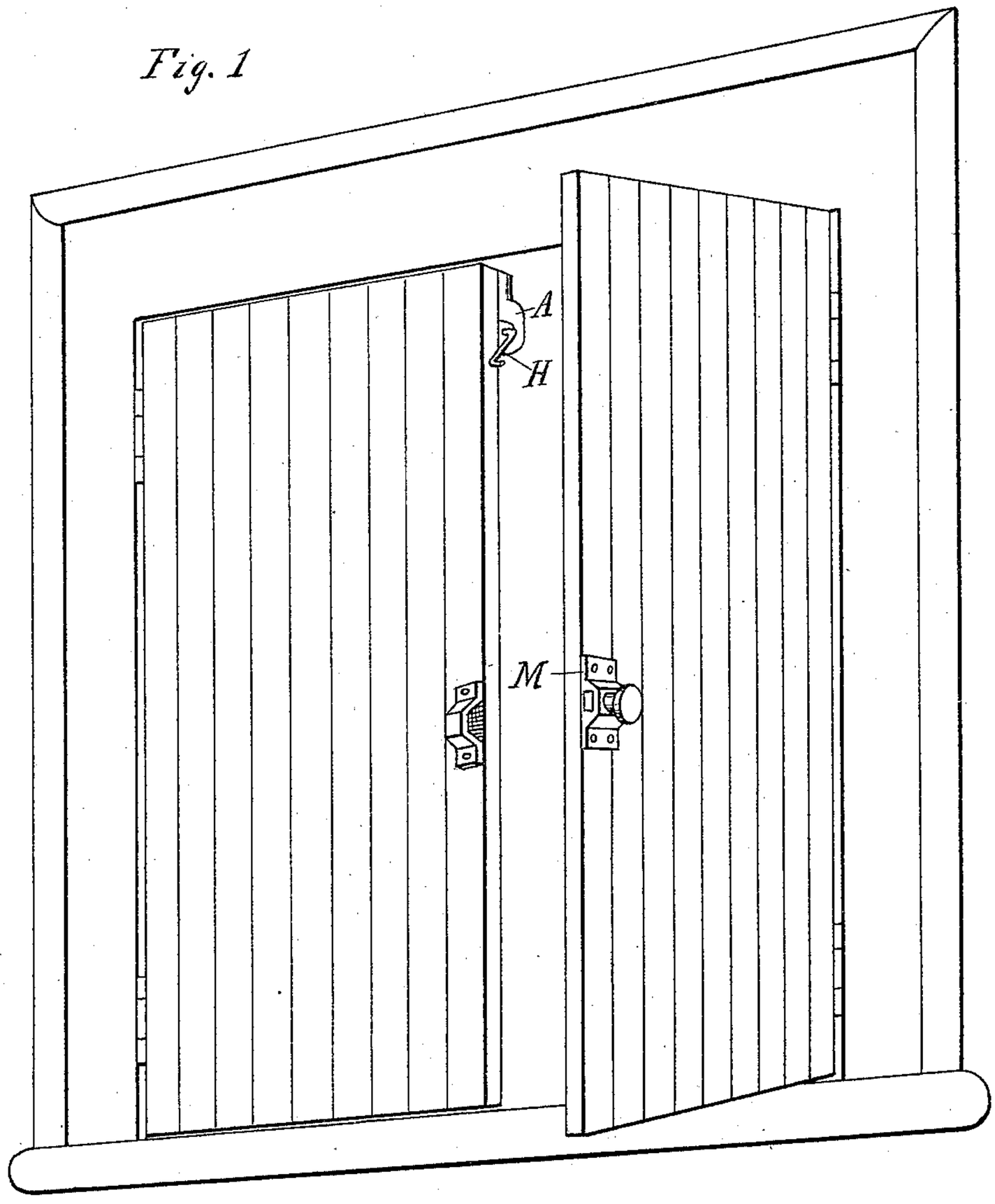
(No Model.) 2 Sheets—Sheet 1.

C. BORCHARD.

BOLT.

No. 395,540. Patented Jan. 1, 1889.

Fig. 1



Witnesses:

P. M. Hulbert,
John Cohrman.

Inventor.

Charles Borchard,
By Thos. G. Sprague & Son
Atty's.

(No Model.) 2 Sheets—Sheet 2.

C. BORCHARD.

BOLT.

No. 395,540. Patented Jan. 1, 1889.

