

W.L. Bass,

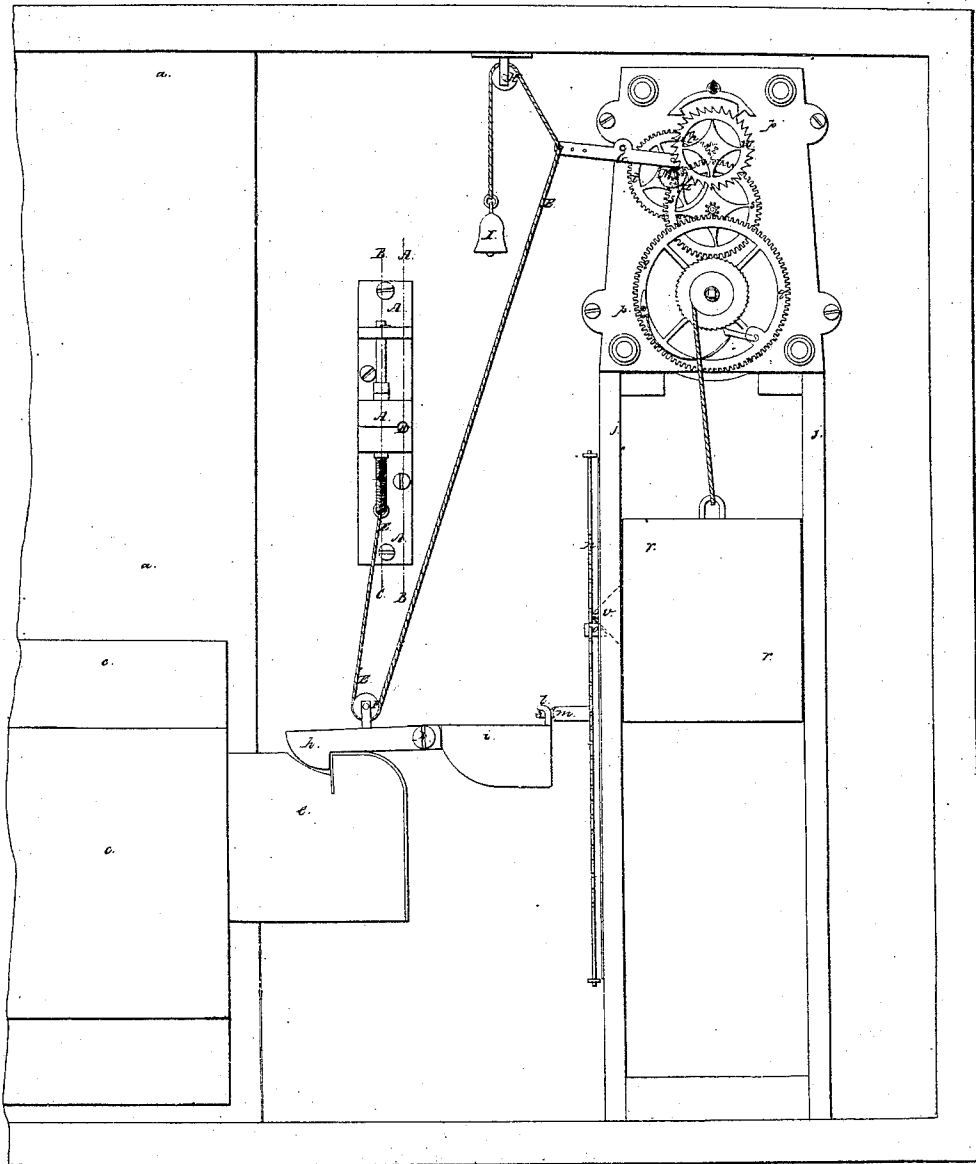
Sheet 1 of 2, No. 8,603.

Fastening Doors,

No. 8,603,

Patented Dec. 23, 1851.

Fig. 1.



