

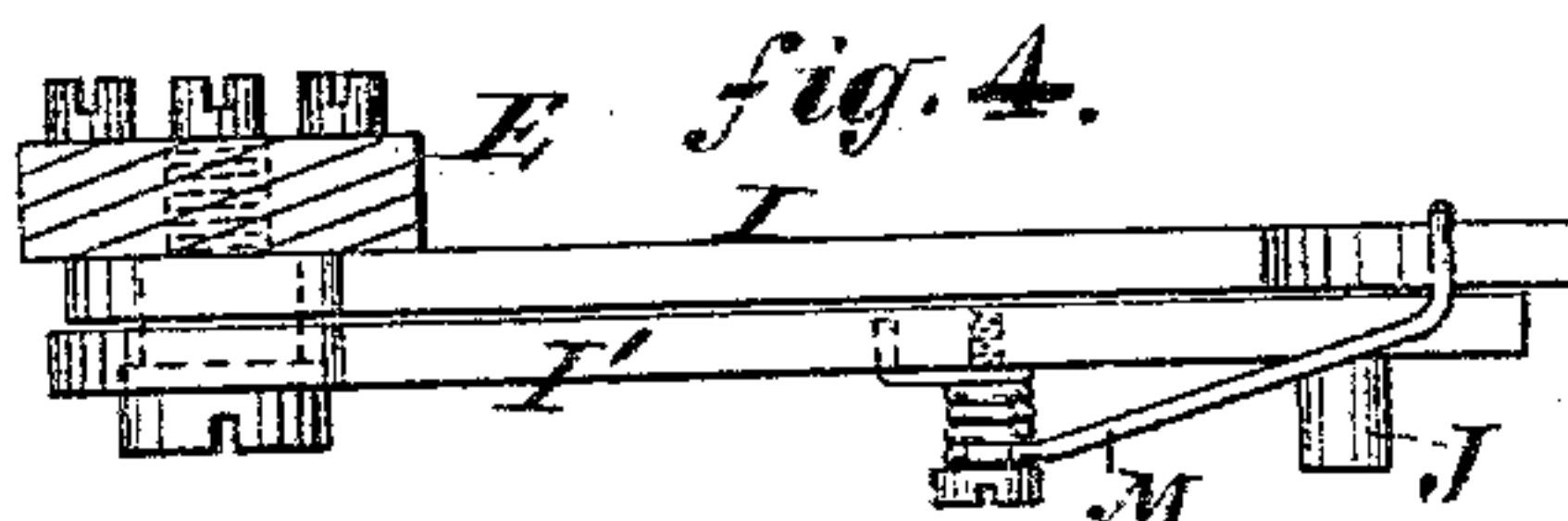
