

J. WORLEY.
TIME LOCKS.

No. 179,495.

Patented July 4, 1876.

Fig. 1.

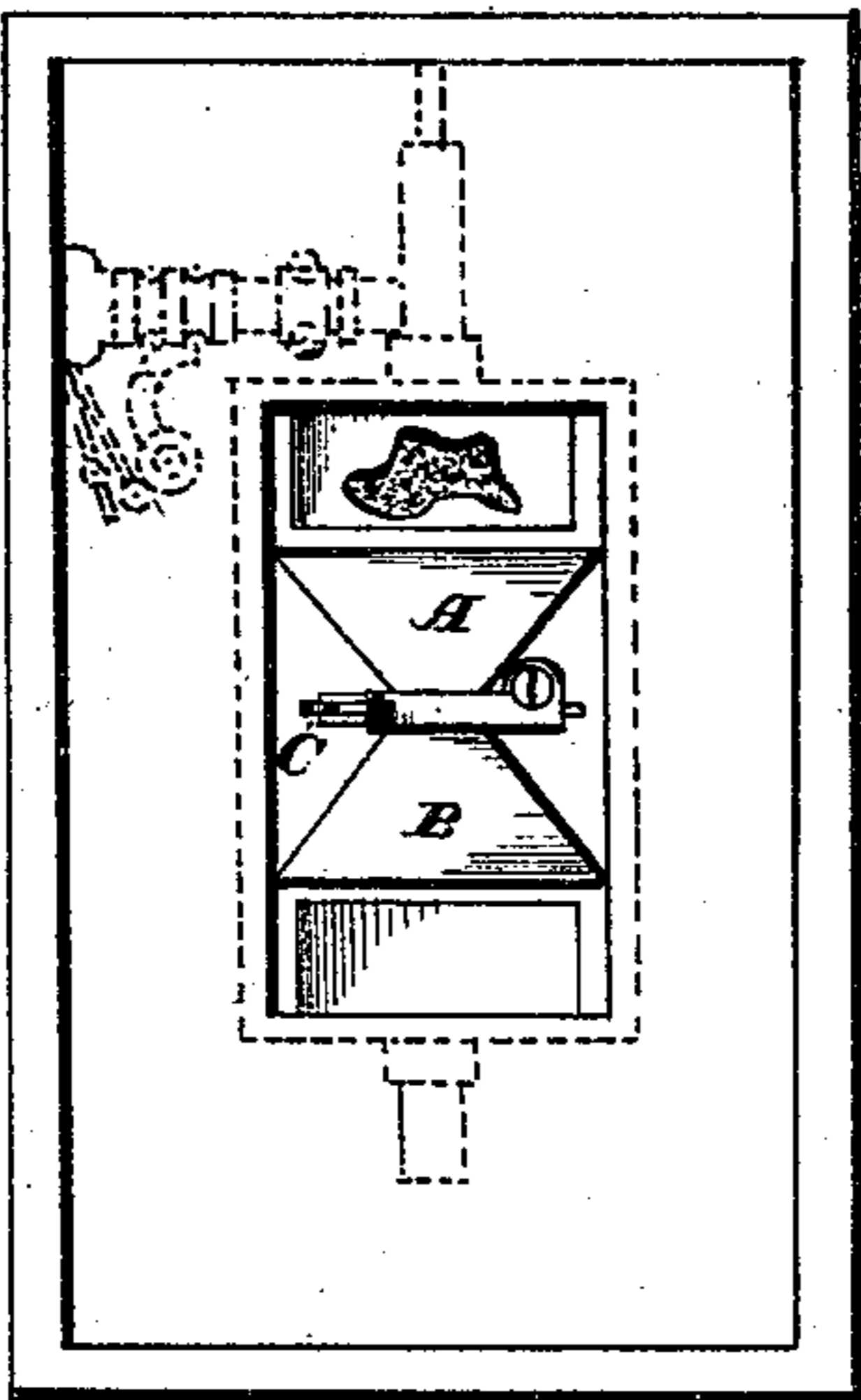


Fig. 2.

