E. STOCKWELL.

TIME-LOCK.

No. 186,177. Patented Jan. 9, 1877.

FIG. I.

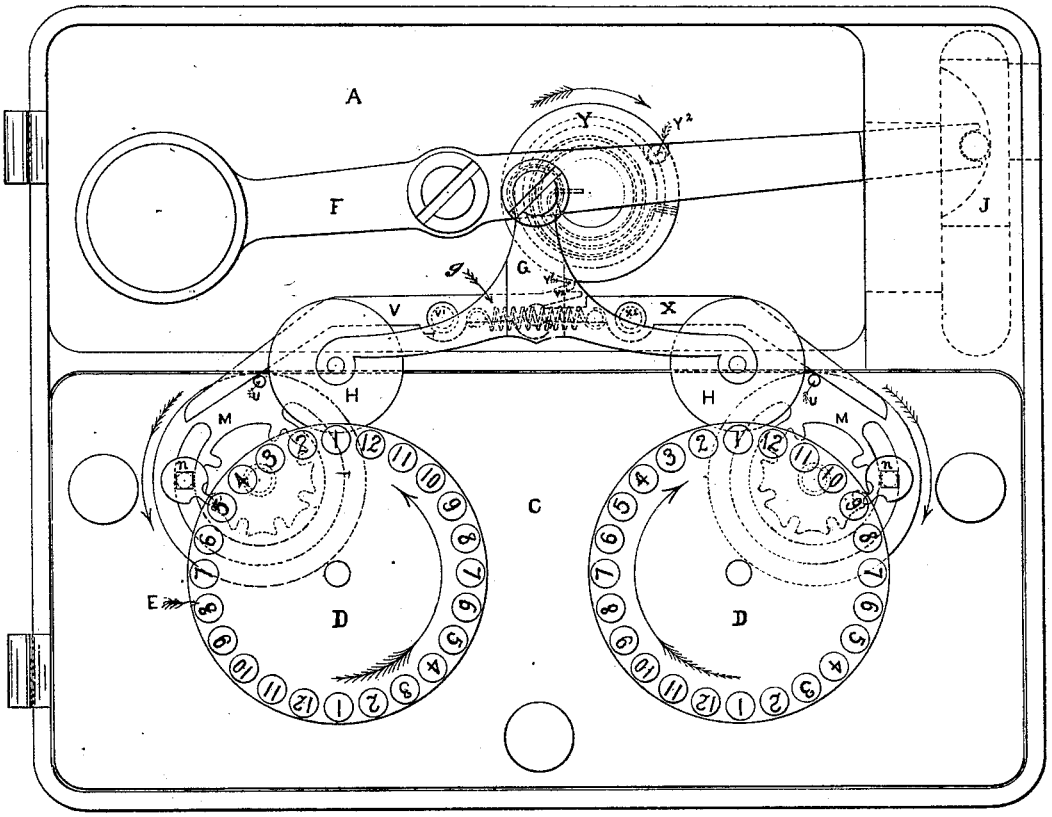
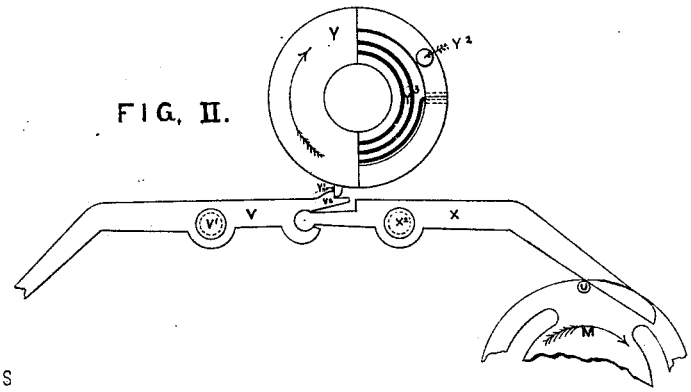


FIG. II.



WITNESSES

William H. Keenan

Walter Fuller

INVENTOR

E. Stockwell

UNITED STATES PATENT OFFICE.

EMORY STOCKWELL, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE LOCK MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN TIME-LOCKS.

Specification forming part of Letters Patent No. **186,177**, dated January 9, 1877; application filed November 16, 1875.

