

(No Model.)

2 Sheets—Sheet 1.

G. N. DUNCAN.
LATCH.

No. 480,075.

Patented Aug. 2, 1892.

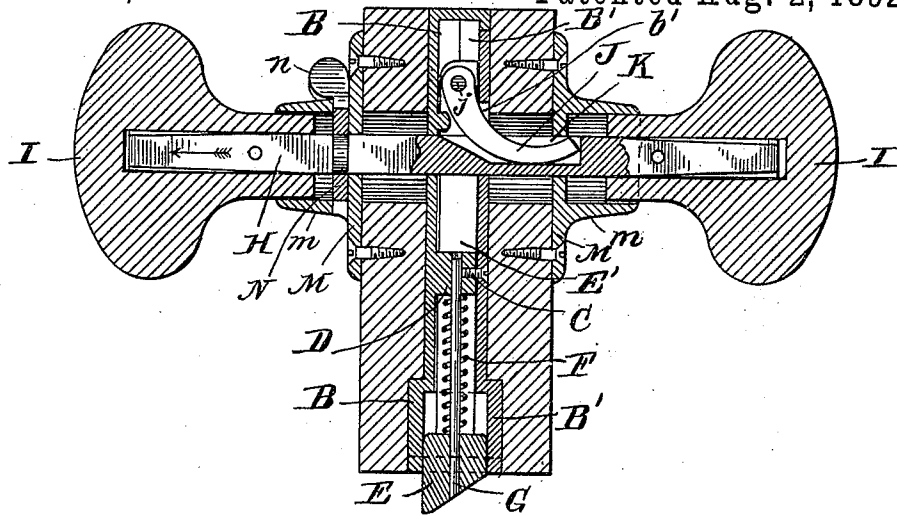


FIG. 1.

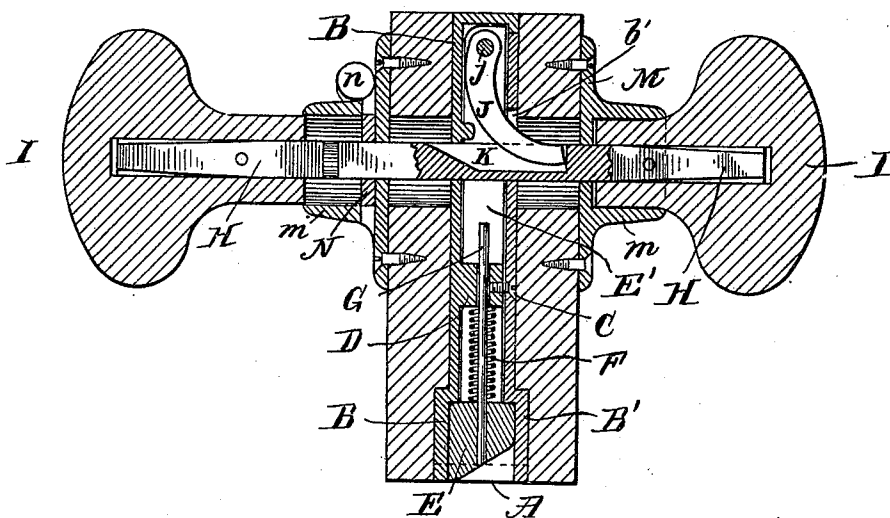


FIG. 2.

WITNESSES.

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Elihu G. Doornis

INVENTOR.