W.L. Bass,
Fastening Doors,

Sheet 2 of 2

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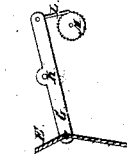
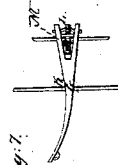
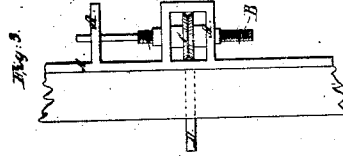
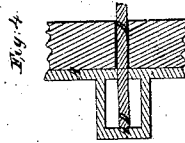
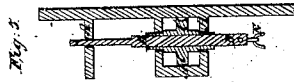


Fig. 5

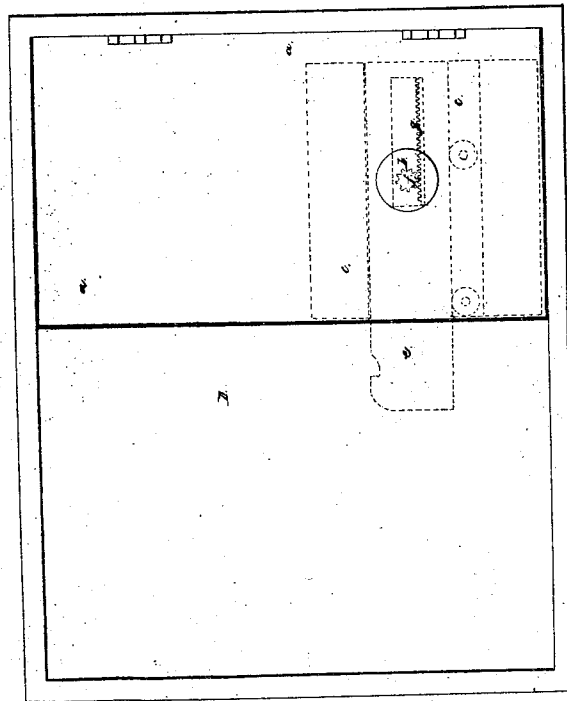
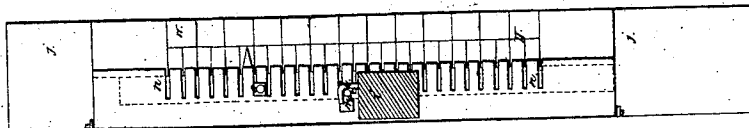


Fig. 6



UNITED STATES PATENT OFFICE.

WILLIAM L. BASS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN CHRONOMETRIC LOCKS.

Specification forming part of Letters Patent No. 8,603, dated December 23, 1851.

To all whom it may concern:

Be it known that I, WILLIAM L. BASS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in the Manner of Fastening the Doors of Safes, Bank-Vaults, &c.; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plates of drawings represent my improvements.

In Plate 1, Figure 1 is a side elevation of my apparatus with the front plate of the clock-work and the pendulum removed. In Plate 2, Fig. 2 is a front elevation of the door, &c., showing the manner of moving the bolt. Figs. 3, 4, and 5 are detail views of the lifting apparatus; and Figs. 6 and 7 are detail views, which will be hereinafter referred to.

The peculiar features of my invention consist in certain additions to the known machinery for relieving the pawl from a bolt, by means of machinery inside of the door, and actuated by a time-piece in the same locality, which additions consist in a peculiar arrangement of mechanism, hereinafter referred to and explained, which permits the door to be opened from the outside in case the clock should stop from any cause, while the door cannot be opened by the same arrangement while the clock-work is in motion.

a a a in the drawings is the door, which, it will be observed, has nothing on the outside but the knob or handle *b*. *c c* is the lock or frame-work, of iron, on the inside of the door, in which is the bolt *e*, moved in and out by means of a pinion, *f*, (shown by dotted lines in Fig. 2, Plate 2,) attached to the shaft of the knob *b*, and playing in a geared rack, *g*.

The bolt *e* has a notch in it, into which fits the pawl or projection *h* of the lever *h i*, (secured on the inside of the partition, near the door,) which lever swings freely on a fulcrum at *k*. In the end of the weight *i* is a hook, *l*, which fits over a projecting arm, *m*, on the hinged slotted plate *n*, (shown more particu-

larly in Fig. 6, Plate 2,) fitting against the weight-box *j j*.

In any of the slots of the plate *n* the stud *o* can be placed. *p p* is the back plate of the clock. *q q* is the main wheel, to which is attached the weight *r r*. *s s* is the second wheel, *t t* the third, and *u u* the crown-wheel, the whole forming a time-piece movement, with the exception of the dial work. The weight *r r* as it descends strikes, by means of its projection *v*, against the stud *o*, which disengages the arm *m* from the hook *l* and the pawl from the bolt, as will readily be understood by inspection of the drawings.

