W. KOOK & J. L. HALL.
Time-Lock for Safes.

No. 206,678. Patented Aug. 6, 1878.

Fig. 1.

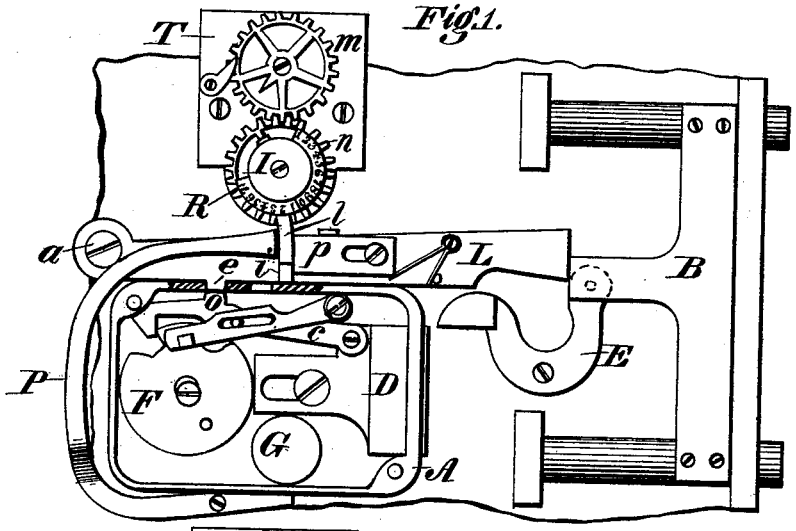


Fig. 2.

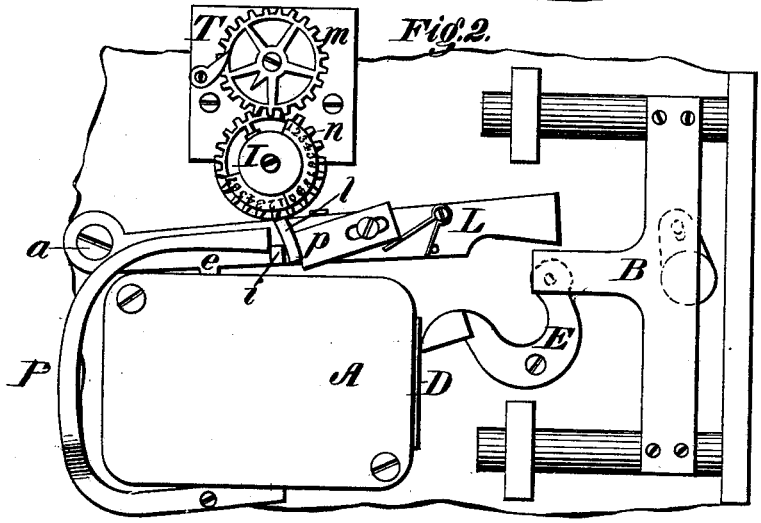


Fig. 3.

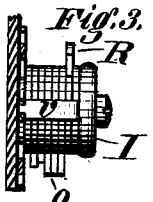
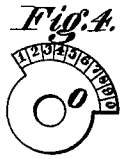


Fig. 4.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN TIME-LOCKS FOR SAFES.

Specification forming part of Letters Patent No. **206,678**, dated August 6, 1878; application filed May 15, 1878.

To all whom it may concern:

Be it known that we, WM. KOOK and JOSEPH L. HALL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Time-Locks for Safes, &c., of which the following is a specification:

Our invention consists in a novel construction and arrangement of a main lock and an additional lever for dogging the bolt-work of a safe or vault door, whereby the main lock and additional lever may be operated whether the time-movement be running or not; and it further consists in combining with said dogging-lever an adjustable stop and a guard-lock, arranged to release the dogging-lever in case the time attachment stops or fails to operate, all as hereinafter more fully described.

Figure 1 is an elevation of the inner face of a section of a safe or vault door, showing our invention applied thereto, with the face-plate of the main lock detached. Fig. 2 is a similar view with the lock-plate in place. Fig. 3 is a side elevation of the sectional dial used to connect the time-movement with the other parts; and Fig. 4 is a face view of one of the sections, shown detached.

In the drawing, A indicates an ordinary permutation-lock, made in the usual manner, with the exception that on the top of the rocking bar C there is formed a projection, *o*, arranged to work through an opening in the top of the lock-case when the bolt of the lock is drawn back and the spindle turned. (See Fig. 1.)

An elbow-lever, E, is pivoted to the door with one end pivoted to the bolt-work and has its other end arranged so as to be locked in position by the bolt D of the main lock when said bolt is thrown forward, this being a common arrangement. Directly over the lock A we pivot a dogging-lever, L, in such a position that, when down, its front end will rest directly in rear of the stud on the bar B, which is rigidly connected to the train-bolts, and thereby securely dog the bolt-work, even though the bolt D of the lock be retracted, as represented in Fig. 1. Upon the under side of this lever L, at a point directly over the opening in the lock-case, there is a projection, *e*, as shown in Figs. 1 and 2, against which the projection *o* on the rocking bar strikes as the latter rides upon the disk I after drawing back the bolt D of the lock, thereby elevating the front end of the dogging-lever L, and thus undogging the bolt-work, as shown in Fig. 2.

It will be observed that the disk F will operate to draw back the bolt D far enough to release the elbow-lever E, and thereby release the bolt-work, so far as the main lock is concerned, before it raises the angle-bar far enough to elevate the dogging-lever L, but that as the disk F continues its movement it lifts the angle-bar, thereby elevating the dogging-lever L, thus freeing the bolt-work from both.

