

(No Model.)

E. J. WOOLLEY.

SAFE LOCK.

No. 302,080.

Patented July 15, 1884.

Fig. 1.

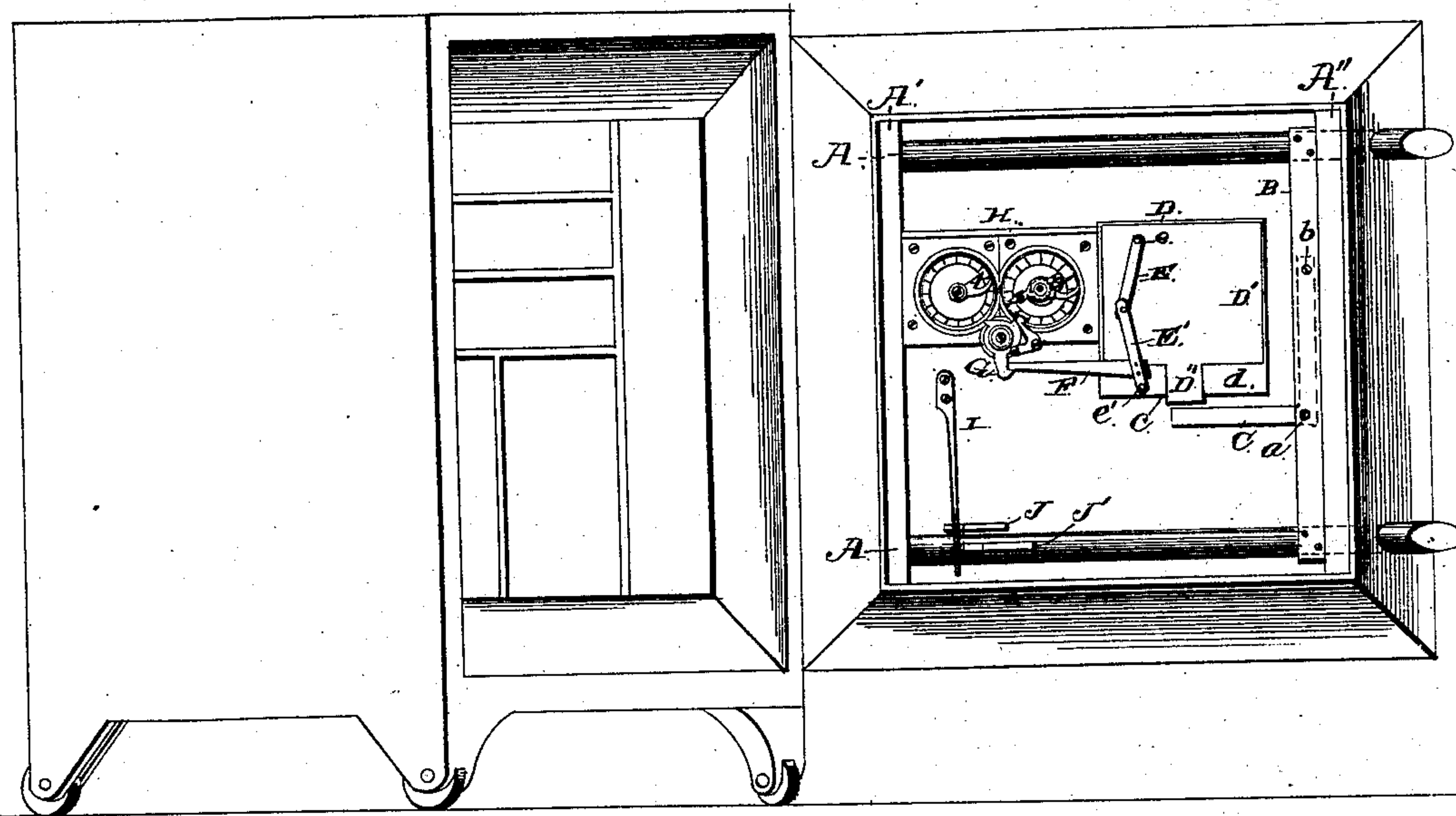
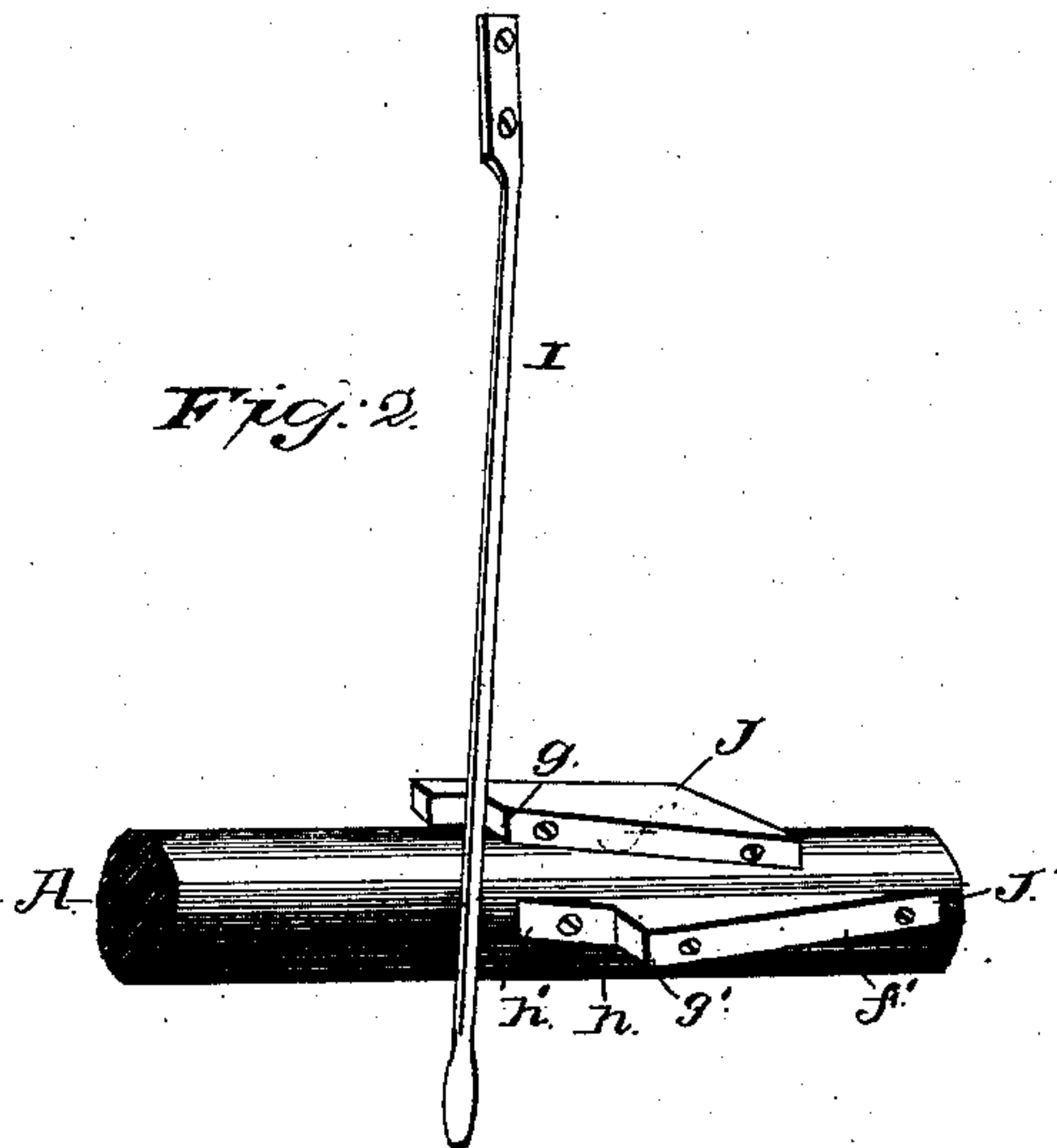


