

L. A. HAINES.
TIME-LOCK.

No. 188,623.

Patented March 20, 1877.

Fig. 1.

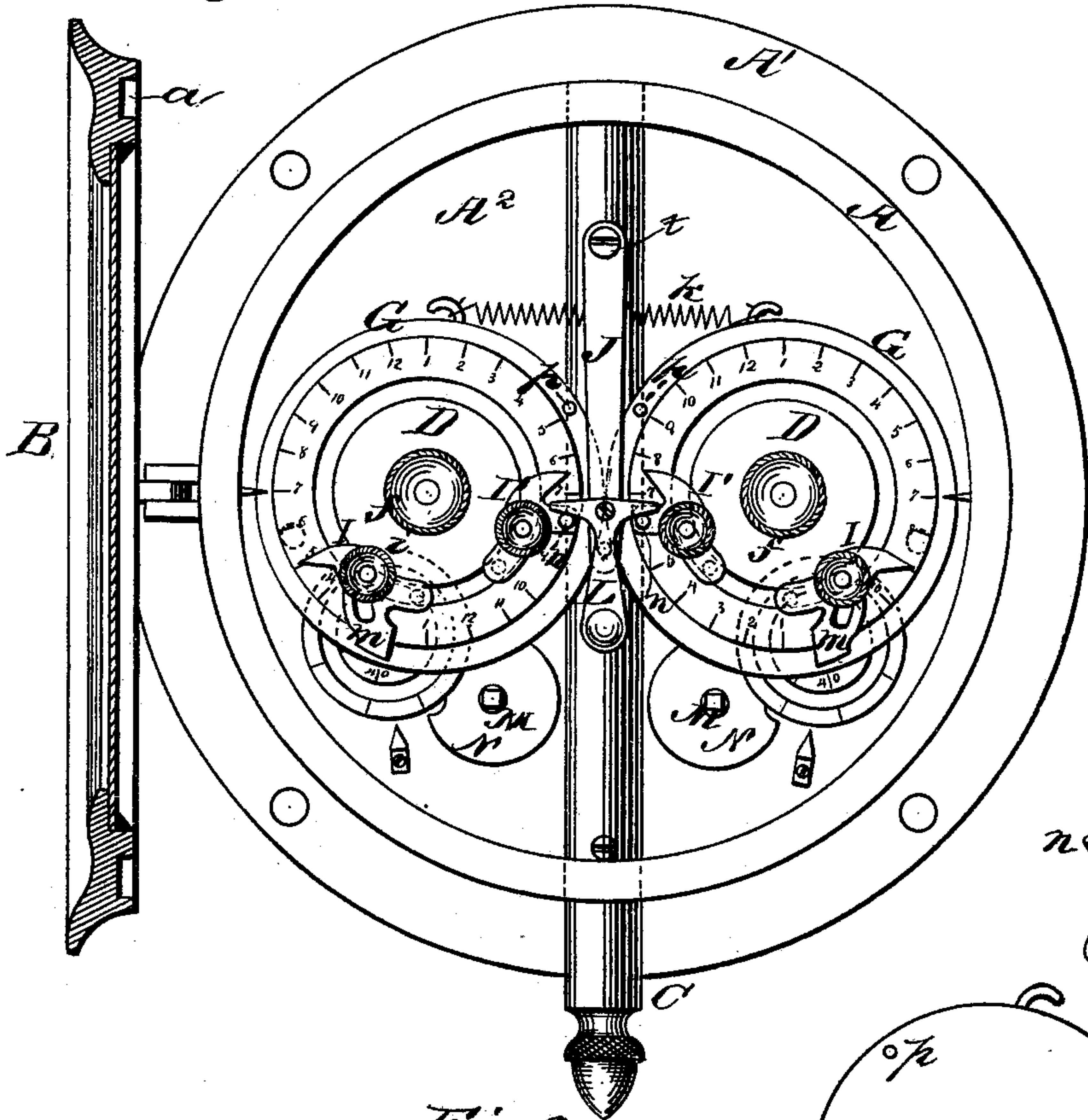


Fig. 2.

