(No Model.)

B. F. PIERCE.

GRAVITY DOOR LATCH AND LOCK.

No. 371,354. Patented Oct. 11, 1887.

Fig. 1.

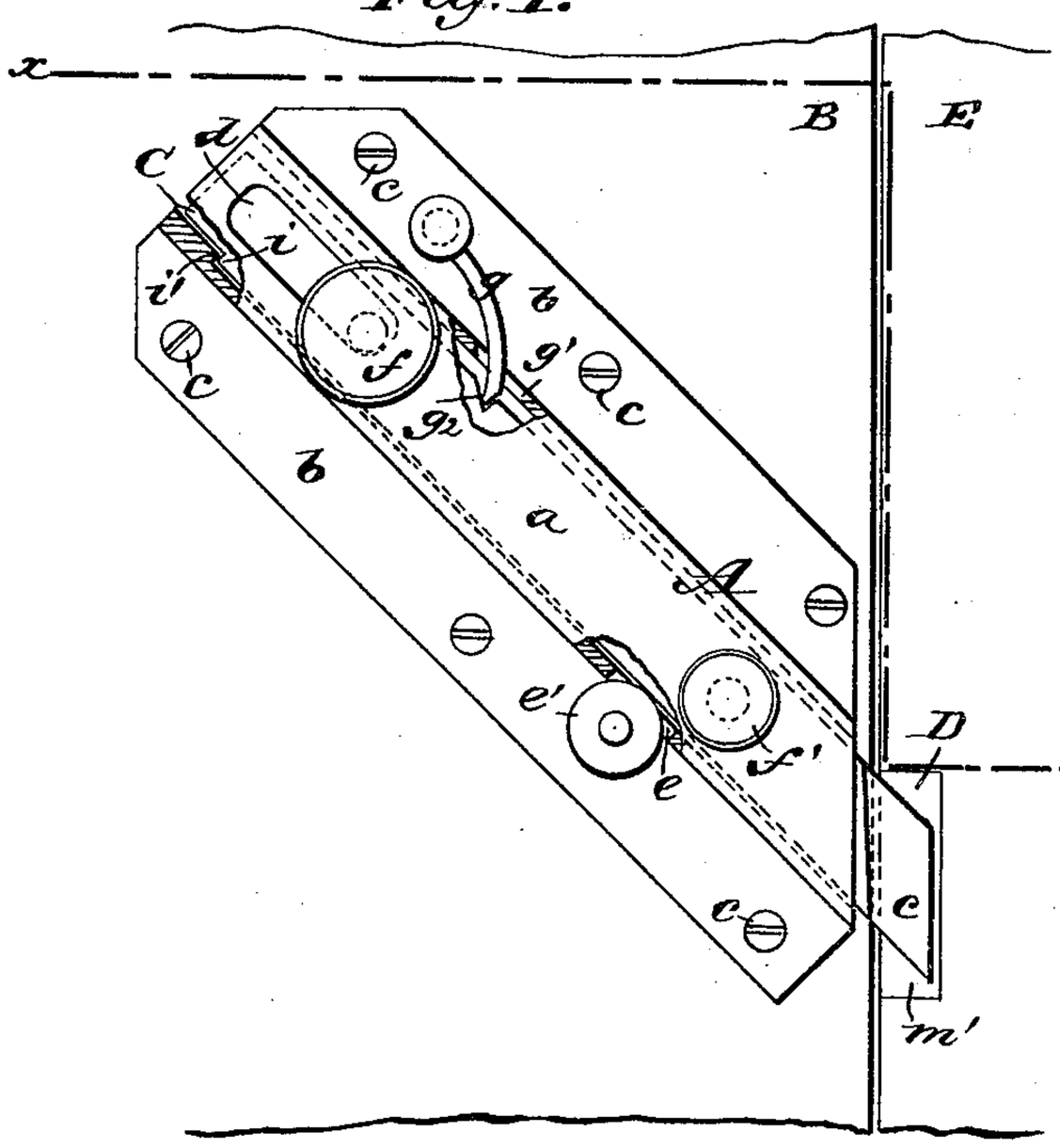


Fig. 2.

