(No Model.) 2 Sheets—Sheet 1.

E. STOCKWELL.

TIME LOCK.

No. 363,920. Patented May 31, 1887.

Fig. 1.

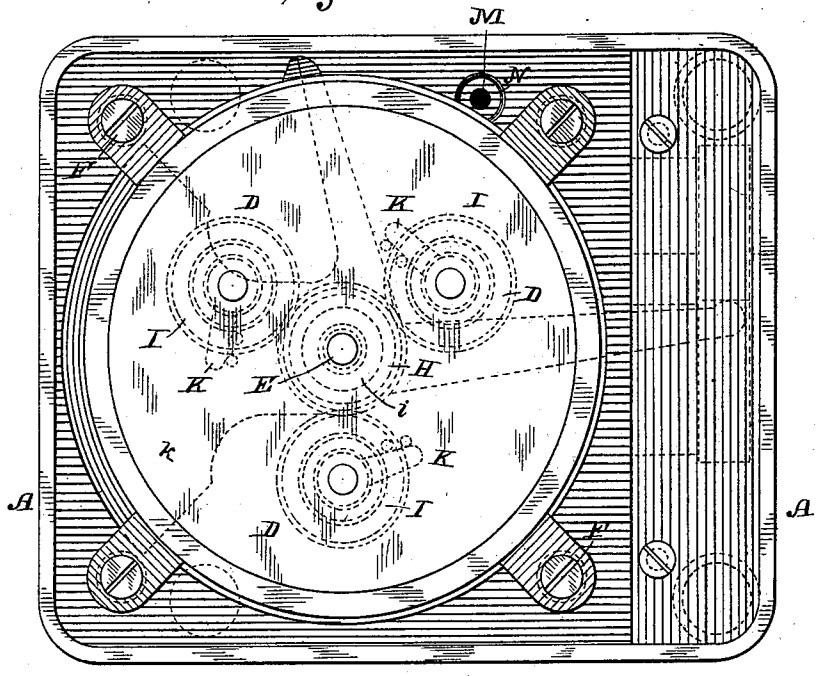
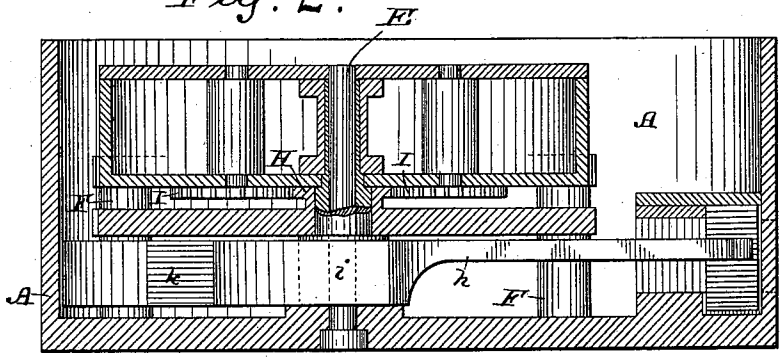


