E. J. WOOLLEY.

Time-Lock.

No. 198,721. Patented Dec. 25, 1877.

Fig. 1.

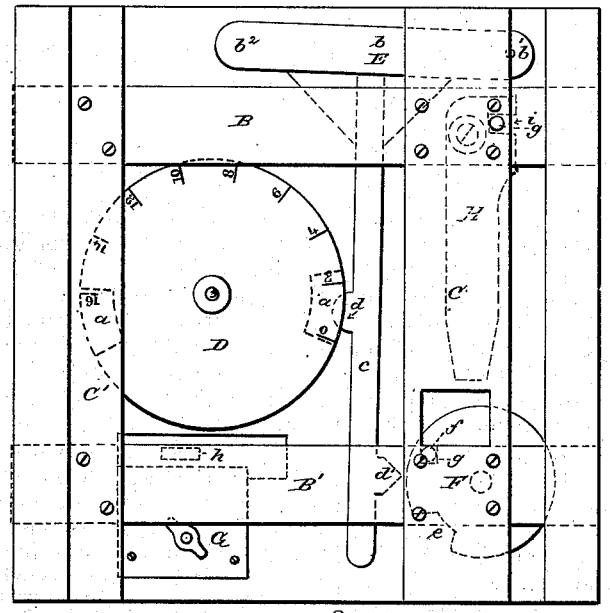
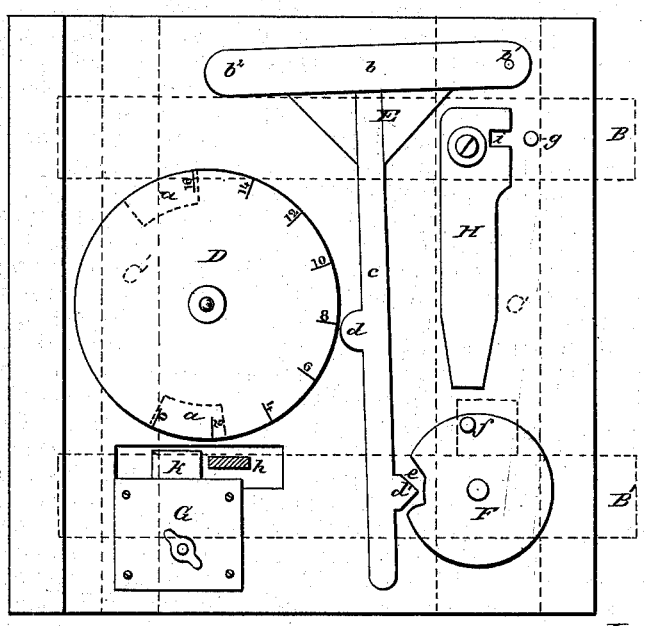


Fig. 2.



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EDWARD J. WOOLLEY, OF PAMRAPO, NEW JERSEY.

IMPROVEMENT IN TIME-LOCKS.

Specification forming part of Letters Patent No. **198,721**, dated December 25, 1877; application filed November 13, 1877.

To all whom it may concern:

Be it known that I, EDWARD J. WOOLLEY, of Pamrapo, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Time-Locks; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The improvement hereinafter described in time-locks is intended to connect the fluid time-lock for which Letters Patent of the United States No. 186,221 were granted to me January 16, 1877, with the locking mechanism of safes, for the purpose of affording cheaper, more durable, and more effective burglar-proof lock for the protection of valuables in safes or vaults; and my invention therein consists, mainly, in combining, with the fluid time-lock, intermediate mechanism operated by said lock, and engaging with the spindle of the handle or knob of the door; also, in combining with the fluid time-lock and intermediate mechanism operated by said lock, and engaging with the spindle, a combination-lock, engaging with the bolt mechanism of the door; also, in a contrivance for preventing the bolts from being withdrawn by gravity when the safe is not in a horizontal position; also, in the various operative combinations of the several operative parts, all as more particularly explained hereinafter.

