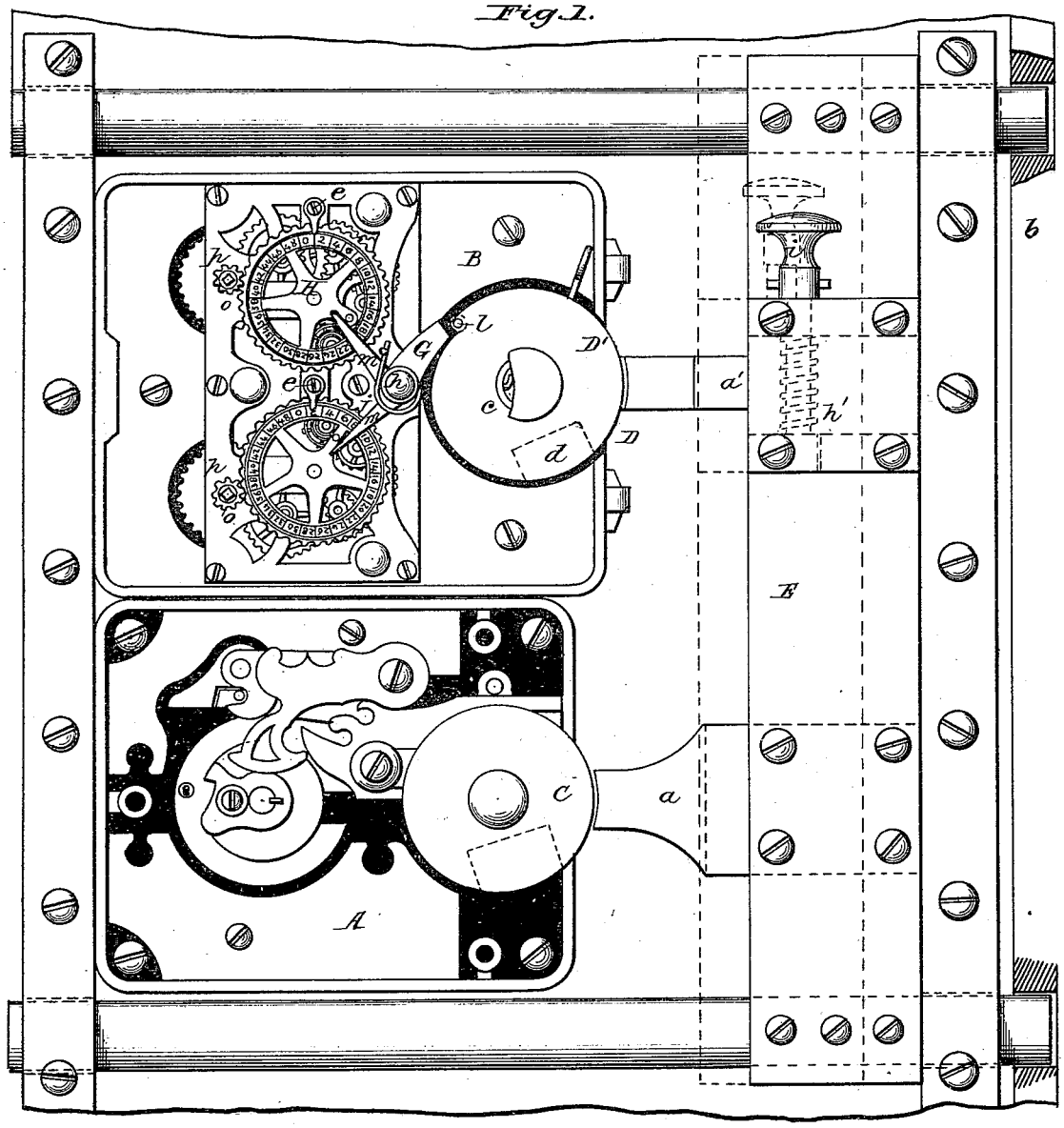
2 Sheets--Sheet 1.

J. SARGENT.

Time-Lock.

No. 165,878. Patented July 20, 1875.

Fig. 1.



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By James L. Norris

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2 Sheets--Sheet 2.

J. SARGENT.

Time-Lock.

No. 165,878.

Patented July 20, 1875.

Fig. 2.

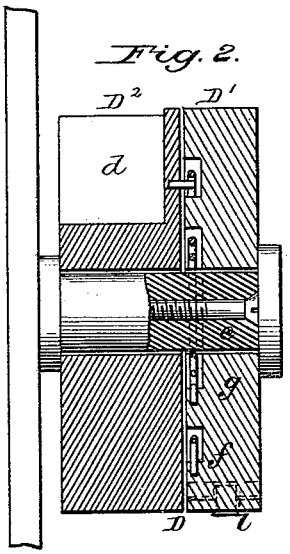


Fig. 3.