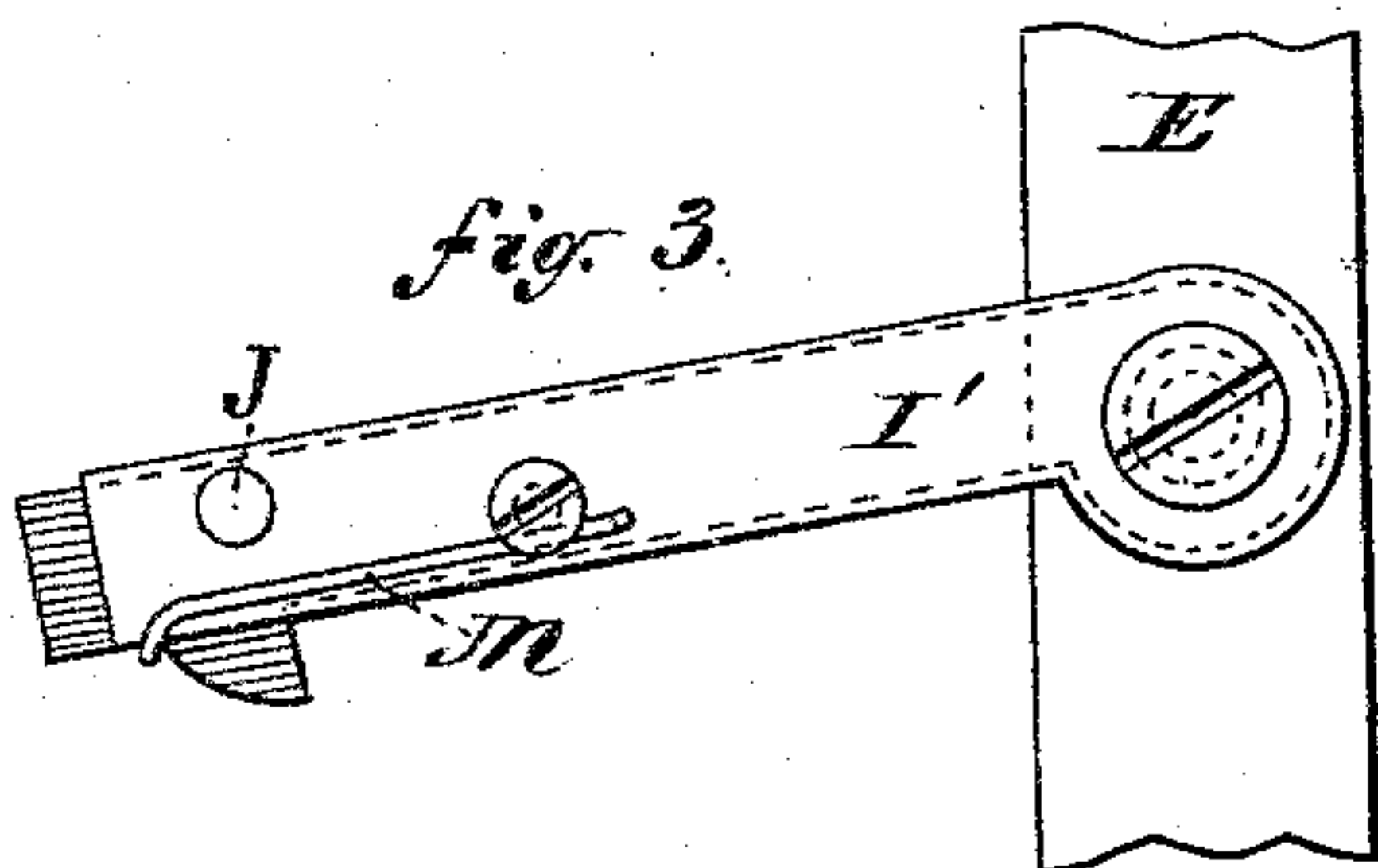
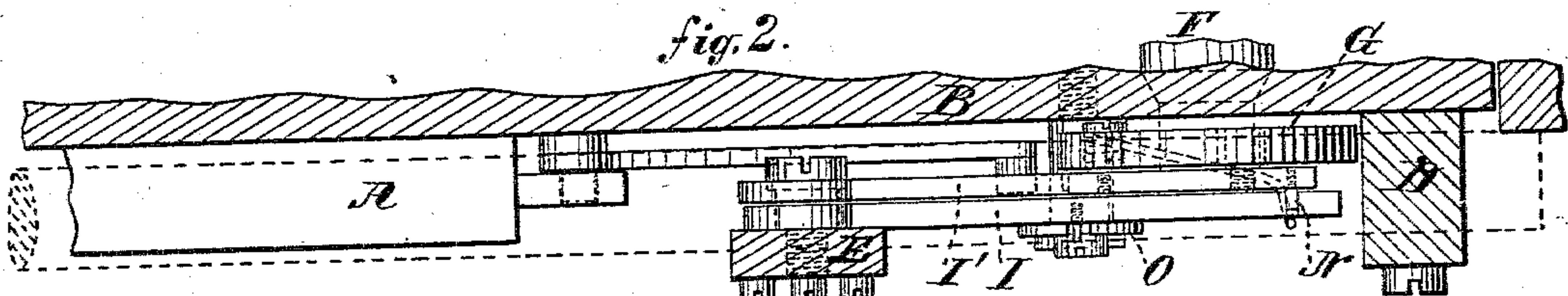
