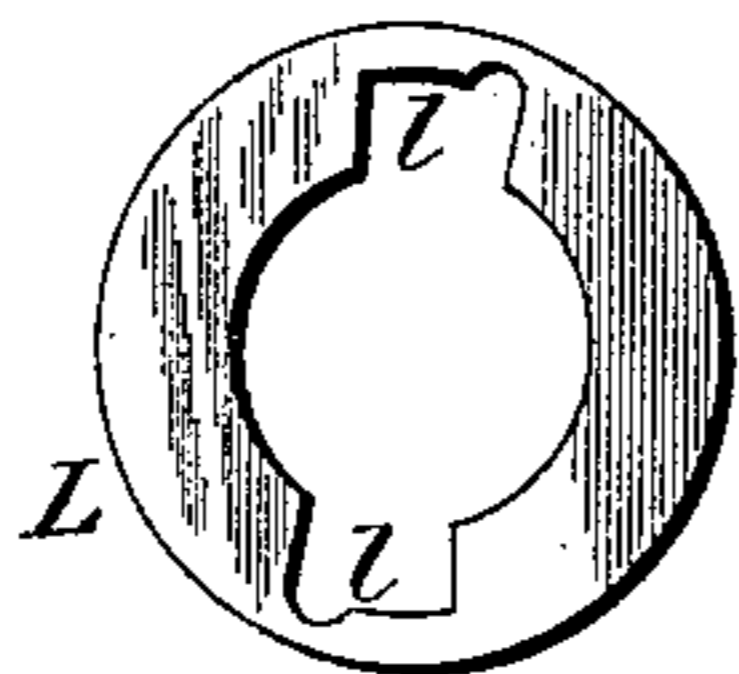


Fig. 17.

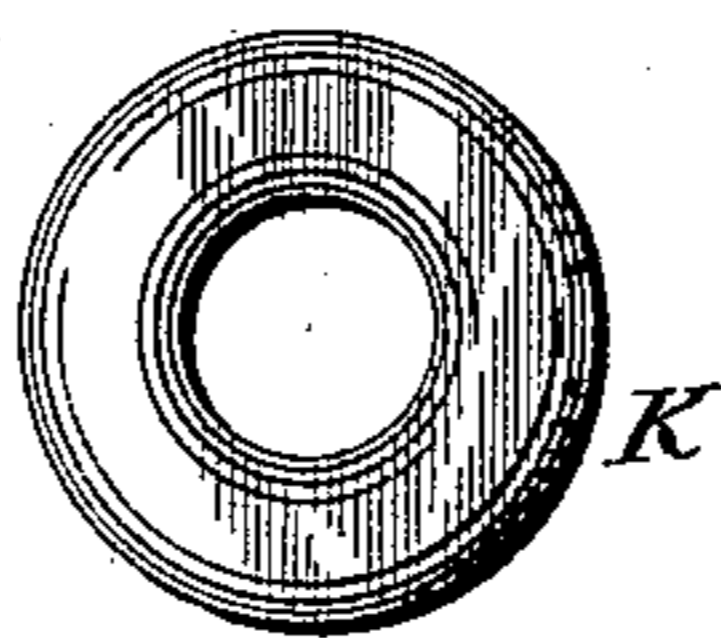


Fig. 18.

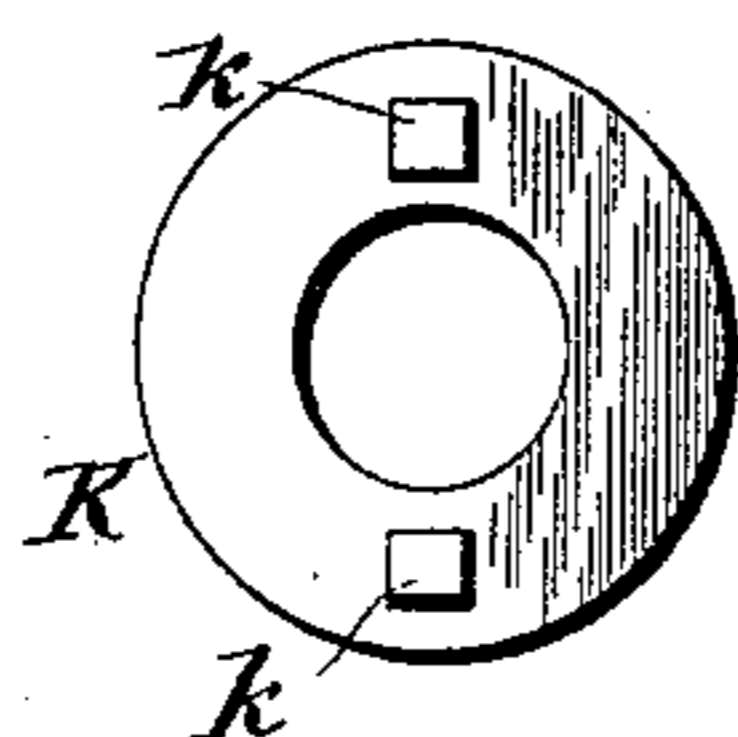


Fig. 19.

