

H. GROSS.

TIME-ATTACHMENT FOR LOCKS.

No. 173 121.

Patented Feb. 8, 1876.

Fig. 1.

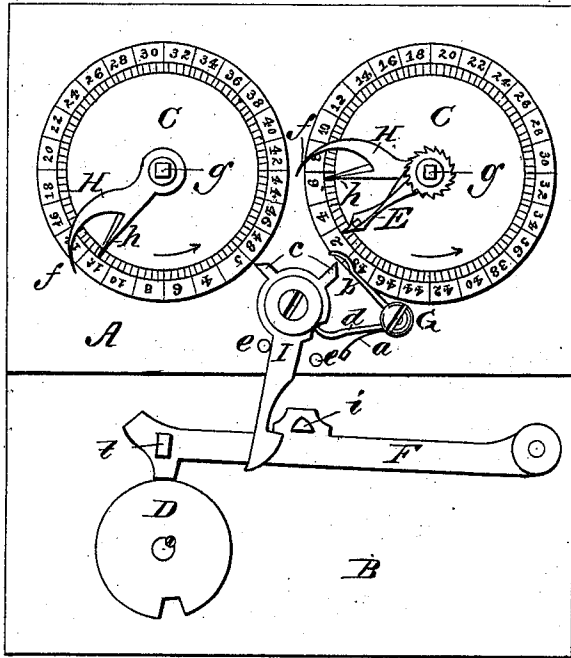


Fig. 5.

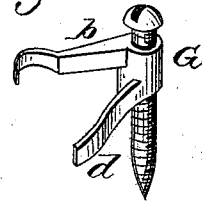


Fig. 6.

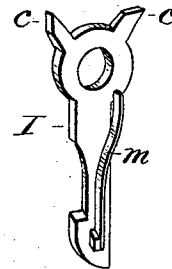
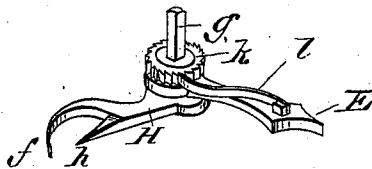


Fig. 4.



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Donn Twitchell.

Inventor:
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Fig. 2.

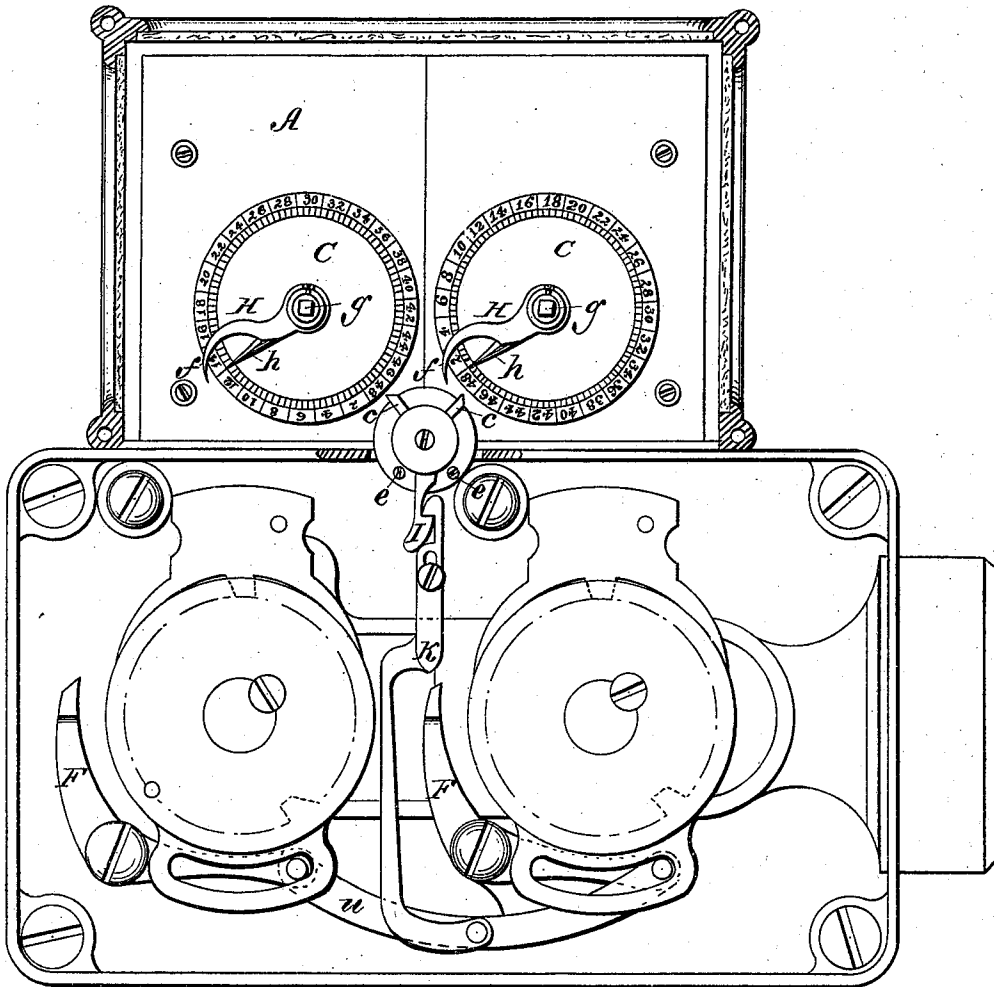
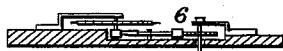
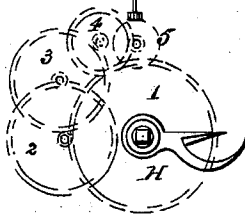