But it will be evident that in case the clock should stop from any disarrangement of its parts the door could not be opened by the above mechanism, which would prove a serious inconvenience. In order to provide for this contingency, I have contrived a lifting apparatus, by which the lever *h* can be lifted very slowly from the bolt from the outside when the clock is stopped, but which lever cannot be raised when the clock is in motion, thus proving an efficient bar to burglars or other malicious persons.

The lifting apparatus above referred to is represented in Figs. 3, 4, and 5, Plate 2, of which Fig. 3 is a side elevation, Fig. 4, a section taken in the plane of the line A B, Fig. 1, Plate 1, showing the horizontal screw-shaft, partition, &c., and Fig. 5 is a section taken in the plane of the line B C of the said Fig. 1, showing the vertical lifting-screw, &c.

A A A is a frame of metal or other suitable material fastened to the partition, through which frame is inserted vertically, a fine threaded screw, B B, on which plays a burr-wheel, C C, having shoulders which bear against the right-angular projections of said frame A A A. This burr-wheel is turned by an endless screw on the horizontal shaft D D, which passes through the partition, as shown in Fig. 4. The turning of the nut C C raises the vertical screw B B, to the lower end of which is fastened a chain or cord, E E, which runs on a pulley, F, attached to the lever *h i*, and passes up to a forked lever, G, Fig. 7, Plate 2, the other end of said chain passing over a pulley, H, and ending in a weight, I, as represented in the drawings. The forked lever G turns on a fulcrum at K, and has sus-

pended in its forked end a swinging loop, L, there being in the ends of the fork pins or stops to prevent the loop from swinging in beyond a right angle with the lever G. The loop hangs under a ratchet-wheel, M, placed on the shaft of the third wheel *t t*.

By applying a thumb nut or crank to the endless-screw shaft D D on the outside of the partition, the vertical screw B B will raise the cord E E, and consequently the lever *h i*, from the bolt, when the clock is stopped, the loop L in the forked lever G catching in the teeth of the wheel M, and thereby holding the lever G firmly in its place. The ratchet-wheel cannot revolve when the clock is stopped, as the wheels are all held firmly in their places by means of the motionless pendulum in the guide; but when the clock is in motion, and also the ratchet-wheel M, the loop, instead of catching in the teeth of said wheel, will drop from one tooth to another, because the ratchet-wheel revolves in the same direction as the loop is raised, and not against it, and the ratchet-wheel revolves much faster than the vertical screw can be raised by means of the crank on the endless-screw shaft. Thus, if the loop is raised by the lifting-screw while the works are in motion, the ratchet-teeth will continually pass the bend of the loop, said loop, as aforesaid, dropping from one tooth to another.

In a working-machine it is better to fasten the upper end of the cord to the top of the screw B B, instead of to the small weight I, as said weight causes some strain on the lever *h i*, though not enough to raise the same. When it is fastened to the top of the screw, the screw will give out the cord at the top, the forked lever G yielding at the same time, said cord being taken up in the same propor-

tion at the bottom of the vertical screw, and slipping through the pulley on the lever *h i* without lifting the same.

It will be seen that it is necessary either to fasten the cord to the top of the screw B B or to a light weight, for the purpose of carrying the forked lever G back to its place after having been used. The length of the lifting part of the vertical screw may be varied according to the depth to which the pawl is allowed to drop into the notch of the bolt *e*, and the burr-wheel C C should be fine enough so that it would take the same number of turns of the endless-screw shaft as there are burrs or cuts on the wheel, in order to raise the lifting-screw the thickness of one thread.

It may be observed that the sweep of the outer end of the forked lever, where the cord is fastened, must be as long or longer than the lift of the vertical screw, so that the said screw can be raised or lowered its full length without causing any strain on the forked lever; otherwise the pawl might be lifted from the notch in the bolt.

Having thus described my improvement, I shall state my claim as follows:

What I claim as my invention, and desire to have secured to me by Letters Patent, is—

The manner of disengaging the drop-lever from the notch of the bolt from the outside of the partition when the clock is stopped, and preventing the same from being effected when the clock is in motion by means of the lifting-screws, in combination with the forked lever, swinging loop, and ratchet-wheel, substantially in the manner above described.

WM. L. BASS.

Witnesses:

JOSEPH GAVETT,
EZRA LINCOLN.