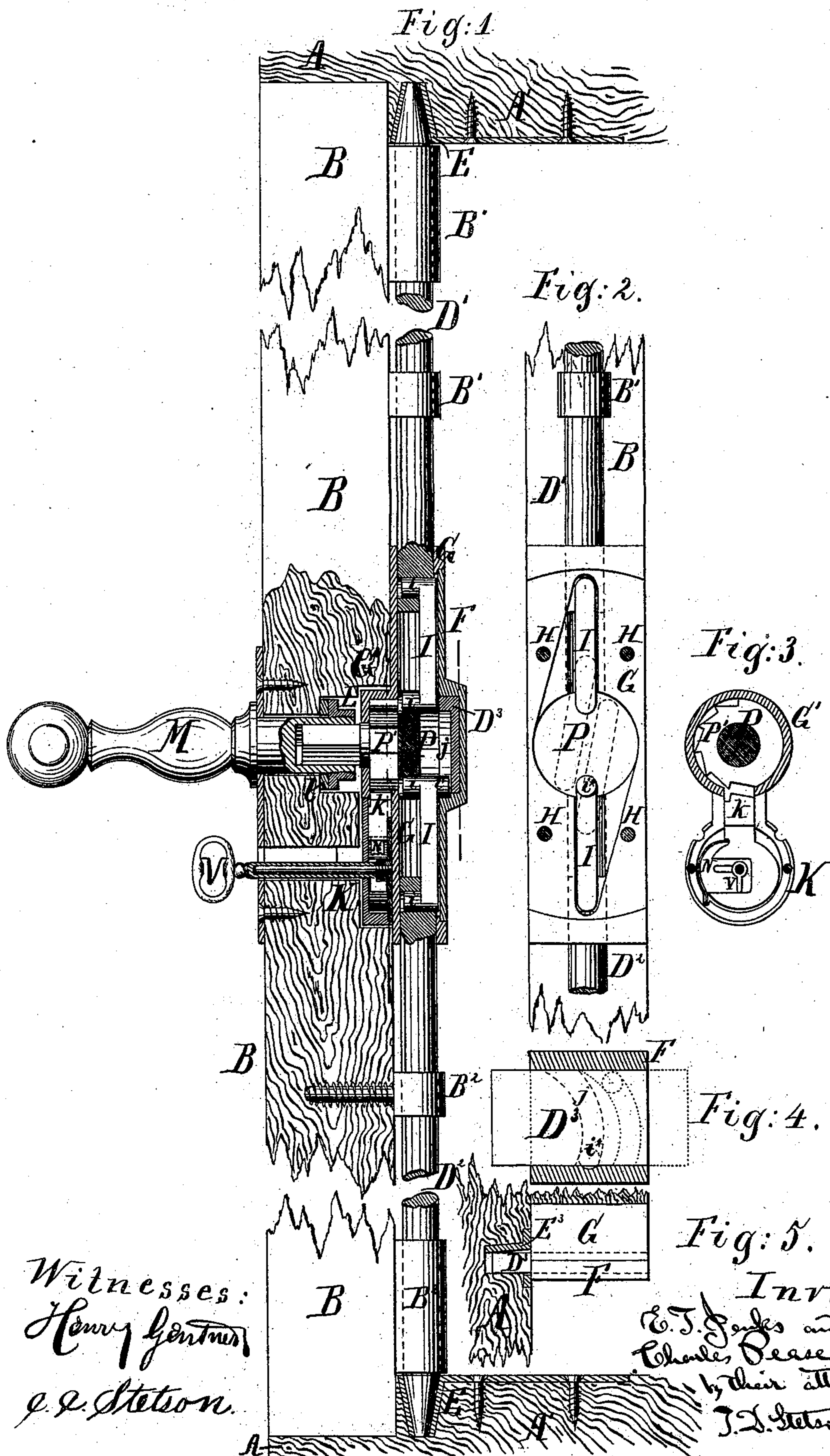


E. T. JENKS & C. PEASE.

LOCKS FOR DOORS.

No. 172,858.

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Witnesses:  
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# UNITED STATES PATENT OFFICE.

ELISHA T. JENKS AND CHARLES PEASE, OF MIDDLEBOROUGH, MASS.

## IMPROVEMENT IN LOCKS FOR DOORS.

Specification forming part of Letters Patent No. **172,858**, dated February 1, 1876; application filed December 16, 1875.

*To all whom it may concern:*

Be it known that we, ELISHA T. JENKS and CHARLES PEASE, of Middleborough, Plymouth county, Massachusetts, have invented certain Improvements Relating to Locks and Fastenings, of which the following is a specification:

The invention is more especially designed for securing cabinets and cases for museums.

Among the qualities desired in such situations, in addition to economy of material and labor, simplicity, strength, &c., is the capacity for drawing the doors tightly together by the act of securing. Shrinkage or various causes may prevent the operating of such a fastening to its full extent. It is desirable to make it secure the door or doors when only partially thrown. We have practically attained these ends.

