W. I. LUDLOW.

Lock for Drawers.

No. 200,319. Patented Feb. 12, 1878.

Fig. 1.

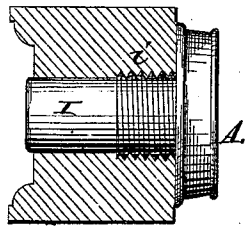


Fig. 2.

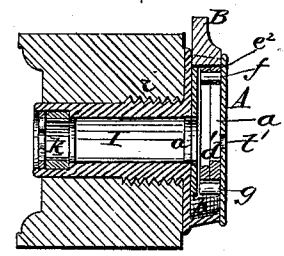


Fig. 3.

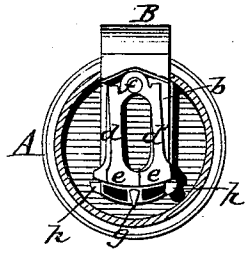


Fig. 4.

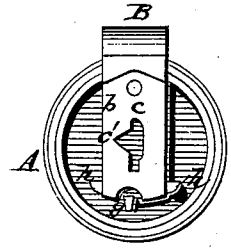


Fig. 5.

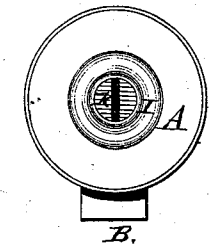


Fig. 6.



Fig. 7.



Fig. 8.

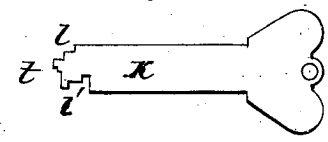


Fig. 9.



Witnesses:

J. A. Rutherford

James M. Wright, Jr.

Inventor:

W. I. Ludlow,

by James L. Norris,

Attorney.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WASHINGTON I. LUDLOW, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN LOCKS FOR DRAWERS.

Specification forming part of Letters Patent No. **200,319**, dated February 12, 1878; application filed January 11, 1878.

To all whom it may concern:

Be it known that I, WASHINGTON I. LUDLOW, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Drawer-Locks, of which the following is a specification:

This invention relates to an improvement in that class of locks in which tumblers prevent the operation of the bolt until removed from contact or line with stops, studs, or catches by a suitable key. Its object is to furnish a compact, simple, efficient, and easily-attached lock for drawers and doors which are opened and closed from but one side; and to this end my invention consists, first, in a drawer-lock case having projecting from its base-plate a tube which surrounds its key-hole, and is screw-threaded to engage with the wood, whereby the lock may be secured in position by the said tube alone, and cannot be detached when the drawer is closed; second, in the combination, with a lock-bolt, of one or more double spring-tumblers, each made in one piece, pivoted thereto, the connected parts of which tumblers are arranged to be moved in opposite directions by a key, to permit the operation of the bolt, whereby the bolt is effectually guarded against tampering, and the cost reduced.

Figure 1 is a cross-section of the front wall of a drawer, and a view in elevation of my improved lock applied thereto. Fig. 2 is a diametric section of the lock and its attaching-tube. Fig. 3 is a rear view of my improved lock with its top plate removed. Fig. 4 is a view of the lock with base-plate removed. Fig. 5 is a front view of a lock complete. Fig. 6 is a detail view of a complete tumbler. Fig. 7 is a view of the single piece or blank from which a tumbler is to be formed. Fig. 8 shows a form of key adapted for use with a lock having two tumblers; Fig. 9, a front view of the escutcheon.

In the drawing, the letter A indicates the casing of the lock, which may be of any desired shape, and having in one edge an opening for the passage of the bolt B, which has a thin flat tongue, *b*, extending inwardly across the base-plate and key-hole *a* of the lock-case, and is provided with a slot, *c*, having a lateral extension, *c'*. The inner end of the tongue *b* moves between studs or stops *h h*. D D' indicate the tumblers, each of which consists of two arms, *d d'*, joined together by a spring connecting-band, e^2, at one end, their other ends being provided with cross-heads e e^1, having segmental outer edges, which I prefer to form with serrations or teeth, for a purpose which will be hereinafter explained. The inner ends of these cross-heads are in contact, or nearly so, and, when separated, are returned to their original positions by the force of the spring band or connection e^2. This spring-band e^2 of each tumbler surrounds and forms a bearing for a pin, *f*, by means of which the tumblers are pivoted to the tongue *b* of the bolt.

In the lock shown in the drawing there are two tumblers arranged flatwise together, but independently pivoted, so as to swing free of each other, and the cross-heads of each tumbler have a combined length equal to the width of the tongue *b*, to which they are pivoted, so that they also may pass between the studs or stops *h h*, when in proper position, to permit the bolt to operate, and said cross-heads have sufficient lateral play while between the studs or stops *h* to permit of their separation by the key, so as to avoid the stud *g*, which, when the bolt is retracted, projects across the upper or longitudinal edges of the cross-heads, or may stand between the separated inner ends of said cross-heads. This stop *g* may, if desired, be arranged to project outwardly from the base-plate of the lock-case, and the tongue *b* should in that case be slotted in a line with said stop, so that its operation would not be interfered with.

