2 Sheets--Sheet 1.

P. WERNI.

Lock for Doors, &c.

No. 162,984. Patented May 4, 1875.

Fig. 1.

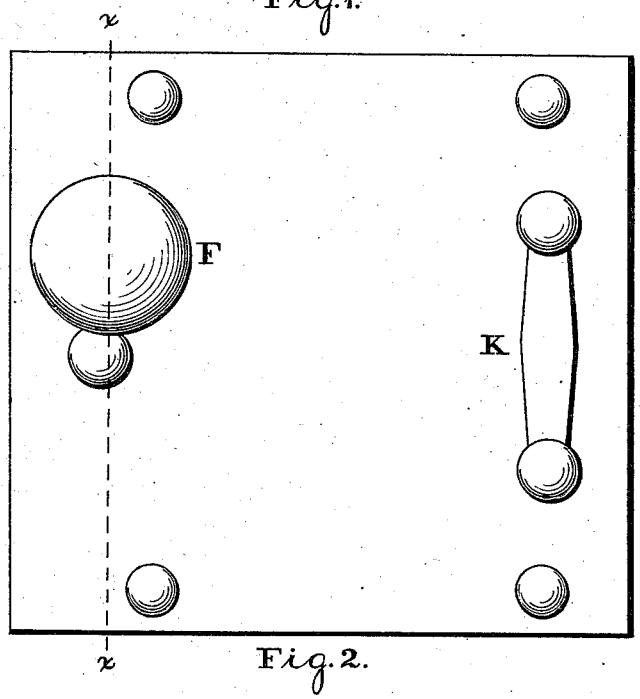

Fig. 2.

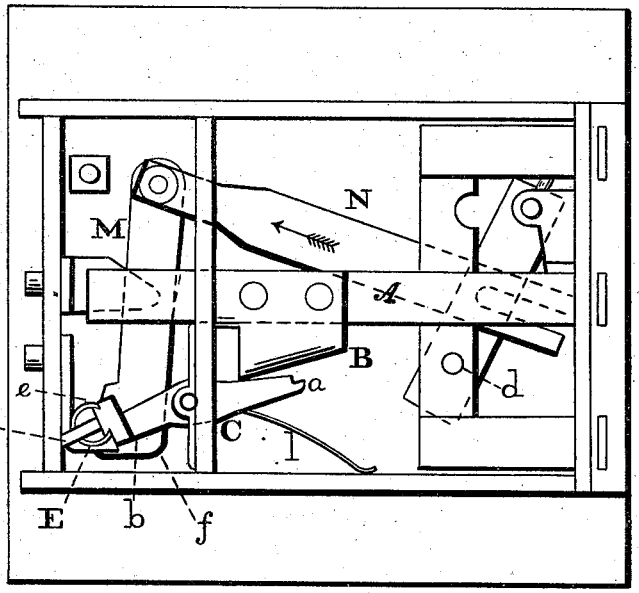

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Fig. 6.

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Fig.3.

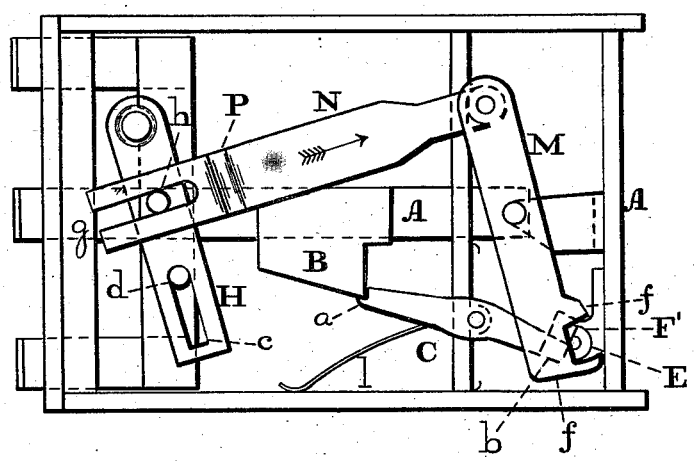


Fig.4.