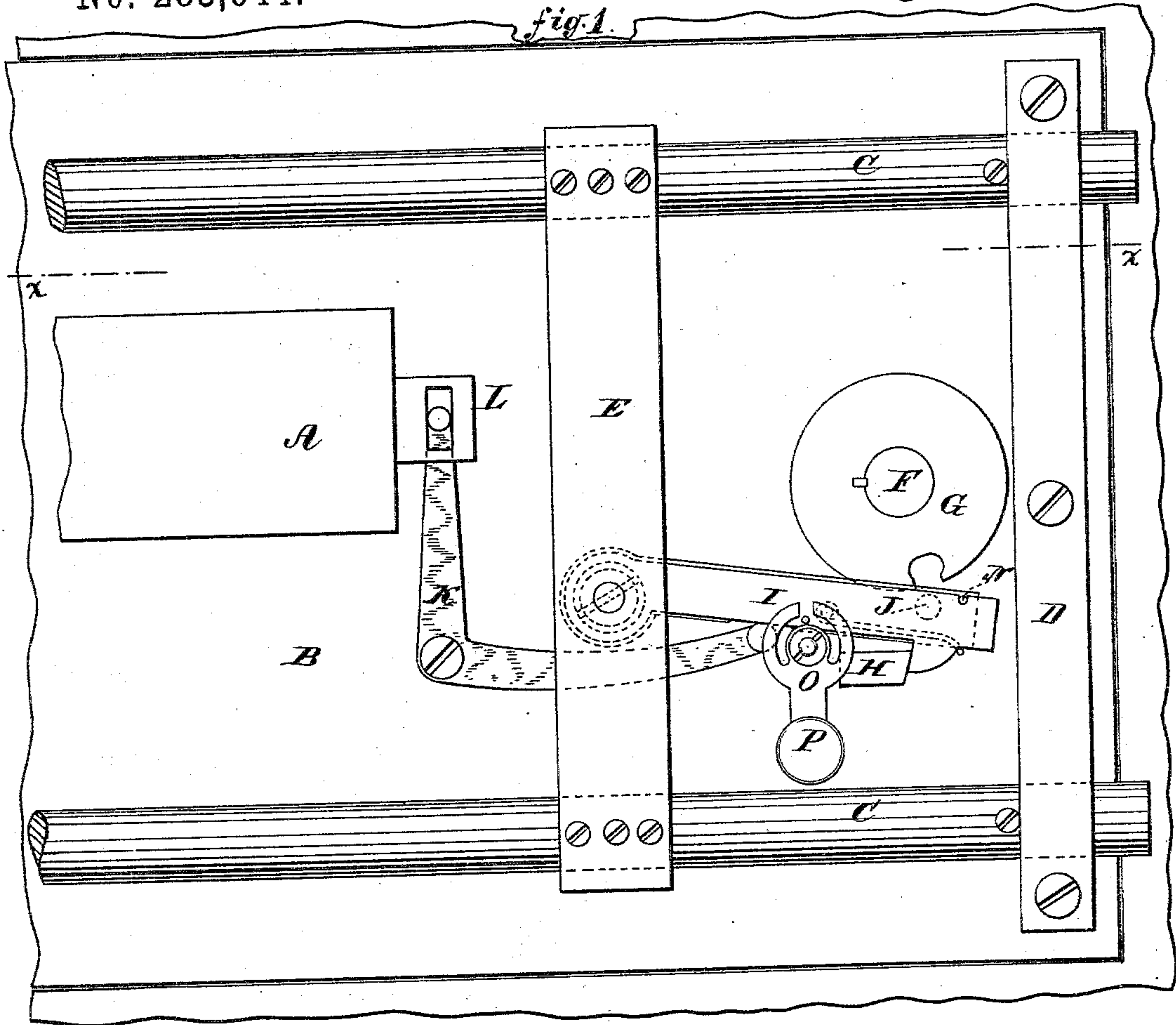
(No Model.)

