2 Sheets—Sheet 1.

J. SARGENT.

Time-Locks.

No. 198,157. Patented Dec. 11, 1877.

Fig. 1.

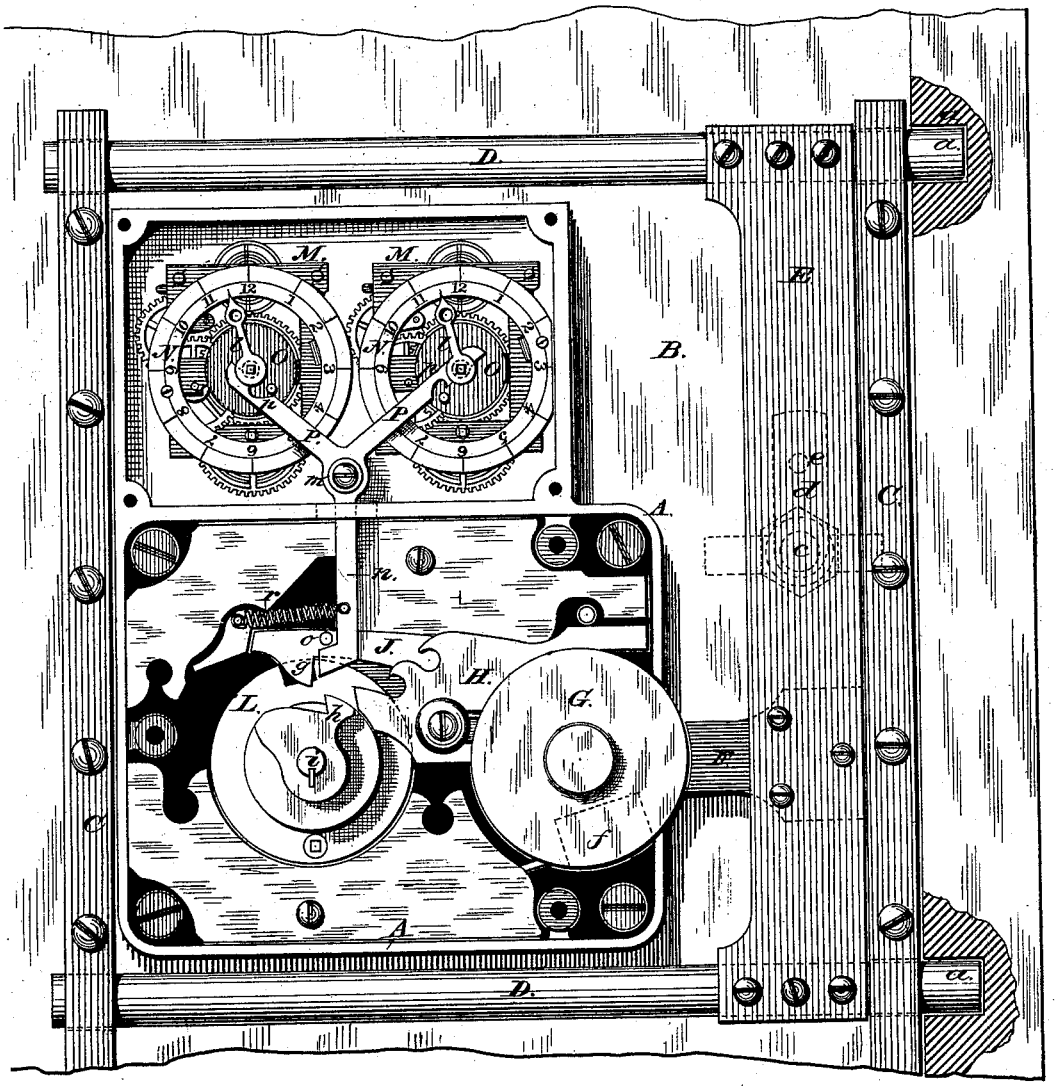
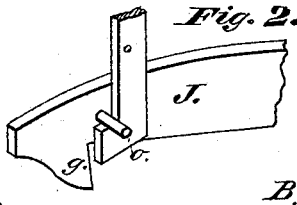


Fig. 2.



