J. L. HALL.
Time-Lock.

No. 206,872. Patented Aug. 13, 1878

Fig. 1.

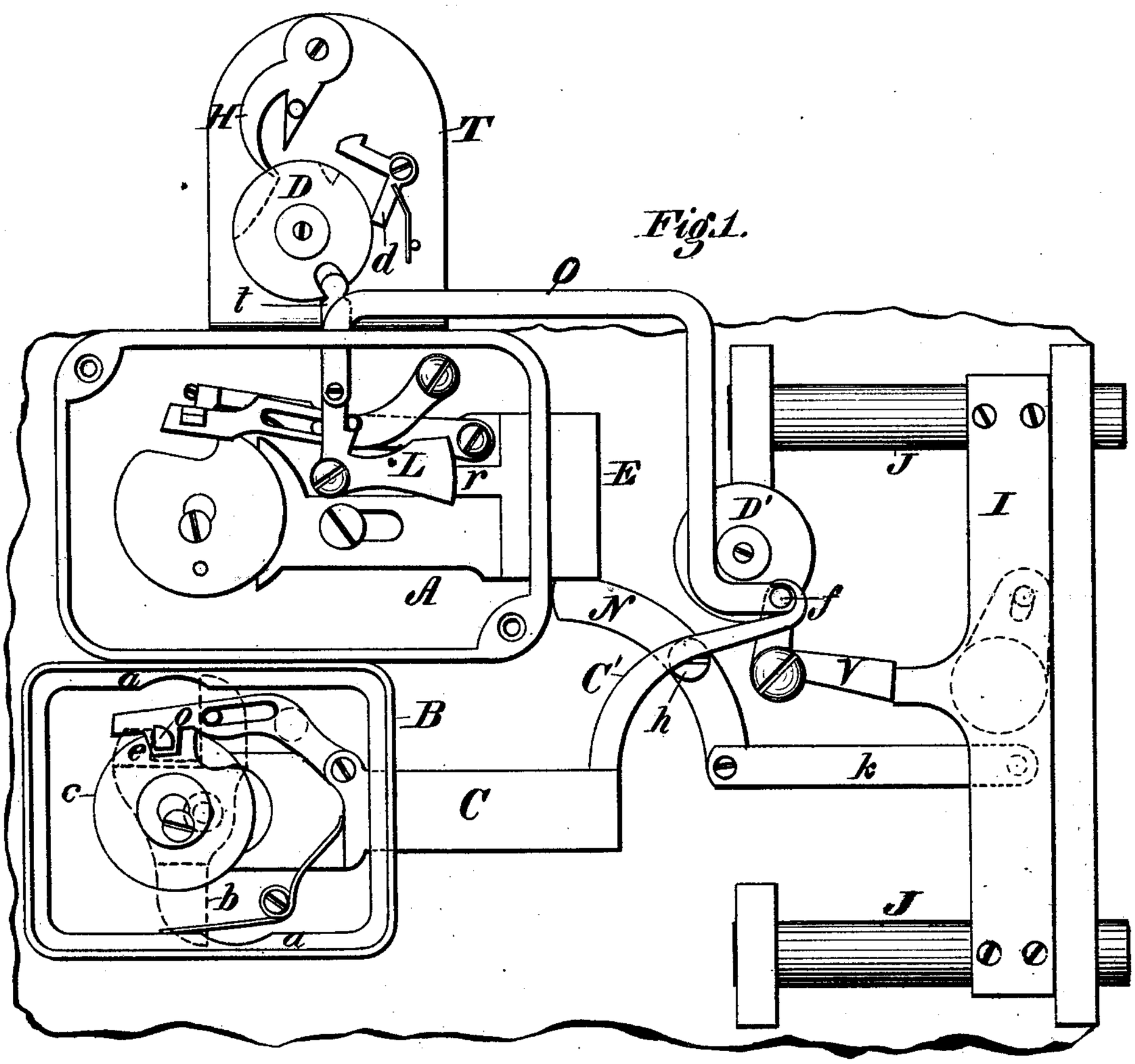
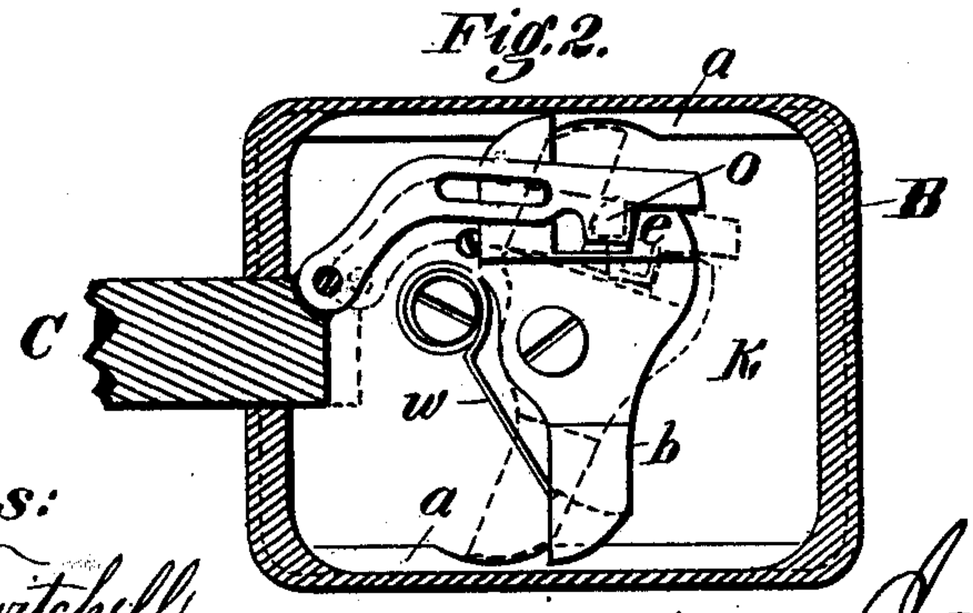