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY GROSS, OF CINCINNATI, OHIO.

IMPROVEMENT IN TIME ATTACHMENTS FOR LOCKS.

Specification forming part of Letters Patent No. **173,121**, dated February 8, 1876; application filed December 28, 1875.

To all whom it may concern:

Be it known that I, HENRY GROSS, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Time Attachments for Locks, of which the following is a specification:

My invention consists of a time attachment for permutation-locks, provided with an auxiliary device or set of devices, by which the attachment can be set for any given time, and be kept from affecting the lock for a certain length of time, during which period the lock is free to be operated in the usual manner, and after which the time attachment controls it until the arrival of the proper time for releasing or opening the same. It also consists in the combination of an arbor, carrying a fixed hand for operating the main attachment, with a loose hand connected by a pawl and ratchet to the arbor for operating the dog, or other device which is used to hold the attachment from being connected until released, all as hereinafter more fully described.

Figure 1 is a front plan view of the time attachment connected with the latch of a permutation-lock. Fig. 2 is a similar view, showing it combined with the angle-bars of a lock having two sets of tumblers. Figs. 3, 4, 5, and 6 are views of portions shown more in detail.

This invention consists of features or devices intended to be used in connection with the time attachment described in an application for a patent filed by me August 28, 1875; and I do not in this application make any claim to the feature claimed in said application.

In the drawings, A represents the case of my attachment, and B the case of a permutation-lock; D representing the tumblers, and F the latch, or, as it is sometimes termed, the angle-bar, which controls the movement of the locking-bolt, the latter not being shown in the drawing. In the case A are represented two dials, C, each having an arbor, *g*, which carries a hand, H, which has its outer end divided into two prongs, *f* and *h*, as shown in Fig. 4, of different lengths, the shorter one, *h*, being designed as a pointer for the figures on the dial, while the longer one, *f*, is intended

to operate on the arm *c* of a lever, I, pivoted below and midway between the two dials C, as shown in Fig. 1. This lever I, which is shown detached and reversed in Fig. 6, has a notch cut in its side to engage with a pin or stud on the latch F of the lock below, as shown in Fig. 1, there being a spring, *m*, connected to the lever, and arranged to cause it to engage with the stud *i* when not held or pressed back.

With the parts thus constructed and arranged—it being understood that there is a time movement behind each dial to operate the hands H—it will be seen that when the lever I is thrown forward and hooked under the stud *i* of the latch F, the latter will be held up, no matter how much the tumblers D of the lock may be turned, and whether gated or not, and that as the latch cannot fall, consequently the lock cannot be operated. By setting the hand H back from the arm *c*, or the zero-point on the dial, as many hours as it is desired shall elapse before the safe or vault is to be opened, it follows that until that time arrives the latch will be held by the lever I, and the lock rendered inoperative; but at the expiration of that time the prong *f* of the hand H will strike against the arm *c*, and thereby disengage the lever I from the latch, when the lock can be operated in the usual manner.

