

(Model.)

2 Sheets—Sheet 1.

E. R. WETHERED.
LATCH AND LOCK COMBINED.

No. 316,098.

Patented Apr. 21, 1885.

Fig. 2.

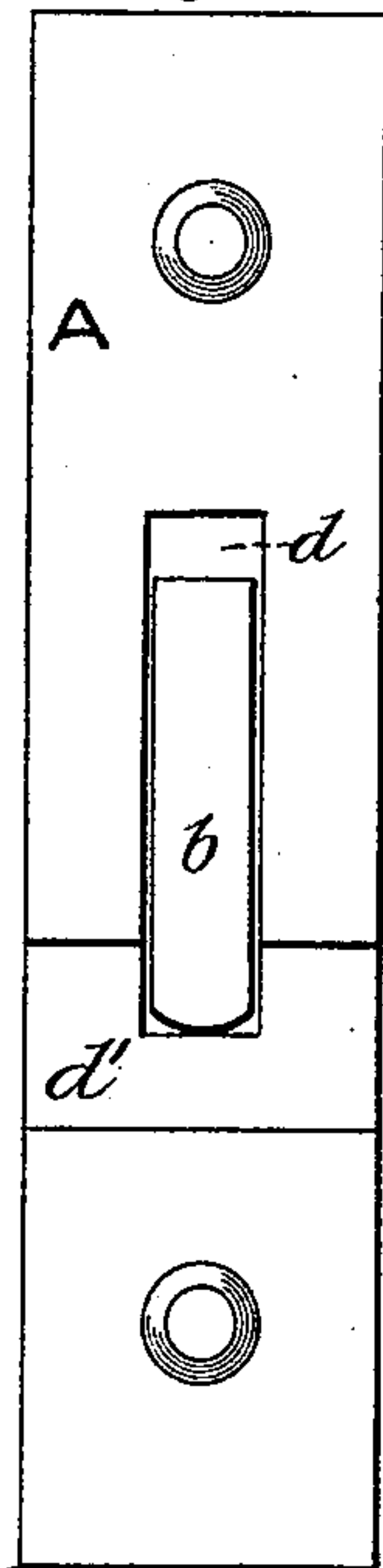


Fig. 1.

