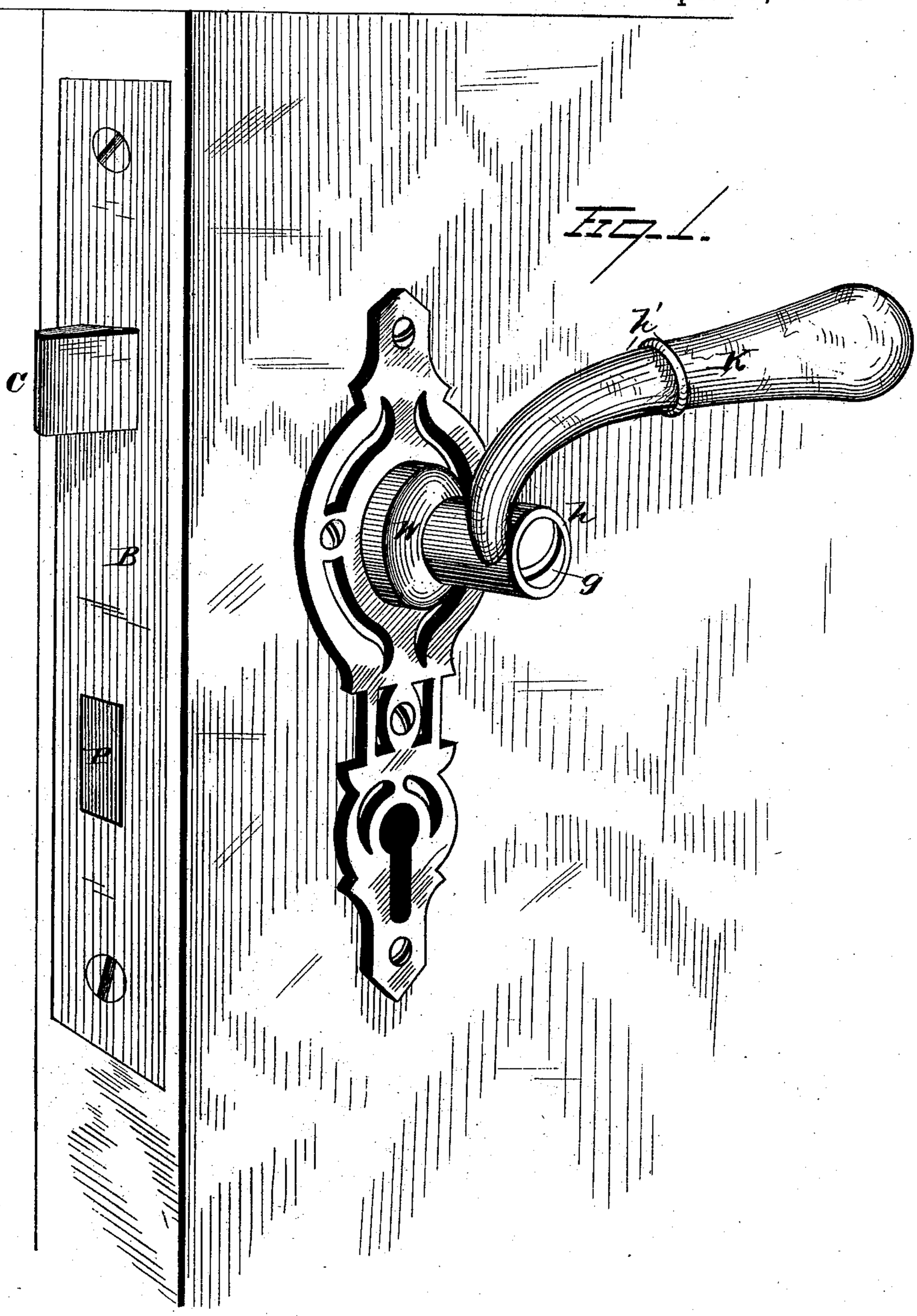
(Model.)

3 Sheets—Sheet 1.

O. FLAGSTAD.

DOOR LOCK AND LATCH.

No. 256,665. Patented Apr. 18, 1882.



WITNESSES

E. D. Cottingham

Herman Moran.

INVENTOR

Ole Flagstad

By Bennett & Bennett.

ATTORNEY

(Model.)

