J. KOENIG.

Improvement in Keys for Locks.

No. 124,066. Patented Feb. 27, 1872.

Fig. 1.

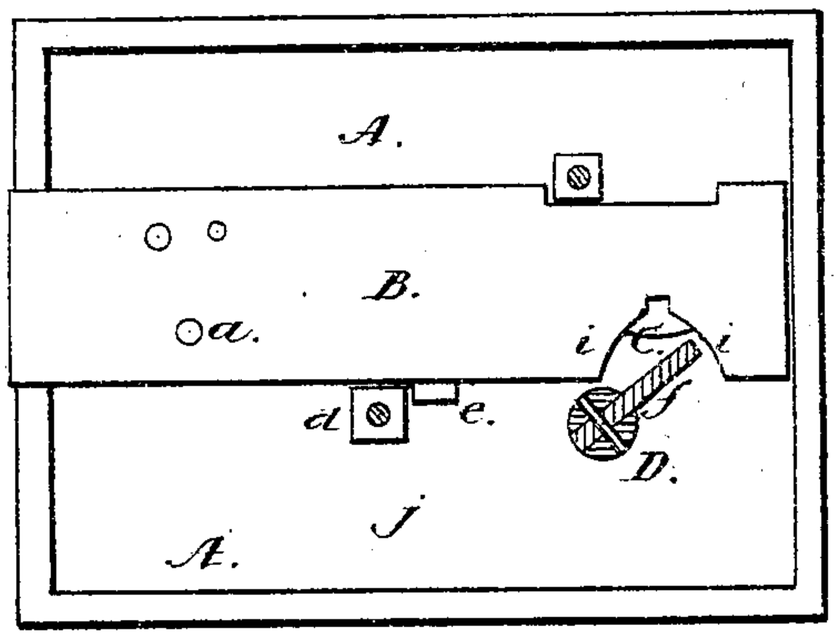


Fig. 2.

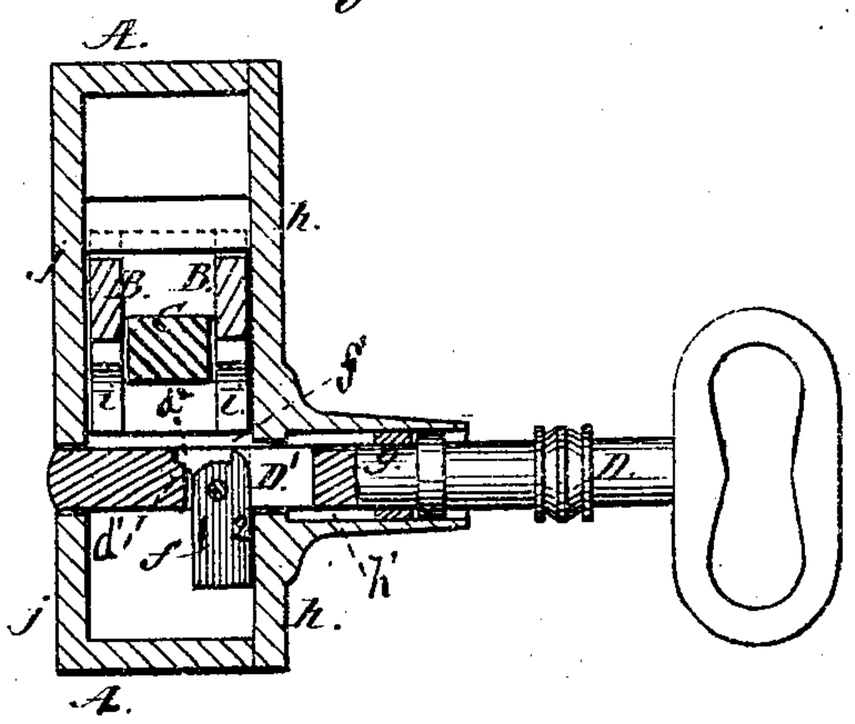


Fig. 3.