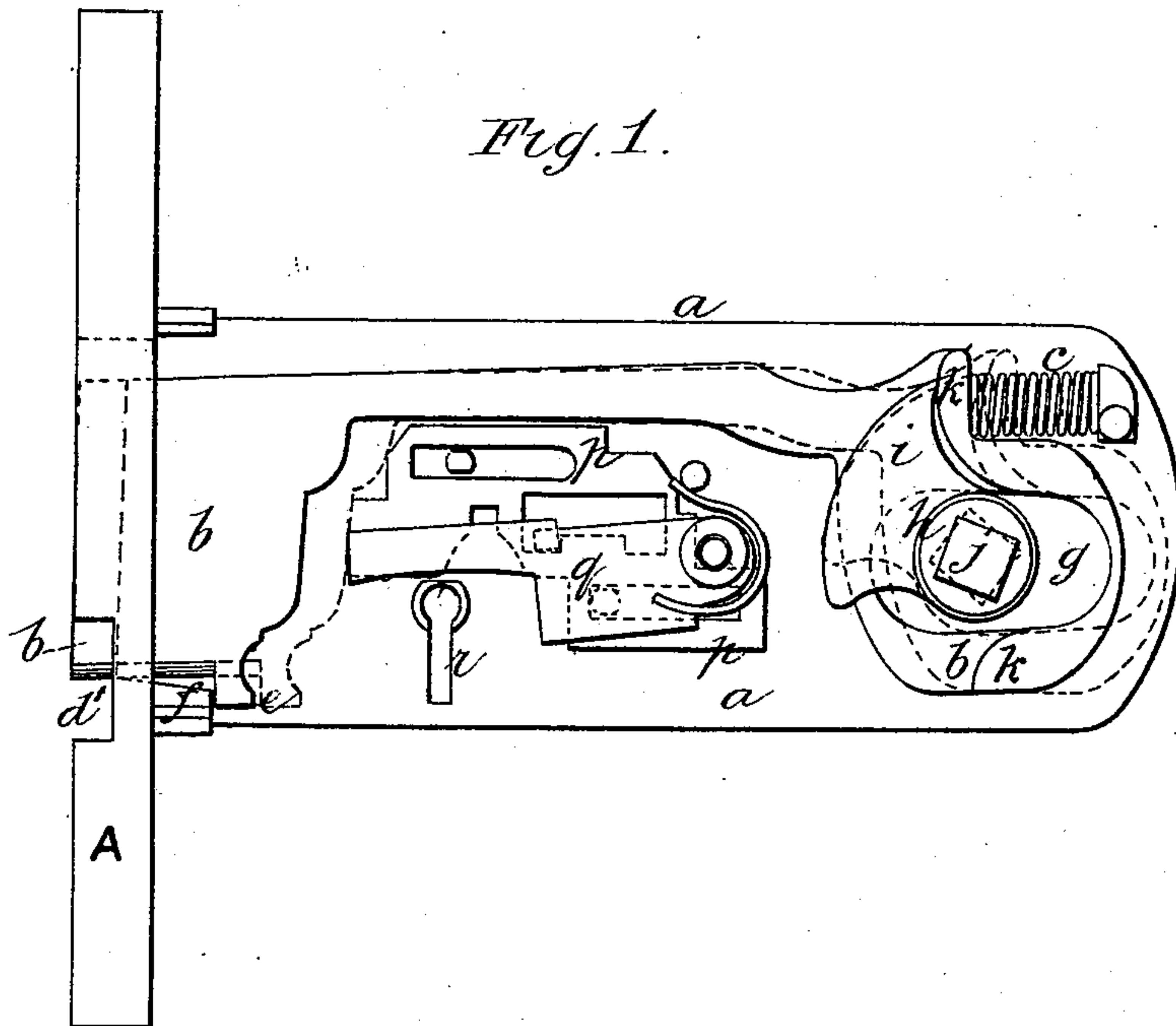


Fig. 6. Fig. 5. Fig. 4.