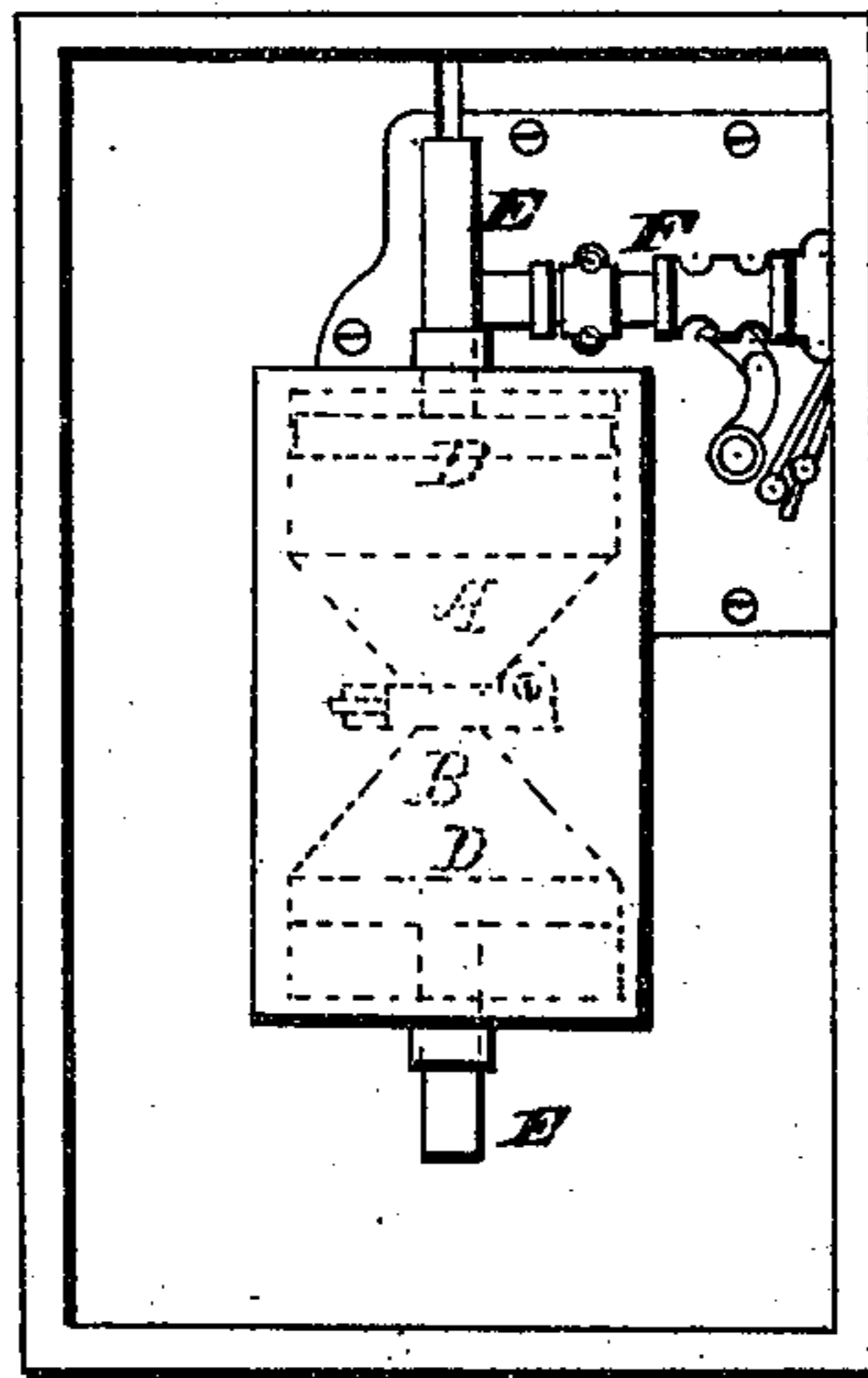
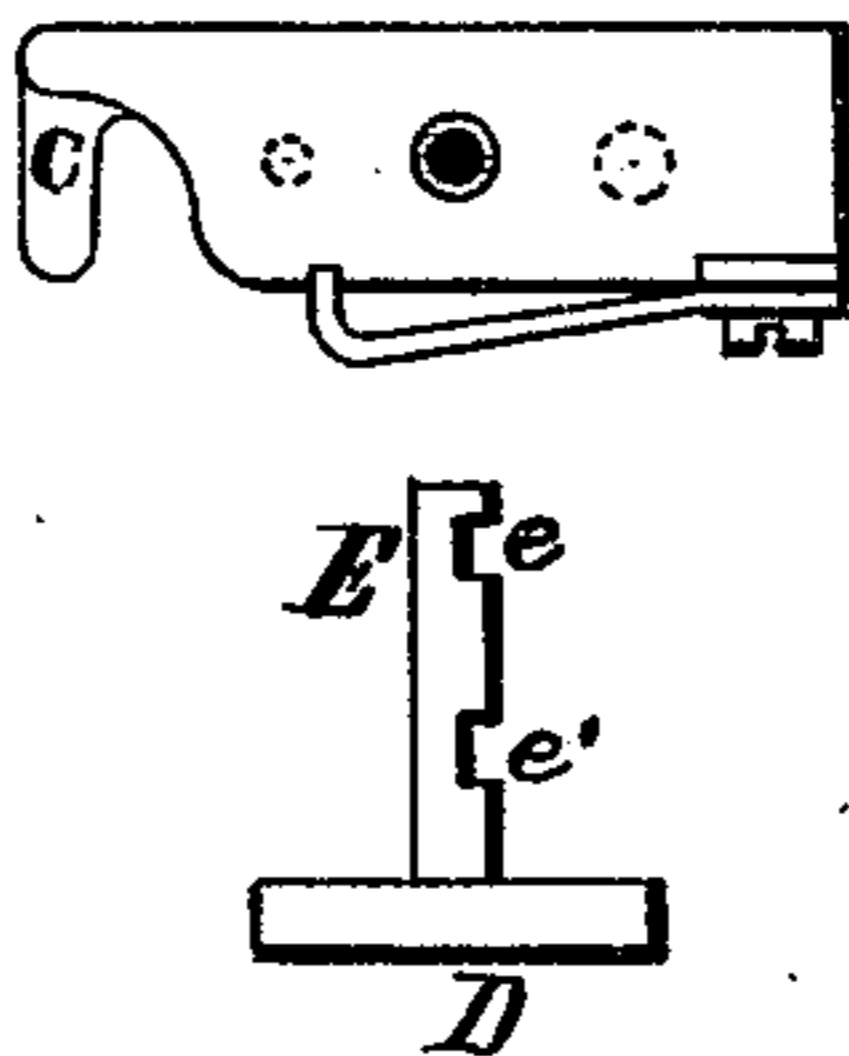


