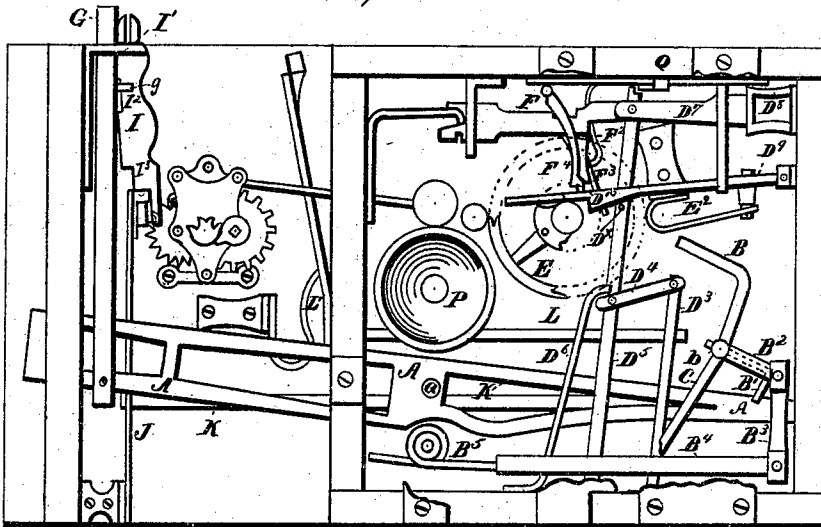


T. W. SPENCER.
TIME-LOCK.

No. 179,076.

Patented June 20, 1876.

Fig. 3.



WITNESSES

E. A. Nottingham &
J. D. M. Cleary

INVENTOR

INVENTOR
Thomas H. Spencer,
By Leggett & Leggett,
Attorneys.

UNITED STATES PATENT OFFICE

THOMAS W. SPENCER, OF CIRCLEVILLE, OHIO.

IMPROVEMENT IN TIME-LOCKS.

Specification forming part of Letters Patent No. 179,076, dated June 20, 1876; application filed February 15, 1876.

To all whom it may concern:

Be it known that I, THOMAS W. SPENCER, of Circleville, in the county of Pickaway and State of Ohio, have invented certain new and useful Improvements in Time-Lock; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in time-locks for securing safes, strong rooms, &c.; and consists in the combination of the devices and appliances hereinafter set forth and claimed.

In the drawings, Figure 1 represents a view in elevation of my improved time-lock, as locked. Fig. 2 represents parts that cannot be clearly shown in Fig. 1. Fig. 3 is a side elevation with certain frame-work broken away and parts more clearly shown.

A is the lock-bolt, pivoted at *a*. The object of this lock-bolt is either to act directly to lock the door, as it may do, or, more properly, to act as a stop to prevent the retraction of the bolt-work of the door, until, by the action of the time-piece, this bolt A is released.

The bolt A is so constructed that it is heavier at its locking end than at its rear end, and when, therefore, it is relieved from pressure at its rear end the bolt will drop down into position.

B is a lever, pivoted at *b*, and is provided with a stop, B¹, which presses upon the rear end of the bolt A. B² is a rigid arm, projecting from this pivoted lever B, and is connected by a link, B³, to an arm, B⁴, which is given a downward pressure due to the tension of a spring, B⁵. C is another arm of the lever B, which projects down, so as to act in conjunction with a trip, D. D is a trip, consisting simply of a friction-roller in the end of an arm, D¹, this arm being pivoted to the rock-shaft D². D³ is an arm projecting upward from the rock-shaft D². D⁴ is a link, connecting arm D³ to the upright bar D⁵. This bar is pivoted at its lower end to the frame, and is acted upon by the spring D⁶. D⁷ is a bar, one end of which slides in a bracket, D⁸.

The bar D⁵ has a pin, D^x, projecting from

it, which acts upon the incline on the under side of the detent-bar D⁹, and when pushed to the left the pin D^x will catch under the shoulder D¹⁰ on the bar D⁹, and will there remain until released by the time mechanism, as will be hereinafter described.

The bolt is thrown down into a position ready for closing the door of a safe, as follows: The bolt A being in the position shown in Fig. 3, the operator presses down upon the lever B. This releases the pressure of the stop B¹ upon the bolt A. The bolt A then drops to its position; at the same time the arm C passes beyond the trip D. The upright bar D⁵ is then pressed to the left. It carries with it the link D⁴, which draws the arm D³ until the rock-shaft D² raises the arm D¹, and throws the trip-roller D in front of the arm C, and thereby prevents the stop B¹ from pressing down upon the rear end of the bolt A. The bolt A will therefore remain in the position shown in Fig. 1.

Now, in order that the time-piece may act to release the trip-roller D, and thereby release the arm C, causing the bolt to be unlocked by the spring B⁵, the following device is employed: The pin D^x raises the bar D⁹ and passes behind the shoulder D¹⁰. E is the time-wheel, operated by the time mechanism, and will bring at the proper time the projecting pin E¹ beneath the bar D⁹, lifting it sufficiently to free the pin D^x from the shoulder D¹⁰. The spring D⁶ will then force the upright bar D⁵ to the right, causing the trip-roller D to be released from the foot of the arm C. Then the spring B⁵ will operate to spring the bolt A up out of the way. The spring E² serves to hold the bar D⁹ down snugly upon the pin D^x.