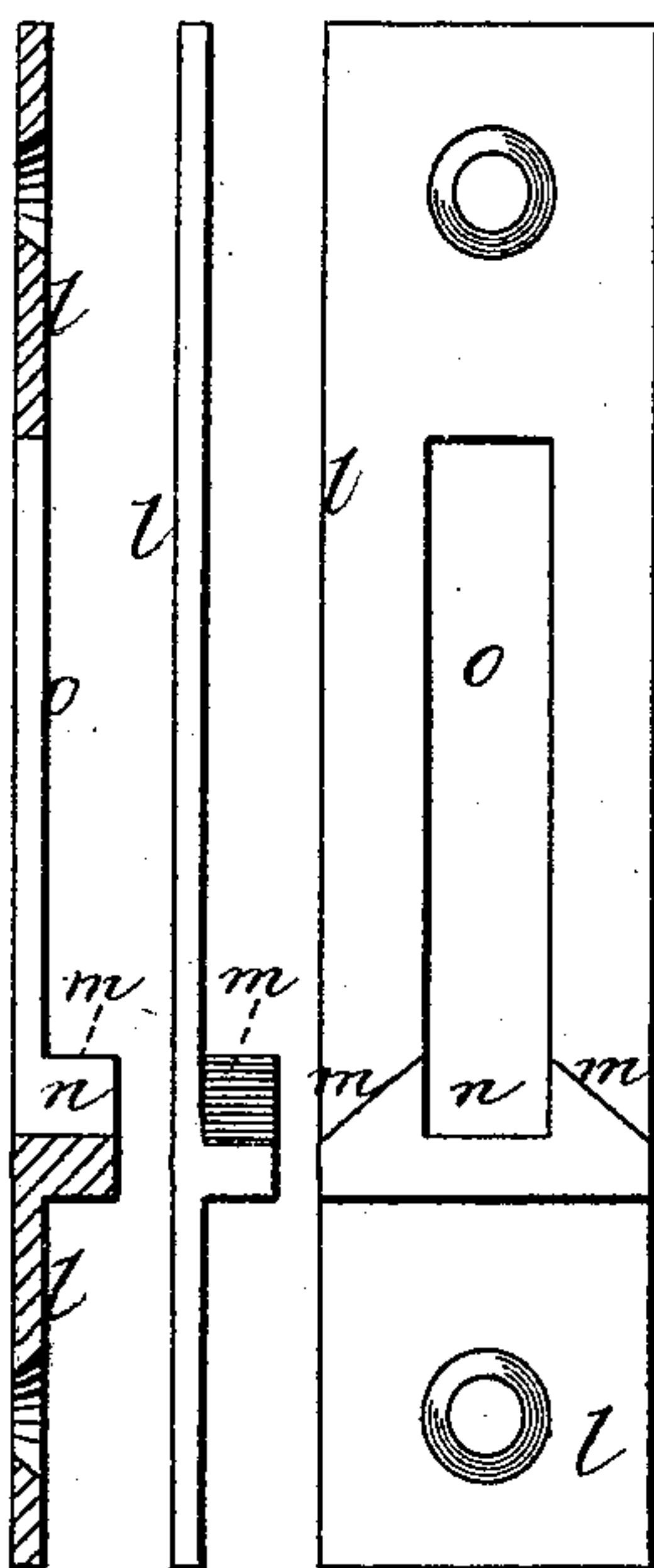