The following is a description of what we consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a vertical section through my lock and the frame of the door to which it is applied. Fig. 2 is an elevation of my lock with the cover removed. Fig. 3 shows the additional lock and the parts of the main lock, which are operated by the former. Fig. 4 shows the mode of operating one of the bolts of my lock. Fig. 5 shows a plan view of my lock with the adjacent part of the casing in section.

Similar letters of reference indicate corresponding parts in all the figures.

A is the fixed work or framing of a single door, and A<sup>1</sup> A<sup>1</sup> are the rabbets at the top and bottom against which the door abuts, and should press, when closed, with sufficient tightness to exclude insects and dust. B is the door; B<sup>1</sup> B<sup>2</sup>, &c., are guides for the bolts; and D<sup>1</sup> D<sup>2</sup> are vertically-moving bolts, traversed in the guides, and adapted to engage in metallic pieces or strikers E, fitting in and forming part of the fixed casing. The recesses in the strikers are made tapering, or approximately conical, to match the conical end of the bolts D<sup>1</sup> D<sup>2</sup>, &c.; but they are lengthened laterally, or made oval, to allow for a shrinking or sagging of the door. They are adapted to receive the end of the bolt as it is forcibly

thrust out, and to draw the door very tightly to its bearing against the rabbet A<sup>1</sup>. M is an operating cross-handle rigidly connected, in a manner to be explained farther on, to a center-piece, P, capable of being turned or oscillated nearly half around in a casing, G, which incloses and supports it on all sides. The back face of the center-piece P is plane. The bolts D<sup>1</sup> D<sup>2</sup> are linked to the center-piece by peculiar links I I, each in the form of a strong flat piece of metal with rounded ends, and with lateral projections *i* extending at right angles from each end. There are two cylindrical holes in the center-piece P, each of which receives one of the projections *i*. The other projection *i* of that link engages in a corresponding hole in the corresponding bolt D<sup>1</sup> or D<sup>2</sup>, which is milled down to receive it. The shoulder of the milled space is adapted to match fairly against the rounded end of the link I, and afford a strong bearing additional to that formed by the projection *i*. The lock-casing G being cored or milled out in proper form to allow the play of the links I, the turning of the handle M in one direction or the other draws back the bolts D<sup>1</sup> D<sup>2</sup>, and forces them out as required.

One of the links I carries, in addition to the lateral projections *i*, a projection on the opposite face, marked *i*\*. This engages in a groove, *j*, in a cross-bolt or third bolt, D<sup>3</sup>, which is made of rectangular section, and mounted transversely in a recess provided in the cover F. The curvature to the groove *j* is such that the nearly half revolution given to the center-piece P to effect the withdrawal of the bolts D<sup>1</sup> D<sup>2</sup> gives a corresponding motion to the cross-bolt D<sup>3</sup>, and gives it in pretty nearly the same ratio to the turning of the cross-handle M—that is to say, if the pin or projection *i*\* simply played in a straight groove cut across the under face of the third bolt D<sup>3</sup>, the semi-rotation of the cross-handle M would throw out the bolt D<sup>3</sup>, and draw it partly back again; but, by reason of the curvature represented, that motion is avoided. It moves outward with a nearly corresponding motion, while the bolts D<sup>1</sup> D<sup>2</sup> are moved outward, and moves inward while they are drawn in. We prefer that the extent of the motion of the third bolt D<sup>3</sup> be less than that of the others.



When the door is opened the end of the bolt  $D^3$  is presented very conspicuously. It is important that it shall not be beveled like the ends of the bolts  $D^1 D^2$ . I leave it full size quite to the end, but give an inclination to the housing or striker  $E^3$ , in which it applies on the fixed work A.

The guides  $B^1 B^2$  are formed with screw-shanks, and are screwed into tight-fitting holes bored in the door B. The bolts  $D^1 D^2$  may be inserted before the casing and its contents are applied.

The cover F is made with circular ends, and matches between corresponding shoulders on the back of the lock-casing G. The cover F is held to the lock-casing G by the same screws H which hold the latter strongly to the body of the door B.

When our locks are applied to a series of doors in a long cabinet or set of museum-cases, in case of any accident or derangement to one lock, we can, by gaining admission through the adjacent door, and reaching across the intermediate space, remove the cover by taking out the screws H from the defective lock, and examine or repair the parts without taking the lock from the door.

We secure the center piece P in the locked position by a small additional lock. The casing G is formed with a large boss,  $G'$ , which fits into a corresponding recess counterbored or made concentric to the hole for the cross-handle M. The interior of the boss  $G'$  affords space for a stout ratchet,  $P'$ , formed on the shank of the center-piece P, and the catch  $k$  of the securing-lock plays through the boss into the teeth of the ratchet  $P'$ . As the center-piece is never turned quite half-way around the teeth of the ratchet  $P'$  need extend only a corresponding part of the circumference. Leaving the remainder cylindrical makes a better bearing against the interior of the boss  $G'$ . In front of the ratchet  $P'$  the center-piece terminates with a square end, which is engaged with a corresponding mortise in the end of the cross-handle M. A very strong pull is sometimes made on the cross-handle M in pulling open the door. We provide for receiving this without strain on the lock by threading a strong collar, L, on the inner end of the cross-handle M. A metallic washer,  $l$ , underlies this collar, and receives the friction as the handle M is turned. K is the casing of the securing-lock, the works of which are operated by a key, V, applied through a key-hole and turning on a spindle, as will be understood. A spring, N, tends to throw the catch  $k$  out and engage it with the ratchet  $P'$ ; but the action of this spring may be prevented by simply turning the key V, so that its lug shall stand in the position indicated in Figs. 1 and 3, and by its action on the yoke formed on the catch  $k$  hold the latter back out of action. When the key is withdrawn or turned in a position to be of no effect the catch  $k$  engages in the rack  $P'$ , and as the handle M is turned in securing the door holds it and its

