

(No Model.)

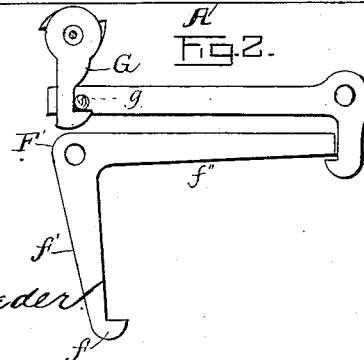
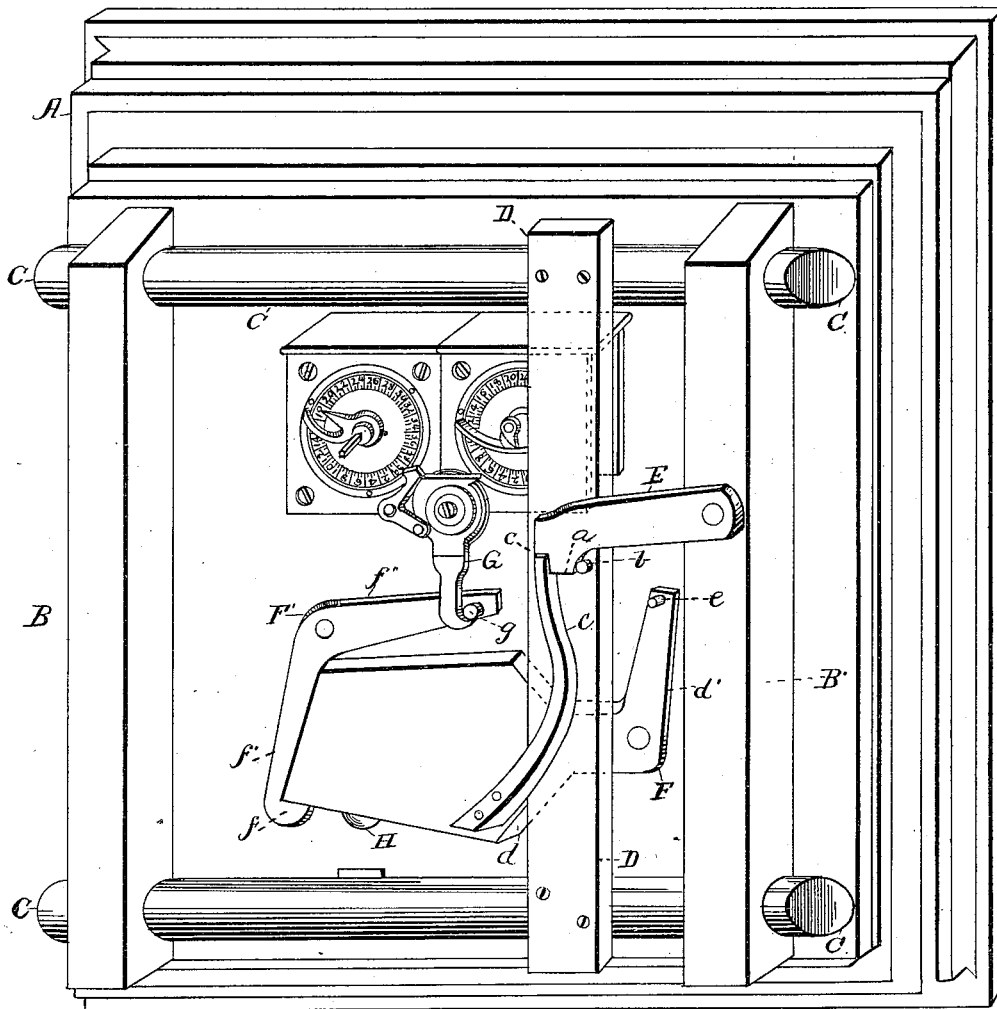
E. J. WOOLLEY.

TIME LOCK.