Fig. 2.



Witnesses:
Donn B. Twitchell.
S. M. Madden

Inventor:
J. L. Hall.
by Dodgerson.
Attys.

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

UNITED STATES PATENT OFFICE.

JOSEPH L. HALL, OF CINCINNATI, OHIO.

IMPROVEMENT IN TIME-LOCKS.

Specification forming part of Letters Patent No. **206,872,** dated August 13, 1878; application filed April 24, 1878.

To all whom it may concern:

Be it known that I, JOSEPH L. HALL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Safe-Locks, of which the following is a specification:

This invention consists in the arrangement of a main lock with a lever for dogging the bolt-work, a separate lever for dogging the bolt-work independent of the main lock, an elbow-lever for dogging the bolt of the main lock, and a time attachment arranged to release the two latter, with a guard-lock arranged to operate the same and a time attachment in case the latter should stop or fail to operate.

It also consists in securing the detachable face-plate of the lock by means of a lever pivoted thereto, and so arranged that it can only be operated by means of the combination on which the lock may be set, all as hereinafter set forth.

Figure 1 is a front elevation, showing all the parts in place upon the inner face of a safe-door, the plate of both the main and the guard locks being removed to show the interior of said locks. Fig. 2 is a transverse vertical section of the guard-lock, looking from the opposite side, to show the manner of securing and releasing the front plate or cap thereof.

In the drawing, A represents the main lock, which in this case is a permutation-lock; but any other kind may be substituted, if desired. B is the guard-lock; T, the timer or time attachment; and J J the bolts, connected by the usual bar I with a handle (shown in dotted lines) for operating the same. In this case the bolt-work is connected to a pivoted bar, N, by a rod, *k*, and the bar N is so arranged that when the bolt E of the main lock is protruded the bar N, and consequently the bolt-work, is locked fast, as represented in Fig. 1.

As an additional means of security, the bolt E of the main lock A is also locked fast by an elbow-lever, L, pivoted within its case, and arranged to engage behind a stud, *r*, on the bolt E when the latter is thrown forward, as shown. In this case the vertical arm *t* of this lever L is extended upward, and connected to a disk, D, upon which the hand H and dog *d* of the timer T operate, the construction and operation of this style of timers being well understood, and therefore not necessary to describe.

A bent rod, O, serves to connect this elbow-lever L of the main lock with a similar dogging-lever, V, arranged so as to engage with a stud on the bar I, and thus dog the bolt-work, as shown in Fig. 1, so that both the dogging-levers L and V will be moved simultaneously.

The guard-lock B is provided with a set of tumblers and rocking bar, in the usual manner; but, instead of being arranged with any dogging device, it simply has a sliding bolt, C, from which an arm, C′, extends around in front of the pin *f*, attached to the vertical arm of the dogging-lever V. In this case the arm C′ is represented as being rigid and having a hook at its end to engage with pin *f*; but it is obvious that it might be pivoted to the bolt C, and have its other end slotted, and made to work the same, as its only function is to pull back on the pin *f* when desired.

In this as in my former application, the tumblers of the two locks A and B, in case both are permutation-locks, are connected by gearing, so that both can be operated from one spindle and set by one dial.