Fig. 2.



WITNESSES

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EDWARD J. WOOLLEY, OF OMAHA, NEBRASKA.

SAFE-LOCK.

SPECIFICATION forming part of Letters Patent No. 302,080, dated July 15, 1884.

Application filed March 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. WOOLLEY, of Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Improvement in Lock Mechanism for Safes; 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.

This invention proposes to establish certain improvements in lock mechanism for safes, whereby the safe or other article employing the same will lock and unlock automatically without failure, and shall be burglar-proof in every respect. To carry out and effect this latter feature, it is found necessary to dispense with the hole usually made in safe-doors to receive the end of an arbor or a spindle which throws the bolts, for it is known that burglars have frequently succeeded in gaining access to safes by blowing them open with an explosive inserted in this hole around the arbor. Several devices have succeeded in removing this objectionable element, but at the same time have proved unsuccessful in other important respects, owing largely to the employment of springs to both lock and unlock the door, the unlocking-spring being so arranged that in becoming weak or breaking (as all springs are liable to do, and certainly will do in course of time) the safe was locked and could only be opened by force. It is therefore my invention to discard almost entirely the use of springs, particularly unlocking-springs, in order that such occurrences shall be impossible, and, furthermore, that I may simplify the construction and reduce the number and cost of the parts of a lock mechanism for safes, and thereby render it cheap and durable and absolutely certain in its operation.

The invention therein consists in the construction and arrangement of a spring to lock the door, which is left in a position to be unlocked should the spring weaken or break; in means for removing the pressure of said spring on the bolts after throwing them into a locked position; in the employment of a weight as an unlocking power certain to act when the clock-lock removes its support; in means for supporting said weight, and in the means connecting it with the bolts for operating the same, all as more fully hereinafter described and claimed.

For the better understanding of my invention, and that those skilled in the art may be fully acquainted with its construction and operation, attention is invited to the accompanying drawings, in which—

Figure 1 is a perspective view of a safe with its door open, and showing my entire lock mechanism for safes as applied thereto; and Fig. 2, a view in detail of the spring for locking the door, and of the means for subsequently removing its pressure upon the bolts.

Like letters of reference denote corresponding parts in the drawings.

A A represent the bolts, which pass longitudinally through vertically-arranged frames A' A'', screwed or otherwise suitably secured to the inside of the safe-door. These bolts are arranged to extend along the top and bottom edges of the door, and are connected together near the vertical frame A'' by an upright carrying-bar, B, arranged parallel with said frame, and secured at each end to said bolts by screws or other suitable means, adapting it to operate the bolts concurrently. Between this carrying-bar B and the door is interposed a bell-crank, C, fulcrumed at the apex of the angle upon a ball, *a*, entering and fixed to the door. The upright arm of this bell-crank C is connected at its upper end with the carrying-bar B by a pin or ball, *b*, in order that when the horizontal arm of the bell-crank is depressed its upright arm will move to the left, and likewise move the carrying-bar B, and in turn draw the bolts.

D denotes a box or casing which is arranged between the locking-bolts, and is secured to the inner face of the safe-door. This box or casing may be closed on all sides to exclude dust, or it may have an open face, and incloses a weight, D', having a central downward extension, D'', which, in the up and down movement of the weight, passes through an opening, *c*, made in the bottom of the box or casing D. This weight D' comes to within half an inch from the front of its inclosing-box, for the purpose of leaving space for the movements of a pair of knuckle-jointed arms E E'; but otherwise it fills the space within said box or casing with the exception of an intervening space, *d*, between the bottoms of each for the vertical movement of the weight. The arms E E', above referred to, support the weight within its casing, the former being pivoted to the weight at *e*, the latter to the

box or casing at e' , and both connecting at their inner or meeting ends by a knuckle-joint, or in such a way that the connecting-point, if moved to the left, will allow the weight to lower, and if moved to the right will compel the arms $E E'$ to raise it. With this lower weight supporting-arm E' is rigidly connected one end of a lever, F , the opposite or free end of which is supported by a hook, G , depending from the clock-lock H , which is secured to one side of the box or casing D , inclosing the weight.

As this invention has no special reference to the clock-lock proper, any of the well-known devices of this character may be employed, provided it has the hook G or an equivalent. A leaf-spring, I , is bolted to the inside of the door near its hinging end, and also a block, J , the latter being located just above the lower locking-bolt, A , and having its outer end beveled downwardly to an abrupt shoulder, g . A similar block, J' , is secured to the lower locking-bolt, A , and has its outer edge, f' , beveled from the surface of the bolt upward to a shoulder, g' , and from the base of said shoulder or point h it is beveled in an opposite direction downwardly to the point h' , which is flush with the surface of the bolt.