Fig. 2.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

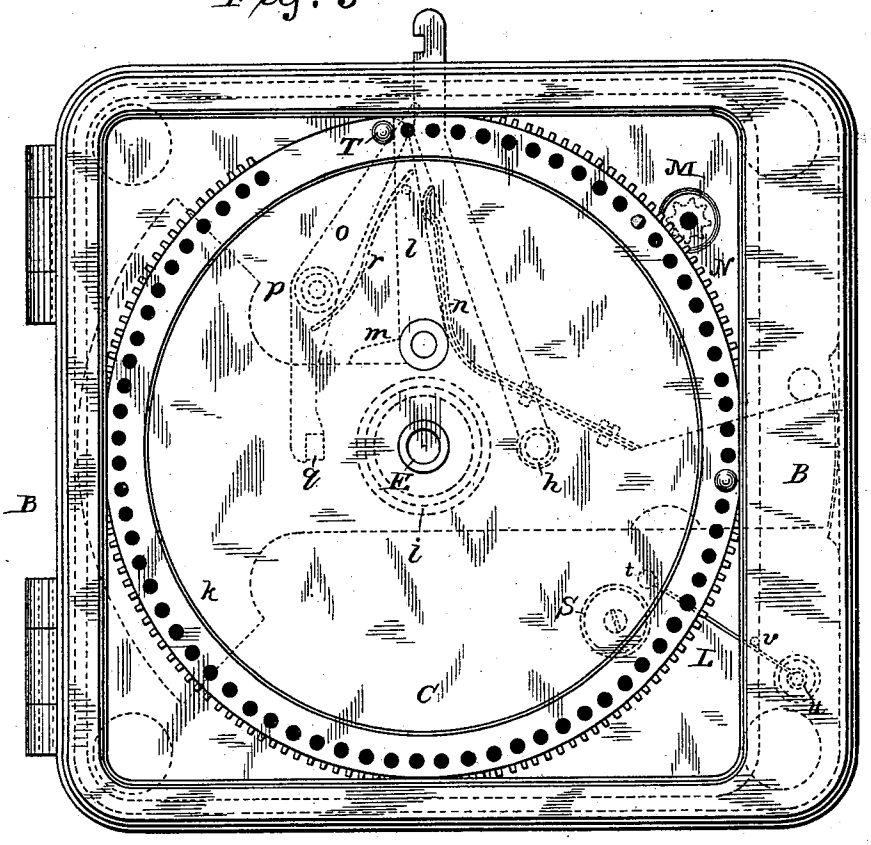


Fig. 4.

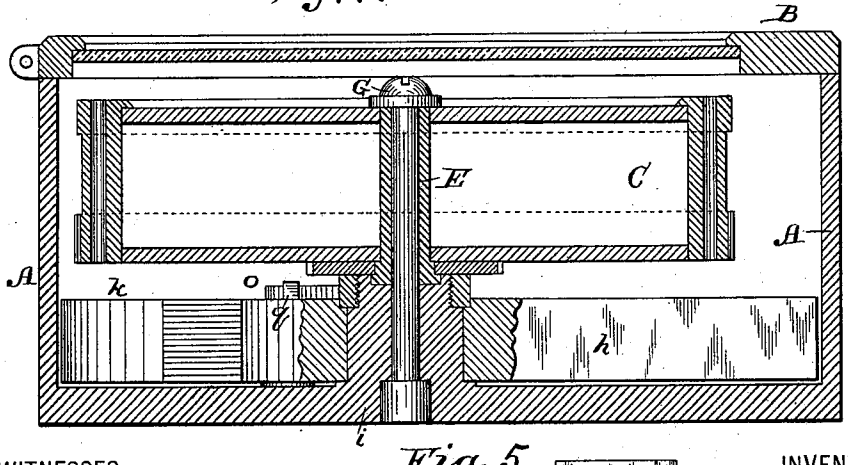


Fig. 5.



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UNITED STATES PATENT OFFICE.

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

TIME-LOCK.

SPECIFICATION forming part of Letters Patent No. 363,920, dated May 31, 1887.

Application filed December 15, 1886. Serial No. 221,662. (No model.)

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, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to time-locks of the kind invented by Emory Stockwell and Herbert C. Stockwell, for which applications for United States Patents have been filed, Serial No. 220,895, filed December 7, 1886, and Serial No. 221,054, filed December 9, 1886.

My invention consists in means for simultaneously winding the time mechanism and setting the lock for unlocking at one operation without rotating the case or support carrying the time-movements, in means for instantaneously locking and unlocking, and in means for indicating the winding of the time-movements and setting the lock by sound.

In the accompanying drawings, Figure 1 is a front view of my improved time-lock with the door removed. Fig. 2 is a central section of the same. Fig. 3 is another front view on a larger scale, showing the door in place and the locking and unlocking mechanism of another style, and the alarm or indicating mechanism. Fig. 4 is a central section of Fig. 3, and Fig. 5 is a view of the bell-strike.

Referring to the letters on the drawings, A indicates a lock-case, provided with a hinged door, B, as usual. Within the lock-case is a case or support, C, for the three time mechanisms. (Indicated at D, but not shown in detail.) This time-movement case may be of any desired form or construction, but preferably such as shown, and it is preferably secured in place by a central shaft, E, and one or more steady-pins, F, so that it can be removed by merely unscrewing the central fastening-screw, G.

H indicates the rotary winding-wheel, which is geared with three loose pin-wheels, I, on the mainspring-arbors of the time-movements, which also carry fixed arms K, the same as shown in the said application, Serial No. 221,054. The winding-wheel is secured to the key-wheel L.

M indicates the key post or bearing, and N a pinion-key suitable for winding by gearing with the wheel L. The turning of the key will cause the rotation of the wheel L and the winding-wheel H. The margin of the wheel L (shown in Fig. 2) may be graduated and provided with pin-holes, if desired, substantially as shown in Fig. 3, and also in the said applications for patents.