It will thus be seen that when there is nothing to hold down the lever L the bolt D and the lever L will both be operated by turning the spindle of the lock, but that when said lever L is held down, then the spindle can be turned only far enough to retract the bolt D, in which case the bolt-work will still be held by the lever L.

To prevent this lever L from being operated at improper times, we connect therewith a time-movement, as indicated at T, Figs. 1 and 2, the time mechanism, of any suitable kind, being arranged to impart motion to the wheel *m*, which, in turn, drives the wheel *n*. This wheel *n* is provided with a tubular stem, on which is placed loosely a series of sectional disks, *o*, varying in width of flange, but of uniform diameter, as shown in Fig. 3, one of the widest of these being shown detached in Fig. 4. After these disks have been placed on the tube, a washer having an arm, *v*, standing at right angles to its body is slipped on also, as shown in Fig. 3, the inner end of the arm *v* resting in a hole in the wheel *n*, to keep it from turning, when the whole are secured by a screw washer or nut, I. By loosening the nut I these sectional disks *o* can be arranged on the tubular spindle so as to form a dial of greater or less extent, as may be desired, they being held in place when thus arranged by simply tightening the nut I. As shown in Fig. 4, these disks *o* are worked with figures to indicate hours or other divisions of time, so that they may be readily arranged to form a dial that shall be any required number of hours in passing a given point, the arm *v* serving as a starting-point in arranging the disks *o* on their stem or tube. At a point directly under this dial, on the

face of the dogging-lever L, is a stud or projection, *i*, as shown in Figs. 1 and 2, and to the front face of the lever L is secured a sliding piece, *p*, which is slotted to admit of being moved endwise, it having a vertical projection, *l*, arranged to rest upon and form a continuation of the lug *i* when in place, as shown in Fig. 1. As this flange or projection *l* is of such a height as to just clear the edge of the dial carried by the wheel *n*, it follows that the lever L cannot be raised so long as the projecting flanges of the dial are over the stop or projection *l*, and the latter rests upon the stud *i* in the position shown in Fig. 1, which represents the condition of these parts when the lock is closed during the night. When, however, the dial has been turned far enough to carry its projecting flange past the stop *l*, then the lever L is free to be raised.

If, now, it be desired to leave the time-movement in operation during the day, and still have the lever L free to be raised, so that the door can be opened at any time, it is only necessary to shove the stop *l* back so it will drop down, as shown in Fig. 2, when the lever can be raised, although the projecting flange of the dial is still over it. A small spring is applied to the stop *l*, to assist in holding it both when up and when down, though this is not essential.

To enable this stop *l* to be moved or thrown back out of the way in case the time-movement should stop, or for any reason should fail to operate, a lever, P, is pivoted so as to have its upper end rest in front of the stop *l*, as represented in Fig. 1, while its opposite end is arranged to be operated upon by the guard-lock G, located within the case of the main lock, as shown in Fig. 1. This guard-lock is constructed in the same manner as that described in our application filed April 27, 1878, to which reference is made for a more detailed description.

By operating the guard-lock G, the tumblers of which are connected to and driven by the spindle of the main lock A by pinions, (not shown,) the upper end of the lever P is thrown against the face of the stop *l*, which is thereby shoved back and allowed to drop down, as shown in Fig. 2, when the lever L can be raised by operating the main lock, as before described, and the door opened. This guard-lock is only designed to be used in case the time-movement fails to operate; and hence the combination on which its tumblers are set is not designed to be known to those in daily charge of the safe or vault, but is to be kept by some other party, and, if desired, at some other place, and is to be changed as often as it is used, as an additional means of security both against burglars and dishonest employés.

In this as in my former application, above mentioned, the cap or face plate of the guard-lock is so arranged that it can only be removed by a knowledge of the combination on which its tumblers are set, and thus all tampering with them is prevented.

It is obvious that, instead of making a projection on both the lever L and the rocking bar C, it may be made on either one alone by increasing the size.

It will be seen that by means of the sectional dial the time attachment can be adjusted to operate for a greater or less time, according as it may be arranged, and that by setting or turning the dial so that some time will elapse before its projecting flange is brought over the stop *l*, it will be possible to open the door in the ordinary manner until the time arrives when the flange is over the stop, after which it cannot be opened until the time for which the movement was set shall have arrived, unless the guard-lock be operated to remove the stop *l*. This enables the person having charge of the safe or vault to close and lock it in the ordinary way, and still be able to open it up to the moment when the projecting flange of the dial shall begin to pass over the stop *l*; and by adjusting the sections properly this period of time may be made long or short, as desired, and may be varied from day to day, and yet allow the safe to be opened at the same hour in the morning each day, the time-movement coming automatically into operation at the appointed time, and so continuing in operation until the next day at the appointed hour.

We do not in this application make a claim for the use of a guard-lock, broadly, nor for the manner of securing the cap or face plate of the same, as these features are shown in our previously-filed application.

Having thus described our invention, what we claim is—

1. In combination with the pivoted or dogging lever L, the main lock A, having its rocking bar arranged to operate or raise the lever by means of a projection on one or both, substantially as described, whereby the bolt of the main lock and the lever L can both be disconnected from the bolt-work by operating the main lock, as set forth.

2. The main lock A and the pivoted lever L, provided with an adjustable stop, *l*, in combination with the dial R, the said parts being arranged to operate substantially as described, whereby the lever can be retained in position to dog the bolt-work even when the bolt of the main lock is withdrawn, or, if desired, can be released even when the time attachment is in operation.

3. The combination of a time attachment provided with the dial R, the lever L, provided with the adjustable stop *l*, the main lock A, and the guard-lock G, with the lever P, all arranged to operate substantially as described, whereby the parts can be released and the door unlocked in case the time attachment stops or fails to operate.

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