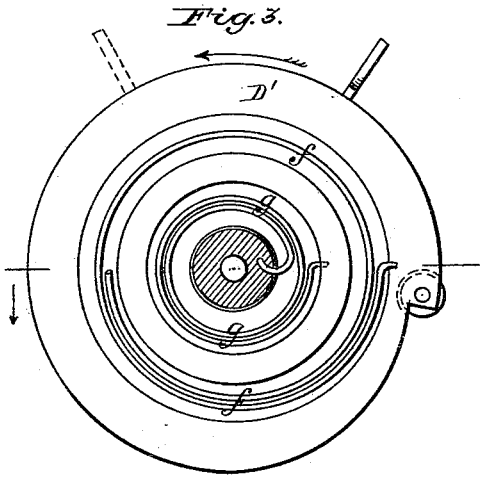


Fig. 4.

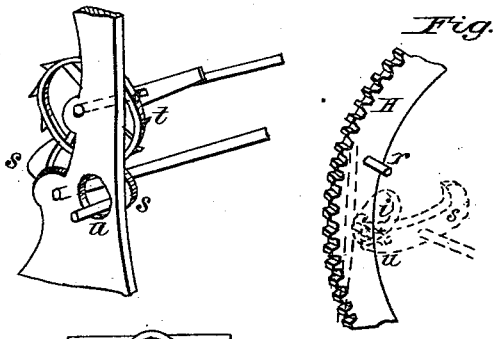
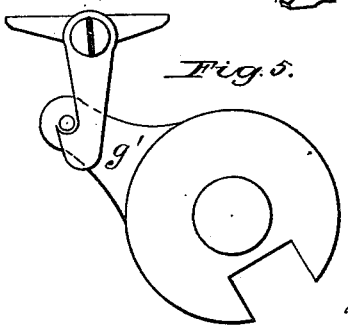


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES SARGENT, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN TIME-LOCKS.

Specification forming part of Letters Patent No. **165,878**, dated July 20, 1875; application filed July 12, 1875.

To all whom it may concern:

Be it known that I, JAMES SARGENT, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Locks for Safe and Vault Doors, of which the following is a specification:

This invention relates to certain improvements in locks for safe and vault doors, of that class in which two independent locks are employed upon a safe, vault, or other door, for the purpose of preventing the unlocking of the door-bolts until both locks have been unlocked.

In the drawings, Figure 1 is an elevation of a combination and time lock applied to a safe-door, having the bolt-work arranged thereon. Fig. 2 is a section of the bolt of the time-lock. Fig. 2 is an inside view of the same. Fig. 4 represents detached views of the dial, pallet, and escape-wheel. Fig. 5 is a bolt constructed as integral with the holding-latch.

Combination or key locks have only heretofore been used for this purpose, so far as I am aware. As such locks are set on combinations or operated by means of keys, burglars can force the holders of the combination or key to unlock the door, and hence such locks are not a perfect safeguard against robbery.

Time-locks have also been used upon doors for the purpose of opening the door only at a determined hour, thus placing it beyond the power of any person to open the door until that hour arrives; but, so far as I am aware, such locks have either been used singly on a door, (in which case, when the lock releases the bolt or other fastening, the door is unlocked, and may be opened by any one,) or else a time-movement has been combined directly with a lock, in such a manner that the two really constitute but a single lock, in which case, if violence is applied to the lock, it at once destroys the efficiency of the time-movement.

The drawings illustrate a time-lock and a combination-lock arranged on a safe or vault door, to operate in connection with the bolt-work of such door, in such manner that said bolt-work rests against the bolts of each lock, so that the door-bolt cannot be withdrawn, when locked, until both locks have been unlocked. The bolt of the time-lock has an opening or offset, which is automatically brought in and out of coincidence with the tongue of the door-bolt, so that the door-bolt may be retained in the unlocked position for shutting the door, and prevented from being withdrawn, when locked, until both locks have been unlocked.

The features above described are embodied and claimed in my application filed March 10, 1875, and form no part of this application, and are therefore not claimed.

A represents the combination or key lock, and B the time-lock. These locks are provided with bolts C D, against which strike the studs *a a'* of the tie-piece E. When the locks are locked the bolts hold said studs out, and both locks have to be unlocked to allow the door-bolt to retract. The locks A B are separate and independent of each other, and complete in themselves, and may be located at any position on the door. The combination or key lock will naturally be located in line with the spindle that operates it; but the time-lock may be placed anywhere where space is best formed for it on the door, and the stud *a'* of the door-bolt may be lengthened, bent, or otherwise arranged to rest against the lock-bolt, in whatever position it may be, as shown in Fig. 1.

In locking the safe or vault door some device is necessary to allow the door-bolt to remain back in the unlocked position until the door is closed, without interfering with the setting of the time-lock.