Although two dials are shown, it is obvious that one only is required, two being used simply to provide against accidents, in case one should stop from any cause.

It often happens, however, in banks and other offices, that it becomes necessary to open a safe or vault after closing it for the day; and to enable this to be done and the time attachment made to operate thereafter, I pivot at one side of the lever I a two-armed rocking dog, G, as shown in Fig. 1, the dog itself being shown detached in Fig. 5. The lower arm *d* of this dog G is arranged to bear against the edge of lever I, and is held in position by a spring, *a*, the arm *d* of the dog G thus serving to hold the lever I back and disengaged from the stud *i* of latch F until released by the time mechanism.

In order to trip this dog at the proper time

I mount on the arbor *g* another hand, *E*, which carries a spring-pawl, *l*, which engages in the teeth of a ratchet, *k*, secured rigidly to the arbor *g*, as shown in Fig. 4.

It will thus be seen that this hand *E* can be turned upon the arbor in one direction to any desired extent, and yet will be moved with the arbor in the opposite direction, it being locked fast to the arbor by the pawl and ratchet.

To set this part of the attachment the dog *G* is arranged as represented in Fig. 1, so that its arm *d* presses against the lever *I*, thus holding it back away from the stud *i* of the latch *F*. The hand *E* is then set back as many hours on the dial as it is desired to keep the lock in a condition to be opened in the usual manner, which, in the drawing, is represented as two hours, while the hand *H* is represented as being set back six hours.

When thus arranged it will be seen that as the time movement operates, the hand *E*, in two hours, will strike against the arm *b* of dog *G*, thereby disengaging its other arm, *d*, from the lever *I*, which will at once be forced forward by its spring *m*, and made to engage with the stud *i* of the latch *F*, thus preventing the lock from being operated or opened until the hand *H* is brought around with its prong *f* against the arm *c* of lever *I*, and thereby disengage it from the latch, when the lock will again be free to be operated in the usual manner, and which, if the hand be set as represented in Fig. 1, would occur at the end of four hours after the tripping of the dog *G*, or six hours from the commencement. During the interval, while the dog *G* holds the lever back, the latch *F* is held up by resting on the periphery of the tumblers *D*, that being the natural position of these parts in a permutation-lock when the door is locked, and being thus held up the latch is in a position for the lever *I* to engage therewith at any time when the dog *G* is tripped, so as to release the lever *I*.

When the hand *H* is brought in contact with the arm *c*, and it has operated thereon so as to disengage the lever *I* from the latch *F*, the time movement is stopped, the prong *f* being too long to allow it to pass by the arm *c*, and it remains stationary until set again.

To render the time movement more compact I propose to apply the mainspring di-

rectly to the arbor which carries the hand, and in Fig. 3 I have represented a train of gearing with an escapement designed for this purpose. By this arrangement the spring acts directly upon the hand that trips or moves the lever *I*, and by moving the hand backward on the dial the spring is wound up, thus avoiding the necessity of using a key for that purpose.

In Fig. 2 the attachment is shown applied to a lock having two sets of tumblers. In this case the latches *F* are made in the form of an elbow-lever, and are connected by a bar, *u*, from which a link or bar, *K*, extends upward to the proper point to connect with the lever *I* of the time attachment. The auxiliary device, for holding the lever *I* disconnected for a given time, may be applied to this, the same as in Fig. 1.

It is obvious that my attachment may be applied to any form of permutation-lock, it only being necessary to make the necessary connection with the latch or angle-bar. So, too, it is obvious that instead of the dog *G* any equivalent device may be used, it only being necessary that it be arranged to hold the lever *I* back until operated upon by the hand *E*.

Having thus described my invention, what I claim is—

1. In a time attachment for a permutation-lock, a mechanism constructed to operate substantially as described, whereby the lock may be left free to be operated for a prearranged period, and thereafter be rendered inoperative by the attachment until the arrival of the time for which it is set.

2. In combination with the lever *I*, arranged to engage with the operating part of a permutation-lock, the secondary hand *E* and the rocking dog *G*, constructed to operate substantially as and for the purpose set forth.

3. The combination, in a time attachment for locks, of an arbor provided with a fixed hand for disconnecting the attachment, and a loose hand connected to the arbor by a ratchet and pawl for operating the dog *G*, substantially as shown and described.

HENRY GROSS.

Witnesses:

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