H. F. NEWBURY.

SAFE LOCK.

No. 283,644.

Patented Aug. 21, 1883.



Witnesses:

Henry G. Gilling.
R. T. Saylors

Inventor
Henry F. Newbury

UNITED STATES PATENT OFFICE.

HENRY F. NEWBURY, OF BROOKLYN, NEW YORK.

SAFE-LOCK.

SPECIFICATION forming part of Letters Patent No. 283,644, dated August 21, 1883.

Application filed April 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. NEWBURY, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Locks and the Mode of Mounting them, (Case V;) and I hereby declare that the following is a full, clear, and exact description of one division of my invention, and will enable others skilled in the art to make, construct, and use the same.

The object of the present invention is to provide a means whereby the door of a safe, vault, or similar structure may remain locked even though it be subjected to a sudden and heavy shock, such as would be calculated to displace a lock or break its works if constructed and mounted in the usual manner.

The invention is fully illustrated in the accompanying drawings, in which there is shown a mechanism by means of which the door-spindle may be disconnected from the door-bolts after the latter have been thrown forward into the jamb of the door, and by means of which at the same time the door-bolts may be locked positively; but it is not necessary to the invention that the positive lock be made when the mechanism is constructed for disconnecting the spindle from the door-bolts, nor that the latter construction be employed when the positive lock is used. Whether the one or the other or both of these constructions be used, the invention consists in so constructing and arranging the devices which actuate the locking or disconnecting piece that the latter will be under the active control of the former only when the latter is brought into proper position for unlocking, and so that if at any other time the devices which control this piece are displaced, as by the force of a sudden and heavy shock, (such as might result from the explosion of a charge of dynamite against the exterior of the safe,) this locking or disconnecting piece will not be disturbed, and consequently the door will remain locked.

In the accompanying drawings, Figure 1 is an elevation of the inner face of a safe or vault door, having a lock mechanism and disconnecting devices arranged upon it in conformity with the present invention. Fig. 2 is a horizontal section taken on the line *xx* of Fig.

1. Fig. 3 is a rear view of the compound latch or connecting-piece, and Fig. 4 is an under view of the same.

Referring to the drawings in detail, A is a lock mechanism, mounted on the door B. 55

C C are ordinary door-bolts, working in bolt-bars D, and connected by means of the usual carrying or tie bar, E.

F is the door-spindle, which may be of any ordinary construction and which carries upon its inner end a notched disk, G, and H is a fixed stud or stop projecting inwardly from the face of the door. 60

I I' is a compound latch or bar, pivoted to the tie-bar E. The front member of this latch is provided with a hook capable of engaging with the stud H, while the rear member of the latch is provided with a pin, J, adapted to engage with the notch in the revolving disk G. 65

K is an elbow-lever pivoted to the inner face of the safe-door, one end of which lever has a pin which works in a slot in the moving bar L of the lock, and the other end of which takes in under the rear member, I', of the compound pivoted latch. A stiff spring, M, attached the part I' of the compound latch and extending under the part I, causes the latter to rise when the former is lifted, and in like manner the small pin N, projecting from the part I' and entering a notch in the upper edge of the part I, causes the latter to partake of the downward movement of the former. 70 75 80

The operation of the parts here shown is as follows: In order to lock the safe or vault the sliding bar L of the lock must be in the retracted position. This will hold the connecting-latch I I' raised and in engagement with the notched disk G, which puts the door-bolts under the control of the spindle F. The parts being in this position, the door of the safe may be closed, and by turning the spindle the door-bolts are thrown into the jamb of the door, after which, if the piece L of the lock be moved into the locking or advanced position, as shown in the drawings, the connecting-piece I I', being no longer held up by the elbow-lever, will fall out of engagement with the notched disk and will become engaged with the stud H. So long as the piece L remains in the advanced position the door of the safe will remain locked 85 90 95 100

by the engagement of the latch with the stud H and the spindle can be freely revolved without exercising any control over the bolt-work.

In order to unlock the safe or vault it will be necessary first to bring the sliding bar L into the unlocking or retracted position: This will lift the connecting-piece I I' away from the stud H and reconnect it with the spindle through the medium of the pin J and notched disk G. Thereupon the turning of the spindle will retract the door-bolts, and thus unlock the safe. If, the parts being in the position shown in Fig. 1, the bolt mechanism A should be displaced, it is manifest that it would not disturb the connecting-piece I, and thus the door would remain locked.