Fig. 3.



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IMPROVEMENT IN TIME-LOCKS.

Specification forming part of Letters Patent No. 179,495, dated July 4, 1876; application filed May 20, 1876.

To all whom it may concern:

Be it known that I, JOHN WORLEY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Chronometric 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, commonly termed "time-locks," intended for use on vault-doors, &c.

In the drawings, Figure 1 is a front elevation of my invention applied to bolt-work, shown in dotted lines; Fig. 2, a rear elevation of the same. Fig. 3 represents detached views, respectively, of the gage regulating the flow of sand, and the follower with its slotted arm.

My invention consists of the following parts and combinations, as hereinafter set forth and claimed, wherein A B are two chambers communicating by a small channel forming together the well-known hour-glass. When sand, emery, or the like is introduced sufficient to fill one of the chambers A or B, said sand or dust is intended to flow from one chamber to the other, in the ordinary manner of an hour-glass.

The gage C is placed between the chambers, and consists of a sliding plate provided with holes of different sizes, which will permit the sand to escape from one chamber to the other in a longer or shorter time. The holes in the gage C are to be made of a definite size, so that as one or another is made to connect the sand-chambers, it will be positively known how long a time will be required for the sand to escape into the lower chamber. Above the sand in each chamber is a weighted follower, D. To these followers are attached arms or shafts E, that protrude from the sand-chambers, and are provided with notches, holes, or equivalent means *e e'*, for purposes which will hereinafter more fully appear.

F is the bolt of a door, operated either by a key or knob in the ordinary manner. The hour-glass chambers A and B are so con-

structed that they may be reversed in their position after the sand in the upper chamber has been emptied into the lower. This reversal may be accomplished either by lifting out said chambers A and B and replacing them in a reversed position; or they may be pivoted in such a manner as to be reversed by simply turning them upon said pivot.

Operation: Supposing the chamber A is uppermost and filled with sand, and it is desired that the lock remain closed for any definite time. The time for unlocking will be determined by the gage C. If for a long time a small hole in the gage will be interposed at the connection of the chambers A and B; and if for a short time, a large hole will be used. While in a locked position the bolt F impinges against the arm E of the follower D. As the sand from the chamber A falls into the chamber B the follower D will move downward, carrying with it the arm E, and at a certain time, determined by the gage C, the slot or notch *e* will be brought opposite the bolt F, when said bolt may be thrown back and the door unlocked. In the meantime, however, while the slot or opening *e* is not in proper position, the door will be locked by the interposition of the arm E. By simply reversing the chambers A and B with their attached followers and arms D and E, the lock will be set for another period, inasmuch as both followers are provided with similar arms E. It will be understood that the bolt mechanism may be of any desired character, and the operation of locking same is effected by the immediate contact or impinging of the vertical arm E, under which condition of parts the bolt will be effectually barred from being thrown back from the jamb of the safe or vault door.

Supposing the chamber A is filled with the sand, and the follower D resting upon the same, the arm E must necessarily be raised, so as to place the bolt opposite the mortise or slot *e'* in the face of the arm, near its engagement with its follower. This allows of the bolt being thrown in or out; but when it is desired to put into operation the time-lock, the gage is properly adjusted to permit the sand to flow, the bolt is thrown into the jamb of the door, and soon the slot *e'* passes down

below from opposite said bolt, and the solid part of the arm E is brought into close juxtaposition with the bolt, preventing its being thrown back.

What I claim is—

1. In combination, with the bolt-works of a lock, an hour-glass provided with a sliding gage, having graded openings or intercommunications, whereby the flow of sand in said hour-glass may be hastened or retarded, so that the same shall perform its function within a given and predetermined time, substantially as and for the purpose shown.

2. In a chronometric lock, the combination, with the chambers A and B of the hour-glass, of followers D, arms E, and the bolt-works of a lock, substantially as and for the purpose shown.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN WORLEY.

Witnesses:

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