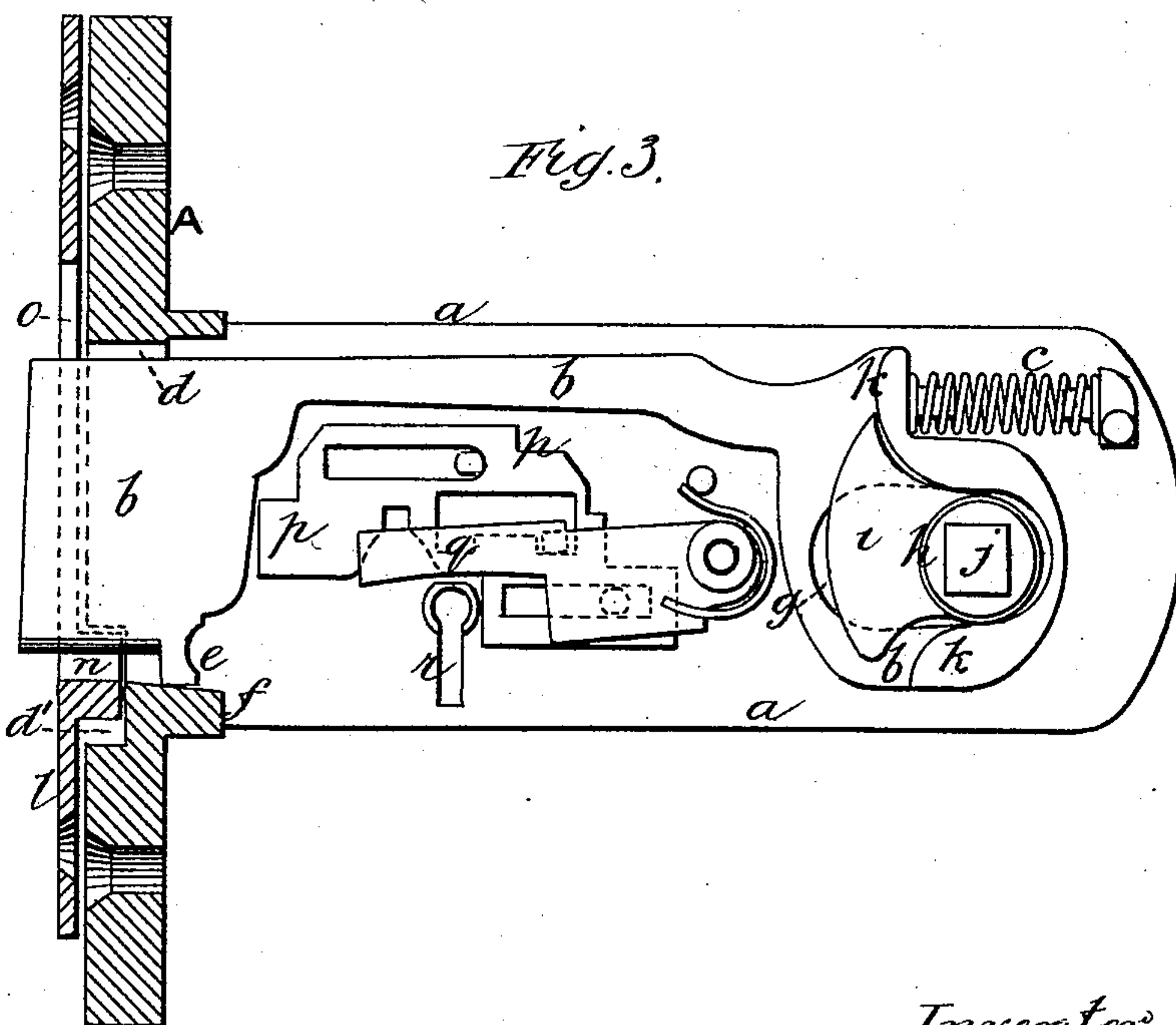