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2 Sheets—Sheet 2.

J. SARGENT.

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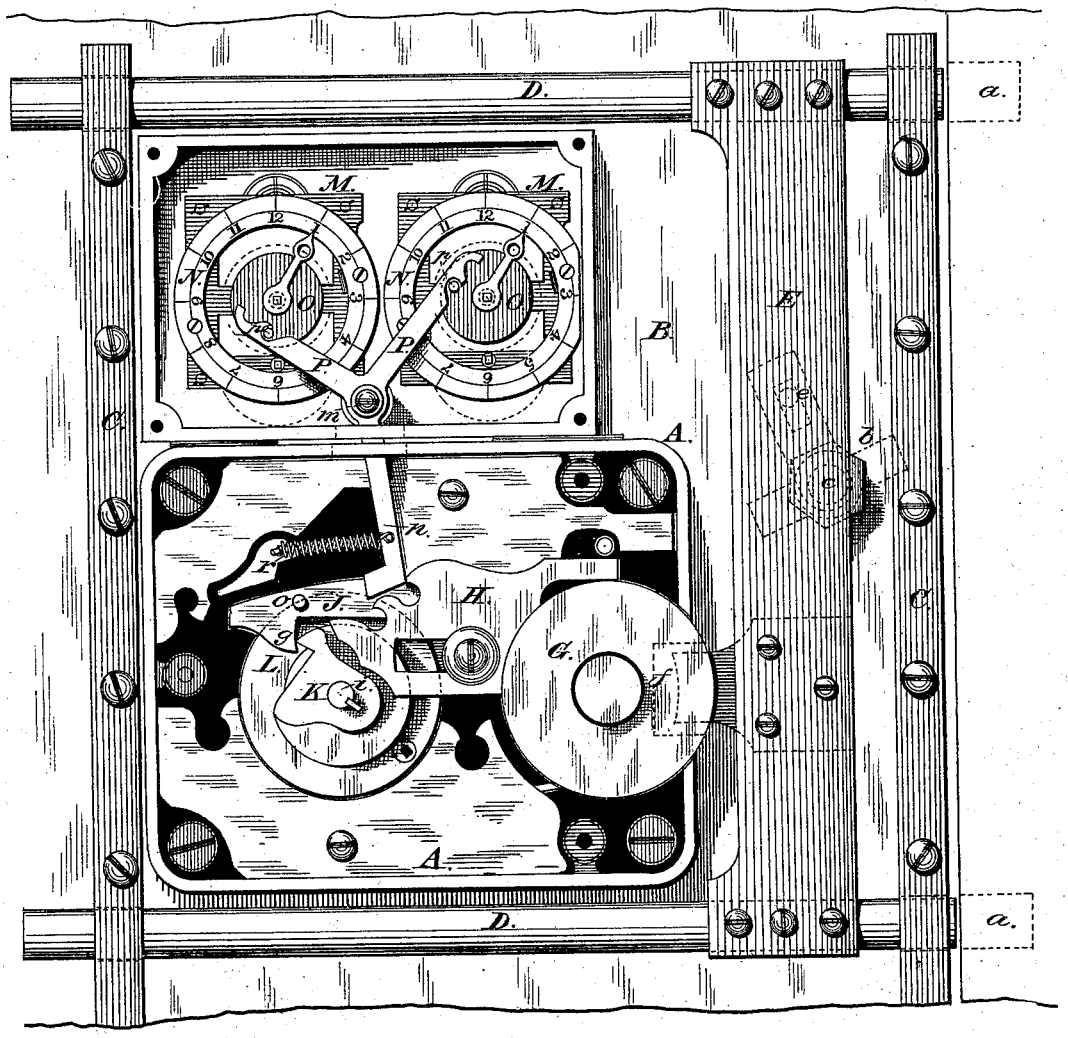
Fig. 3.