Fig 2

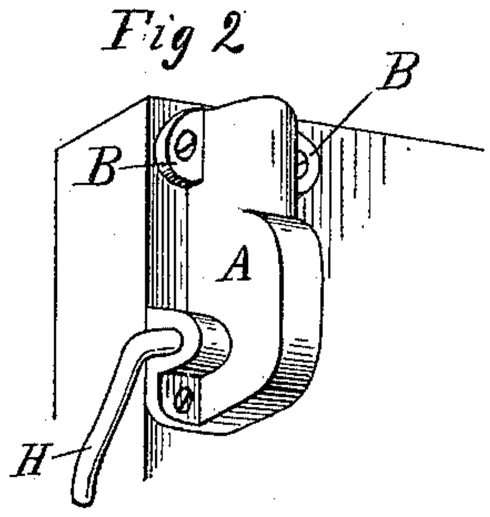


Fig 3

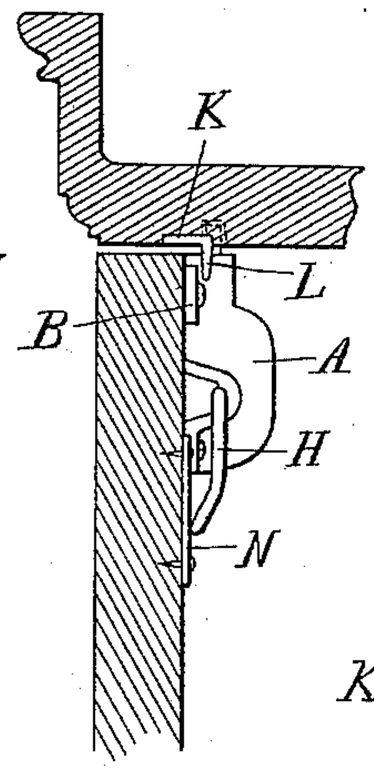


Fig. 8

Fig. 4

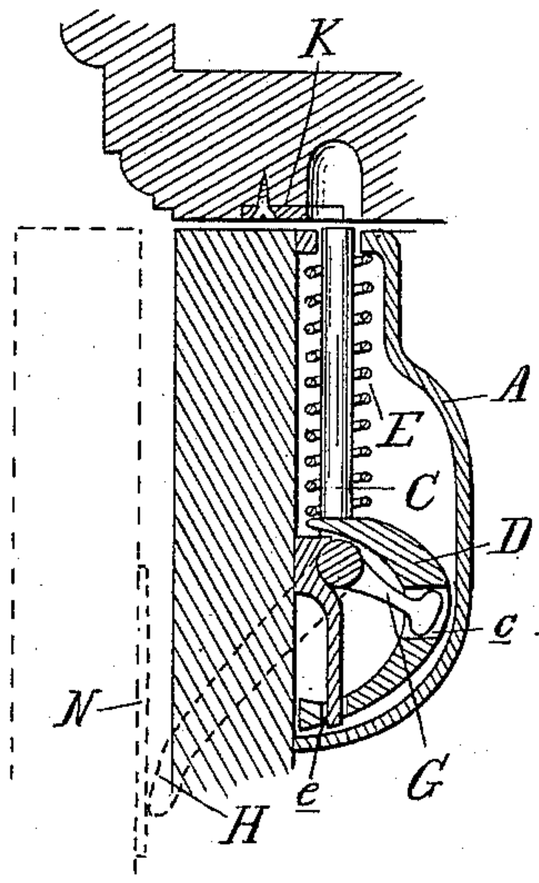


Fig. 6

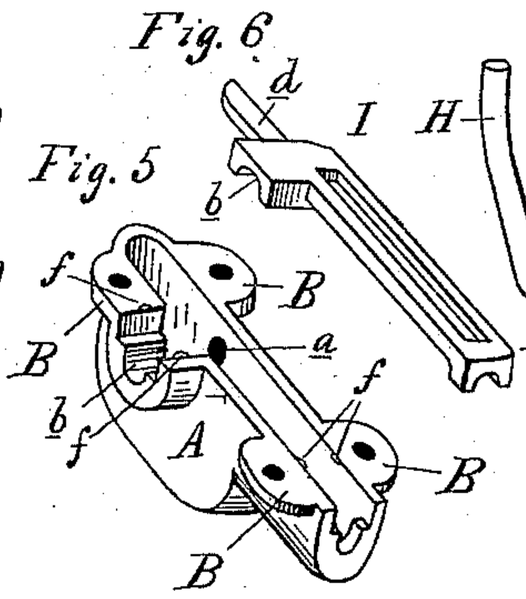


Fig. 7

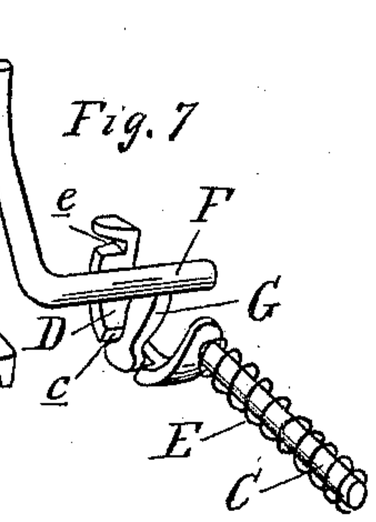


Fig. 5

Witnesses:

P. M. Hulbert.

John Schuman.