connections in the completely-turned position, indicating that the bolts are fully thrown, or by engaging successively in the teeth of the ratchet holds it step by step in any intermediate position in which it may be left. In case a child or weak person is not able to turn the cross-handle M to the full extent, but can only engage the bolts a little with their several strikers, the ratchet  $P'$  will still be engaged by the spring-catch  $k$ , and the doors will be held with equal security, being simply pressed home to their seats against their rabbets  $A'$  with less force than when the bolts are fully thrown. In case of a breakage or failure of the spring N, the catch  $k$  may be thrown and held in engagement with the ratchet by means of the key V, by simply turning the latter in the position the opposite of that shown in Fig. 3.

Modifications may be made in many of the details of our invention. The securing-lock K may be made with tumblers, or otherwise, to afford the same security against picking as is usual in elaborate bank-locks; or it may be more simple than is here shown. In using our fastening with double doors matching together with tongue and groove, or when, for any other reason, the third bolt,  $D^3$ , is not desired, it may be dispensed with. The guides  $B^1 B^2$  may be secured by other means. The ends of the bolts  $D^1 D^2$  instead of being frustums of cones, as shown, may be beveled off on one side. Even so important and severely strained a part as the cross-handle M may, instead of being permanently attached, be made as a strong, but detachable, key, furnished with one or more lugs, engaged directly in the front of the center-piece P, or in front of the ratchet  $P'$  thereof, if it were desired with such construction to retain the auxiliary or securing lock  $k$ . With such construction the main lock-casing G should be formed with its boss  $G'$  extending farther forward, and made sufficiently strong to receive the full force of the pulling on the cross-handle, which is liable to be severe when the door sticks or resists opening from any cause. With either construction the force of the pull is received directly on the door, either from the washer  $l$  in the construction represented, or on the main lock-casing G with the consideration last suggested.

We can apply our locks to all forms of cases, whether with double or single doors, horizontal or variously inclined. We believe that our fastenings may also be used with some advantage for cupboards and ordinary doors, French windows, and the casings of dumb-waiters. It may, in short, be used in any situation where it is important not only to guard against opening by unauthorized persons, but also to draw the doors in a tightly-closed position to guard against distortion by warping, or the passage of air, gases, or dust. We propose to apply our lock, when desired, to a pair of horizontal bars, extending along past a whole series of doors or lids, with a hook properly beveled, to engage with each



door, and draw it tightly to its bearing. We can, by enlarging the diameter of the center-piece P, get a greater range of motion with the same angular turning, or we can get sufficient motion with a considerably smaller diameter of the piece P. This latter modification is of great importance when there is but little space, as in glass doors with iron frames or sashes.

The construction of the center-piece P is much stronger than the usual plan of turning upon a spindle. The center-piece cannot be turned back by any force applied on the bolts when fully thrown, because the links I are thrown quite to, and a little past, the center line.

We attach importance to the formation of the links I with the projections *i*, instead of with holes to fit on pins. If they were formed with holes the pins would have to be much smaller than the projections *i*, or else the links would have to be wider, in which latter case the center-piece could not be turned as far. It is important to give all the throw to the links I due to the nearly half-revolution of the handle M, and, consequently, of the center-piece P.

We claim as our invention—

1. In combination with the bolts D<sup>1</sup> D<sup>2</sup> for drawing the doors to their places, and with a

center-piece, P, and efficient turning means M, the links I, formed with projections *i*, engaging in the center-piece, and arranged to lie parallel and in contact with each other when drawn back, as herein specified.

2. The lateral bolt or third bolt D<sup>3</sup> with its groove *j*, in combination with the projection *i*\*, on one of the links I *i*, and with the bolts D<sup>1</sup> D<sup>2</sup> and their connections, as herein specified.

3. In combination with a suitable shank and connection, which operates bolts and strikers, having beveled surfaces, adapted to draw the door tightly closed, the ratchet P' and catch *k* for securing the bolts step by step, as herein specified.

4. The securing-lock K *k* operated by a key, in combination with the center-piece P, ratchet P', links I *i*, and bolts D<sup>1</sup> D<sup>2</sup>, as herein specified.

In testimony whereof we have hereunto set our hands this 13th day of December, 1875, in the presence of two subscribing witnesses.

ELISHA T. JENKS.  
CHARLES PEASE.

Witnesses:

J. W. P. JENKS,  
EVERETT ROBINSON.