Fig. 3.



Witnesses.
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Guy L. DeMott.

Inventor.
Edwin Robert Wethered
by John J. Halsted & Son
his attys

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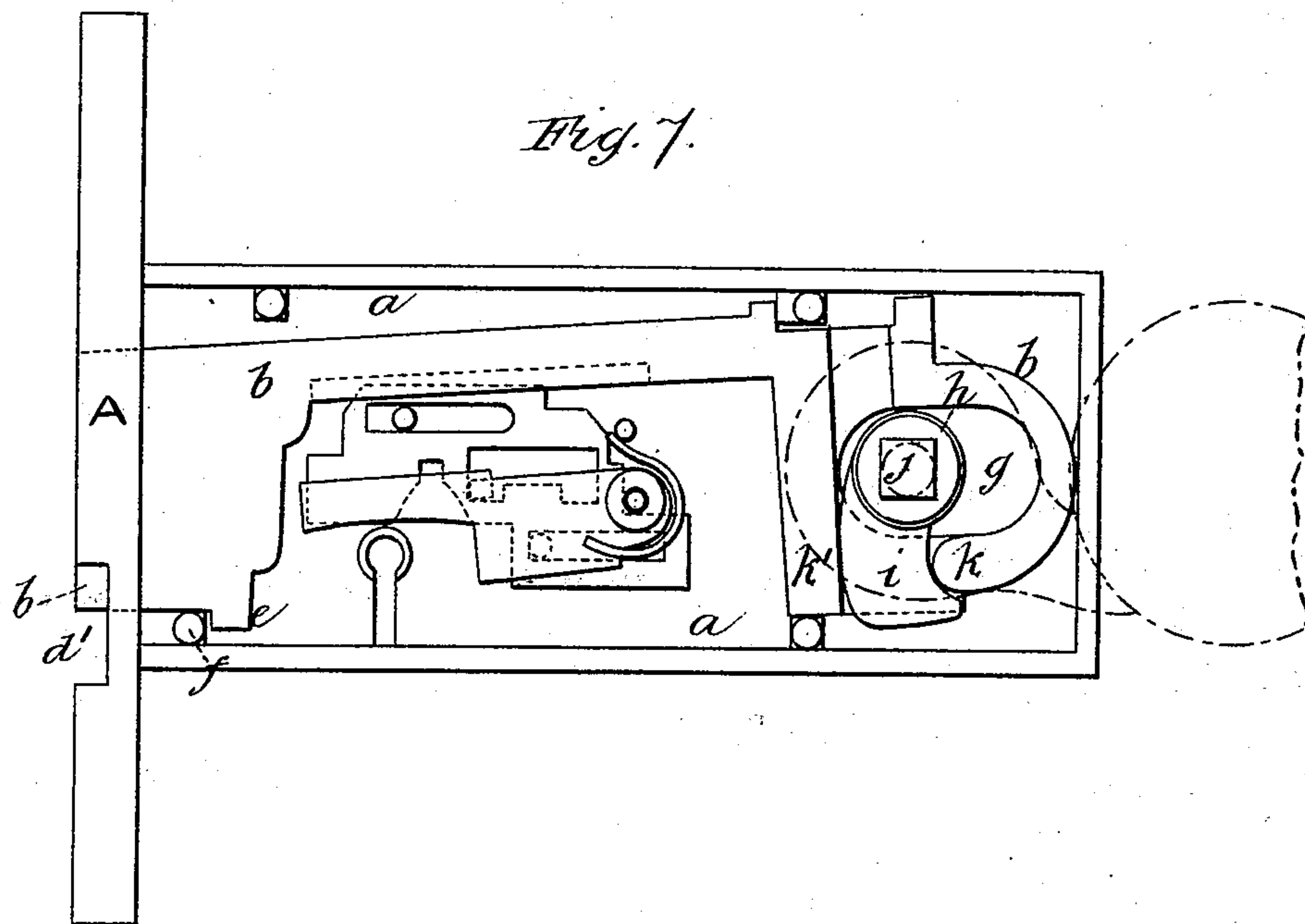