Inventor.

Charles Borchard.

By Thos. L. Sprague & Son
Att'y.

UNITED STATES PATENT OFFICE.

CHARLES BORCHARD, OF DETROIT, MICHIGAN.

BOLT.

SPECIFICATION forming part of Letters Patent No. 395,540, dated January 1, 1889.

Application filed May 28, 1888. Serial No. 275,267. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BORCHARD, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Locks for Folding Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in folding-door locks.

In the present construction of the ordinary locks for folding doors, one-half of the door is generally secured in close position by bolts, while the principal half of the door which is intended for constant service is provided with the ordinary door-lock.

The object of my invention is to provide the supplementary half of the door with an automatic locking device which locks and unlocks such half every time the principal half of the door is locked or unlocked, thereby saving the trouble of operating the locking device of the supplementary half of the door.

My invention consists in an automatic locking device for the supplementary half of the door, which firmly holds that half in closed position when the principal half is closed, and which automatically unlocks when such principal half is opened, all as more fully hereinafter described and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a folding door provided with my improved lock. Fig. 2 is a detached perspective view of the lock with the corner of the door to which it is secured. Fig. 3 is a vertical section of the door with the lock in side elevation. Fig. 4 is a vertical section of the door and lock. Fig. 5 is a detached perspective of the casing of the lock. Fig. 6 is a detached perspective of the back plate of the casing. Fig. 7 is a detached perspective view of the bolt mechanism of the lock. Fig. 8 is a detached perspective of the stop and keeper of the bolt.

A is a casing.

B are flanges on the casing for securing it in position on the upper inner corner of the supplementary door.

C is a bolt slidingly secured in the casing.

D is a lateral curved arm on the inner end of the bolt.

E is a retracting-spring of the bolt, which normally keeps the bolt retracted within the casing.

F is a crank-shaft journaled in bearings *a b*, transverse with the casing.

G is a crank formed on the inner end of the crank-shaft within the casing and adapted to engage into a notch, *c*, formed in the arm D of the bolt. H is another crank formed in the crank-shaft outside the casing, preferably integrally with the crank-shaft.

I is a back plate adapted to fit into the opening back of the casing to retain the parts therein in position, and this back plate is provided with a guide-arm, *d*, which engages into an aperture, *e*, formed in the rear end of the arm of the bolt to guide the bolt in a straight line.

To secure the back plate to the casing, I provide the casing with a few burrs, *f*, which in peening over are adapted to secure the back plate.

K is the keeper of the bolt secured to the door-jamb in suitable relation to the bolt, and L is a stop formed integrally with the keeper K.

M is a suitable lock secured on the principal half of the door.

In practice, the parts being constructed and arranged substantially as described and shown, the lock is secured to the upper corner of the supplementary door, and in such relation to the principal door that in closing such latter door it strikes the crank H and thereby actuates the bolt, through the medium of the parts described, to project into its keeper against the action of the tension-spring, which, in opening the door, immediately retracts the bolt into its normally-retracted position. The crank H is sufficiently curved forward into the path of the principal door to impart to the crank H the necessary amount of motion to project the bolt; and to prevent the door from being marked by the impact with such crank I provide the principal door with the striking-plate N. Thus it will be seen that if the lock M of the principal door is closed the supplementary door is also firmly locked automatically, and if the principal lock is unlocked the supplementary part of the door is unlocked automatically. The advantage of my construction if applied to cabinets, book-cases, closets, &c., where generally

folding doors are applied, or to double windows, is obvious, as in such applications the discomfort and trouble usually experienced of manipulating ordinary bolts, which are often out of the reach of the operator, and the difficulty of operation, are entirely avoided.

While I have specified some of the applications of my invention, I do not intend to confine myself to such applications alone. The same locking device described may be applied to the lower corner of the door as well, especially where the doors are of great height.

What I claim as my invention is—

1. In a lock for folding doors, the combination of the casing A, provided with the flanges B, the sliding bolt C, the curved arm D, provided with the notches *c e*, the retracting-spring E, the crank-shaft F, the crank G, engaging into the notch *c*, the crank H, formed on the crank-shaft F, outside the casing, and the back plate I, provided with the guide-arm *d*, engaging into the notch *e*, the parts being arranged and constructed to operate substantially as described.

2. As a new article of manufacture, a lock for double doors consisting of an inclosing frame or casing, a sliding bolt secured therein, a spring arranged to normally retract the bolt, a crank-shaft journaled in the casing, a crank secured upon said crank-shaft within the casing and engaging with the bolt, and a crank on said crank-shaft outside the casing, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 19th day of May, 1888.

CHARLES BORCHARD.

Witnesses:

P. M. HULBERT,

JOHN SCHUMAN.