The object in making the latch I I' in two parts is to compensate for possible friction arising from the jamming of the hook against the stud H. If, when the latch is constructed as shown in the drawings, such jamming takes place by reason of a rearward movement of the door-bolts occasioned by a jar or shock, it will affect directly only the part I which carries the hook. Notwithstanding the friction occasioned thereby the lock mechanism A will be able to raise the part I' so as to engage it with the disk, the spring M yielding for this purpose. Such engagement being effected, a slight forward turn of the spindle will free the face of the hook on part I from frictional contact with the face of the stud, and thereupon the part I will at once be lifted clear of the stud by the force of the spring M.

In order to prevent the latch I I' from being re-engaged with the spindle by turning the safe over (which would be possible with a small safe) a pendulum-detent, O, suitably weighted at its lower end, P, may be pivoted just below the latch. This detent is constructed with an open circular slot adapted to engage with a pin on the latch I. Any inclination of the safe, when the latch is in engagement with the stud H, will cause the pendulum-detent to engage with the pin on the latch, and this will secure the latch from falling away from the stud even if the safe be turned bottom side up.

It is manifest that this invention is independent of the special character of the lock employed. An ordinary combination-lock may be used for operating the latch or connecting-piece, or the invention may be practiced in connection with any of the time-locks adapted for use upon safes and vaults; and instead of connecting the elbow-lever K with what is ordinarily regarded as the bolt of the lock, it is plain that it may be connected with any of the moving parts of the lock mechanism, provided only that the part with which it is connected has sufficient strength and range of motion to give the latch the required amount of movement. In fact, in the construction shown in the drawings the piece L, while having the form of an ordinary lock-bolt, does not perform the functions of such bolt, being used simply to operate the inter-

mediate mechanism which connects the door-bolts with the spindle or disconnects the two, and not for the purpose of taking the thrust of the door-bolts, as when it is used to dog them. For these reasons the mechanism which operates the elbow-lever K is not, in the strict sense of the term, a lock.

It is manifest that the device used to form the connection between the door-bolts and the spindle need not be pivoted to the carrying-bar. Instead of a pivoted latch, a vertically-sliding piece might be used, mounted in ways constructed on the moving parts of the bolt-work, and so related to the elbow-lever K or other operating mechanism that the movement to and fro of part L of the lock will cause such vertically-moving connecting-piece to engage with or disconnect from the spindle. So, also, instead of pivoting the connecting-piece to the carrying-bar, it might be pivoted to the door, and made to work against a stud or other abutment attached to or forming a part of the moving parts of the bolt-work.

As above indicated, it is not absolutely necessary to this invention that the stud H or any equivalent abutment be used. If this stud be omitted the door will, under ordinary circumstances, remain locked when the spindle is disconnected from the door-bolts by the simple inertia of the parts. The stud or some similar abutment, however, is desirable on small safes, to prevent them from being unlocked by turning them over. To this end some detent—such, for instance, as the pendulum attachment shown in Fig. 1—should be used to prevent the latch or equivalent connecting-piece from disengaging from the abutment. So, also, as above indicated, if the stud H or any equivalent abutment be used, against which the connecting-piece I may act to constitute a positive lock, it will not be absolutely necessary to the invention that the door-bolts be disconnected from the door-spindle. In either case, under an arrangement like that shown in the drawings, the lock mechanism which is relied upon to actuate the connecting-piece I might be unseated by the force of a sudden and heavy shock without unlocking the door, such result being due to the fact, first, that during the time when the door is locked the position of the connecting-piece is not dependent upon the lock mechanism A, and upon the further fact that this connecting-piece and the device or devices by which it is operated are so far separated that the latter may be wholly displaced without disturbing the former.

What is claimed as new is—

In combination with the door-bolts of a safe, vault, or similar structure, a locking or disconnecting device by means of which, according to the particular construction adopted, the door-bolts may be locked positively against retraction, or the operative connection between the door-spindle and the door-

bolts be interrupted, and means for operating
such locking or disconnecting device by rais-
ing the same out of the locking position or
into engagement with the spindle, as the case
5 may be, when it is desired to unlock the door,
the operating device or devices being arranged
relatively to the locking or disconnecting

piece, substantially as set forth, whereby the
former may be displaced without disturbing
the position of the latter.

HENRY F. NEWBURY.

Witnesses:

R. F. GAYLORD,
SAML. A. DUNCAN.