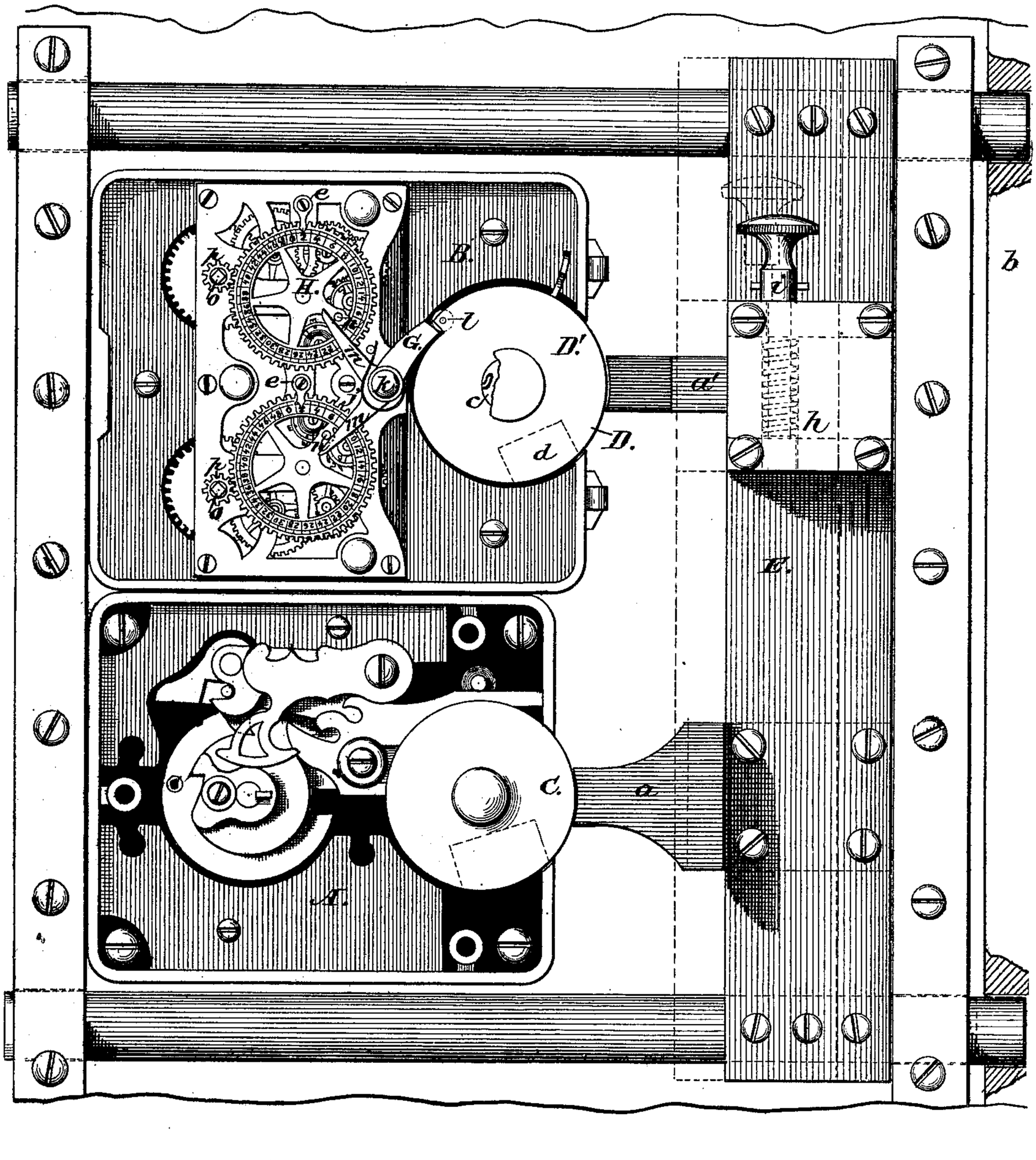
2 Sheets—Sheet 1.

# J. SARGENT.

## COMBINED TIME-LOCKS, COMBINATION LOCKS, AND BOLT-WORK FOR SAFES, &c.

No. 195,539. Patented Sept. 25, 1877.

*Fig. 1.*

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2 Sheets—Sheet 2.