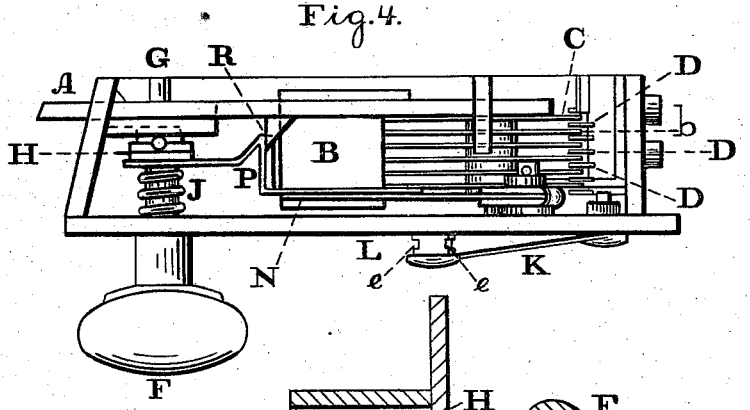
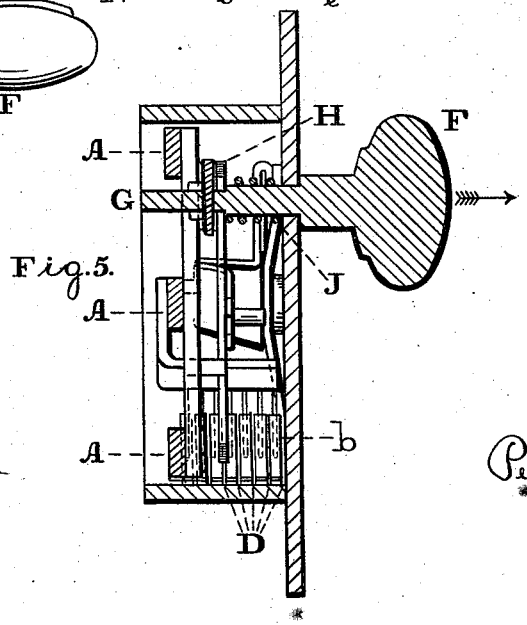


Fig.5.



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UNITED STATES PATENT OFFICE.

PELAG WERNI, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO E. LUCIEN RICHIE, OF SAME PLACE.

IMPROVEMENT IN LOCKS FOR DOORS, &c.

Specification forming part of Letters Patent No. **162,984**, dated May 4, 1875; application filed March 30, 1875.

To all whom it may concern:

Be it known that I, PELAG WERNI, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Locks; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front view of the device embodying my invention. Figs. 2 and 3 are views of the inside thereof from opposite faces. Fig. 4 is a top view of the inside thereof. Fig. 5 is a transverse section in line *x x*, Fig. 1. Fig. 6 is a face view of the key.

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

My invention consists in tumblers in connection with plates which form passages for a worm-bit key, by which the tumblers are operated. It also consists in a post in the key-hole guide, and occupying a position at the rear of the plates which form the passages for the worm-bit key, so that the latter will rotate on said post, and the access to the ends of the tumblers is prevented. It also consists in a key-hole guard, which is operated by means of a sliding knob-spindle, and an intermediate bar and arms. It further consists in engaging and disengaging the bolt from the key-hole guard by means of the bolt having a lug and pin, and a spring-bar with a lug projecting toward the lug of the bolt, in connection with a slotted arm attached to a sliding knob-spindle.