To all whom it may concern:

Be it known that I, EMORY STOCKWELL, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Time-Locks; 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 chronometric locks, two classes of which are now in use. In one class locking is effected instantaneously, on the closing of the door, by the action of a spring or equivalent device independently of the clock mechanism, the unlocking only being effected by the time mechanism, which latter usually is stopped immediately after, or in completing the act of unlocking. In the other class of time-locks, as described in my Letters Patent of September 21, 1875, No. 168,062, the hour of locking, as well as that of unlocking, is controlled by the time mechanism, thus giving access to the safe during the interval between the closing of its door and the hour fixed for its automatic locking. In these locks last referred to the movement of the time mechanism is usually continuous, and by it the lock is locked and unlocked automatically at prearranged daily periods, the proper and ordinary winding of the time mechanism yielding full security against locking out by the clock-movements running down when the lock is locked. To guard, however, by separate and independent means, against neglect or intentional misuse of the said ordinary security from locking out is the object of my present invention; and for this purpose it consists in providing the said locks with a special supplemental unlocking device, which continues inoperative so long as the periodical winding of the clock-movements is regularly performed. If, however, by neglect or willful derangement, the said lock be allowed to run down when in the locked position, then, and for the first time, the said supplemental device will unlock the lock, irrespective of the position of the other or ordinary unlocking device.

In the drawings, Figure 1 represents my improvements, in front elevation, applied to the chronometric lock for which Letters Patent were issued to me September 21, 1875, No. 168,062; and Fig. 2 represents parts of the same detached.

Like letters of reference indicate corresponding parts in the accompanying drawings.

A is the lock-case. C is a plate carrying the clock mechanism. D D are the hour-dials, with pins E for regulating the hours of locking and unlocking. F is the counterbalance-lever, operating the dog-block J. G is the swinging yoke, divided into two portions, and held together by the spiral spring *g*. H H are friction-rollers, which traverse the dial-pins E. M M are the winding-indicators, which, as the clocks are wound up, are rotated in one direction by the pinion *n*, and as the clocks run down are rotated in the opposite direction by the backward motion of the said pinion.

The co-operation of the said enumerated parts is fully explained in the specification of my aforesaid patent of September 21, 1875.

In the winding-indicators M M studs U U are so placed as to be capable of lifting the triggers V X, which are fulcrumed to the case at V^1 X^2. The trigger X is at one end articulated into the trigger V, so that the vibratory movement of either one is transmitted to the other. The trigger V has its end upturned to form the detent V^2, which engages with the pin or catch Y^1 in the spring-barrel Y, holding the latter in check and its contained spring Y^3 in compression. Y^2 is a stud projecting from the face of the spring-barrel Y, for pressing upon and forcing down the lever F and dog-block J in the act of automatic unlocking, which I will now describe.

The studs U U are so located in the face of the winding-indicators that, in the backward rotation of the latter by the unwinding motion of the clocks, the said studs arrive at and touch the said triggers at a brief interval before the final stoppage or running down of the clocks. By the further motion of the winding-indicators during the said interval the studs U U are carried beneath the said triggers V X, thereby lifting their outer ends and drawing downward the detent V^2 from its

engagement with the spring-barrel Y. The spring-barrel so released recoils in the direction of the arrow, its stud Y^2, by contact with the lever F, pressing the latter downward, and thereby unlocking the lock. The triggers, by their mutual engagement, move simultaneously, and the withdrawal of the detent is performed as effectively by either one of the clocks as by both. The automatic unlocking is thus performed by either one of the clock mechanisms through the described supplemental device with which each is provided, or by the concurrent action of both, irrespective of the hour at which the regular unlocking mechanism may be set to operate. Locking out through the clock mechanism coming to rest in the locked position is thus, by my supplemental and reserved unlocking device, effectually obviated.

The locking and unlocking of the lock are ordinarily effected by means of the hour-dials D D, and, as the lock is ordinarily used, its time-movements are never allowed to entirely run down. So long as this is the case the supplemental unlocking devices are dormant and in reserve. Should, however, either or both of the time-movements be allowed to entirely run down, these supplemental devices will, as above explained, then, and for the first time, secure the unlocking of the lock, even should the running down of the time-movements, and their consequent stoppage, occur at a time when the ordinary locking and unlocking devices—viz., the hour-dials D D—are in the locked position.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, viz:

1. In a chronometric lock, the combination, with each of the time-movements thereof, of two automatic unlocking devices, constructed for the purposes specified.

2. In a chronometric lock provided with devices for determining the time of locking or of unlocking, an independent and supplemental unlocking device, which is reserved and inoperative so long as the winding of the time-movements is regularly performed, but which effects the unlocking of the lock whenever the time-movement nearly approaches the point of running down.

3. In a chronometric lock, an unlocking device consisting of a spring-barrel or its equivalent, a detent to retain the same, and a releasing-trigger, in combination, substantially as described.

4. In a chronometric lock, the combination of the spring-barrel Y, detent Y^2, and one or more triggers, V X, or the operative equivalents thereof, with one or more releasing devices, U U, operated by the time mechanism.

5. In a chronometric lock, the lever F and dog-block J, in combination with the reserved supplemental unlocking device, consisting of the studs U U, triggers V X, and spring-barrel Y, when constructed substantially as and for the purposes specified.

E. STOCKWELL.

Witnesses:
WALTER FULLER,
WILLIAM W. CURRAN.