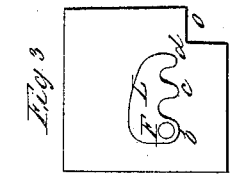
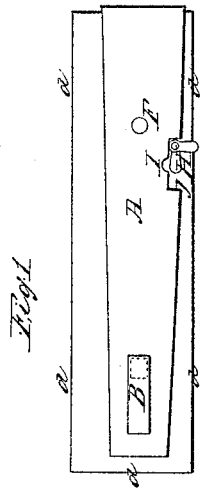
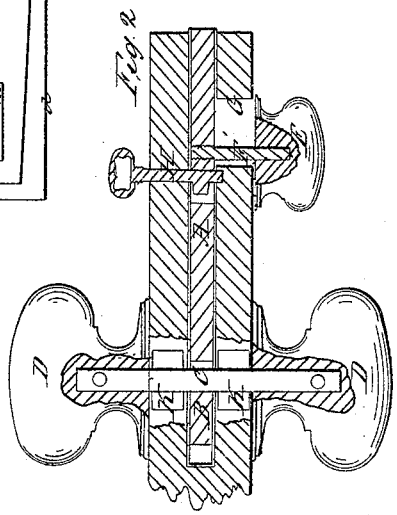
L. Foster,

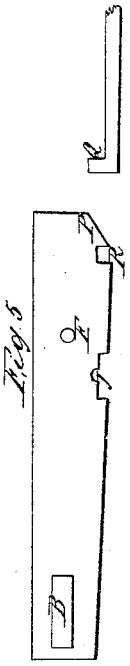
Latch.

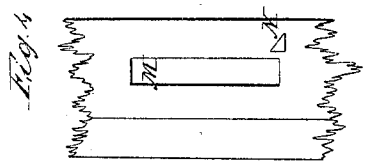
No. 2,231. Patented Aug. 28, 1841.











UNITED STATES PATENT OFFICE.

LEONARD FOSTER, OF BOSTON, MASSACHUSETTS.

MANNER OF CONSTRUCTING MORTISE-LATCH DOOR-FASTENERS.

Specification of Letters Patent No. 2,231, dated August 28, 1841.

To all whom it may concern:

Be it known that I, LEONARD FOSTER, of the city of Boston, in the State of Massachusetts, have invented a new and improved mortise-latch fastening for house, carriage, and other doors, which fastening I denominate the "Trinity mortise-latch" from its possessing the triple property of operating as a latch, a bolt, and a lock; and I do hereby declare that the following is a full and exact description thereof.

The latch, or bolt, may be made of a piece of sheet, or other, metal, no thicker than is requisite to give to it the necessary strength, according to the size of the door to which it is to be applied; and this latch, or piece of metal, is to be let into a mortise made to receive it in the edge of the door. At its inner end, a long slot, or mortise, is made through said piece of metal to admit the square axis, or shaft, to which the knobs or handles are fastened by which the latch is to be raised. The mortise, or slot, in the latch is made long enough to enable the latch to slide forward and backward on the shaft which passes through it, and thus to operate as a bolt, in a manner to be presently described. Besides the ordinary shaft and knobs for lifting the latch, there is a third knob of a smaller size, and which I denominate the thumb knob, by means of which the latch may be made to operate as a bolt, and be slid forward and backward. This knob is on the inner side of the door, and the shank or shaft by which it is attached to the bolt extends no further through the door than is required for this attachment, there not being any corresponding knob on the outside of the door; the door, therefore, may be bolted on the inside by means of this knob, but not on the outside. I make provision, however, for causing the latch, or bolt, to be operated upon on the outside by means of a small key, by which it is converted into a lock bolt. The hole for this key is made only half way through the door, or far enough to enable it to reach the bolt, so as to lock and unlock it from the outside only. When bolted on the inside, it may be so bolted as that a person having the key may open it from the outside; or it may be so bolted as to prevent this being done, as may be preferred.

In the accompanying drawing, A, Figure 1, is the mortise latch bolt, the lines *a*, *a*, representing the mortise within which it is received. Fig. 2, is a horizontal section through a part of the door, along the middle of the bolt.

B, is the mortise, or slot, through the bolt to receive the square shaft C, of the knobs, or handles, D, D. The bolt A, slides freely upon the shaft C, admitting it to be moved forward so as to enter a mortise in the frame of the door.