Referring to the drawings, A represents a sliding bolt, which is suitably guided in the walls of the lock-casing. From the under side of the bolt there depends a block, B, cast with or secured thereto; and in proximity to said block B there is arranged a series of axial tumblers, C, which are mounted on an upright or wall of the lock below the bolt A, and have their two ends project in opposite direction. The forward ends *a* of the tumblers are adapted to engage with the rear corner or shoulder of the block B, and the rear ends *b* thereof enter between upright plates D, which are secured to a partly-cylindrical key-guide, E, arranged at the lower rear corner of the lock. A post, F′, is secured to the rear of the plates D, and occupies a position in the guide E. F represents the knob of the lock, which is connected to a sliding spindle, G, whose inner end carries an arm, H, which is formed with a slot, *c*, through which enters a pin, *d*, secured to the bolt, whereby the latter may be moved in and out of the lock-casing by operating the knob F. A spring, J, is arranged to bear on the arm H, and keep it in contact with the bolt A. K represents the key-hole guard, which consists of a hinged or sliding plate adaped to cover and uncover the key-hole. A lug, L, is formed on the inner face of the guard, and adapted to enter the key-hole. The sides of the lug are notched, as at *e e*, for engagement of the lower end *f* of a rocking arm, M, which is located and mounted within the lock-casing. To the upper end of the arm M there is jointed a spring sliding bar, N, which extends longitudinally, and is formed near its forward end with a lug or bend, P, which projects toward the bolt A, on whose face toward the front wall of the casing is formed a lug, R, which projects toward the bar N, in proximity to the lug P. The bar N will be guided in any suitable manner, and in the present case is slotted, as at *g*, for reception of a pin, *h*, projecting from the arm H. The key has a bit, S, in the form of a helix or worm, and it is adapted to enter the key-hole, and, when rotated, to have its convolutions move in the spaces between the upright plates D; and the central opening or space of the key surrounds the post F′.

When the point *k* of the key reaches and comes under the ends *b* of tumblers C, it raises said ends, thus depressing the forward ends *a* thereof, and clearing the block B of the bolt of the tumblers. By operating the knob F the bolt may now be withdrawn, and the lock opened.

In order to lock the bolt, the key being withdrawn, the knob is properly turned so that the bolt moves outwardly, and as soon as the block B clears the ends *a* of the tumblers, the latter,

owing to upwardly-pressing springs *l*, rise, and the shoulders or notches in the ends *a* of the tumblers engage with the lower rear corner or edge of the block, whereby the bolt is locked.

In order to release the key-guard the knob F is drawn outwardly, and in the movement the sliding spindle G carries with it the arm H, and clears the latter of the pin *d*, by which the arm and bolt were connected. The knob will now be rotated so that the arm H strikes the lug P of the bar N, and moves the latter toward the arm M, which operation moves the lower end of said arm M so as to clear it of the notches of the lug L of the guard K, whereby the latter may be drawn out of the key-hole, or it will automatically fly therefrom if a spring is arranged to press against said guard.

When the bolt is to be locked the guard K will be inserted in the key-hole, and as the bolt moves out the lug R thereon engages with the lug P of the bar N, and carries the same forward with it, whereby the end of the rocking arm moves toward and engages with the lug of the guard and locks the latter. Now, when the tumblers engage with and lock the bolt A, and the lug R of the latter is in contact with the rear of the lug P of the bar N, it is evident that the key-hole guard will be held locked by the bolt A.

When the lock is to be opened the key-hole guard must be released, the operation being as hereinbefore stated; but owing to the spring or elastic nature of the bar N, the movement of the arm H with the spindle G presses the lug P of the bar N clear of the lug R of the bolt, whereby the bolt and key-hole guard are disconnected, and the turning of the knob will force the arm H against the lug of the bar N and release the key-hole guard. The key may now be inserted in position, and rotated so as to release the tumblers of the block B of the bolt A. Now, pull out the knob and turn it back until the pin *d* of the bolt is again in the slot *c* of the arm H, and immediately the bolt may be drawn back and the lock is opened.

The post F′, on which the key turns, also prevents access to the ends *b* of the tumblers by implements inserted through the key-hole.

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

1. The tumblers C, in combination with the plates D, forming passages for a worm-bit key, by which the tumblers are operated, substantially as and for the purpose set forth.

2. The combination of the post F′ with the series of passage-plates D and guide E, substantially as and for the purpose set forth.

3. The knob with sliding spindle G and the arm H, in combination with the bar N, arm M, and the key-hole guard K, substantially as and for the purpose set forth.

4. The bolt A with lug R and pin *d*, and spring-bar N with lug P, in combination with the slotted arm H and sliding knob-spindle G, substantially as and for the purpose set forth.

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Witnesses:

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