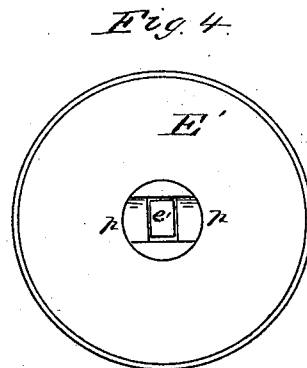
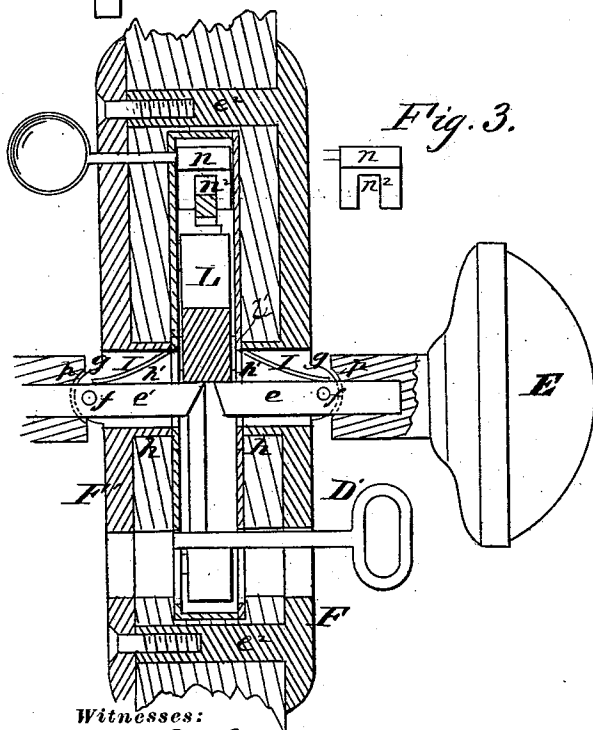
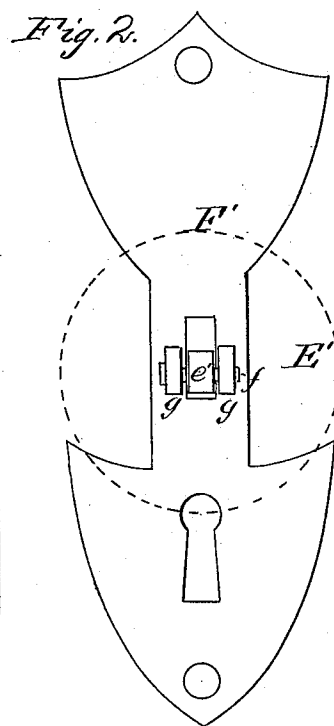
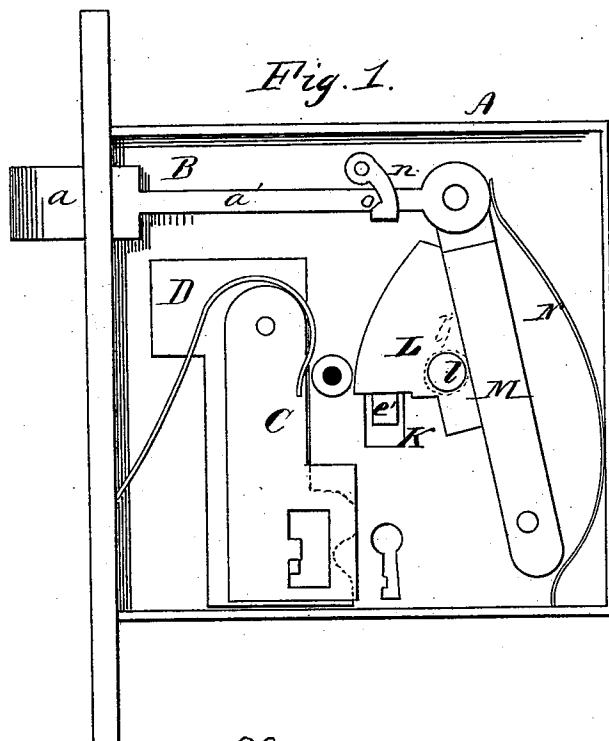


(No Model.)

T. F. McGRATH.
Latch.

No. 233,867.

Patented Nov. 2, 1880.



Witnesses:

Jos. B. Connolly
J. J. McSiga

Thomas F. McGrath
Inventor:

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Att'y.

UNITED STATES PATENT OFFICE.

THOMAS F. McGRATH, OF NEWARK, NEW JERSEY, ASSIGNOR TO HIMSELF
AND JULIA M. McGRATH, OF SAME PLACE.

LATCH.

SPECIFICATION forming part of Letters Patent No. 233,867, dated November 2, 1880.

Application filed June 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. McGRATH, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Door-Locks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a side view of the lock with face-plate removed. Fig. 2 is a face view of one of the escutcheons. Fig. 3 is a vertical transverse section of the lock applied to a door. Fig. 4 is an inner-side view of one of the knobs.

This invention has for its object the provision of an improved lock for doors which shall be simple in construction, easily manipulated, and capable of being made at a comparatively low cost.