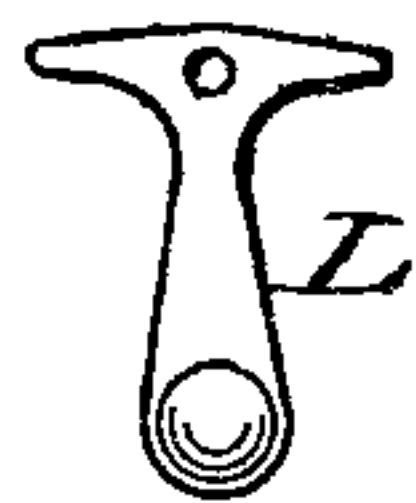


Fig. 3.



Fig. 6.

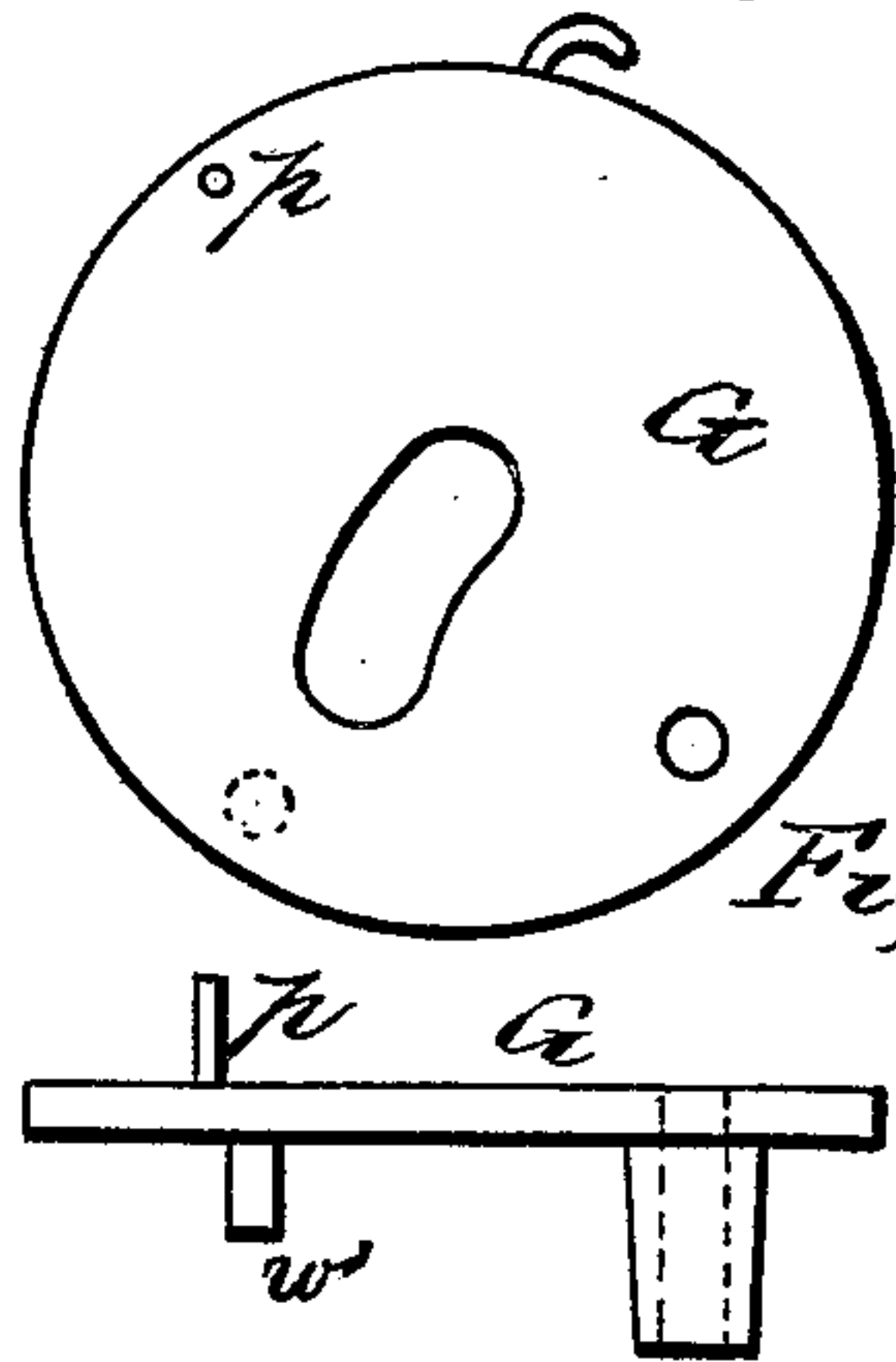


Fig. 5.