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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. **198,157**, dated December 11, 1877; 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 new and useful Improvements in Combined Time Mechanism and Non-Time Lock for Safe and Vault Doors, of which the following is a specification:

This invention has for its object to construct a combined time mechanism and non-time lock, for application upon a safe or vault door, to operate in conjunction with the bolt-work thereon, the arrangement of parts being such that the time movement controls the movement of the lock-bolt, or bearing for unlocking the door, until a certain predetermined time.

The present invention consists in the combination, with a time movement and a lock, a yoke-lever, or its equivalent, adapted to be connected with the dog, angle-bar, or fence of said lock, to hold it from falling into the slots or notches of the combination-wheels except when released by the time movement.

The invention presented and claimed herein is a substitute application for Letters Patent for the subject-matter of an application for patent filed in the United States Patent Office by me on the 11th day of June, 1873.

In the drawings, Figure 1 represents a portion of a safe or vault door, illustrating thereon a bolt-work and a time mechanism and non-time lock, with covers removed, the bolt-work being thrown out into the jamb of the door and the non-time lock locked and guarded by the time movement. Fig. 2 is a detail view illustrating a yoke-lever or connection, adapted to connect with the dog, angle-bar, or fence of the lock. Fig. 3 represents a portion of a safe or vault door having thereon a bolt-work and a time mechanism and non-time lock, the non-time lock being unlocked and the bolt-work retracted.

Referring to the drawing, the letter A designates the case of a non-time lock, the lock-works of which may be of any of the well-known forms now in use, provided the same is supplied with a lock-bolt or a bearing constructed and arranged so as to connect with or receive the pressure of the bolt-work located on a safe or vault door, when said lock-bolt or bearing and the bolt-work are placed in a position for locking the door.

The non-time lock illustrated in the drawings is one known as "Sargent's automatic bank-lock," upon which Letters Patent were granted August 28, 1866; reissued January 2, 1872. Said non-time lock is shown as applied upon a safe or vault door, B, upon which is arranged a bolt-work consisting of the usual bolt-supporting bars C, bolts D, carrying-bar E, having a tongue-piece, F, said carrying-bar serving as a medium for projecting or retracting the bolts into and out of the sockets *a* constructed in the jamb of the safe or vault, for the purpose of locking or unlocking the door, as shown in Figs. 1 and 3.

The bolt-work has the requisite projecting or retracting motion imparted to it from the outside of the door, when opened or closed, through the medium of the usual knob *b* and the spindle *c*, which spindle passes through the door and connects with the carrying-bar by any suitable fastening, such as a slot *d*, pin *e*, and suitable fastening-nut.

The lock-bolt or bearing of the the non-time lock may be of a circular, segmental, or other desired form, provided said lock-bolt is arranged and adjusted so as to turn upon a suitable axis or bearing, and is so constructed that in one position it will prevent the retraction of the bolt-work to retain the safe or vault door locked, while in another position it will admit of the bolt-work being retracted, for the purpose of allowing the safe or vault door to be opened.

In the present example, the lock-bolt is shown as provided with an offset or recess, *f*, which offset or recess is brought in or out of coincidence with the tongue-piece on the carrying-bar, to admit of the bolt-work being projected or retracted through the medium of a sliding bar, H, which carries a dog, fence, or angle-bar, J, having a hook, *g*, which engages with the bit *h* of the cam K, secured upon the dial-spindle *i*, which spindle passes through the safe or vault door in the usual manner, and serves to operate the series of tumblers or combination-wheels L. The sliding bar H is connected with the lock-bolt or bearing in any suitable manner, its object being to impart motion to said lock-bolt or bearing, to secure the objects above specified.

The said lock-bolt or bearing, it will be per-

ceived, is located in its casing, so as to rest closely in the rear of the tongue-piece or connection secured upon the carrying-bar, and is isolated, so to speak, from the tumblers or combination-wheels and the other main working parts of the lock, and, therefore, any strain that is brought to bear upon it by the heavy bolt-work will be expended upon the bolt or bearing and its axis or bearing, and not upon the tumblers or combination-wheels.