Fig. 9.

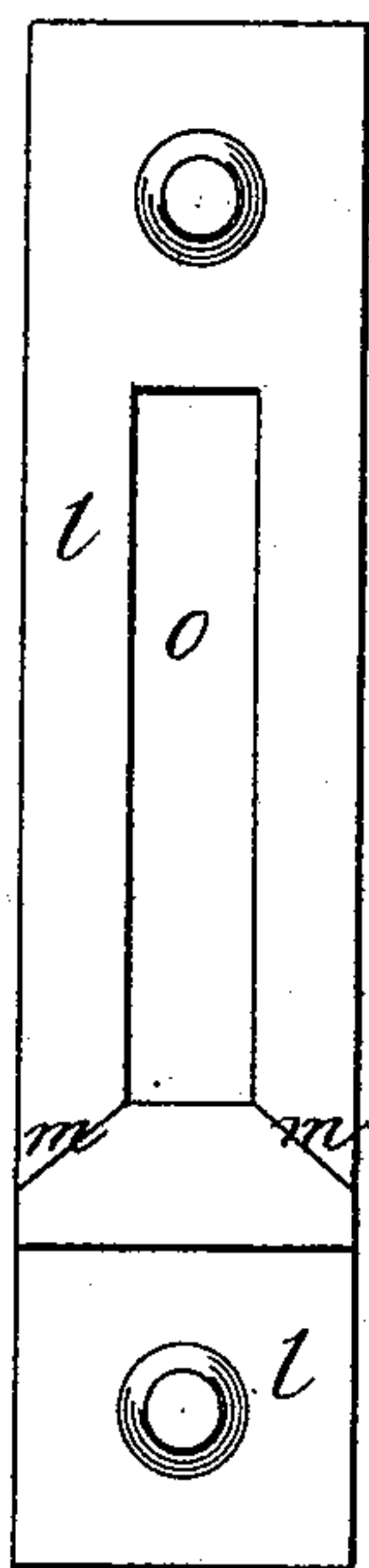
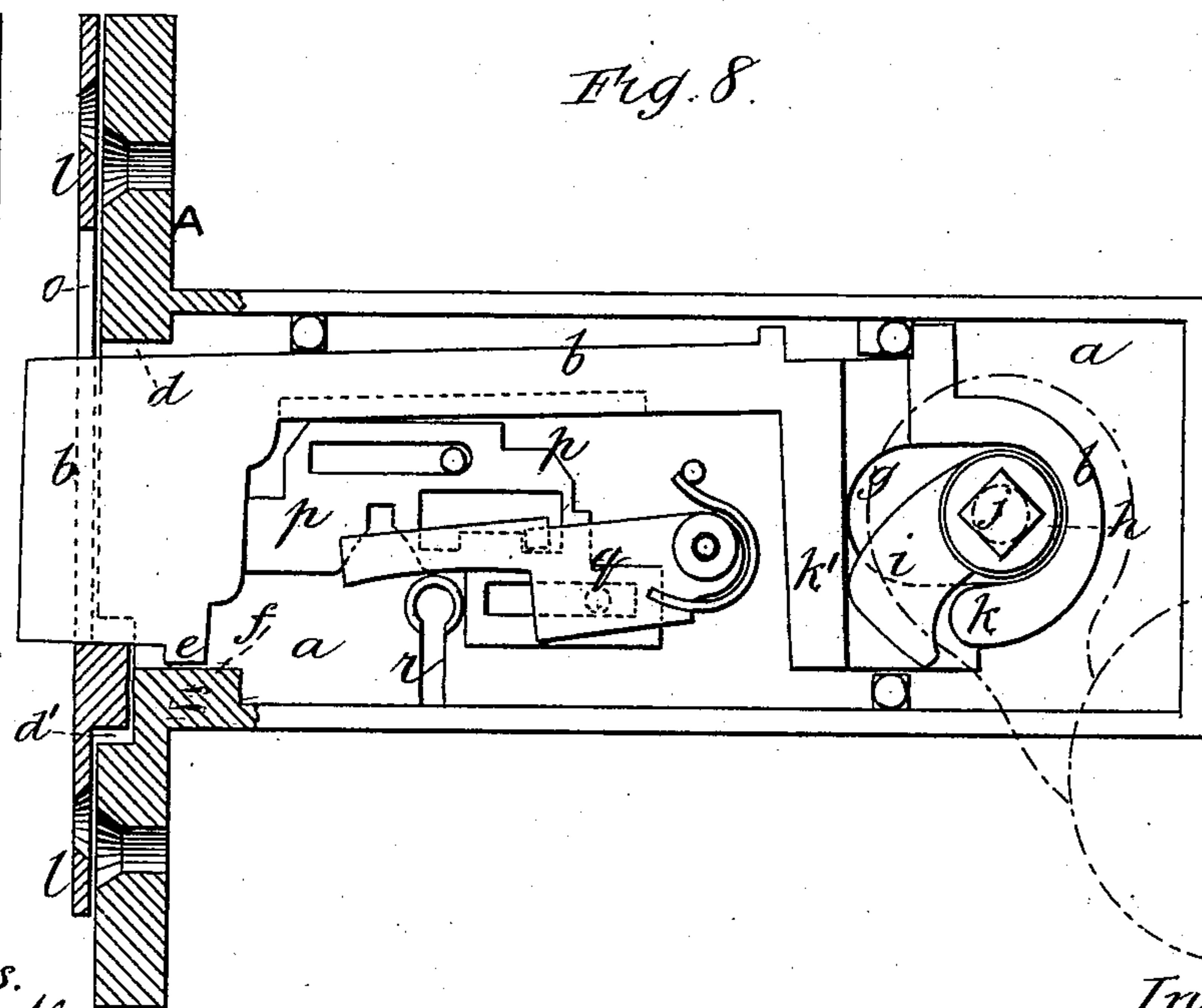


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWIN R. WETHERED, OF WOOLWICH, COUNTY OF KENT, ENGLAND.

LATCH AND LOCK COMBINED.

SPECIFICATION forming part of Letters Patent No. 316,098, dated April 21, 1885.

Application filed January 19, 1884. (Model.) Patented in England January 31, 1882, No. 482; in France August 4, 1882, No. 150,467; in Germany August 10, 1882, No. 22,143, and in Belgium August 16, 1882, No. 58,774.

To all whom it may concern:

Be it known that I, EDWIN ROBERT WETHERED, a subject of the Queen of Great Britain, residing at Woolwich, in the county of Kent, England, have invented new and useful Improvements in a Latch and Lock Combined, (for which I have obtained patents in Great Britain, No. 482, and bearing date January 31, 1882; in France, No. 150,467, August 4, 1882; in Germany, No. 22,143, August 10, 1882, and in Belgium, No. 58,774, August 16, 1882,) of which the following is a specification.