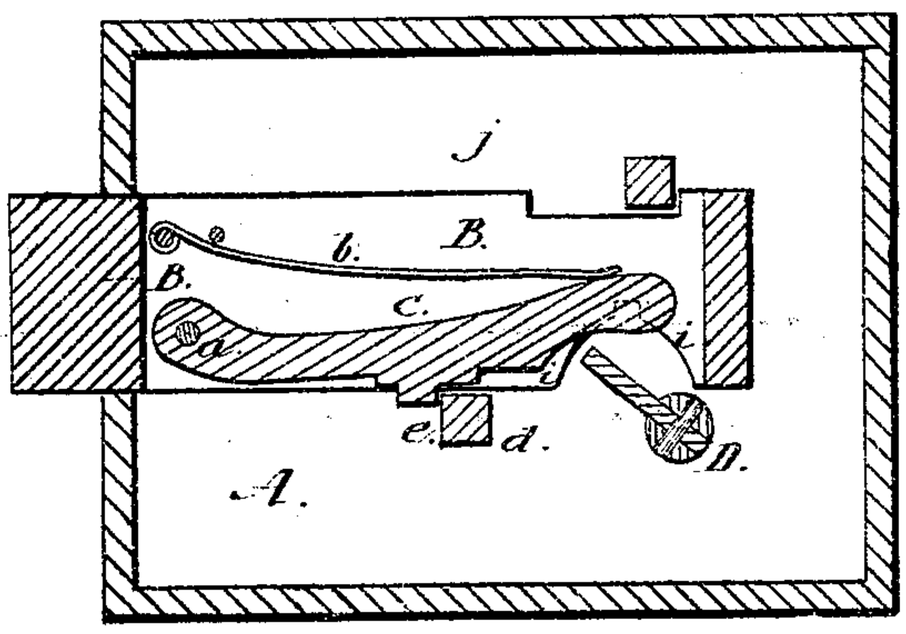


Fig. 4.

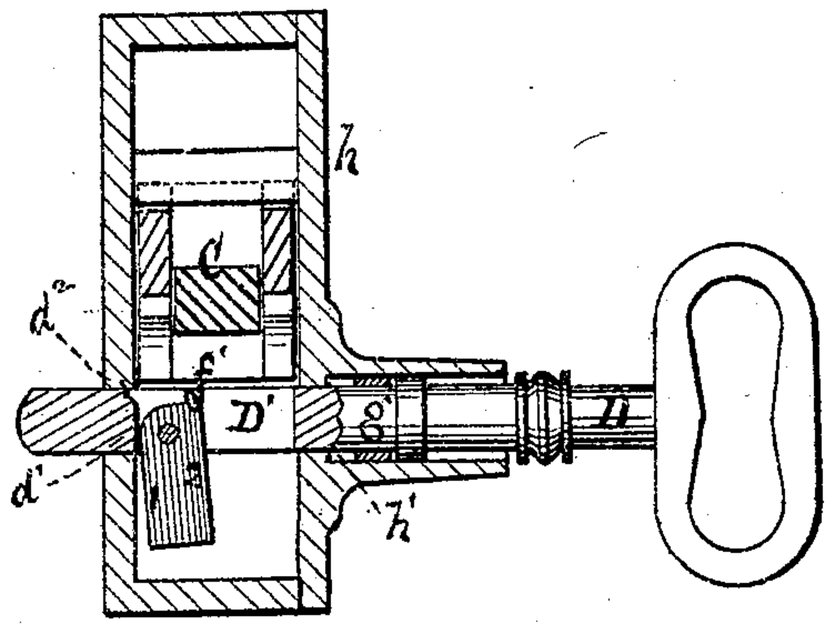
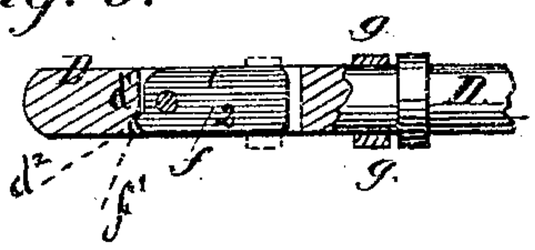


Fig. 5.



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124,066

UNITED STATES PATENT OFFICE.

JULIUS KOENIG, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN KEYS FOR LOCKS.

Specification forming part of Letters Patent No. 124,066, dated February 27, 1872.

Specification describing a new and Improved Door-Lock and Key, invented by JULIUS KOENIG, of Erie, in the county of Erie and State of Pennsylvania.

Figure 1 is a plan view of the lock, one of the plates being removed. Fig. 2 is a vertical sectional view of the lock through the center of the key-hole, the key being in position for locking or unlocking. Fig. 3 is a plan view of the lock, such parts being removed so as to show the arrangement of bolts, springs, &c. Fig. 4 is a vertical sectional view of the lock through the center of the key-hole, the key having been just inserted. Fig. 5 is a detailed sectional side view of the key.