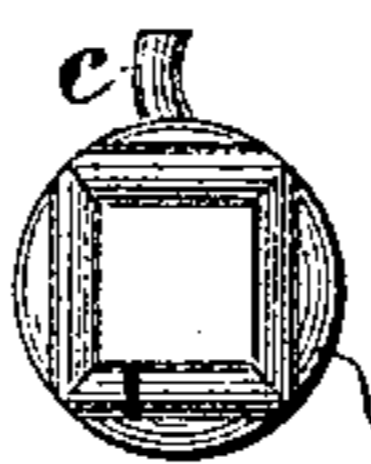


Fig. 20.

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UNITED STATES PATENT OFFICE.

JAMES MATTHEW MATTHEWS, OF LONDON, ENGLAND.

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SPECIFICATION forming part of Letters Patent No. 464,478, dated December 1, 1891.

Application filed May 28, 1890. Serial No. 353,458. (No model.) Patented in England August 19, 1885, No. 9,820.

To all whom it may concern:

Be it known that I, JAMES MATTHEW MATTHEWS, a subject of the Queen of Great Britain and Ireland, of 85 Stonebridge Road, South Tottenham, London, in the county of Middlesex, England, have invented certain new and useful Improvements in Locks for Railway-Carriage and other Doors, (in respect whereof I have obtained Letters Patent in Great Britain, No. 9,820, bearing date August 19, 1885,) of which the following is a specification.

The objects of this invention are, first, to simplify the construction of locks for railway-carriage and other doors, and, secondly, to enable such locks to be made of reduced thickness and size, so as to render them more suitable for use in the doors of private carriages and other road-vehicles.

In the accompanying drawings, Figure 1 is a side elevation of a lock constructed in accordance with the present improvements, the cover-plate having been removed. Fig. 2 is a corresponding front elevation. Fig. 3 is a front elevation of the striking-plate, Fig. 4 being a corresponding side elevation. Figs. 5 and 6 are respectively a side and an end elevation of the bolt. Fig. 7 is a vertical section showing in side elevation a stud which permits of the spring being readily withdrawn and replaced. Figs. 8 to 10 are respectively an under side view, a top view, and a side view, of the stud itself, Fig. 11 being a side view of the stud in a position at right angles to that represented in Fig. 10. Figs. 12 and 13 show a more compact form of lock. Fig. 14 illustrates a modification in which the improved lock is manipulated from inside the carriage by a lever working in the usual manner through an opening in the garnish-rail. Fig. 15 represents, partly in section and partly in plan, the manner in which in the more compact form of lock the actuating-spring is coiled around the spindle of the handle, Figs. 16 to 20 being detail views of the escutcheon and spring.

When the bolt A is in its normal position, a part *a* of the bolt projects beyond the front plate B, the bolt being forced into such position by a helical spring C, which acts against the lower part *a'* of the bolt. As the door is pushed or pulled to, the projecting part *a* ar-

rives against an incline *d* on a suitable striking-plate D, Fig. 3, and is thereby forced inward against the resistance of the spring C until the door is fully closed, whereupon the part *a* is caused by the direct action of the spring C to enter, through the slot *d'* in the striking-plate, a recess in the standing pillar or door-post. The part *a* is chamfered, as shown in Figs. 2, 5, and 6, in order to facilitate its movement over the incline *d*, Figs. 3 and 4. The spindle of the handle passes through a square hole *a*² in the bolt in the usual manner. The spring C is placed in the lock through an opening in the front plate B. This opening is closed by a stud E, whereby the spring is retained in position, Figs. 2 and 7 to 11. Two projections *b b*, which are exactly opposite one another, extend into the opening. The opposite sides of the stud are slotted at *e e* and its face is provided with a cross-slot *e'*, the latter corresponding in width with the projections *b b*. The opposite end of the stud to that in which the slot *e'* is cut may be provided with a pin or projection *e*², for centering the spring C. The stud and spring having been forced with the aid of a turn-screw or similar instrument through the opening in the front plate B, the stud is turned a quarter of a revolution, whereupon the notch *e'* arrives opposite the projections *b b*, which, after the withdrawal of the turn-screw has permitted the spring C to force outward the stud E, serve by contact with the bottom of the notch *e'* to limit the outward movement of the stud and to prevent its rotation. When it is desired to take out the spring it is merely necessary to press back the stud E until the notch *e'* is free of the projections *b b* and then to turn the stud so as to bring the slots *e e* opposite the said projections, whereupon the spring C forces out the stud through the opening in the plate B.