When the lock has been completed, with the exception of its tumblers, the required number of blanks, as shown in Fig. 6, are hung upon the pivot in the bearing formed by the band e^2, and the ward-key selected for the lock is inserted between the legs of the tumblers and turned as far as possible.

It will be obvious that in this turning the tumblers will be deflected according to the wards formed in the key—that is, supposing them to hang with even edges before the key is turned, the wards of the key, coming in contact with the inner edges of the legs *d d'*, cause the outer edges of the legs and cross-heads to become uneven, or out of line with each other. When in this position the heads are cut all at once, or marked for cutting separately, so that

their outer edges will be again even, and that they will have a length which will permit them to pass freely between the posts or stops *h h*, and when in position to so pass, the arcs of the several blanks are divided crosswise equally, thus forming a separate head for each leg of the tumbler.

From the foregoing explanation it will be understood that the cross-heads, after cutting, have various positions with respect to the legs to which attached—as, for example, one cross-head may project entirely to one side of its leg, as shown at *e*, Fig. 6; another may have its center as the point of junction, while still another may have unequal arms projecting to opposite sides of the leg of the tumbler, as shown at *e'*, Fig. 6.

When the key is removed the tumblers will of course swing to their normal positions, and the dividing cuts or joints between the inner edges of the respective pairs of cross-heads will then not coincide with each other, but be in different vertical planes; and the wards of each key I prefer to so form that when a series of tumblers is cut with respect thereto, the natural position of each, when placed in a lock, will be such that the dividing cut will be to one side of a stop, *g*, projecting inwardly from the cover-plate of the lock-case, and across the path of the tumblers when moving longitudinally, and, also, so that one head of each of certain tumblers will project laterally, each over the studs *h*, and rest thereupon, when the key-bolt is projected and the key withdrawn, so that the three studs, *h*, *h*, and *g*, all serve as stops for preventing the retraction of the bolt, except when operated by its proper key.

To the outer surface of the base-plate of the case, and surrounding the key-hole *a*, is firmly attached a tube, I, having a portion of its outer surface screw-threaded, as at *i*, to screw into the surrounding wood of the drawer-wall, whereby the lock is secured snugly and firmly in position without the use of additional screws or other fastening devices, and cannot be removed from the drawer from the outside. It should be understood that the case is located against the inner surface of the drawer-wall, the tube I projecting through a suitable opening in said wall, and having arranged in its outer end a revolving plug or guard, *k*, having a diametric slot, *k'*, for the passage of the flat key K. (Shown in Fig. 7.) This flat key has the opposite edges of its end formed into wards *l l'*, and it has also a reduced tip, *t*, which fits into a small circular opening, *t'*, in the center of the cover-plate of the lock-case. The wards *l* in one edge of the key are the counterparts of the wards *l'* in the opposite edge, and the distance across the key between all the wards is the same, and slightly greater than the distance between the legs of the tumblers at the points against which the edges of the wards will stand when the key is turned at right angles with the bolt.

In attaching the lock, as shown in Figs. 1 and 2, I bore a suitable hole in the wall of the drawer, said hole being of a proper diameter to permit the tube I to be secured tightly therein. I then insert the tube from the inner side of the drawer-wall, and turn the case until its base-plate is drawn snugly against the wall, and the bolt in position for projection in a vertical direction.

The locks may be made with attaching-tubes of various lengths to suit different thicknesses of drawer-walls; but in any case, should the tube not project outwardly far enough to afford ready access to the end thereof for insertion of the key, the outer face of the drawer may be recessed or countersunk, as shown in Figs. 1 and 2.

Though I have shown, in illustration of my invention, a lock having two tumblers, it is obvious that a greater number or but one may be used, the key being formed with suitable wards, and the tumblers prepared in accordance therewith, as before explained.

The key having been inserted through the slot in the revolving plug or guard, and its tip *t* in the central hole *t'* of the cover-plate of the lock, then in the first part of its rotation the wards of the key cause the tumblers to assume positions which bring the dividing cuts of the cross-heads into coincidence, and the edges of the outer ends in line with each other, and in such position that should the bolt be then operated, said tumblers could pass between the stops *h h*, and a further rotation brings the key at right angles to the bolt, and forces the legs of the tumblers far enough apart to permit the cross-heads to pass on each side of the center stop *g*, and a projecting ward then strikes the edge of the lateral extension *c'* of the slot in the bolt, and causes said bolt to be projected or retracted, according to the position of the parts and the direction in which the key is turned.

Having now fully described my invention, what I claim is—

1. A drawer-lock case having its key-hole surrounded by a projecting tube, which is secured to the base-plate of the lock-case, and is screw-threaded to engage with the wood, whereby the lock may be secured in position by the said tube alone, and cannot be detached when the drawer is closed, substantially as set forth.

2. The combination, with a lock-bolt, of one or more double spring-tumblers, each made in one piece, pivoted thereto, the connected parts of which are arranged to be moved in opposite directions by a key, to permit the operation of the bolt, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

WASHINGTON I. LUDLOW.

Witnesses:
JAMES L. NORRIS,
JAMES A. RUTHERFORD.