3 Sheets—Sheet 2.

O. FLAGSTAD.

DOOR LOCK AND LATCH.

No. 256,665. Patented Apr. 18, 1882.

Fig. 1.

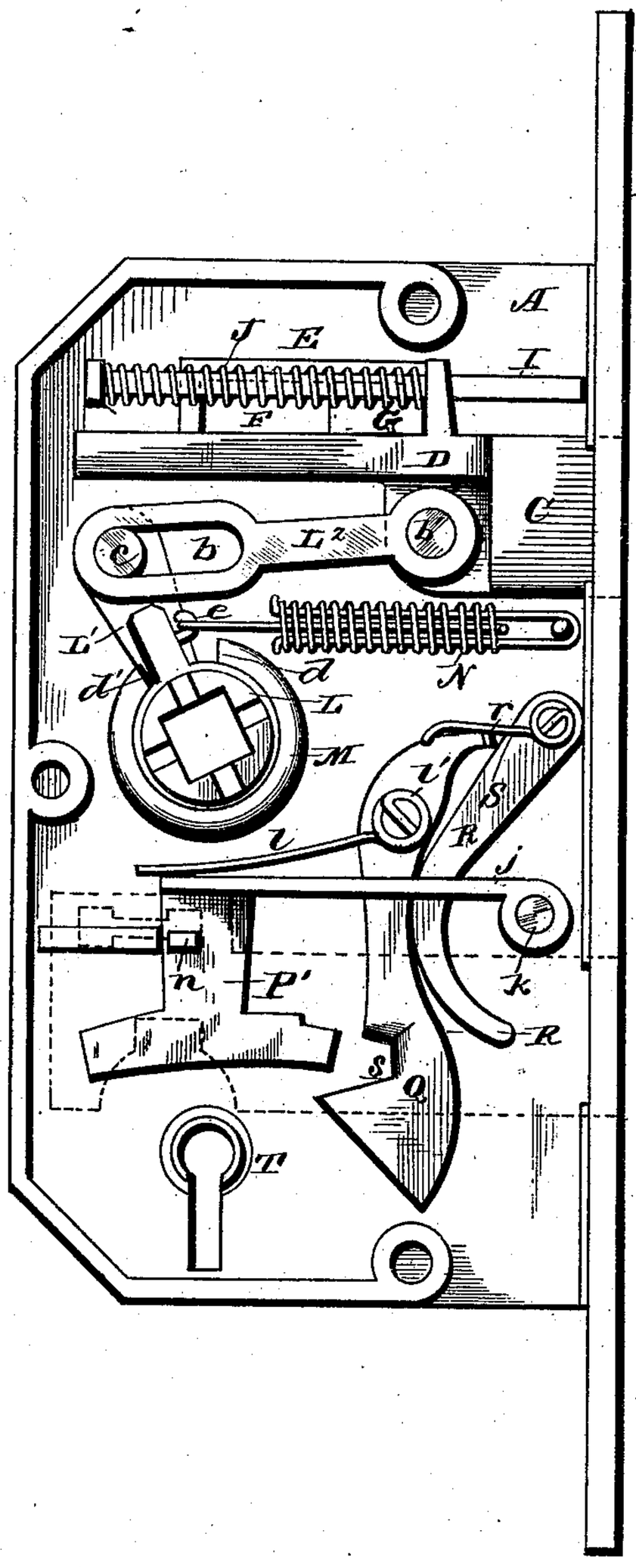
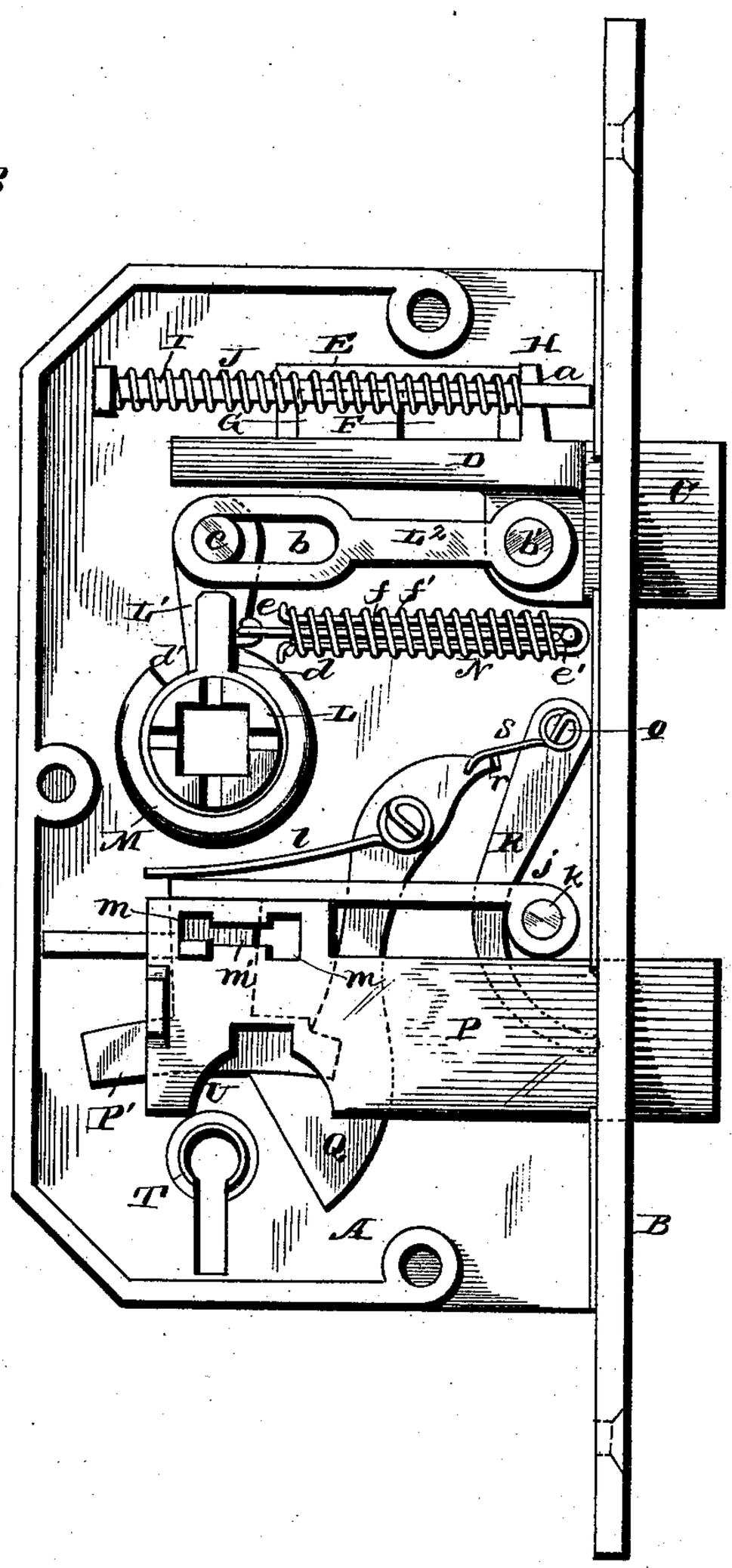