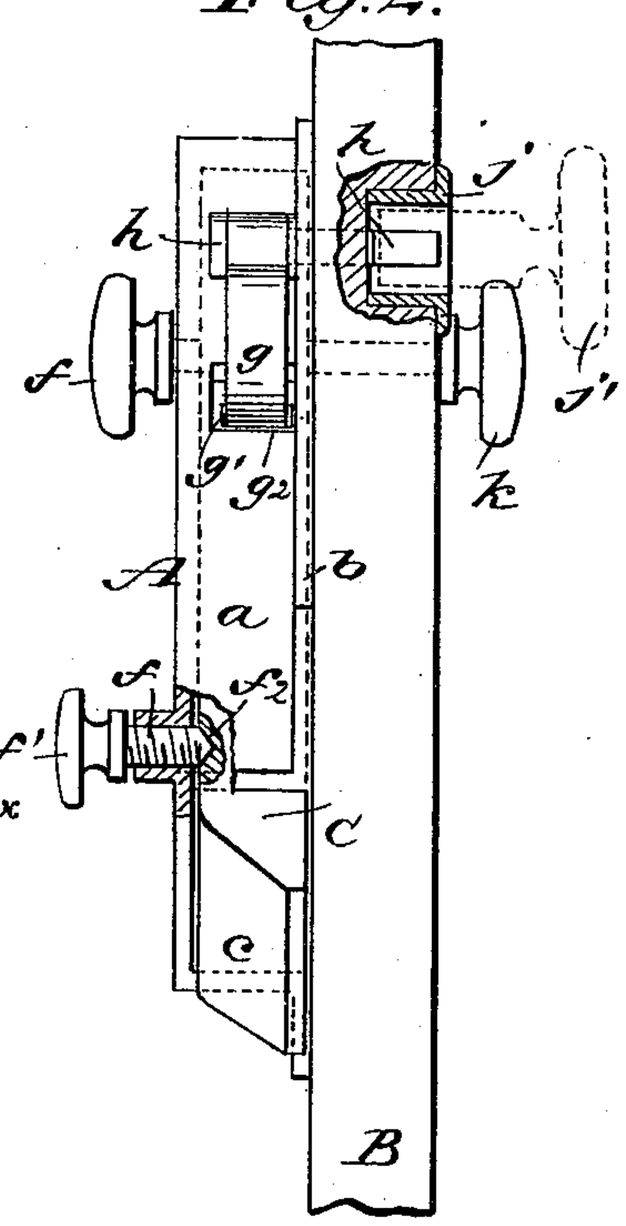
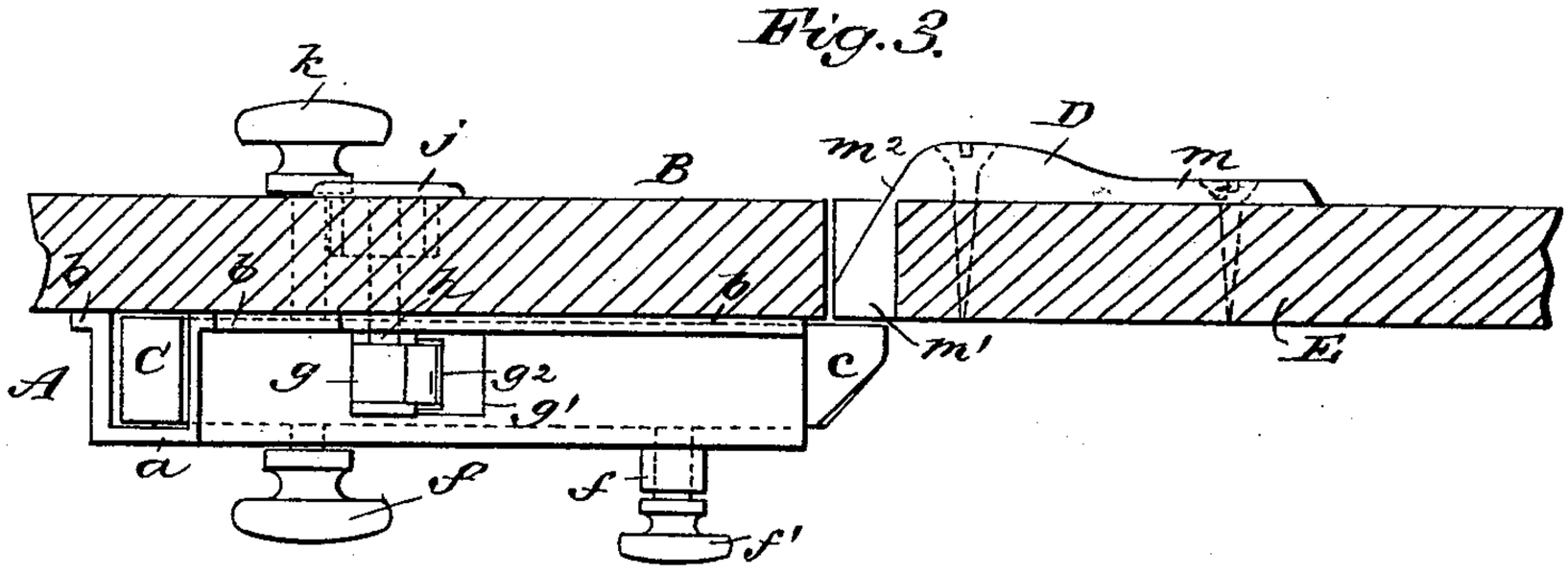


Fig. 3.



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BENJAMIN F. PIERCE, OF CHESTERFIELD, NEW HAMPSHIRE.

GRAVITY DOOR LATCH AND LOCK.