F is a shaft, having an arm, F¹, against which the spring F² operates. This shaft also carries the arm F³ and the stop F⁴.

The stop F⁴ is provided with a small shoulder, which holds the bar D⁹ firmly in its place until it is released by the clock-work. The effect of the clock-work is to lift the bar D⁹; but it is not lifted until after a stud or bridge on the time-shaft presses upon the arm F³, and thereby releases the stop F⁴.

The clock is constructed so that the bolt A may rise on an incline and drop into or latch

in a recess, when the door is finally closed after setting the time mechanism; but after it has risen on the incline once—that is, in closing—it cannot be raised again until released by the time mechanism.

The mechanism for effecting this operation is as follows: G is an upright bar, leading from and carried by bolt A. G¹ is a shoulder projecting from it. G² is a pin, also projecting from it, and which carries a sliding bracket, H, which bracket is raised by the pin G²; but is permitted to drop of its own weight. I is a lever swinging from the point I¹. This lever I has attached to it a spring J. A rod, K, passes from the spring to the right, and is finally attached to the upright arm K', which rises from the rock-shaft D². Now, when the bolt A is down, and it is desired to lock the door of the safe, the latch g of the bracket H is placed below the notch I² of the lever I, so as to rest on the pin G² of the bar G, and the lever I is pressed against the bracket H by the spring J, which is given a tension by the pressure-rod K, which is caused to press against the spring by the arm K¹ rising from the rock-shaft; because when the time mechanism is set the rock-shaft has been turned over to the left by forcing the pin D^x under the shoulder D¹⁰ of the bar D⁹. Now, as the door is closed, and the outer end of the bolt is raised, the pin G² of the vertical bar G raises the sliding bracket until its latch g comes against the upper edge of the notch I². When the bolt A reaches the recess beyond the incline in the door-jam the bolt drops of its own weight into the recess, and the projection G¹ on the upright bar G drops below shoulder I³ on the lever I, which shoulder prevents it from being again raised until the time mechanism has lifted the bar D⁹, releasing it, and permits the spring D⁶ to throw the upright bar D⁵ to the right, thus relieving the pressure on the spring J by the rod K. This spring then acts in the opposite direction to lift the shoulder I³ away from over the projection G¹ on the upright bar G, and the bolt is immediately thrown up or unlocked by the action of the spring B⁵. A shaft, L, also attached to the arm K', compresses a spring, L', which assists the spring J and the spring B⁵ in throwing up the bolt A, or in unlocking it. M is a spring which presses against a sliding bracket, N, in which bracket is journaled the wheel N² working against the time-wheel E. N¹ is a projecting handle, which, by pressing to the left, carries with it the bracket N, and disconnects this small wheel N² from the time-wheel E, permitting the operator to set the time-wheel to any particular time for opening.

P is an alarm mechanism, governed by the trip P¹, which engages in a recess, P², in the spring L¹, and the alarm cannot be sounded until the bolt is released. As before described, this releases the shaft L from its pressure

against the spring L', and, as the spring recedes, it releases the trip P¹, and consequently releases the alarm.

This lock, it is apparent, is equally well adapted to be placed upon a jamb, as upon a door. If placed on a jamb, the incline is, of course, upon the door, and vice versa.

Q is a sliding frame, which assists in setting the time mechanism, as follows: The operator first presses down upon the arm B until the arm C is carried back of the trip D. Then he presses the sliding frame Q to the left, which carries with it the upright bar D⁵ until the pin D^x comes under the shoulder D¹⁰. The mechanism is then set, and, after the door is closed, it can only be opened after the bolt is released by the time-piece.

It will be understood that the actuating movement is imparted to the time-wheel E by any suitable or usual means. One of the wheels of a clock-work revolves in any given time—generally every twenty-four hours—and thus operates and revolves the time-wheel correspondingly. But I do not in anywise limit myself to a special connection with the clock mechanism, and hence have avoided any description of same; but any kind of clock-work and connecting medium may be employed which revolves the shaft of the time-wheel once in every twenty-four hours.

What I claim is—

1. The time-lock herein described, consisting essentially of the bolt A, the spring B⁵, the arm C, the trip D, in connection with the time-wheel, the bar D⁹, the stop F⁴, and the locking-lever I, with the intermediate mechanism, substantially as described, for operating the same, substantially as set forth.

2. In combination with the bolt of a time-lock, the upright bar D⁵, detent-bar D⁹, stop-piece F⁴, and intermediate mechanism, whereby the time movement releases said bolt, substantially as and for the purpose described.

3. The combination, with the bolt A, of the upright bar G, with its projections G¹ G², together with the sliding bracket H and lever I, provided with the notch I² and shoulder I³, substantially as described.

4. The combination, with the bracket H, the bar G, and lever I, of the spring J, and rod K, substantially as and for the purpose described.

5. The spring-pressed sliding bracket, for throwing in relative engagement the wheel N² and time-wheel E while the clock-movement is being set for any appointed hour, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOS. W. SPENCER.

Witnesses:

B. H. BOSTWICK,
JEREMIAH HALL.