This invention relates to the improvements hereinafter described in latches and locks, the object of the invention being to provide a self-shooting latch or lock which, when the door is open, shall have no protruding bolt, combined with a striking-plate having an incline which, as the door is closed, lifts the end of the latch-bolt, so as to release it and allow it to shoot forward and drop behind the said incline when the door is closed. The door cannot then be opened until the end of the bolt has been drawn in past the incline. I thus insure the bolt being caught and retained within the lock, as it should be, until it is next liberated by the incline in again closing the door. The shooting forward of the bolt, when released, may be effected either by the action of a spring or by means of a weighted lever handle or handles, or by the combined action of spring and weight. In some cases the bolt does not drop behind the incline on the striking-plate.

In order to enable my invention to be fully understood, I will proceed to describe the same by reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a mortise latch-lock constructed in accordance with my invention when a spring is employed to shoot the bolt, the incline of the striking-plate being constructed to allow the bolt, when shot, dropping behind it. In this figure a cover or plate of the lock is removed, and the parts are shown in the position which they will occupy when the door to which the lock is affixed is open. Fig. 2 is an end view of Fig. 1. Fig. 3 is a front elevation of the lock and striking-plate, partly in section, the parts of the lock being in the position which they will occupy

when the door to which the lock is affixed is closed and locked. Fig. 4 is a side view, Fig. 5 an edge view, and Fig. 6 a vertical section, of the striking-plate of the lock. Figs. 7 and 8 represent views of a latch-lock in which the bolt is pressed forward by a weighted lever-handle. Fig. 9 is a front view of the striking-plate.

Similar letters in all the figures represent similar or corresponding parts.

I will first describe my invention by reference to Figs. 1 to 6.

a is one of the plates of the lock-case which carries the lock mechanism, and *b* the normally-flush or non-protruding latch-bolt. This bolt is provided with the usual hole for the spindle *j* to pass through, and is provided near its fore end with a tooth or projection, *e*, for the purpose hereinafter described.

c is the spring, which always tends to press the bolt *b* forward and downward.

d is the opening in the end of the lock-case, which opening is sufficiently large, as shown in Fig. 2, to allow the end of the bolt *b* to rise and fall, as hereinafter described, as well as to be protruded and withdrawn. The front or door plate, *A*, of the lock-case is cut away at *d'*, so that as the door is closed the latch *b* may come against the incline, hereinafter described, on the striking-plate without the bolt protruding. When the latch-bolt *b* has been drawn back by means of its handle, and the handle released, the latch-bolt *b* will drop and the tooth or projection *e* will fall behind a stud or projection, *f*, on the lock-plate *a*, so as to retain the latch-bolt within the lock.

g is a slot in the rear end of the latch-bolt *b*, which receives the boss *h* of a tumbler, *i*, through which the spindle *j*, on which the handle is fixed, passes.

k k are projections or shoulders on the rear of the bolt, on which the tumbler *i* bears when operated by the handle to withdraw the bolt from the striking-plate *l*.

m m are projecting inclines upon the striking-plate *l*, and *n* is a recess in the said projection, which recess *n* forms a portion of the bolt-hole *o*. The double-incline striking-plate (shown in the drawings) allows of the lock being fitted either to right or left handed doors, and is also suitable for doors opening both in-

ward and outward. When required for a door opening in one direction only, only one inclined projection is necessary. p is a lock-bolt, and q is a tumbler provided, in connection with it, for locking the latch-bolt b in its closed position when required.