It will be seen that to unlock the non-time lock, the hook of the dog, angle-bar, or fence J will drop into the notches or slots of the tumblers or combination-wheels, when the notches are brought into juxtaposition by the operator, who has possession of the combination upon which the lock is set, at which time the bit *h* of the cam K will also engage with the hook *g* of the said dog, angle-bar, or fence, when, by moving the dial-spindle, the lock-bolt or bearing can be moved or rotated so as to admit of the tongue-piece or connection, with the carrying-bar and bolt-work, being moved back or retracted, as in Fig. 3 of the drawings, and the safe or vault door opened; but when said non-time lock is locked, the hook of the dog, angle-bar, or fence J is elevated, due to the combination-wheels being disarranged, as in Fig. 1 of the drawings, and then no action can be had upon the connecting-bar, dog, angle-bar, or fence, or upon the lock-bolt or bearing, by turning of the dial-spindle; and hence the tongue-piece, or connection on the carrying-bar of the bolt-work, rests upon or connects with the lock-bolt or bearing, and the bolt-work is securely retained in a locked condition.

With such non-time lock, or one of substantially the same construction and operation, constructed to be applied for use upon a safe or vault door, to operate in connection with the ponderous or great bolt-work thereon, is combined a time mechanism, the works of which may be of any of the improved or desired kinds, since its action is to measure time correctly, the object being that, during the interval that the lock-bolt or bearing is locked and the time-movement wound up, the same, through a suitable connection made between it and said non-time lock-bolt or bearing, will guard said lock and prevent its being unlocked, even by a cashier or other person in possession of the combination upon which the said non-time lock is set.

In the present example a duplex or double time-movement is illustrated, such being preferable to a single time-movement as a safeguard against stopping.

Each of the time-movements, which are designated by the letters M M, which may consist of a chronometer or clock-movement, is supplied with a pointer or hand, attached to a spindle, *l*, in such a manner as to be capable of being moved backward to set at any elected number on the dials N, said dials being spaced off, or marked with a scale of hours and divisions, from one upward to any desired number, according to the mechanism of the chronometer or clock.

With each of the dials is combined an adjusting disk or arm, O, or some equivalent mechanical device, which carries a stud, or a pin or projection, which acts upon a suitably-constructed yoke or lever, which connects with and guards the non-time lock the number of hours or time for which it is designed said lock is to remain locked, and thus controls the action of the lock-bolt or bearing while the same is in a locked condition.

The yoke-lever or connection is designated by the letter P, and it is pivoted or loosely fixed on its support or axis, as at *m*, or otherwise arranged so as to operate in conjunction with the moving or revolving disks or arms O, the object being that the yoke-lever or connection and the disks can be adjusted, with respect to each other, with the dog, fence, or other working part of the lock, and thus control the movement of the lock-bolt or bearing, and hence the locking and unlocking of the non-time lock.

One end or the extension of the yoke-lever or connection, in the present example, has a suitable hook, *n*, that engages with a pin, *o*, on the dog, angle-bar, or fence J, by striking under it, in which case it holds said dog, angle-bar, or fence elevated out of contact with the tumblers or combination-wheels and the cam of the dial-spindle. The arms of said yoke-lever or connection connect with or rest upon the axis or spindle of the adjusting disks or arms, and the arrangement of the studs, pins, or projections on said disks or arms is such that when the indicators have reached the proper number on the dials said studs, pins, or projections will have acted upon the yoke-lever or connection, and moved it sufficient to draw the cam-hook from beneath pin *o*, and thus allow the dog, angle-bar, or fence to fall, ready to engage with the tumblers or combination-wheels and the lock-bolt or bearing, at which time the non-time lock can be operated by the person in possession of the combination, as the time-movement has ceased its guarding or dogging action.

Notches *p p* should be formed in the yoke-lever or connection, to allow the stud, pins, or projections to fall therein when the disks or arms and the indicators shall have reached the designated number, thus serving as stops for the adjusting disks or arms, and to prevent the same from moving on beyond the prearranged hour to reset the yoke-lever or connection; for if some such provision were not made, the non-time lock could not be opened until the disks or arms, with the indicators, come round again to said previously-appointed hour. At least there might be danger of such occurring.