Instead of the projections *b b* being formed in the opening and the slots *e e* in the stud, the projections *b b* may be formed on the stud and the slots *e e* in the opening. In this case recesses are provided at the back of the opening, in which the projections on the stud engage when the stud is in its working position.

A more compact construction is shown in Figs. 12 and 13, the bolt A being actuated by

a helical spring surrounding the spindle of the handle, as hereinafter more particularly described with reference to Figs. 15 to 20.

In Fig. 14 the bolt A is operated by a lever 5 F, which is pivoted to the lock-plate at *f* and connected by a link *F'* to the bolt A. The lever F projects through an opening in the garnish-rail, and is worked from inside the carriage in the usual way.

10 According to the design illustrated in Fig. 15 the actuating-spring *C'* is coiled round the spindle G of the handle H, the two parts being by preference inserted together, so that the spring may be removed by withdrawing 15 the handle. The end coils of the spring situated near the bolt A, are bent, in the manner represented in Fig. 20, so as to conform to the shape of the spindle G, whereby that end of the spring is rotated. The remainder of 20 the spring is, however, free to partake of a rotative movement about the axis of the spindle, and the whole spring is capable of moving in a longitudinal direction. The end *c* of the spring *C'* is turned outward and en- 25 gages with one of the projections *k* on the back of the escutcheon K when the parts are in position. The projections *k* enter slots *l* in a plate L, secured beneath the escutcheon to the door, each slot *l* being large enough to 30 receive one of the projections *k*, together with the tail *c* of the spring *C'*.

The parts are put together in the following manner: The escutcheon and the spring are applied to the spindle, one end of the spring 35 engaging with the squared part of the spindle and the other end with one of the projections *k* on the escutcheon. The spindle is then placed in the lock, and the escutcheon is turned sufficiently to impart the required 40 tension to the spring and to bring the projections *k*, together with the tail *c*, opposite the notches *l*, whereupon the spindle is thrust home and secured in position by the nut M.

45 Instead of the outer end of the spring *C'* engaging with and being held by the escutcheon and the inner end of the spring engaging with the spindle, the outer end may be held by the spindle (in a similar manner to that already described, with special reference

to Fig. 20) and the inner end by contact with 50 a pin projecting from the lock-case.

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

1. In a lock for railway-carriage and other doors, the combination, with the bolt A, hav- 55 ing a chamfered projecting part *a*, of the removable spring C, engaging with the tail *a'* of the bolt, the stud E, secured in the front plate B of the lock, and the striking-plate D, formed with an incline *d* and a slot *d'*, sub- 60 stantially as and for the purposes set forth.

2. In a lock for railway-carriage and other doors, the combination, with a helical actuating-spring C, of a removable sliding stud E, and a plate B, having a hole to correspond 65 with the stud E, such stud being caused to engage with the plate by the reaction of the spring, substantially as and for the purposes herein set forth.

3. In a lock for railway-carriage and other 70 doors, the combination, with a removable spring-retaining stud E, of the lock-plate B, having an opening corresponding with the stud, reciprocal fastenings on the stud and plate, being brought into position to engage 75 with one another by the partial rotation of the stud, substantially as and for the purposes herein set forth.

4. In a lock for railway-carriage and other doors, the combination, with a spindle, such 80 as G, of an escutcheon, such as K, in which the spindle turns, a plate L, secured to the door for holding the escutcheon, and the actuating-spring secured at one end to the spin- 85 dle and at the other end to the escutcheon, substantially as and for the purposes set forth.

5. In a lock for railway-carriage and other doors, the combination, with a handle mounted on a spindle, having portions of its surface flattened, of an actuating-spring having its 90 end coils flattened to engage with the corresponding surface on the spindle, substantially as and for the purposes herein set forth.

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Witnesses:

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PERCY S. MATTOCK.