# J. SARGENT.

## COMBINED TIME-LOCKS, COMBINATION LOCKS, AND BOLT-WORK FOR SAFES, &c.

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*Fig. 2.*

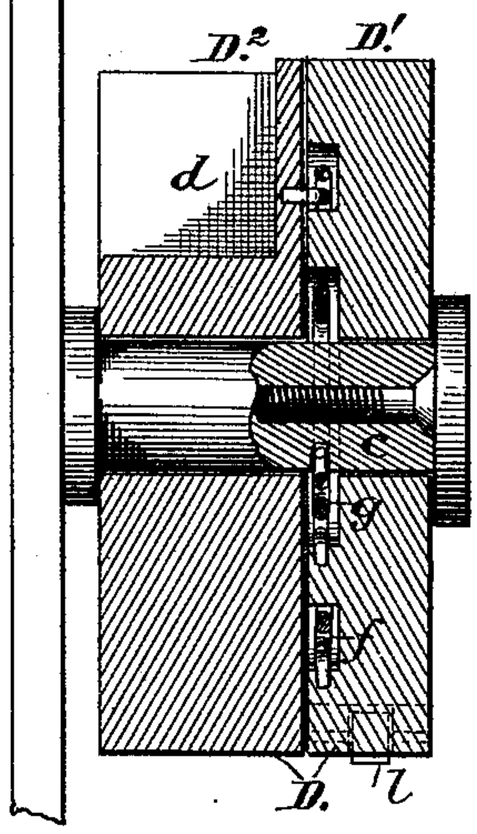



*Fig. 3.*

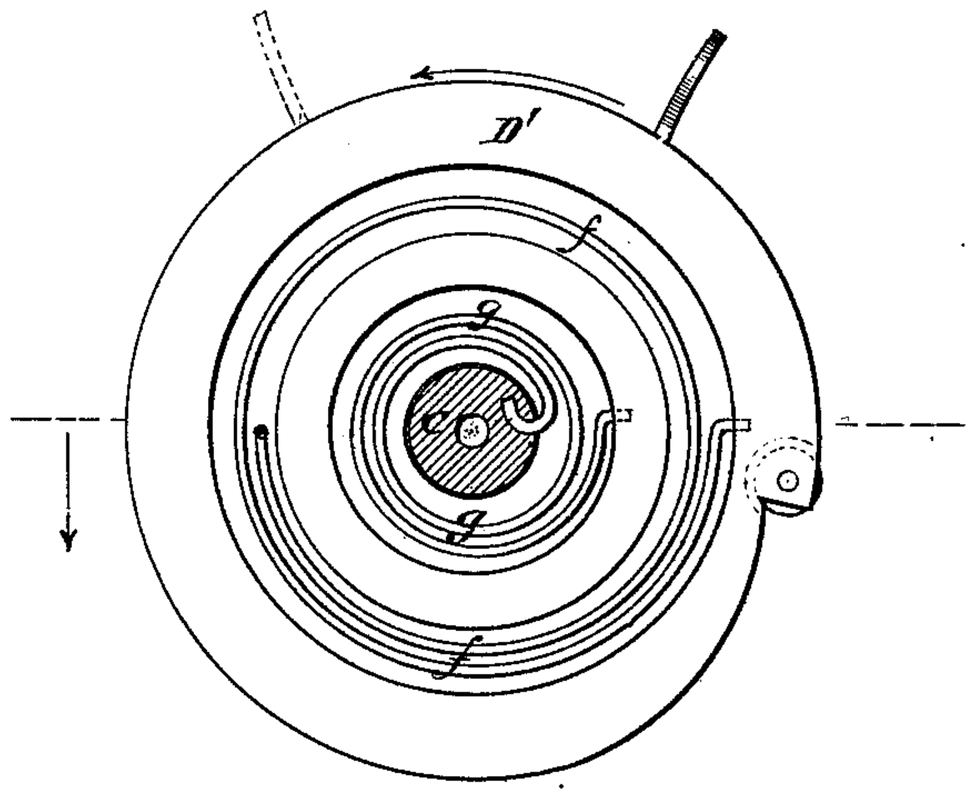



*Fig. 4.*

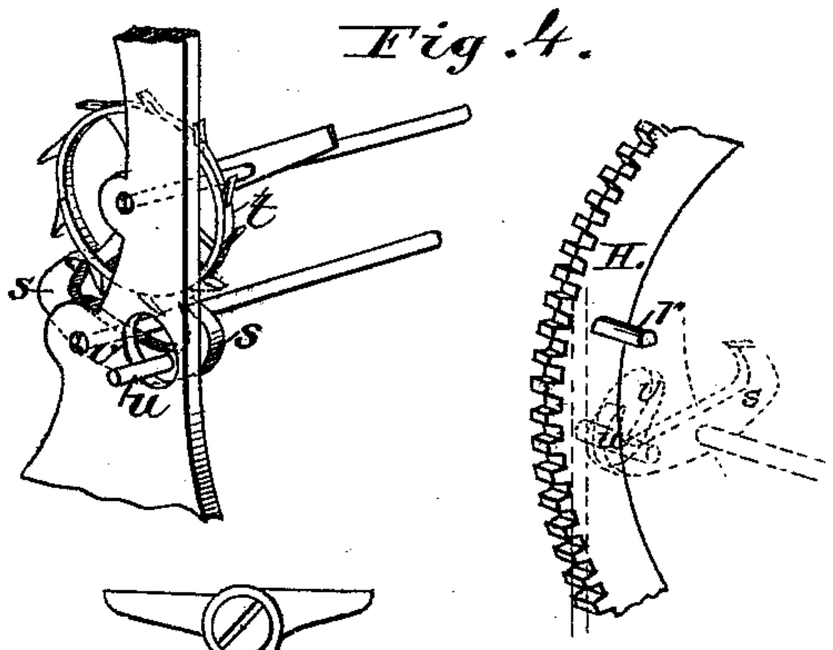
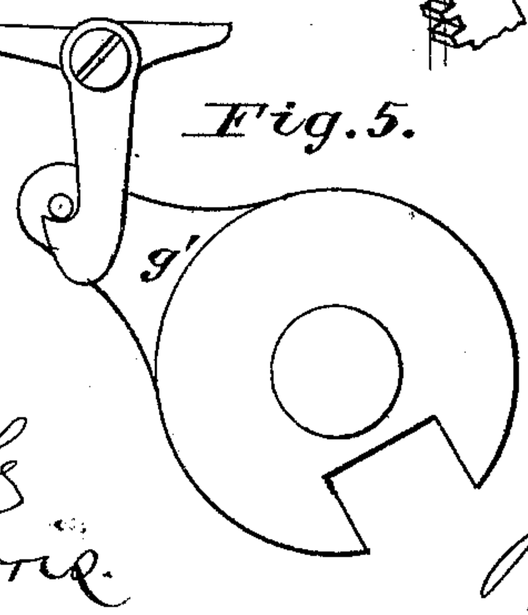






*Fig. 5.*

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# UNITED STATES PATENT OFFICE.

JAMES SARGENT, OF ROCHESTER, NEW YORK.

## IMPROVEMENT IN COMBINED TIME-LOCKS, COMBINATION-LOCKS, AND BOLT-WORK FOR SAFES, &c.

Specification forming part of Letters Patent No. **195,539**, dated September 25, 1877; application filed March 10, 1875.

*To all whom it may concern:*

Be it known that I, JAMES SARGENT, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Locks; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of my improvement applied to a safe-door. Fig. 2 is a section of the bolt of the time-lock. Fig. 3 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.

My improvement relates to 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.

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.

Clock-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.

My invention consists, primarily, in the combination, with the door-bolt, of a clock-lock and a combination or key lock applied separately upon the door, having each an independent action, whereby the clock-lock will not release its bolt until a certain determined hour, and when it does release its bolt the combination or key lock still remains locked and secures the door.

My invention further consists in combining a clock-lock with a combination or key lock, both constructed to be applied on a safe, vault, or other door to operate in connection with the bolt-work of such door, said clock-lock being provided with a lock-bolt constructed with an opening or offset which is automatically brought in and out of coincidence with the tongue of the door-bolt, in such a manner that the door-bolt may be retained in an unlocked condition for shutting, and prevented from being withdrawn when locked until both locks have been unlocked, the prime object being that each lock shall have an independent action, so that the clock-lock will not release the bolt until a certain determinate hour, and when it does release its bolt the combination or key lock still remains locked and secures the door.