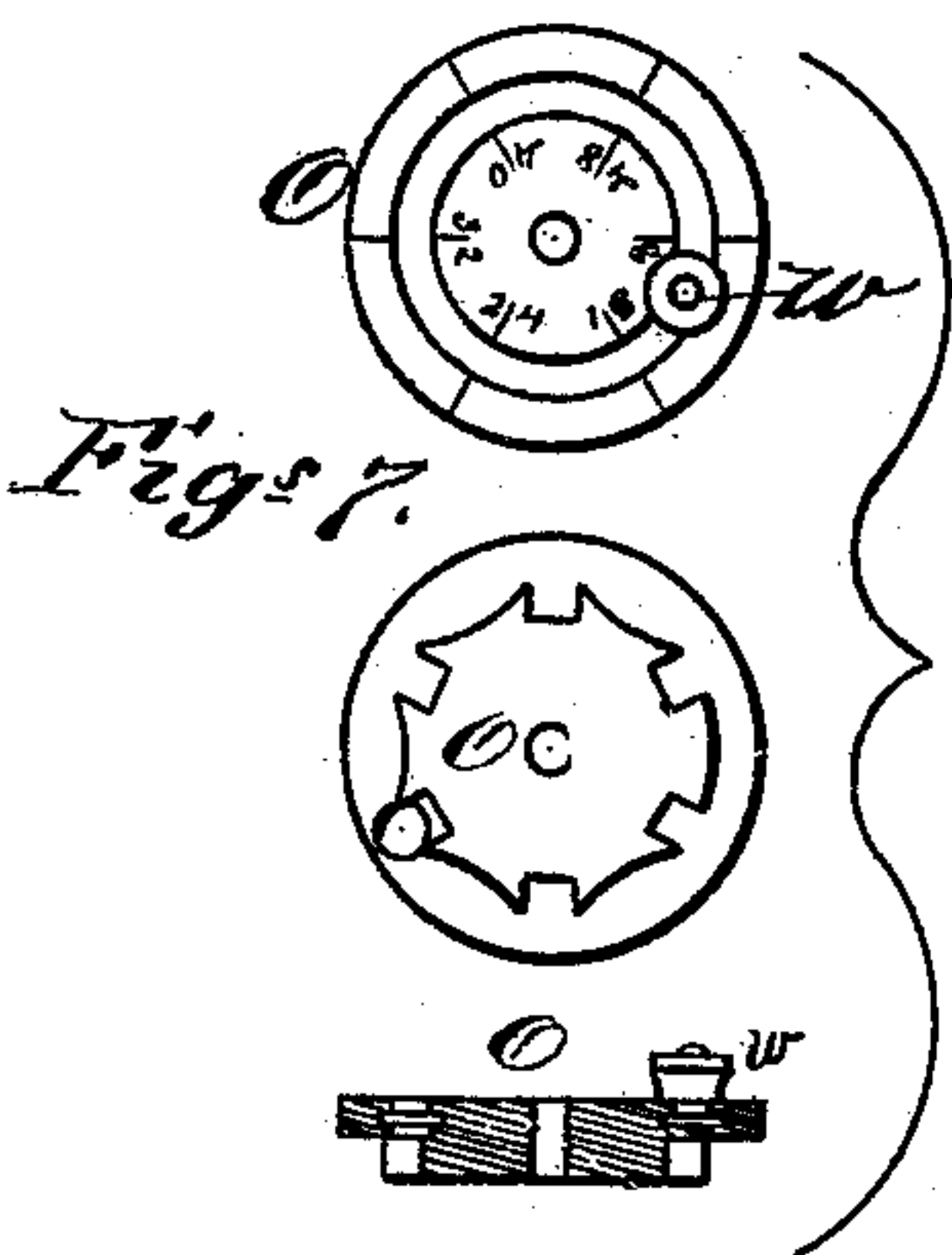