Fig. 2.



WITNESSES:

E. D. Nottingham.

Herman Moran.

INVENTOR—

Ole Flagstad

By Leggett & Leggett

ATTORNEYS.

(Model.)

3 Sheets—Sheet 3.

O. FLAGSTAD.

DOOR LOCK AND LATCH.

No. 256,665. Patented Apr. 18, 1882.

Fig. 3.

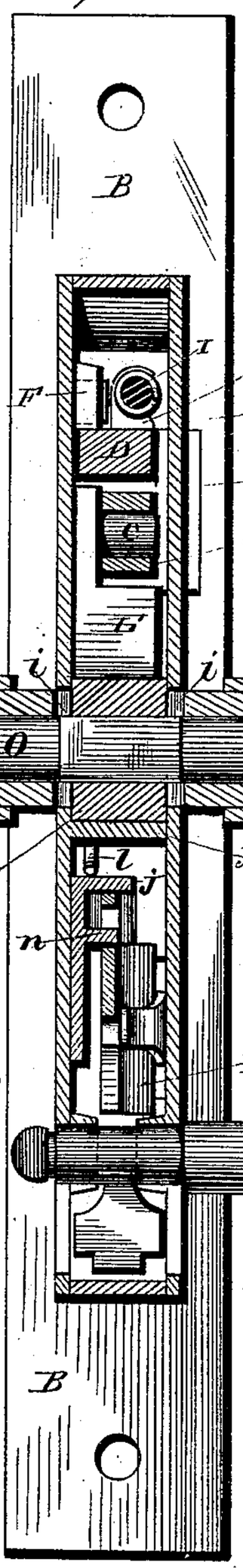
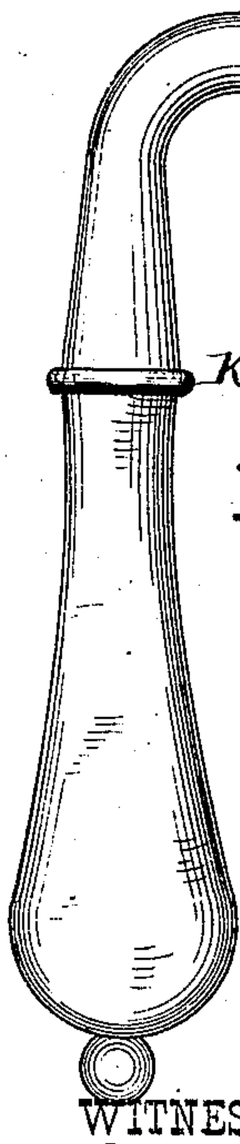


Fig. 4.



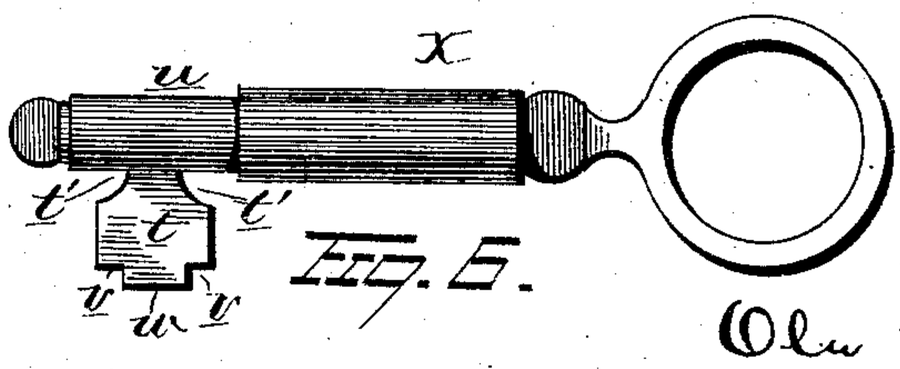


Fig. 5.

WITNESSES

E. D. Nottingham

Herman Moran

INVENTOR

Ole Flagstad,

By Dewett & Dewett.

ATTORNEY

UNITED STATES PATENT OFFICE.

OLE FLAGSTAD, OF HAMAR, NORWAY.

DOOR LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 256,665, dated April 18, 1882.

Application filed October 22, 1881. (Model.)

To all whom it may concern:

Be it known that I, OLE FLAGSTAD, of Hamar, Kingdom of Norway, have invented certain new and useful Improvements in Door-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in door-locks; and it consists in certain details in construction and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the lock secured in position. Fig. 2 is a plan view with the front casing removed. Fig. 3 is a longitudinal sectional view through the operating-handles. Fig. 4 is an end view of one of the handles. Fig. 5 is a plan view of the lock with the bolt removed, and Fig. 6 is a side elevation of the key.

A represents the lock-casing, and B the face-plate by which it is secured in the door, the latter being provided with openings for the passage of the bolt and spring-actuated latch. This spring-actuated latch C is provided with a rearwardly-extending arm, D, which latter is also provided with the laterally-projecting lip E, having an oblong opening, F, therein, in which the oblong projection G, secured to the casing A, rests. This projection G serves to hold the latch in proper position and prevent it from becoming displaced. The rearwardly-extending arm D is also provided with a lug, H, having a slot, *a*, formed therein, through which the rod I, having the spring J thereon, passes. This spring J bears on the inner face of the lug H, and constantly exerts an outward pressure thereon, which keeps the latch to its farthest limit until the pressure of the spring has been overcome by turning the handles K, which latter are connected thereto through the intervention of the barrel L, arm L′, and connecting-link L^2. This link L^2 is provided at one end with an oblong slot, *b*, or opening adapted for the reception of the lug *c* on the arm L′, while the opening *b′*, at the opposite end of the link, adapts it to be secured to the latch C. By providing the inner end of the link L^2 with an oblong slot the latch is enabled to move backward and forward while closing the door without communicating the motion to the handles.