Fig. 1 represents all the parts in the positions they occupy when the door is closed and the safe locked, the weight being suspended above the horizontal arm of the bell-crank, and the hook G of the clock-lock supporting the end of the lever H' . The clock-lock being set as desired, when the time of action is reached, the hook G is moved to the left from under the lever F , which falls and causes the knuckle-jointed arms $E E'$ to move to the left and deliver the weight upon the end of the horizontal arm of the bell-crank, this action drawing the locking-bolts to the left, and releasing the door from its locked condition.

To replace the parts in a locking position, the weight is elevated, and so held by raising the lever F and bringing the hook G to a position under the end of the same, as shown by Fig. 1.

To close and lock the door, it is first necessary to place the parts as described in the preceding paragraph, and then, by hand, press the spring I to a position back of and against the shoulder g of block J , as indicated in Fig. 2. The locking ends of the bolts $A A$ are beveled, and as the door is being closed these ends come into contact with the door-jamb, which, as the door is further pressed inward, continues to force the bolts back to the left until they pass through the doorway beyond the jamb, and are on the inside of the safe in a position to be forced to the right behind the jamb, and thus lock the safe. As the door is being closed and the bolts are forced to the left by contact with the door-jamb, the point h' of the incline on the block J' of the lower locking-bolt passes under the spring I , and as the bolt continues

its movement to the left the spring travels up this incline and is gradually forced outward until it reaches the base h of the shoulder g' of the block J' , which point, being higher than the outer edge of shoulder g of block J , releases the spring from its engagement with the latter just at the time that the bolts pass beyond the door-jamb and said spring commences to travel to the right up the incline f' of block J , at the same time pressing against the shoulder g' of block J' , and forcing the bolts to the right until a point is reached on the incline f of block J , that is higher than the edge of shoulder g' of block J' , when the spring will disengage itself from said shoulder g' and leave the bolts locked behind the jamb and ready to be withdrawn when the clock-lock releases the weight, and it is delivered upon the arm of the bell-crank. It will be noticed that after the spring passes over the shoulder g' of block J' its power ceases and all strain is removed; and hence the weight is not required to overcome the power of the spring in withdrawing the bolts and unlocking the door, and said spring is thereby rendered more durable, and is not liable to weaken rapidly or break.

It is deemed unnecessary to make further reference to the numerous advantages of this time-lock, as from the foregoing description it will be manifest that it will automatically lock and unlock with absolute certainty, even should the spring weaken or break.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A time-lock for safes and other similar articles, having a weight suspended and adapted to be released by connections with a clock-lock, and whereby the locking-bolts are withdrawn by its face upon an intermediate bell-crank having connection with a bar secured to the bolts, substantially as described.

2. In a time-lock, the combination of a weight suspended by knuckle-jointed arms connecting with a lever supported and adapted to be released by a hook on the clock-lock, substantially as described.

3. In a time-lock, the combination of the bolts, the carrying-bar, the bell-crank, and the inclosed weight supported and adapted to be released by connections with the clock-lock, substantially as described.

4. In a time-lock, the combination of the end-beveled bolts, the two inclined blocks secured one upon the lower bolt and the other to the door, and the leaf-spring secured at one end to the door, and engaging at its free end with said blocks, substantially as described.

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

EDWARD J. WOOLLEY.

Witnesses:

GEO. A. HAGENSICK,
C. GIESLER.

It is hereby certified that in Letters Patent No. 302,080, granted July 15, 1884, upon the application of Edward J. Woolley, of Omaha, Nebraska, for an improvement in "Safe-Locks," an error appears in the printed specification requiring correction, as follows: In line 107, page 2, the word "face" should read *fall*; and that the proper correction has been made in the records pertaining to the case in the Patent Office, and should be read in the Letters Patent to make it conform thereto.

Signed, countersigned, and sealed this 22d day of July, A. D. 1884.

[SEAL.]

M. L. JOSLYN,
Acting Secretary of the Interior.

Countersigned:

BENJ. BUTTERWORTH,
Commissioner of Patents.