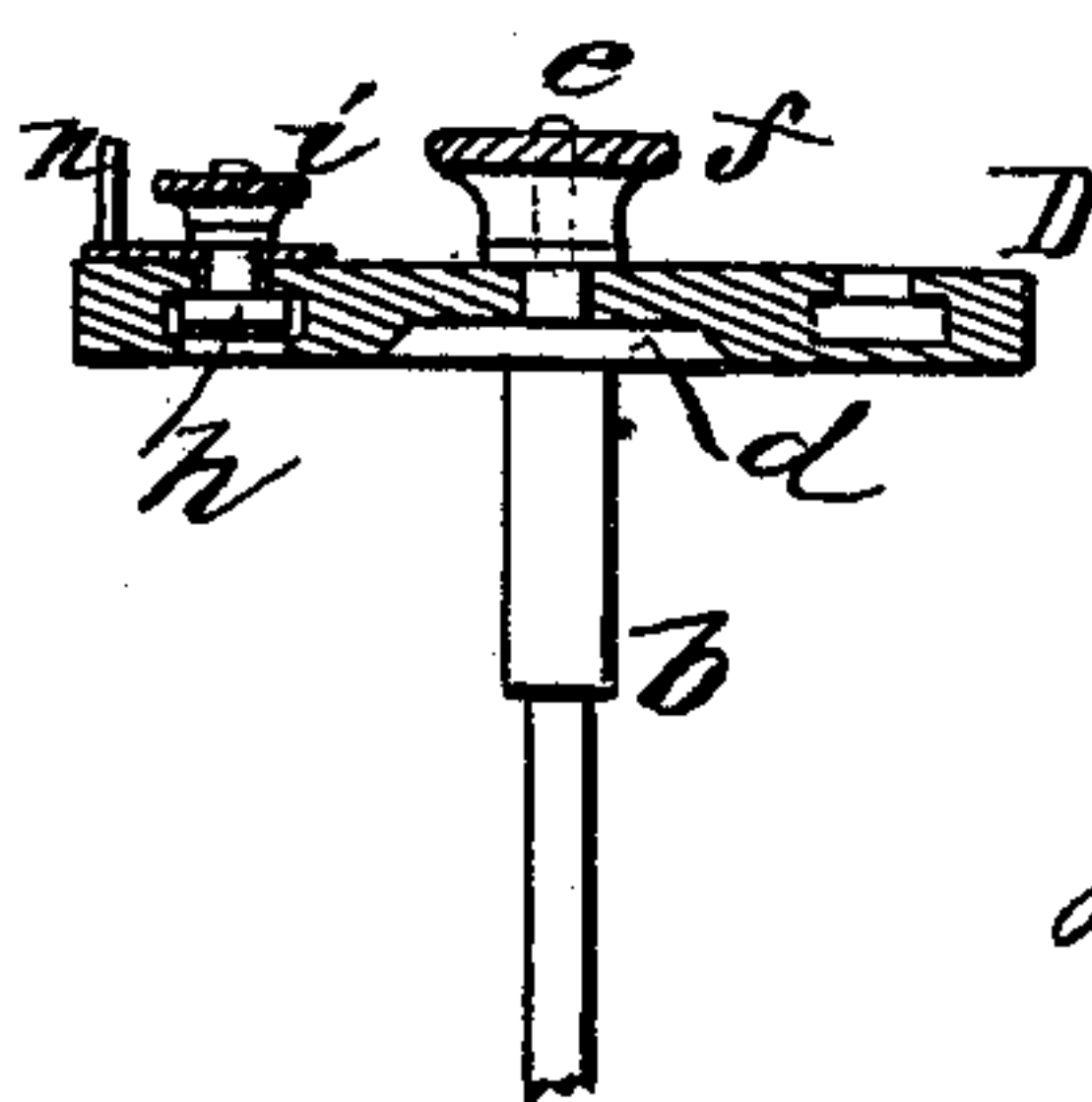