The double time-pieces are employed, as hereinbefore stated, so as to insure the releasing of the non-time lock-bolt or bearing in case one of the time-works should stop or fail to come to proper position. A spring, *r*,

or an equivalent, such as a weight, should be connected with the lower end of the yoke-lever or connection, to produce the necessary reaction to bring the hook of the yoke-lever or connection under the pin on the dog, angle-bar, or fence.

Thus it will be seen from the foregoing that the bolt-work of the safe or vault door connects with or rests upon the bolt or bearing of the non-time lock, and that the yoke-lever or connection of the time-movement connects with the dog, angle-bar, or fence of the said non-time lock, rendering the said non-time lock inoperative when locked—that is to say, said yoke-lever or connection has the effect of dogging or guarding the non-time lock during the time it is locked, and preventing its being unlocked until the arrival of the hour previously designated by the time-movement; and should pressure be exerted upon the great or ponderous bolt-work of the door when locked, it will be received and arrested and retained by the lock-bolt of the non-time lock, and will not be transmitted to the tumblers or combination-wheels of the non-time lock, or to the time-movement, or to the yoke-lever or connection.

The time mechanism may be in the same case containing the works of the non-time lock, or it may be in an apartment connected with the case of the non-time lock, or in a case separate and distinct from the case containing the non-time-lock works.

The advantage of this invention over common time-locks is that when the time mechanism releases the lock mechanism—that is, ceases its dogging or guarding action—it does not admit of the unlocking of the bolt-work of the door, but simply leaves the non-time lock in the condition that it can be unlocked by the person in possession of the proper combination upon which said lock is set, thus securing the advantages of a non-time lock for use during the day, with a time mechanism for guarding and protecting said lock during the night.

This improvement is of the utmost importance, for, during the hours when the time mechanism is set, no one—not even the officers of a bank or other institution—can open the non-time lock; and, when said time mechanism is not set or adjusted, no one, except the holder of the combination upon which the lock is set, can open it. No one who has the combination, whether obtained surreptitously or otherwise, can open the lock when the time-movement is set, for the simple reason that no connection can be made between the tumbler or combination-wheels, the dog, angle-bar or fence, the spindle, and the lock-bolt or bearing.

Further, another feature of the utmost importance present in the combination of parts brought together is that the connection between the time-movement and the non-time lock is such that, when the time-movement is set, the parts adjusted, and the safe-doors closed, the non-time lock will be rendered inoperative until a predeterminate hour, during which interval of time the unlocking action of the combination-lock will be suspended by the time-movement, while the tumblers or combination-wheels of the aforesaid non-time lock are left free to rotate if power be exerted upon the dial-spindle for the purpose of twisting said spindle out of place, or impairing the lock mechanism, and by such the working parts of the non-time lock cannot be injured or rendered useless for future action.

I do not in this application claim the combination of a time mechanism and a combination-lock with the bolt-work of a safe or vault door, the time mechanism being constructed to act in conjunction with, and render inoperative, the combination-lock when locked, said lock having its bolt or bearing constructed to receive the pressure of the series of bolts constituting the bolt-work of the door when locked, and prevent the unlocking of said bolt-work until the arrival of a certain predeterminate hour; and neither do I claim herein the combination of a combination-lock and series of bolts, constituting the bolt-work of a safe or vault door, with a time-movement and a yoke or lever connection, said lever being constructed and located to render the bolt or bearing of the combination-lock inoperative when locked, the tumblers of the combination-lock and its spindle being free to rotate, while the bolt-work is held in its locked position by the bolt or bearing of the combination-lock, as protection for such was granted me by Letters Patent dated January 16, 1877, the application for said patent being occasioned by a division of this application for patent.

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

In combination with a time-movement and a lock, a yoke-lever or equivalent, adapted to be connected with the dog, fence, or angle-bar of said lock, to hold it from falling into the slots or notches of the combination-wheels, except when released by the time-movement, 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.