When the parts are thus arranged the operation will be as follows: The timer being set so that its hand H will operate on the disk D at the hour that it is desired to open the safe or vault, the door is closed, the bolts shot forward, and the bolt E of the main lock is thrown out, when the dogging-levers L and V will both fall into position, as shown, thereby fastening all securely in place. At the appointed hour the hand H will move the disk D, thereby raising the dogging-levers L and V, which will then be held up by the dog *d* of the timer engaging in a notch in the disk D. The tumblers of the main lock A can then be set and the bolt E withdrawn, when the bolt-work is free to move. During the day, when it is necessary to open the door frequently, the parts will be left in this position—that is, with the dogging-levers L and V held up, during which time the main lock is free to act in the usual manner.

Thus far it will be observed that the guard-lock has remained inactive, and has had no effect whatever upon the other parts; but, in case

the timer should stop or fail to operate from any cause whatever, then it is only necessary to set up the tumblers of the guard-lock upon their combination, (and which is kept secret from the parties who ordinarily control the safe or vault,) when, by drawing back its bolt C and arm C′, the dogging-levers L and V and the timer will all be disconnected, thus enabling the door to be unlocked by operating the main lock in the usual manner.

It will at once be seen that, if preferred, the timer T, instead of being connected to the dogging-lever L of the main lock, may be connected to the other lever, V, by means of the disk D′, as shown in Fig. 1, this being the same as disk D, only differently located. In that case, if desired, the main lock A may be dispensed with entirely, in which case the timer would operate the lever V only, the guard-lock in that case serving to undog the bolt-work and disconnect the timer in case of stoppage or derangement of the latter, the same as before, through the medium of the disk D′.

This idea of connecting the time attachment direct to a device which operates to dog the bolt-work, instead of making the connection through the medium of the main lock, is not, however, claimed in this application irrespective of the particular arrangement of the parts, as the idea, broadly considered, is shown in my application filed March 7, 1877, the plan here shown being simply another method whereby the same result may be accomplishad.

To render the guard-lock safe from being tampered with, and to prevent the parties ordinarily having charge of the safe or vault from having access to its tumblers and ascertaining the combination on which they may be set, I construct its case in such a manner that it can only be opened by means of the combination on which it may be set. In order to do this, I construct the case with an internal flange, *a*, projecting from its sides, as shown in Fig. 1, this flange being set back from the face far enough to form a recess equal to the thickness of the face-plate K, Fig. 2, this recess being indicated by dotted lines in said figure.

Upon the inner side of the face-plate K, I pivot a plate or cross-bar, *b*, of such a length that, when standing at right angles, its opposite ends will engage under or behind the flanges *a*, and thus lock the plate K fast in its seat, a spring, *w*, serving to hold the bar *b* in that position.

In order to put this plate K in its place, it is only necessary to set up the tumblers and let the rocking bar down into the notches of the tumblers, then turn the plate so that the ends of the bar or plate *b* will come opposite the notches in the flanges *a*, as shown in dotted lines in Fig. 2, when the plate K can be turned and shoved into place, the ends of the bar *b* resting in and passing through the notches until the plate has come to rest in its seat, when the spring *w* will force the bar *b* to an upright position, thereby causing its ends to engage behind the flanges *a*, as shown clearly in Fig. 2.

It will be observed that this bar *b* is provided on its upper end with a notch and a shoulder, *e*, and that this notch is so located that when the rocking bar is down or in position to draw back the bolt C, a stud or projection, *o*, on the outer face of the rocking bar will rest in this notch, as shown in Figs. 1 and 2, and so that, as the rocking bar is thrown backward, this stud *o* will press against a shoulder, *e*, on the rear side of the notch in the bar *b*, thereby turning the bar on its pivot and throwing its ends opposite the notches in the flanges *a*, as shown in dotted lines in Fig. 2, when, of course, the plate K is unfastened and can be at once removed.

By this arrangement it will be seen that no one can get at the tumblers of the guard-lock unless they have the combination on which its tumblers are set, and that thus the security is very greatly increased, and tampering with the guard-lock or its tumblers is prevented.

I do not herein claim, broadly, the idea of a guard-lock arranged to release the dogging devices in case the time attachment stops or fails to operate, as that is shown in an application previously filed by me; nor do I claim, broadly, the idea of securing a lock-plate in such a manner that it can only be removed by means of the combination on which the lock is set, as the broad idea is old; but,

Having thus described my invention, what I claim is—

1. The combination of the main lock A, with its dogging-lever L, the bolt-work, with its dogging-levers N V, the guard-lock B, and time attachment T, all arranged to operate substantially as shown and described.

2. In combination with the tumblers and draw-bar of a permutation-lock, the detachable face-plate K, having the bar *b* pivoted thereto, and arranged to engage behind the flanges *a*, substantially as described, whereby the face-plate is prevented from being detached except by means of the combination on which the lock is set, as herein set forth.

JOSEPH L. HALL.

Witnesses:
W. C. DODGE,
DONN I. TWITCHELL.