The invention consists in the novel construction, combination, and arrangement of parts whereby the retraction of the latch proper is effected through a downward movement of either knob instead of a rotation thereof, the knob-spindles being fulcrumed independently and properly arranged and adjusted in relation to a peculiarly-shaped cam or rocker, so that a vertical movement of the spindle causes a backward movement of the cam or rocker and forces it against a movable arm attached to the latch-bolt.

The invention also consists in the combination, with the latch and fulcrumed knob-spindles, of suitable springs for automatically lifting the knobs when released.

The invention lastly consists in the novel construction and method of applying and fastening the escutcheons in place.

My improvements are designed especially for that class of door-locks known as "mortise-locks"—that is, such as are embedded in the door and concealed when the latter is closed. The improvements are, however, applicable to other classes of locks.

Referring to the accompanying drawings illustrating my invention, A designates the

lock-case, and B the latch-bolt. In addition to the latter, the lock may be provided with a suitable key-bolt; but for ordinary purposes the latch-bolt will answer all requirements when supplemented, as shown, by one or more tumblers, C, and catch D, the latter being operated by a key, D'. The function of the catch is to prevent the latch from being retracted—that is, to lock it in place, and thus lock the door against all but the holder of the key.

In operation the catch D slides or plays in the rear of the latch-bolt head *a*, the latch-bolt shank or continuation *a'* being properly diminished in thickness.

E E' are the knobs, having independent spindles *e e'*, pivoted, by means of horizontal fulcrum-pins *f*, to external ears, *g*, cast on the escutcheons F F'. Other and different bearings for the pins *f* may be provided, if desired.

On the inner sides of the escutcheons boxes *h* are cast, and formed with elongated slots or openings *h'*, through which the knob-spindles pass and play. Springs I, located between the spindles and the upper ends of openings *h'*, are compressed or bent when the knobs are depressed, and when the latter are released cause the knobs to rise.

The lock-case has openings K in its walls, through which the inner ends of the knob-spindles pass, so as to fall below the shouldered portion, head, or lower surface of a rocker, L, having trunnions *l*, by which it is fulcrumed in holes *l'* in the lock-walls. The rear edge of said rocker lies at an angle with and impinges against a bar, M, pivoted at its lower end to the lock-case and at its upper end to the rear end of the latch-bolt shank. When either of the knobs is depressed its spindle rocks the rocker on its fulcrum and forces back the bar M, which in turn retracts the latch-bolt. A spring, N, projects the bolt forward when the knob is raised. Near its inner end the shank of the latch-bolt is diminished in width to accommodate a dead-latch, *n*, which consists of a block pivoted to the lock-case and bifurcated or notched at *n'*, so as to straddle the latch-bolt shank. The device by which the dead-latch is manipulated is a rod extending toward the inner side of the door. When the latch-bolt is forward and the door closed the turning

down of the dead-latch causes it to fall behind the shoulders *o* of the latch-bolt shank and prevents the opening of the door from the outside.

5 The form of the escutcheons is peculiar. One of them, *F*, is placed on the outside of the door and is cast with studs *e*², having screw-sockets in their inner ends. These sockets
10 coincide with holes in the escutcheon *F'*, through which pass the screws by which the two are held in place and fastened to the door. The object of this construction is to conceal the fastenings and render the parts more secure
15 and inviolate, as well as to save labor and expense in fitting the lock to a door.

In order to bring the knob-shanks as close as possible to the escutcheons and cover the
20 spindles, the shanks are formed with concave recesses *p*, embracing the convex ears *g*.

My improvements are applicable to rim-locks as well as to mortise-locks. When a rim-lock is used the escutcheon will not have the studs *e*², but will be fastened to the door by long screws.

25 The advantages of the improvements described are apparent. The parts of heavy and roughly-made locks are rendered very easy of manipulation through the peculiar movement of the knob, while the liability to break or get
30 out of order is very small. It is often found very difficult and even impossible to turn the ordinary knob, while mine may be depressed by the slightest exertion, as provision is made for utilizing all available leverage and relieving
35 the parts of friction.

Nearly every portion of the lock may be cast, and afterward requires but little finishing; hence, security and durability being of consequence, the parts requiring it may be made
40 heavy and strong.

I do not claim to be the first to have deviated from the ordinary form of rotary knob, as I am well aware that other kinds have been patented and used.

What I claim as new, and desire to secure 45 by Letters Patent, is—

1. The springs *I*, in combination with and arranged to impinge against the spindles *e* of the tilting knobs *E*, substantially as described.

2. The combination, with the rocker *L*, tilting-knob spindle, and latch-bolt, of the pivoted bar *M*, substantially as described and shown. 50

3. The escutcheons cast, as shown, with the shank-receiving boxes *h'*, having pivoted lugs *g*, the walls of said boxes extending inwardly
55 toward the lock-case, and the pivoted lugs projecting outwardly, as shown.

4. The escutcheon *F*, cast with the shank-receiving box *h*, and with the internally-threaded fastening-studs *e*², constructed and adapted
60 to pass entirely through the door, as shown and set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

THOMAS F. McGRATH.

Witnesses:

THOS. A. CONNOLLY,
A. G. HEYLMAN.