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by A. H. Jewett,
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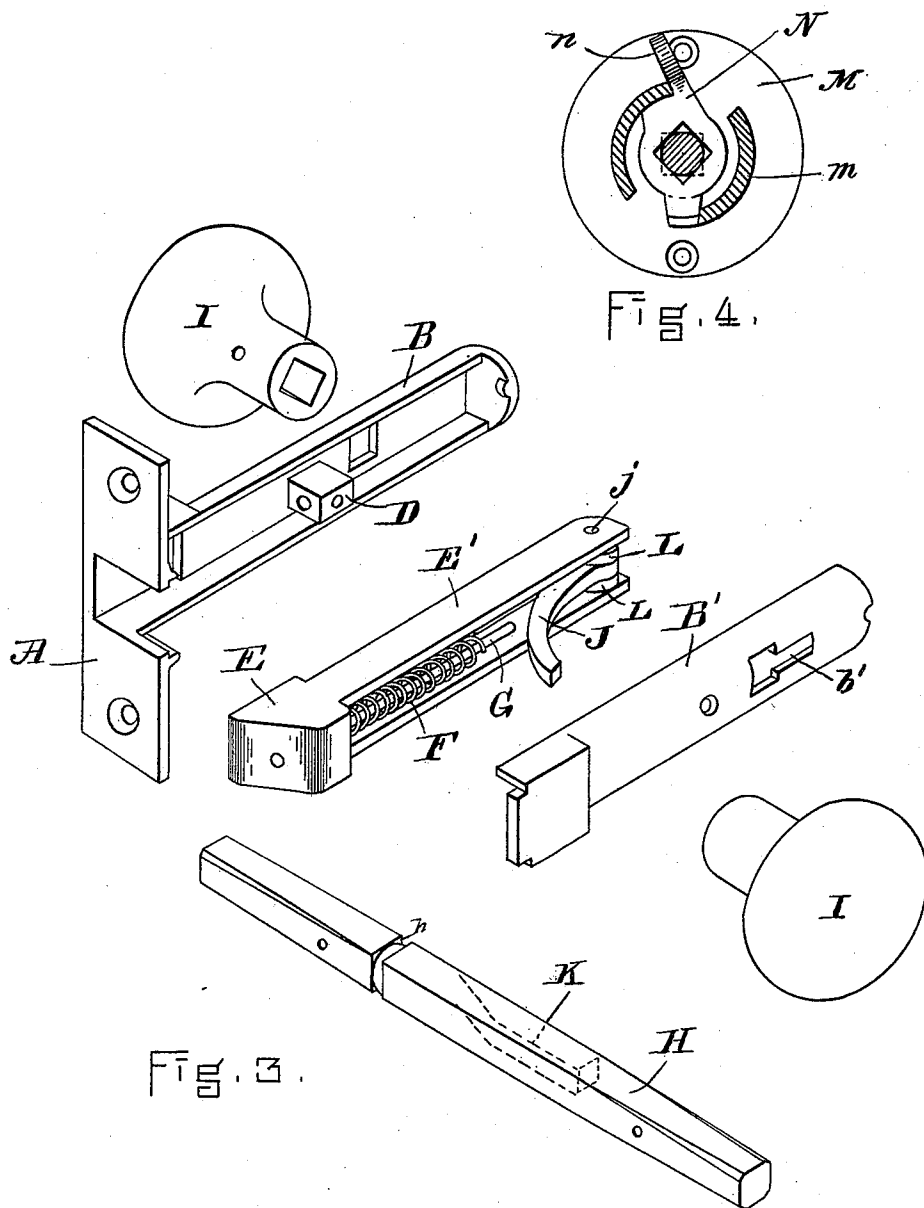
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WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE N. DUNCAN, OF GREENWICH, MASSACHUSETTS.

LATCH.

SPECIFICATION forming part of Letters Patent No. 480,075, dated August 2, 1892.

Application filed December 28, 1891. Serial No. 416,297. (No model.)

To all whom it may concern:

Be it known that I, GEORGE N. DUNCAN, of Greenwich, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Door-Latches, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention is a mortise-latch for doors, my improvement consisting in certain peculiarities of construction whereby a sliding movement of the knobs and their connecting-stems serve, instead of the usual rotary movement, to withdraw the latch or bolt from the catch-piece.

The latch-plate has a hollow stem or barrel, preferably made in two parts, inclosing the body of the latch and the spring by which the latch is pressed forward. This barrel is inserted endwise into the edge of the door, and is slotted to receive transversely the angular knob-spindle, which slides forward and back through the door, the barrel, and the latch-body. The inner end of the latch-body has pivoted to it a curved tongue projecting laterally from it through the side of the barrel and engaging loosely in a recess in the central portion of the knob-spindle, so that when said spindle is pressed forward said tongue connects it to the inner end of the latch-body and presses back the latch against the resistance of its inclosed spring. Small anti-friction rollers are provided to ease the movement of the parts. The latch-body consists, preferably, of two parallel prongs, between which the actuating-spring is mounted on a central guide-rod, the inner end of the spring abutting on a stationary projection within the barrel. The end of the guide-rod reciprocates through this projection, and the tip of the screw which unites the parts of the barrel may enter it. The knob-escutcheons have annular sleeves, within which the knob-shanks reciprocate, and square sockets for the longitudinal movement of the spindle. A simple locking device to prevent such movement, and thus to prevent opening the door, is formed by a lock-plate having a square opening to fit the spindle, such plate being connected with the escutcheon and having a limited movement around the axis of the spindle,

and the spindle having a notch at each corner to receive said plate when so moved.