My improvement in keys consists in constructing the lever-arm, or that part of the key which enters the lock to throw the bolt, so that it will fold up and be received within a slot cut in the shank, in order that it may enter the lock by a small round opening only capable of receiving the shank, when—and herein lies the very essence of my invention—the head of the slot is so formed and the lever-arm or lip is relatively so pivoted thereto that the wall of the slot, in connection with the face of the lock, rigidly holds the lever-arm in an extended position, to operate the bolt, &c., without the aid of spring, rod, or any other contrivance. The upper face of the wall of the slot is slightly recessed, which, in connection with a flange on the lever-arm or lip, retains the lip in position within its slot and parallel to the sides thereof without the assistance of sleeve, ring, spring, rod, or any other contrivance.

The great advantage of my key over all other keys of this character consists in the entire absence of all mechanism heretofore invariably used to operate and control the lever-arm or lip. With my key, owing to the form of the wall of the slot and the flanged lip, and the relative attachment of the latter within the former, the lip is not only automatically folded and securely held within the slot and parallel to the sides thereof, so as readily to be introduced within the lock, as if it were a straight shank, without any feature whatever being connected therewith, but, after it has been introduced, simply by turning the key it also automatically drops, and, by the same wall of the slot, in connection with the face of the lock, is so held as to secure its reliable action on the bolt, wards, tumblers, &c.

The construction and operation of my invention is as follows: A represents the lock-case. B is the bolt made to slide therein. C is a ward pivoted at its front end by a pin, *a*. Within a slot in the bolt, and held by a spring, *b*, against a fixed stop, *d*, of the lock-case, a projecting lug on the ward catches against the front or back edges of the stop *d*, in the alternate position, as indicated in Figs. 1 and 3. D is the shank of the key, and through which is cut a slot, B′. Within this slot and at its front section is secured, by a pivot-pin, the lever-arm or folding-lip *f*. This arm or lip *f* consists of a rectangular plate cut, according to the wards, tumblers, and bolt of the lock, with its upper or pivoted head rounded so that its free movement or fall from a horizontal to a vertical position, and vice versa, shall in no manner be interrupted or interfered with by the straight face d^1 of front wall of the slot D′. The rounded head of the lever or lip *f* terminates in a shoulder or flange, *f′*, which, when the key is in position, as shown in Fig. 5, enters a recess, d^2, in the wall d^1 of the slot D′, and thus securely retains the lip in a horizontal position within the slot and parallel to the sides thereof. The lip, through its own gravity, automatically falls in the slot, and, being retained therein simply through the agency of the shoulder *f* and recess d^2, avoids the necessity of employing spring, rod, sleeve, ring, or any other contrivance. The key is in position, and can readily, without any manipulation whatever, be introduced into the lock through a circular key-hole of diameter just sufficient to admit the ordinary shank of a key. There may be attached to the shank a sliding ring or sleeve, *g*, which is drawn over the lip when the same is within the shank, as in Fig. 5, the dotted lines showing the ring drawn over the lip and preventing it from dropping out of the slot, thereby making the key more convenient to carry in the pocket. When the key is to be used in the lock, the ring *g* is withdrawn from the lip, or the key-hole may be provided with an annular flange, *h′*, which forces the sleeve back, leaving the lip free to fall, as herein described.

The operation is as follows: The key being in position, as shown in Fig. 5, its lip *f* being

folded and secured within the slot by means of its shoulder f' and the recess d^2, the shank D is passed through the key-hole such a distance as to have the entire length of the slot D′ within the lock. The key is now turned a half revolution, when, through its own gravity, the lip drops to a vertical position, its side 1 falling against the straight face d^1 of the wall, as shown in Fig. 4. The key is now withdrawn until the side 2 of the lip is brought in direct contact with the inner surface of the face h of the case, and thus, by a simple movement of the key, the lip drops, and by another movement of the key it is so securely retained between the shoulder d^2 of the slot and the face-case of the lock as to insure its reliable action on the bolt B and ward C. When turned, the lip or arm f enters a notch, i, of the bolt, striking the edge of the ward before impinging on the edge of the notch for moving the bolt. To withdraw the key, the shank is again pushed in so that it shall protrude through a hole in the rear face j of the case. This frees the lip from all contact with the front face h of the case, when a half revolution of the shank is again made, and the lip instantly, through its own gravity, falls, as shown in Fig. 5, and in which condition the key is readily withdrawn.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

The key-shank D having a slot, D′, cut therethrough, the front wall d^1 of which is straight, except at its recessed face d^2, and the automatic folding pivoted arm or lip f having a rounded head terminating in a shoulder, f', the same being connected, combined, and arranged, that when the lip is folded it is retained in a horizontal position by the shoulder f' and recess d^2, and in a vertical position, so as to operate the lock, by the wall d^1 of the slot and the front face h of the case, substantially as described, and for the purpose specified.

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