No. 345,266.

Patented July 6, 1886.

Fig. 1.



WITNESSES

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# UNITED STATES PATENT OFFICE.

EDWARD JACKSON WOOLLEY, OF OMAHA, NEBRASKA.

## TIME-LOCK.

SPECIFICATION forming part of Letters Patent No. 345,266, dated July 6, 1886.

Application filed October 31, 1884. Serial No. 146,882. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD JACKSON WOOLLEY, of Omaha, in the State of Nebraska, 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 object of this invention is to produce devices for automatically locking and unlocking safe-doors, which shall be more certain and effective in operation than those described and claimed in Patent No. 302,080, granted to me July 15, 1884; and I propose to accomplish this object by a combination of less elements, cheaper and more simple in construction and arrangement, and adapted to act with more celerity and more certainty. The novelty therein consists in the construction and arrangement of the parts employed, and in the several operative combinations of the same, all as more fully hereinafter described, and designated in the claims.

For a more thorough understanding of the details of construction and arrangement of the component parts and the manner in which the same operate, attention is invited to the accompanying drawings, in which—

Figure 1 illustrates in perspective my improved locking and unlocking mechanism as applied to the inner side of a solid safe-door—that is, a door which has no hole, nor any arbor, shaft, or spindle through it for any purpose whatever. This view also includes a clock-lock, which constitutes no essential part of the invention, but may be one of any of the well-known designs suitable for attachment to the door in connection with my improvements, and appropriately adapted so far as my improvements require, as will be presently explained. Fig. 2 is a detail showing the use of an additional bell-crank intermediate the hook of the clock-lock and the bell-crank which supports the weight for unlocking.

In the drawings, A denotes an ordinary safe-door as seen from the interior, and B B' two uprights screwed or otherwise firmly secured to the inner side of the door, one near each end of the same. The locking-bolts C C pass longitudinally through these uprights at

the top and bottom of the door, and are beveled at their outer ends, in order that in passing the inner jamb of the safe they will be gradually forced back. These bolts are connected together near their beveled ends and intermediate the uprights B B' by a carrying-bar, D, whereby they are made to operate in unison.

E denotes an arm, which is pivoted at its outer end to the upright B' near its top, while its inner end is free and is provided with a downward projection or lug, *a*. One side of this projection or lug is a gradual curve to the arm E, but the opposite side is cut square to form a shoulder, which holds the upper end of a spring (presently to be described) preparatory to the closing and locking of the door.

The carrying bar D is provided with a pin, *b*, which, when the bolts C C are thrown back, is forced into contact with the curved side of the projection or lug *a*, and elevates the free end of the arm E, which movement releases the spring *c*, held by the shoulder on the opposite side of the projection or lug *a*. This spring *c* is a curved leaf-spring, secured at its lower end to the weighted lower arm, *d*, of a bell-crank, F, fulcrumed at the apex of the angle to the inner side of the door A, just to the left of the upright B', and having the upper arm, *d'*, provided with a pin, *e*. The weighted lower arm of this bell-crank F is temporarily supported by a hook, *f*, at the extremity of the lower arm, *f'*, of another bell-crank, F', which is fulcrumed at the apex of its angle to the safe-door near the upright B, and its other arm, *f''*, has near its outer end a pin, *g*, with which engages the hook G of the clock-lock, which, as before stated, may be one of any of the well-known devices of this character, provided it has the hook G, as required by my invention. Instead of but one bell-crank between the weighted bell-crank and the hook of the clock-lock, two of such bell-cranks may be employed, as shown in Fig. 2, or even more than two. Through the medium of these connections the weighted lower arm of the bell-crank F is held suspended until the clock-lock moves the hook G to the left, when the upper arm of the bell-crank F immediately falls, (being somewhat heavier than its lower arm,) and this lower arm, *f'*, and

its hook *f* move to the left from under the weighted lower arm, *d*, of the bell-crank F, and this weighted arm *d* is thereby released and falls upon the lower locking-bolt C.