The barrel L is held in position between the sides of casing of the lock by the split collar M, which latter is rigidly secured to one face of the casing, with its ends *d d′* separated sufficiently to allow the arm L′ enough movement to draw the catch in until its outer edge is flush with the face-plate, while the edge *d* of the collar forms an abutting-surface for the arm L′ and prevents the spring N from moving the said latch too far outward. This spring N is composed of two U-shaped wires, having curved ends, as shown. One of these U-shaped wires is connected to the finger *e* on the arm L′, with its curved ends toward the face-plate B, while the other wire is hooked over the finger *e′*, secured to the face-plate B, with its curved ends toward the arm. A spiral spring is placed around the two wires *f* and *f′*, and the ends of the said spring abut against the curved ends of the U-shaped wires *f f′* and are held securely in position. When the arm L′ is moved upward the wire *f*, connected thereto, is partly withdrawn from between the parallel sides of the other wire, *f′*, which compresses the spring, and consequently increases the pressure, which is sufficient to bring the handles up to their proper position.

The barrel L is adapted to rest flush with the outer surface of the front and rear plates of the casing A, and is provided centrally with an angular opening extending through the same, in which the spindle O rests. This spindle O is provided at or near its center with an angular portion, similar in shape to the internal bore of the barrel, while at either side of this angular portion the spindle is rounded, which allows it to turn freely without being obstructed.

The extremities of the spindle are bored out and provided with female screw-threads for the retention of the screws *g*, which hold the handles K in position. These handles K are shaped as shown in the drawings, and each consists of a body, *h*, and shank *h′*, the latter being covered or ornamented, as desired. The body portion *h* extends at right angles to the shank, and is

bored throughout its entire length for the end of the spindle O, while the extreme inner end of each body is provided with two or more projecting lugs, *i*, adapted to enter corresponding depressions in the ends of the barrel L. When the handles are secured in place the extreme inner ends thereof are in immediate engagement with the barrel and act directly thereon, while the spindle O merely serves to retain the handles in engagement with the barrel L. The bolt P is situated below the split collar M, and is guarded by one tumbler, P′, which latter is pivoted by the arm *j* to the stud *k*. This arm *j* is pressed downward continuously by the spring *l*, secured to the stud *l′*, which latter also forms the pivotal bearing of the dog Q, which dogs the tumbler and prevents it from releasing the bolt until it has first been moved outward.

The bolt is provided with the two vertical slots *m*, connected centrally by the transverse slot *m′*, and in these slots the stud *n*, on the tumbler P′, is adapted to move. The length of the vertical slots *m* below the lowest edge of the transverse slot *m′* is just the same distance the tumbler is moved upward by the key, which brings the stud *n* on the tumbler P′ in line with the transverse slot *m′* and allows the bolt to be shot back in the lock by the action of the key on the bolt. If in trying to pick the lock the tumbler P′ should be moved slightly more than necessary, the stud enters the portion of the vertical slot above the transverse slot and prevents the bolt from being withdrawn.

The movement of the dog Q is controlled by the follower R and spring S, which latter is secured to the post *o*, which affords pivotal bearing to the said follower. This outer end of this follower R is curved slightly upward, and is adapted to bear against a shoulder formed by cutting away the shank of the bolt. The spring S bears against the outwardly projecting end of the dog, and its tendency is to constantly force the outer or free end of the dog toward the free end of the tumbler. When the bolt is shot inside the casing the follower R abuts against the projecting end *r* of the dog Q and moves the opposite end thereof away from the tumbler; but when the bolt is shot outward the pressure of the follower is released from the dog, which allows the spring S to force the dog toward the tumbler. The tumbler P′ is T-shaped, and one end of the same is adapted to enter the slot *s* in the opposing face of the dog Q, where it is held until the dog has been moved outward by turning the key.