The operation of my improved latch or lock is as follows: When the parts of the lock are in the position shown in Fig. 1, it will be seen that the latch-bolt is entirely within the lock-case, (the door being open.) If the door be closed, the end of the latch-bolt b (which from the formation of the lock-case at d' , it will be seen, is sufficiently exposed) will ride up one of the inclines m until the tooth e shall be clear of the stud or projection f , when the bolt b will be thrown directly forward by the action of the spring c into the bolt-hole o in the striking-plate l , and will drop into the recess n in the striking-plate, and so effectually close the door. In order to open the door again, the bolt b must be drawn so far back into the lock-case as to be quite clear of the incline m , and consequently so far back as to bring the tooth e well to the rear of the projection or stud f . This insures the engagement of the tooth e with the retaining stud or projection f before the door is opened, which might not occur if the door were free to open immediately the end of the bolt b was free from the opening o in the striking-plate l . This withdrawal of the bolt b is effected by turning the handle of the door, whereby the tumbler i is caused to bear upon one of the projections or shoulders k at the rear of the bolt, and the bolt will be drawn back into the position shown in dotted lines at Fig. 1. The door can now be opened, and the handle being released the bolt, under the action of the spring c , will be forced forward until the tooth e meets the stud or projection f , as shown in full lines at Fig. 1, in which position it will be retained until the door is again closed. If it be desired to lock the latch-bolt b in its closed position, a key is introduced into the key-hole r and the lock-bolt p shot into the position shown in Fig. 3.

The bolt may be held back in the lock-case by a longitudinal slot and vertical notch in the bolt, and a pin or stud in the lock-plate, or vice versa, instead of by means of the tooth or projection e , hereinbefore described.

The handle may be applied in various ways. Thus the bolt may, as shown in the drawings, be operated by a handle capable of turning in either direction, and which operates by a tumbler or follower pressing against projections on the bolt.

The tumbler or follower may have a double arm, so that in the event of the spring breaking, the bolt b can be forced outward as well as drawn inward, and the door closed and opened without the spring; or the bolt may be drawn back by a handle attached directly to it; or it may be moved by a lever-handle having a finger projecting through the case of the lock and pushing the bolt back when the handle is drawn forward.

The arrangement shown in Figs. 7, 8, and 9 is similar to that hereinbefore described, and shown in Figs. 1 to 6, with the exception that, instead of employing a spring to produce the forward motion of the bolt b , this is effected by a weighted lever-handle, (shown in dotted lines,) which operates the tumbler i , the rear of the bolt b being formed with a second projection, k' , against which the tumbler i bears to press forward the bolt b , and which will be well understood without further description. In this case the striking-plate is shown without the recess n , hereinbefore described.

I have described my invention as applied to mortise-locks; but its application to other kinds of locks will be understood without further description.

Having thus described my invention and the manner of performing the same, what I claim is—

1. The combination, with a normally flush or non-protruding latch-bolt adapted to be held back by a tooth or detent until lifted and then automatically shot forward, and a recess, d' , in the lock-case, of a striking-plate provided with an incline, m , adapted to project into such recess and serving to lift and liberate said bolt, and also provided with a recess, n , behind this incline, to prevent the door being opened until said bolt has been withdrawn within the lock-case, substantially as shown and described.

2. The combination, with the front or door plate, A , having the projection f on its inner side, and a recess, d' , in its outer face, of the bolt having a projection, e , and of the striking-plate l , as made with the double inclines, adapted to project into the recess d' , and with the recess n between such inclines and the bolt-hole o , all substantially as shown and described.

3. In a latch-lock, the non-pivoted and normally non-protruding latch-bolt, adapted and arranged to be lifted and automatically slid forward, and having a projection, e , in combination with a stud or projection, f , on the lock-case, and whereby the bolt is normally held back, with its edge flush with the edge of the door.

4. A striking-plate for mortise latch-bolts, having the bolt-hole o and having inclines m , the door-plate having a recess, d' , combined with a shooting bolt which is normally held back flush with the edge of the door, all as set forth.

5. In combination, the striking-plate l , having the projection with double inclines, the recess n , and bolt-hole o , the front plate having a recess, d' , and projection f , the normally flush bolt having the projection e , and a spring or weighted handle to drive it forward when raised by either of the inclines, all substantially as and for the purpose set forth.

Witnesses: E. R. WETHERED.

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