- 5 To prevent the fall of the weight from jarring, and thereby loosening the screws in the safe-door and those used in securing the carrying-bar D to the bolts, I attach to the bottom of the weighted lower arm of the bell-crank F a rubber or other elastic bumper, H, which receives the jar arising from the fall of the weight.

The drawings show the bolts and the several parts in position to shut the door and lock it, and the operation is substantially as follows: When the door is being shut, the beveled ends of the bolts C C are brought into contact with the inner jamb of the safe, forcing the bolts to the left sufficiently to drive the pin *b* of the carrying-bar D against the projection or lug *a* of the arm E, the end of which arm is thereby raised and the spring *c* released and thrown against the pin *b*, which drives the bolts to the right behind the jamb of the safe, thus locking the door securely. The release of the spring occurs just at the time when the bolts pass the jamb of the safe and the door is closed. The action of the spring in locking the door does not disturb the weighted bell-crank, but, being secured to the weight, it holds the bolts in a locked position until the weight falls, when the power of the spring ceases, and the weight has to move the bolts only. When the hook G of the clock-lock is moved to the left at the time set for action, the arm *f'* of bell-crank F' is liberated, and the hook *f* at the extremity of arm *f'* released from its engagement with the weighted lever-arm of the bell-crank F, allowing said weighted arm to fall. The fall of this lower arm causes a backward movement of the upper arm of the bell-crank F, and its pin *e* is brought into forcible contact with the carrying-bar D, which recedes and draws the bolts C C to the left into an unlocked position. Before the door is again closed to be locked, the several parts are placed in their respective positions shown in the drawings.

Instead of a single bell-crank to support the weight, two may be employed—that is to say, one may be employed in addition to the one shown, in which instance the latter would be adapted to engage with the supplemental bell-crank instead of with the hook of the clock-lock, which would support the end of the supplemental bell-crank instead. Such arrangement is, in fact, preferable to that shown, as it reduces the weight upon the hook of the clock-lock, and this weight may be further reduced by the use of more than two bell-cranks.

The advantages asserted for my improvements, particularly over those involved in the patent hereinbefore named, are, that the weight being made a part of the bell-crank dispenses with an inclosing-box, wherein the weight in falling was liable to be bound or pinched, and in the use of a second bell-crank will be found a more simple and a better and stronger substitute for a knuckle-joint support. By the arrangement of the spring the fall of the weight has to overcome the inertia of the bolts only, and the arrangement of this spring, together with the unweighted bell-crank requires the hook of the clock-lock to support the weight only.

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

1. In a time-lock for safes and other similar articles, the combination of a solid door, two or more locking-bolts, a weight for unlocking, and one or more bell-cranks for connecting said weight with the hook of the clock mechanism, substantially as described.

2. In a time-lock for safes and other similar articles, the combination, with the locking-bolts and their carrying-bar, of a weight for unlocking, a spring secured to the same, and an arm adapted to hold said spring and to release it through the instrumentality of a pin on said bar, substantially as and for the purposes set forth.

3. In a time-lock for safes and other similar articles, the combination, with the locking-bolts and their carrying-bar provided with pin *b*, of the weight F, means for supporting the same, spring *c*, and arm E, provided with the projection or lug *a*, substantially as described.

4. In a time-lock for safes and other similar articles, the combination, with the locking-bolts and their carrying-bar, of the weight F, provided with the pin *e* and elastic bumper H, and means for supporting said weight, substantially as described.

5. In a time-lock for safes and other similar articles, the combination, with the end-beveled locking-bolts and their carrying-bar, of the weight F, provided with the pin *e*, the supporting bell crank or cranks F', provided with pin *g*, and the hook G of the clock-lock, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD JACKSON WOOLLEY.

Witnesses:

E. E. NAUGLE,

H. R. KNOWLTON.