E, is a small, or thumb, knob on the inner side of the door; for moving the bolt forward and backward; this knob is attached to the bolt at F, by the shank, or shaft, F′, in such manner as to allow this shaft to move up and down, and back and forth with the motion of the latch bolt A; to admit of this motion, there is a hole of sufficient size made through the door at G, which hole is covered by the bottom of the knob E, this lower part being made sufficiently large for that purpose. On the outside of the door there is a key-hole to admit a small key H, which operates in the cavity J, on the lower side of the bolt, so as to lift it, and move it back and forth; or said key may be made to enter and operate in a suitable opening made through the bolt, instead of the cavity on its lower side, for that purpose.

K, K, are two round collets which fit into round holes made through the door, and which have square holes through them adapted to the square shaft C. This shaft may be affixed to the knobs D, D, in any convenient way.

To cause the latch-bolt to rise and fall, and to slide easily and correctly, I, in general, insert a plate of metal in the edge of the door, on each side of said bolt-latch; and besides this use, one of these plates, (that, namely, toward the inner side of the door) is made to answer another important purpose. Fig. 3, is a representation of this latter plate, which has an opening, or perforation through it in the form, or nearly in the form, shown at L; the corresponding plate on the opposite side of the mortise is not so perforated. Through the perforation L, the shank F′, of the knob E, passes, and when the latch-bolt is not shot forward, it occupies the hollow, or notch, *b*, in the rear of the perforation. When the key is made to act upon the bolt, so as to cause it to act as a lock-bolt, it will raise it, and carry it forward, so as to cause the shank F′, to fall into the hollow *c*, the bolt being shot forward to a corresponding dis-

tance, and entering a mortise made to receive it in the rebate of the door frame, shown at M, Fig. 4; it may then, if desired, be unlocked by means of the key. When the bolt is moved by means of the thumb knob E, it may be carried forward to a greater distance, and the shank F′, be made to occupy the hollow *d;* in this case, the cavity J, in the bolt, will be carried beyond the point which admits of the entrance of the key, and, consequently, the door cannot be unlocked from the outside. The metal plates Fig. 3, may be omitted, and the cavity L, be made in the door itself.

Fig. 4, represents a portion of the door frame; M, being the mortise in the rebate to receive the bolt-latch, and N, a stud which is driven into said frame in the direction of the plane of the door, and projecting out about a fourth of an inch, to serve as a catch to the latch, in the ordinary way. The edge of the door is notched, as also are the plates which occupy the mortise on each side of the latch bolt, as shown at O, Fig. 3, to allow them to pass the catch N; but this notch need not extend to the inner face of the door. A mortise latch bolt, operating upon the same principle, may be adapted to sliding doors. Fig. 5, shows a latch bolt, made in a form suitable for this purpose. The latch is to be inserted in a mortise in the door, as above described; its outer end is to be beveled, as at P, to cause it to be lifted by a catch Q, which is to be driven into the door frame, or, where there are two sliding doors, into the edge of the second door, in such manner as that when the door is closed the catch Q, will enter the notch R, in the latch; there may be a second notch similar to that shown at R, into which the catch Q, may be made to enter when the latch-bolt is moved forward by hand, while the key may be employed to lock and unlock it on the opposite side of the door, as above described. In sliding doors, the knobs D, D, may be omitted, the bolt sliding on a pin passing through the mortise B, and being governed on one side by the thumb knob E, and on the other by the key.

In the accompanying drawings, the respective parts are shown of a size by which they would be adapted to ordinary doors; but for various articles of cabinet work, for the doors of carriages, and numerous other purposes to which they may be applied, they may, of course, be so varied in this and other particulars as to suit the purpose to which they are put, and the place they are to occupy, while the manner of constructing and arranging the respective parts may remain substantially the same with that above set forth.

Having thus, fully described and made known the nature of my invention, what I claim as new in my improved trinity mortise latch, and desire to secure by Letters Patent, is—

1. The manner in which I have arranged and combined the respective parts thereof, so as to cause it to answer the triple purpose of a latch, a bolt, and a lock; that is to say, I claim the forming of the latch bolt A, with a slot, or mortise, B, through it to admit of its sliding back and forth upon the square shaft of the knobs, or handles, D, D, while it is capable of being raised as a latch by said handles; and this I claim in combination with the arrangements by which the thumb knob E, is connected with the latch bolt, on the inner side of the door, the shank of which knob is made to operate in an opening substantially like that shown at L, in Fig. 3; and is so constructed, also, as to be operated on by a key on the outer side of the door, in the manner described; the catch, mortises, and other parts, being likewise arranged, and operating substantially in the manner herein made known.

2. I claim, also, the mode of applying the said latch-bolt to sliding doors by modifying the same, as above set forth, to adapt it to this purpose.

LEONARD FOSTER.

Witnesses:
R. N. Eddy,
Caleb Eddy.