In Fig. 3 is shown the locking and unlocking mechanism for immediately operating the oscillating bolt *h*, which is employed to prevent the retraction of bolt-work in the usual way. This bolt is pivoted at *i* and weighted at *k*, in the usual manner.

l indicates a pivoted arm extending up from the bolt *h*, and provided with a toe or stop, *m*, bearing on the top of the bolt. The upper end of the pivoted arm is in the path of the unlocking-pin T.

n indicates a spring secured to the top of the bolt *h*, and bearing at its free end against the pivoted arm *l*. This spring is sufficiently strong to overcome the weighted end of the bolt *h*.

o indicates a trip support or lever, pivoted to a stud, *p*, secured in the lock-case. The upper end of the support *o* is in the path of the unlocking-pin T, and so placed as to be struck by that pin at the same time that the pivoted arm *l* is struck.

q indicates a pin or stud projecting from the side of the bolt *h*. The lower end of the trip-support is notched suitably to bear upon or catch onto that stud, so that when the parts are in position the bolt *h* will be in the locked position, as shown in Fig. 3, and will be held there until the unlocking-pin T strikes and moves the trip-support and the arm *l*. The action of the unlocking-pin will disengage the trip-support from the stud *q*, when the weighted end of the bolt *h* will be overcome by the spring *n* and the locking end of the bolt will instantaneously drop into the unlocked position.

r is a spring secured at one end to the trip-support near its pivot, and bearing at the other against the pivoted arm *l*, and tending to keep the trip-support in engagement with the stud *q*. This spring automatically engages the trip-support with the stud whenever the bolt is brought into the locked position. By this modification of the pivoted lever or support

and the means for immediately operating it I secure both instantaneous locking and unlocking. The instantaneous locking is caused in the usual manner—that is to say, the time-lock is set and adjusted before closing a safe-door. Then when the safe-door is closed and the safe bolt-work thrown forward into the locked position the bolt *h* will automatically rise to lock it through the action of its weighted end. This bolt-work and the locking operation just described are entirely usual, and are therefore not illustrated.

I have provided means by which the time-movements can be wound and the time-lock set for operation at a predetermined time conveniently in the dark. This means consists of a bell and appliances for striking it during the winding and setting operation.

In Fig. 3 of the drawings, *s* indicates a bell, and *t* a hammer, with its arm secured to the case at *u*. *v* is a stud operating as a fulcrum for the spring-arm of the hammer. This arm consists of a bifurcated spring-metal strip with one part carrying the hammer and longer than the other. The shorter arm is in the path of the teeth of the wheel L, so that as each tooth passes it strikes the hammer-arm and causes a blow of the hammer upon the bell, as will be readily understood from the drawings. The teeth are twice the number of the pin-holes, and the passage of each tooth indicates the winding of the time-movement to run half an hour. By counting the strokes of the bell the number of half-hours of winding will be determined. When it is desired to cause the bell to be struck only once an hour, every other tooth may be cut away slightly, so that it will not ring the bell.

In order to verify the correctness of the counting of the strokes of the bell, the wheel L may be rotated back in the opposite direction to that for winding and then rotated forward again. Thus any error in counting the turns of the key may be detected and corrected.

Instead of using teeth or spur-gearing for operating the bell-hammer, stud-pins or projections may be employed, as will be obvious.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent of the United States, is—

1. In a time-lock, the combination, with the case carrying the time-movements, of a rotary winding-wheel, a key-wheel secured thereto, a pinion-key, and post or key bearing, substantially as set forth.

2. In a time-lock, the combination of a rigid detachable case carrying the time-movements, the rotary winding-wheel connected with the respective mainspring-arbors of the time-movements, and the key-wheel L, to which the winding-wheel is secured, substantially as set forth.

3. In a time-lock, the combination, with an oscillating bolt, *h*, having a pin or stud thereon, of the pivoted trip-support *o*, engaging said pin, the pivoted arm *l*, the springs *n* and *r*, and the unlocking-pin T, substantially as set forth.

4. In a time-lock, the combination, with a wheel, L, which turns in one direction for winding and in the opposite direction for operating the lock, of a signaling device operated by the wheel in winding, whereby the extent of winding is indicated by sound, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

EMORY STOCKWELL.

Witnesses:
SCHUYLER MERRITT,
GEO. E. WHITE.