In the drawings, Figure 1 is a horizontal section through the door and latch with the bolt in its normal position. Fig. 2 is a similar view showing the position of the parts when the bolt is pressed back. Fig. 3 represents the parts detached, and Fig. 4 a sectional detail of the locking device.

A is the latch-plate, sunken flush with the edge of the door, and B B' is the hollow barrel projecting from said plate, preferably of an externally-cylindrical form, so as to extend into a hole bored edgewise into the door. Said barrel is shown divided longitudinally into two parts, the part B being cast in one with the face-plate A. The parts are suitably united, preferably by a screw C through the one entering a lug or internal projection D on the other.

E E' is the latch or bolt, having the usual beveled head E projecting through the plate A and an elongated body reciprocating within the barrel B B'. The preferred form of this body of my invention is shown in the drawings, consisting of two flat parallel arms or prongs E', between which is the spring F, mounted on a guide-rod G between said prongs and bearing by its inner end against the lug or projection D within the barrel. The guide-rod may be attached to the lug and work loosely within the head of the bolt or secured to the bolt-head and work through the lug.

H represents the spindle on which the knobs I I are secured. This spindle is square in cross-section and passes transversely through the door and the barrel B B' and between the prongs of the latch-body, so that the longitudinal movement of the latch-bolt is not interrupted. The spindle H has an endwise movement only by pushing or pulling on the knobs. This movement is communicated to the latch-bolt by means of a curved tongue J, pivoted to the inner end of the said bolt and protruding through a slot b in the side B' of the barrel, its tip engaging in an elongated socket or recess K in the central part of the spindle. Small anti-friction rollers L, journaled on the pivot, give easy movement to the bolt back and forth within the barrel.

The action is as follows: When the knob is

pushed toward the door to move the spindle lengthwise, the tongue J, is pressed back by reason of its tip engaging in the spindle-socket K, and as its other end is pivoted to the inner end of the latch-bolt E E' this bolt is pressed back against the resistance of its enclosed spring F and the latch-bolt is withdrawn from its catch, so that the door may open. The reverse movement of the bolt is effected by the recoil of the spring when the hand is removed from the knob. The latch-body, being in the form of two flat parallel prongs E', affords space between them for the spring and its guide-rod, the abutment or projection D, the tongue J, and the rollers L at either side of it. This construction is of great practical utility.

M represents the escutcheon-plate, having a square hole, through which the spindle reciprocates, and a protruding annular hub or sleeve *m*, within which the shank of the knob I moves freely. I form a simple lock for this form of latches having a sliding knob-spindle, as best shown in Fig. 4. At the junction of the sleeve *m* with the escutcheon-plate I form a slot through the walls of said sleeve and insert the lock-plate N, having a square central aperture to fit the spindle and a protruding handle *n*. The spindle H is grooved or notched, as at *h*, at each of its four corners at the point in its length which rests in the plane of the plate N whenever the latch-bolt is in its normal position—that is, protruded by the action of the spring F. This notched portion of the knob-spindle ordinarily passes freely through the lock-plate N; but when it is desired to lock the door the lock-plate is turned about one-eighth of a revolu-

tion around the axis of the spindle, thus bringing the walls of the square opening in the plate into engagement with the notches in the corner of the spindle, thereby preventing longitudinal movement of the spindle and effectually locking the door.

I claim as my invention—

1. In a door-latch, the hollow cylindrical barrel B B', made in two parts, one of said parts being integral with the latch-plate and the other being adapted to fit edgewise upon the first, in combination with the latch-bolt reciprocating within said barrel in the direction of its length, the knob-spindle reciprocating through the same at right angles thereto, and with the connecting-tongue J and anti-friction rollers L, for the purpose set forth.

2. In a door-latch, the knob-spindle adapted to move longitudinally in actuating the latch-bolt and provided with the corner notches *h*, in combination with escutcheon-plates having square sockets to fit said spindle and annular sleeves surrounding the same, and with a lock-plate N *n*, having a similar socket through which the spindle passes, said plate being inserted transversely through said sleeve and adapted by a partial rotation to engage with the notches *n*, for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 7th day of July, A. D. 1891.

GEORGE N. DUNCAN.

Witnesses:

A. H. SPENCER,
J. C. KENNEDY.