Fig. 7.

Fig. 8.



WITNESSES

E. H. Bates
George W. Lander

INVENTOR,

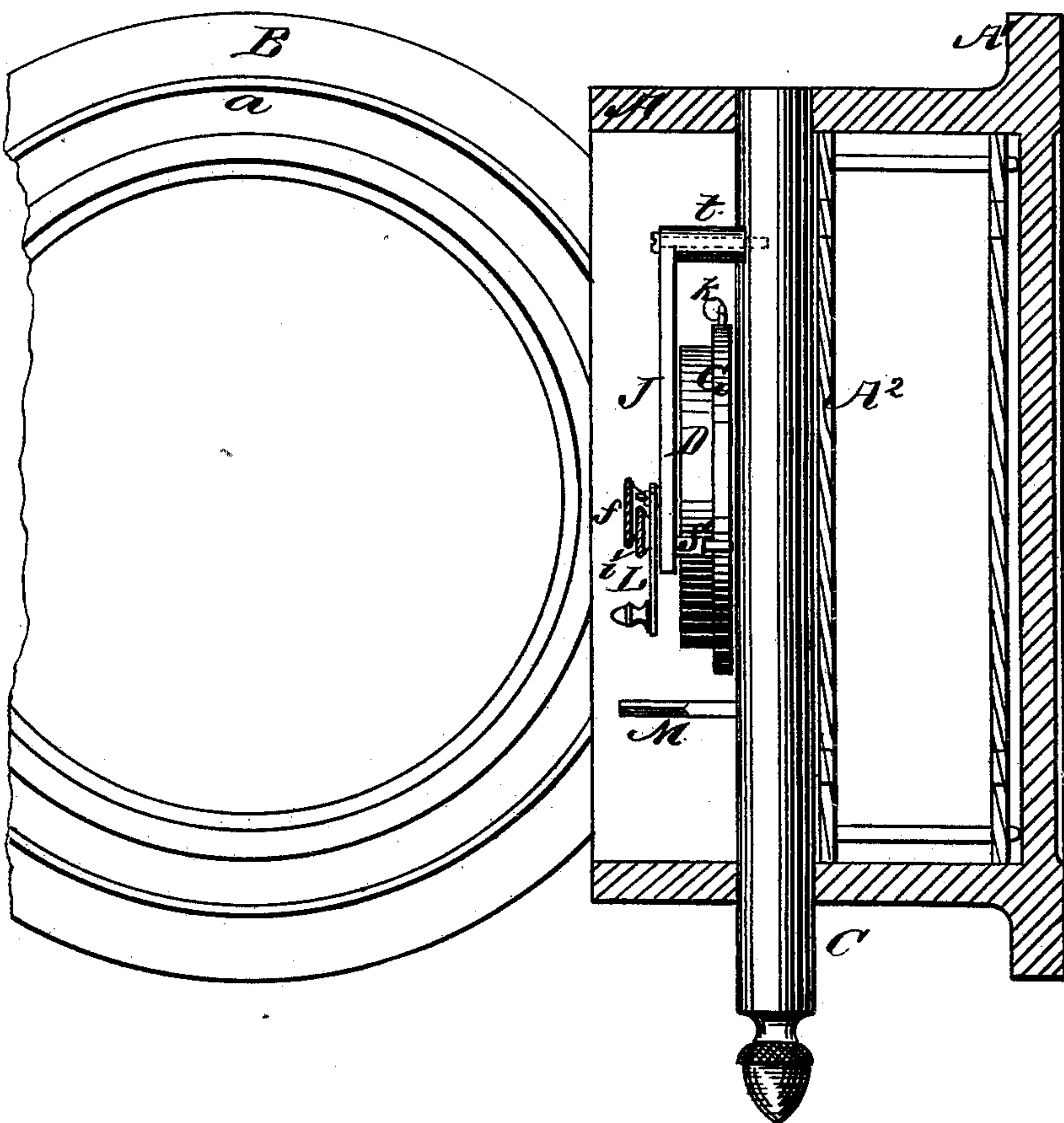
Lewis A. Haines.
Gibmore, Smith & Co.
ATTORNEYS.

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Fig. 9.



WITNESSES

E. H. Bates
Robert Everett

INVENTOR.

Lewis A. Haines.
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ATTORNEYS

UNITED STATES PATENT OFFICE.

LEWIS A. HAINES, OF WESTMINSTER, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF, WM. A. McKELLIP, AND THE TAYLOR MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN TIME-LOCKS.

Specification forming part of Letters Patent No. **188,623**, dated March 20, 1877; application filed February 26, 1876.

To all whom it may concern:

Be it known that I, LEWIS A. HAINES, of Westminster, in the county of Carroll and State of Maryland, have invented a new and valuable Improvement in Time-Locks; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of my time-lock; and Figs. 2, 3, 4, 5, 6, 7, and 8 are detail views thereof. Fig. 9 is a transverse vertical sectional view of the same.

My invention relates to that class of locks known as "time-locks;" and has for its object to improve the construction thereof, and simplify the devices whereby the bolt of the time-lock is locked and unlocked automatically at any desired hour, as will be hereinafter more fully set forth.

In the annexed drawings, A represents the case, formed at its back with a projecting circumferential flange, A¹, through which are made suitable bolt-holes for convenience in attaching the case to the wall of a safe. The front of the case is provided with a hinged door, B, having a glass face, said door being formed with an annular groove, *a*, which is ground to the edge of the case, so as to form a ground joint therewith when the door is closed, and obviate the necessity of any packing.