In order that those skilled in the art may know how to make and use my device, I proceed to describe the same particularly, having reference to the accompanying drawings, in which—

Figure 1 is an elevation of the inside of a safe or vault door, showing the position of the various operative parts when the safe is unlocked; and Fig. 2 is a similar elevation with the bolt mechanism removed, but its proper position shown in dotted lines, all the operative parts in the position they assume when the safe is locked.

Similar letters denote corresponding parts in each figure.

A represents the inside of a safe or vault door of ordinary construction; B B′, upper and lower bolts; C, the front carrying-bar, and C′ the back carrying-bar, for the bolts, all as usually arranged.

The fluid time-lock D is secured, in any convenient way, to the inside of the door, and preferably between the bolt mechanism and the inside face of the door, and is constructed and operated as is described in my Letters Patent No. 186,221, and has one or more cells, *a*.

A pivoted lever-catch, E, placed between the bolt mechanism and the inside of the door, conveniently composed of a cross head-piece, *b*, the front end b^1 of which is pivoted to the inside of the door, and the back end b^2 is properly weighted, has a dependent arm, *c*, with a projection, *d*, upon one side, to engage with the proper cell *a* of the fluid time-lock, and another projection, *d′*, to engage with a recess, *e*, on the wheel F of the spindle. This spindle, of usual construction, connected, in the ordinary way, with the knob or handle upon the outside of the door, and having a wheel of usual form between the inside of the door and the bolting mechanism, is so placed in the ordinary position for convenient use in opening the door, or in operating the bolt mechanism. Care, however, must be taken to so place the fluid time-lock and the pivoted lever-catch that the latter may present its projection *d* to the cells in the fluid time-lock when its projection *d′* is disengaged from the recess in the spindle-wheel and presses against the periphery of the same, and, vice versa, presents its projection *d′* to the recess in the spindle-wheel while the opposite projection *d* is disengaged from the cell in the fluid time-lock and presses against the periphery of the same. This spindle-wheel F has a pin, *f*, which projects into the opening *g* in the carrying-bar C, so that by turning the spindle the bolt mechanism can be moved back and forth. G represents a combination-lock of any convenient construction, preferably secured to the inside of the door, and behind the lower bolt B′, and having its proper bolt *k* arranged so that it may engage with a suitable stop, *h*, on the bolt B′, so as to prevent said last-named bolt from being withdrawn. A pendent latch, H, is pivoted to the inside of the door, behind the bolt mechanism, having a rectangular slot, *i*, on its front edge of a size to admit a pin, *g*, which is secured to

the inside of the bolt B, the office of which latch is to prevent the bolts from falling back by gravity when locked, should the safe be tipped over. While the safe is in a horizontal position, the pin *g* readily enters into the slot *i*, when the bolt B is withdrawn; but should the safe be tipped up or turned over, the pendent latch will hang vertically from its pivot, and the slot *i* will no longer be in line with the path of the pin *g*, and consequently this pin will engage with the edge of the catch either above or below the slot.

It is to be understood that, in case it should be so desired, the combination-lock may be omitted without affecting the working of the other parts of my device; and it is also to be observed that while the fluid-lock and the lever-catch E are represented as being placed upon the door, the same may be placed upon the inside of the safe or vault at one side of the door; or the positions of the fluid time-lock and the combination-lock may be changed relatively.