A represents the combination or key lock, and B the clock-lock. These locks are provided with bolts C D of any desired kind, 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 clock-lock may be placed anywhere where space is best formed for it on the door, and the stud *a'* of the door-bolt, which connects with it, 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 clock-lock. In Fig. 1 the bolt D of the clock-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 of the door-bolt enters in drawing back. It is connected to the outer part $D^1$ by a coiled spring, *f*, Fig. 3, resting in a cav-

ity 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, $g^1$, Fig. 5. The spring *g* causes the outer part $D^1$ to turn back or fall, so that the socket *d* of the inner part comes in position to allow the stem *a'* of the door-bolt to enter therein. When this is done the outer part 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, and the tension of the spring *g* causes the part $D^2$ to turn when released, 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 clock-lock, being the bolt of the same.

In Fig. 1 is shown another device for the same purpose, situated outside the lock, which is the subject-matter of a separate application. It consists of a socket or bearing, *h*, attached to the tie-piece E of the door-bolt, and sliding on an independent stud, *a'*, resting against the lock-bolt. A spring locking-pin, *i*, is used to connect the parts when the door-bolt is thrown forward to connect with the jamb. In this case the lock-bolt D 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, *k*, and its point engages under a stop, *l*, preferably a roller, of the 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 faces 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 bolt, and the latter turns back or falls, thereby unlocking the lock, as before described. I prefer to use two independent time movements or clocks, 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 mechanism 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 clock is wound.

When the clock 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 clock 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 clock-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 clock as a necessity.

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 escape-wheel *t*, is a pin, *u*, which projects out through a slot, *v*, of the stationary clock-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 escape-wheel, thereby stopping the clock. There is, therefore, no loss of motion, nor can the dial-wheel get out of position with respect to the pointer.

By combining an independent clock-lock and combination or key lock with the door-bolt, as described, I produce an effect which cannot be produced by a clock-lock alone, or by two or more combination-locks together. The clock-lock serves as a safeguard by night, and the combination-lock by day. If the holder of the combination is forced to open the combination-lock at night, the clock-lock remains intact and cannot be opened by the burglars or the holder of the combination. On the other hand, when the clock-lock releases its bolt in the morning, the combination-lock still remains locked, and burglars cannot make an entrance to the safe. Such results cannot be accomplished by a clock-lock alone, because, when it releases its bolt, the safe is absolutely unlocked; nor by two or more combination-locks together, because the holders of the combinations may be taken to the bank and forced to open the lock.

Neither can tampering with the combination-lock affect the clock-lock. The combination-lock may be punched from place, but the

clock-lock, being separate and independent from it and having no opening through the door, cannot be affected.

It is therefore superior to a lock which has the time-movement combined directly with the combination-lock, both forming one lock, in which case any violence to the lock-work disarranges the clock.

Another advantage of this invention is the capability of the separate locks of being applied on different parts of the door indifferently. The bolt-work on different doors is frequently such that the two locks cannot be applied together. The clock-lock in such case may be attached at the most convenient location, as before described.

It can also be applied with facility to old safes having the combination or key lock already on, thus securing the advantage of a clock-lock and combination-lock without the necessity of removing the old lock and substituting a new one having a time-movement combined directly with the lock.

I do not claim, broadly, a clock-lock; nor do I claim two or more combination-locks combined with the door-bolt; but

I claim—

1. The combination, with a door-bolt, E, of a clock-lock, B, and a combination or key lock, A, applied independently on a safe, vault, or other door, so as to rest against or connect with said door-bolt, and provided with a device whereby the door-bolt may be retained in the unlocked position for shutting the door, the whole arranged so that the door-bolt cannot be withdrawn when locked until both locks have been unlocked.

2. The combination of a clock-lock and a combination or key lock, both constructed to be applied on a safe, vault, or other door, so as to rest against the door-bolt, and provided with a lock-bolt having an opening or an offset which is automatically brought in and out of coincidence with the tongue of the door-bolt, whereby 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.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES SARGENT.

Witnesses:

R. F. OSGOOD,

EDWIN B. SCOTT.