When the parts are constructed as above described the movement of the dog during the operation of withdrawing the bolt is controlled and effected by the follower, while the following movement of the follower during the shooting of the bolt is effected by the rear end of the spring-pressed dog bearing against the follower. The key X, for operating this bolt, is shown in Fig. 6. This key is provided with a web, *t*, having two curved slots, *t′*, therein near the pin *u*, so as to adapt it to fit over the annular collars T, formed around the eye of the key-hole on the inside of the front and rear plates, thereby allowing the web to move in contact with either plate of the lock, so as to engage with the dog Q and tumbler P′. The web of the key is also provided with the notched ends *v*, adapted to engage the dog and tumbler, while the extremity of the web is adapted to engage with either side of the notch U of the bolt P and move the bolt either in or out, as the case may be.

A key constructed as above described is adapted to be introduced from either side of the door and lock or unlock the doors desired. The movement of the bolt, together with its connective parts, is as follows: Supposing the bolt P to be housed and the key introduced into the key-hole, when the key is partly turned from right to left the tumbler P′ is first encountered by the web of the key at one of its cut-away ends, (depending on whether the key is introduced from the in or out side of the door which end is encountered,) which is moved upward until the projecting lug thereon is in line with the transverse slot *m′*. At this juncture the outer extremity, *w*, of the web *t* meets the side of the slot in the bolt on the dog side and moves the bolt outward. As the bolt is moving outward the web of the key leaves the tumbler, thereby allowing the spring *s* to exert its full pressure thereon, and as soon as the vertical slot *m* is reached the tumbler O′ is forced downward, and the stud *n*, entering the said vertical slot, locks the bolt. While this bolt has been moving outward the follower R has also been moving outward, thereby allowing the dog to move toward the tumbler, which it locks after the lug of the tumbler has entered the vertical slot *m′* in the bolt.

When it is desired to unlock the door the dog has to be first moved outward by the key, which unlocks the tumbler and allows the key to move it. When the door is in an unlocked condition the dog is held out of engagement with the tumbler by the follower.

This improved lock, when applied to a door, presents a neat and finished appearance, and can, if desired, be adapted for indoor and outdoor as well as for mortise locks, as shown in the drawings. When the mortise-lock is used it can be applied to any ordinary thickness of door by simply adjusting the collars W on the head of the handle by means of the screw Y. The said collars W are adjusted and secured after the handles are placed in position. Again, the parts of my improved lock are not liable to become displaced or broken, and in case either spring J or N should by any accident become useless, the remaining spring is of sufficient strength and will perform the necessary functions of holding the spring-latch in operative position.

If so desired, the spindle O can be provided

with angular ends and the handles K with angular bores corresponding thereto, and the immediate connection between the handles and barrel L be dispensed with, so that instead of the spindle performing the mere function of holding the handles in position, it forms the connecting medium between the handles and barrel.

My improvement is susceptible of many slight changes in construction, and hence I would have it understood that I do not limit myself to the exact construction of parts shown and described, but consider myself at liberty to make such changes as come within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the spring-actuated latch and barrel having a projecting arm rigidly secured thereto, of a connecting-link pivotally secured to the spring-actuated catch at one end, and provided at its opposite end with an oblong slot, by which it is connected to the arm of the barrel, and a spring constructed substantially as described and adapted to connect the arm of the barrel to the face-plate of the lock, substantially as set forth.

2. The combination, with the spring-actuated latch, working-barrel provided with a projecting arm, connecting-link constructed as described and adapted to connect said arm of the barrel to the spring-actuated latch, and a spring adapted to exert an outward pressure on the said arm, of a collar provided with a split or opening, the opposing ends of the said collar forming the limit of movement of the said barrel and arm, substantially as set forth.

3. The combination, with the working-barrel provided with notched faces, of handles having projections formed on the ends thereof and adapted to engage with the projections, a spindle connecting the handles to the barrel, the split collar for holding the barrel in position, and means for connecting the barrel to the spring-actuated catch.

4. The combination, with the handles K, spindle O, collars W, barrel L, and split collar M, of the spring N, connecting-link L^2, catch C, guide-rod I, spring J, and lug H, all constructed and arranged substantially as shown.

5. The combination, with the bolt provided with the two vertical and one transverse slots and the spring-actuated tumbler, constructed as described, and provided with a projecting end adapted to move in the above-named slots, of a spring-actuated dog, provided with an opening in one side for the reception of one end of the tumbler where the bolt is shot outward, and a follower adapted to hold the dog away from the tumbler when the bolt is housed, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of July, 1881.

OLE FLAGSTAD.

Witnesses:
FEUR RÓHNE,
H. FRANG.