The mode of operation of my device is as follows, viz: Suppose the safe unlocked and the door open, and all the parts in position, as shown in Fig. 1, and the fluid time-lock ready for operation. The door then being closed, by turning the spindle to the left, the pin *f* crosses the opening *g* and presses against the opposite side of it, and moves the bolt mechanism, throwing the ends of the bolts into their proper recesses behind the jambs in the safe or vault. By this revolution of the spindle, the recess *e* of the spindle-wheel which was below the projection *d'* on the lever-catch passes above said projection about as far as before it was below it, the projection *d* on the lever-catch E at the same time passing freely into and out of the cell *a* in the fluid time-lock. Then, by turning the spindle to the right until the pin *f* passes a portion of the opening *g*, the projection on the lever-catch drops into the recess *d'* on the spindle-wheel, impelled thereto by the weighted arm b^2, and at the same time the revolution of the fluid time-lock brings its cell *a* out of engagement with the projection *d* of the lever-catch, which projection then presses against the periphery of the fluid time-lock until the predetermined hour when the revolution of said fluid time-lock shall bring a proper cell opposite the projection *d*. At this point the spindle has been locked and prevented from revolution in either direction by the handle; but the bolts are not locked, and remain in position by inertia.

So far as the fluid time-lock is operative, the bolts would drop back by gravity out of engagement with the jambs of the safe if the same should be tipped up sufficiently. To prevent this dropping back of the bolt mechanism by tipping the safe, the pendent lever H is operated as before explained.

When the combination-lock is used in connection with the fluid time-lock, the bolt *k* of the combination-lock G, resting against the stop *h*, prevents the bolt mechanism from being withdrawn; but it is essential in all instances for better security in case the combination-lock for any reason may have been overlooked, or the cashier may have been compelled by force to unlock it, or in case the combination-lock has been destroyed by force, to have the pendent lever a part of my device.

When the time has elapsed for the predetermined revolution of the fluid time-lock, one of its cells has reached a point opposite the projection *d* on the lever-catch. Then, by turning the spindle to the right, the projection *d* can enter the cell of the time-lock, and the pin *f*, striking against the left-hand side of the opening *g*, will move the bolt-frame, provided the combination-lock has been already unlocked.

The mode of setting the fluid time-lock being described in my former Letters Patent, to which reference has been made, no further description of the same is deemed necessary.

The advantages of my device may be briefly stated as follows: The device is very cheap, because the fluid time-lock is cheap of construction, as compared with ordinary time-locks, which have clock-movements. This fluid time-lock, by reason of its simplicity of construction, is very durable, and is not likely to get out of repair. For the same reason it is always effective, and not liable to stoppage. Its connection, therefore, with the other mechanism of my device brings into use a cheap, simple, durable, and effective element.

The advantage of locking the spindle by the fluid time-lock, instead of locking the bolt mechanism, is as follows: No force, strain, or pressure is brought against the mechanism either of the time-lock or combination-lock, which force, strain, or pressure is calculated to destroy such locks, and enable the burglar to open the safe by turning the door-spindle.

In my device the strain comes primarily, and almost entirely, upon the lever-catch, which may be made of any size and strength, while the ordinary combination and time locks are made of many pieces, and of delicate proportions, some of which pieces are liable to break under great pressure, or under repeated shocks by the spindle.

The advantage of using a combination-lock together with the fluid time-lock is the convenience of locking the safe during temporary absence in the day-time; also, as the fluid time-lock ceases to operate at the predetermined hour for opening the safe, the combination-lock gives additional security should the cashier, for any reason, be a little late.

Other advantages arising from my combinations will readily suggest themselves to those skilled in the business.

Having thus described my invention and its mode of operation, and enumerated some of its advantages, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a burglar-proof safe-lock, the combination of a fluid time-lock, the weighted pivoted lever E, and the spindle of a safe-door, constructed and arranged to operate substantially as described.

2. In a burglar-proof safe-lock, the combination of a fluid time-lock, the weighted pivoted lever E, and a combination-lock arranged to lock the bolt mechanism, substantially as described.

3. In a burglar-proof safe-lock, the combination of the pendent latch H, pivoted to the safe-door, and a suitable stop or detent upon the bolt-work, substantially as and for the purposes described.

This specification signed and witnessed this 8th day of November, 1877.

EDWARD J. WOOLLEY.

Witnesses:
L. W. SEELY,
R. N. DYER.