SPECIFICATION forming part of Letters Patent No. 371,354, dated October 11, 1887.

Application filed January 27, 1887. Serial No. 225,655. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. PIERCE, of Chesterfield, in the county of Cheshire and State of New Hampshire, have invented a new and Improved Gravity Door Latch and Lock, of which the following is a full, clear, and exact description.

The object of my invention is to provide a practical door latch and lock combined, constructed to act upon the gravity principle and entirely without the use of springs; and to this end my invention consists, principally, of a locking-bolt held at an angle in a suitable frame, so as to act by gravity for latching the door, said bolt and casing being combined with suitable locking devices for locking the bolt in its lowermost position.

The invention also consists of the construction, arrangement, and combination of parts, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a broken front elevation of my invention shown applied to a door and door-frame, the bolt being in position for locking the door. Fig. 2 is a broken edge view of the door and latch and lock, and Fig. 3 is a sectional plan view taken on the line *x x* of Fig. 1.

A represents a casing formed with the channel *a* and side flanges, *b b*, and secured in an inclined position to the door B by screws *c'*, passed through said flanges into the door. In the channel *a* is held the bolt C, having its lower end, *c*, obliquely beveled, as shown in Figs. 1 and 2, so that when the door is closed it will chafe squarely upon the beveled striking-plate D, attached to the door-frame E. At the upper end of the channel *a* is formed a slot, *d*, through which the spindle of a knob, *f*, passes and enters the bolt C, so that by grasping said knob the bolt C may be slid upward in the channel *a* for opening the door. When the bolt C is down to its lowest position in the channel *a*, it is automatically locked in that position by a shoulder, *i*, formed near its upper end, dropping in front of a shoulder, *i'*, formed in the channel *a*, as shown clearly in Fig. 1, so that in sliding the bolt C upward to open the door its upper end must first be lifted to disengage the shoulder *i* from the corresponding shoulder, *i'*.

To facilitate the up-and-down endwise movement of the bolt C in the channel *a* and to avoid friction, I fit in a slot, *e*, in the lower wall of the channel *a* an anti-friction roller, *e'*, upon which the bolt rests, as shown clearly in Fig. 1; and for fastening the bolt C, for causing it to lock the door B, I form the channel *a* with a screw-threaded socket, *f*, in which works a set-screw, *f'*, the inner end of which, when turned down, enters a socket, f^2, in the bolt, as shown in Fig. 2, and thus effectually prevents the bolt from being moved upward in the channel *a*. As an additional lock for the bolt C, I employ the pawl *g*, the lower end of which is adapted to fall through the slot *g'* in the upper wall of the channel *a* and engage with the notch g^2 in the bolt C, as shown clearly in Fig. 1. The pawl *g* is secured to the spindle *h*, journaled in one of the flanges *b* of the casing A, and this spindle is made polygonal in form at its outer end and reaches into a socket, *j*, in the door to receive the key *j'*, as shown in full and dotted lines in Fig. 2, for lifting the pawl out of engagement with the notch g^2 from the outside of the door.

When the bolt C is not locked by the set-screw *f'* or the pawl *g*, the bolt C may be operated from the outside of the door by a knob, *k*, passed through a slot in the door (shown in dotted lines in Fig. 2) and screwed into the bolt, so that by shoving upward upon the knob the bolt C will be moved upward out of engagement with the latch-plate D.

The latch-plate D is formed with the arm or plate portion *m*, by which it is secured to the door-frame, the right-angled portion *m'*, which fits against the edge of the door-frame, and the beveled portion m^2, against which the lower end of the bolt C chafes in closing the door. The inner edge of the portion m^2 forms the abutting surface for the bolt C to lock the door against, as shown in Fig. 3, so that the bolt does not come in contact with the door-frame, and so that no extra piece is required upon the inside of the door-frame to engage the bolt C.

By constructing the lock and latch as described it will be seen that the bolt closes entirely by its own weight without the use of springs, and it will therefore be seen that the

latch is very cheap, and it is practical and perfectly reliable for its purpose; besides, it can be securely locked both from the inside and ouside of the door, so that the latch is a secure lock as well, thus avoiding the necessity of separate locking mechanism.

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

1. The combination, with the casing A, formed with the channel *a* and secured in inclined position to the door, of the bolt C and two locking devices for the bolt, one arranged to be operated from the inside of the door, the other attached to a spindle adapted to be engaged by a key from the outside of the door, substantially as described.

2. The casing A, having inclined channel *a*, formed with the shoulder *i'*, in combination with the bolt C, formed with the shoulder *i*, substantially as and for the purposes set forth.

3. The casing A, formed with the inclined channel *a*, slotted at *g'*, and the bolt C, working in said channel and notched at g^2, in combination with the pawl *g*, attached to the spindle *h*, fitted in an orifice in the door for holding the pawl *g* in position to engage with the latches *g'*, and adapted to be turned by a key for lifting said pawl, substantially as described.

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