In Figs. 1 and 2, the bolt D of the time-lock is constructed in two parts, D^1 D^2, turning independently on the same bearing *c*. The inner part D^2 has the socket *d*, into which the stud *a'* of the door-bolt enters when drawn back. The inner part is connected to the outer part D^1 by a coiled spring, *f*, Fig. 3, resting in a cavity in the side of the outer part. The outer part is also connected by a similar coiled spring, *g*, with the fixed bearing *c*. Instead of the spring *g*, it may have a counter-weight, *g'*, Fig. 5. The spring *g* causes the outer part D^1 to turn back, so that the socket *d* of the inner part comes in position to allow the stem *a'* of the door-bolt to enter it. When the door-bolt is retracted, the outer part D^1 of the lock-bolt D is turned up to engage the dog, (presently to be described,) while the inner part remains

stationary on the stem of the door-bolt. The door is then shut and the door-bolt thrown out, when the tension of the spring *g* causes the part D^2 to turn, thereby locking the door-bolt. The parts D^1 D^2 are provided with suitable stops, by which the motion is gaged to bring the socket of the part D^2 in proper position in its throw. The device above described forms a part of the time-lock, being the bolt of the same.

In Fig. 1 is shown another device for the same purpose, situated outside the lock, for which I have already obtained Letters Patent. It consists of a socket or bearing attached to the tie-piece E of the door-bolt, and sliding on an independent stud resting against the lock-bolt. A spring locking-pin is used to connect the parts when the door-bolt is thrown forward to connect with the jamb.

In this case the lock-bolt may be made solid, and may be either of the turning or sliding kind.

G is a dog for holding the lock-bolt D up in the locked position. It turns on an axis, *h*, and its point engages under a stop, *l*—preferably a roller—of the lock-bolt, when the latter is raised. It is held in engagement by a light spring, *j*. The dog has two branching arms, *m m*, projecting inward over the face of the dial-wheels H H. The dial-wheels have pins *n n* projecting out from their faces, and when they, or either of them, strike the levers *m m*, they release the dog from its engagement with the lock-bolt, and the latter turns back, thereby unlocking the lock, as before described.

I prefer to use two independent time-movements, each connected with and operating one of the dial-wheels H, so that if one movement should accidentally stop, the other would be sure to unlock the lock.

The dial-wheels are indexed or marked with a scale of hours from 0 upward to 48, or any other number corresponding with the longest interval the lock is to remain locked at one time—say from Saturday night to Monday morning. This scale is used in conjunction with a pointer, *e*, at the top of the wheel.

In setting the lock, the dial-wheels are moved backward from 0 to any number in the scale that will indicate the number of hours the safe or vault is to remain closed, and the pins *n n* must be so located, with reference to the scale, as to strike the levers *m m* and release the bolt, when the 0 mark comes forward to the pointer.

The time movements or mechanisms may be of any ordinary construction to measure time.

Each of the dial-wheels H H is cogged, and engages with the arbor *o* of the mainspring-barrel, either directly, by means of the pinion *p*, attached to said arbor, or through intermediate gearing. The arbor *o* is the stem by which the time-lock is wound. When the time-lock is finished, it is fully wound up before the dial-wheel is adjusted in place. The motion is then imparted to the dial-wheel, which runs forward to unlock the lock, and in moving the dial-wheel back to reset the lock, the time-movement is rewound. The dial-wheel is turned back to reset the lock by a key applied at the winding-arbor *o*.

By the means above described, I obviate a great objection to common time-locks, which run on until they run down, thus subjecting the lock to the danger of being locked in by neglect of winding. By this means the lock cannot be reset without winding, for the pins *n n*, resting in contact with the levers *m m*, prevent the dog G from being engaged with the bolt until the dial-wheels have been moved back, as described. The relocking of the lock, therefore, requires rewinding of the time-movement as a necessity; hence no danger of it being unlocked accidentally during the period of hours for which it is set.

On the back of the dial-wheel H is a pin, *r*, Fig. 4, forming a stop. On the pallet *s*, which engages with the scape-wheel *t*, is a pin, *u*, which projects out through a slot, *v*, of the stationary time-movement frame. As soon as the dial-wheel has acted upon the lever *m* to unlock the lock, the pin *r* of the dial-wheel strikes the pin *u* of the pallet and locks the latter in the scape-wheel, thereby stopping the time-movement. There is therefore no loss of motion, nor can the dial-wheel get out of position with respect to the pointer.

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

1. The bolt D of a time-lock, constructed in two parts, D^1 D^2, each having an independent turning movement, and connected together by a spring, *f*, substantially as described, whereby the time-movement may be set while the door-bolt is held in the unlocked position.

2. The combination, with the mainspring-arbor, of the dial-wheel connected with said arbor directly by means of the pinion *p*, or by intermediate gearing, whereby the time mechanism of a time-lock is wound by the turning back or setting of the dial-wheel, substantially as described.

3. The combination, with the dial-wheel H and pallet *s*, of the stop-pins *r u*, for stopping the movement of the time mechanism when the lock is unlocked, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand.

JAMES SARGENT.

Witnesses:

JAMES L. NORRIS,

ALBERT H. NORRIS.