The case A is, by a partition, A², divided into two compartments, the rear one of which is intended to contain the clock or watch mechanisms, and the front one contains the bolt-operating mechanism.

C is the time-bolt, arranged to move vertically in the center of the case A, and immediately in front of the partition A².

On each side of the bolt C is a dial, D, secured upon the shaft *b* of the clock or watch mechanism, there being one of said mechanisms for each of the dials D. On the shaft *b* is secured a disk, *d*, having beveled edges, which disk fits in a correspondingly-shaped

recess in the under side of the dial, so as to form a ground joint therewith. The extreme end of the shaft *b* forms a screw, *e*, which passes up through the center of the dial, and a thumb-nut, *f*, being screwed thereupon, secures the parts firmly together.

The face of the dial D is graduated for the twenty-four hours, and is formed with an annular concentric T-shaped groove, in which are placed the heads of two screws, *h h*, the screws proper projecting upward through the groove, and have each a thumb-nut, *i*, screwed thereon.

These screws and nuts hold two index fingers, hands, or pointers, I I', to the dial. The pointer I is formed with an arm, *m*, projecting beyond the periphery of the dial, while the pointer I' has a pin, *n*, projecting upward at right angles to the face of the dial, and near the outer edge. These pointers can of course be adjusted and set at any desired hours on the dial.

Under each dial D is placed a disk, G, of larger diameter than the dial, and pivoted eccentrically to the partition A². The two eccentrics G G are connected by means of a spring, *k*, which throws them in contact with each other, and from the face of each, near the edge closest to the bolt C, projects a pin, *p*.

On the bolt C is a post, *t*, to which is attached an arm, J, which extends downward parallel with the bolt, and has connected to its lower end a pin, S. On this arm J is pivoted a hand or finger, L, in the form of a T.

The time-lock having been properly set, when the time comes to close the bolt the pins *n* of the pointers I' at the same time come in contact with the arms of the T-shaped finger L and raise the bolt. During the upward movement of the bolt the pin S forces the eccentrically-pivoted disks G G outward sufficiently to allow said pin to pass, and as soon as the pin has cleared them the spring *k* throws the eccentrics inward again to support the bolt by the pin S, resting on the edges of the eccentrics.

When the time comes for unlocking the bolt the arms *m* of the pointers I at the same time come in contact with the respective pins *p* on

the eccentrics G, and turn said eccentrics outward sufficiently to allow the bolt to fall down by its own weight.

It will readily be seen that if either one of the clock mechanisms should fail to operate, the other one is sufficient to cause the bolt to be unlocked, as the bolt will fall by the outward movement of either one of the eccentrics.

If for any cause the clock mechanism should run down before the time set to unlock the bolt, the bolt will nevertheless be unlocked by means of the following mechanism:

M is the winding-arbor of the clock mechanism, upon which is secured a disk, N, with a tooth, v, in its edge. This tooth operates upon a ratchet-wheel, O, to turn the same a certain distance for each revolution of the winding-arbor, and from the face of said ratchet-wheel projects a pin, w. These parts are so set and arranged that when the clock mechanism is just about to stop or to run down, the pin w will act upon the pin W' on the under side of the eccentric G, and turn the same outward, thus releasing the bolt.

Cams may be substituted in place of the eccentrics G, to accomplish the same function.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a time-lock, the case A, provided with

circumferential projecting flange A¹ and the lid B, with annular groove a, to form a ground joint.

2. The combination of the shaft b, beveled disk d, screw e, recessed dial D, and nut f, as and for the purpose set forth.

3. The dial D, formed with an annular concentric T-shaped groove, in combination with the adjustable pointers I I', screws h, and nuts i, as and for the purpose set forth.

4. In a time-lock, the eccentrics G G, connected by a spring, K, and operating in combination with a pin, S, on the bolt, to hold the same locked, as herein set forth.

5. The combination of the dials D D, pointers I I', pins n n, eccentrics G G, and spring K, with bolt C, arm J, pin S, and finger L, substantially as and for the purposes set forth.

6. The combination of the dials D D, pointers I I', arms m m, eccentrics G G, having pins p p, with bolt C, arm J, and pin S, substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LEWIS A. HAINES.

Witnesses:

JOHN F. ACKER,

EMORY H. BATES.