J. V. Savage,

Vault Lock,

No. 5,321, Patented Oct. 9. 1847.

Fig: 2.

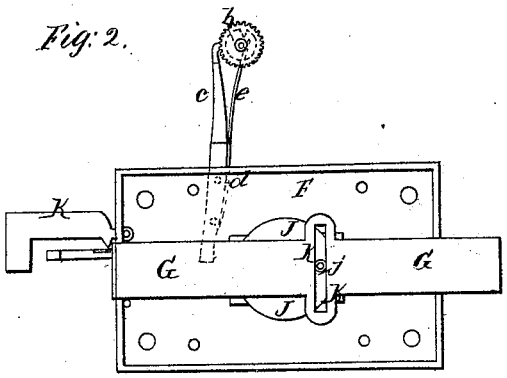
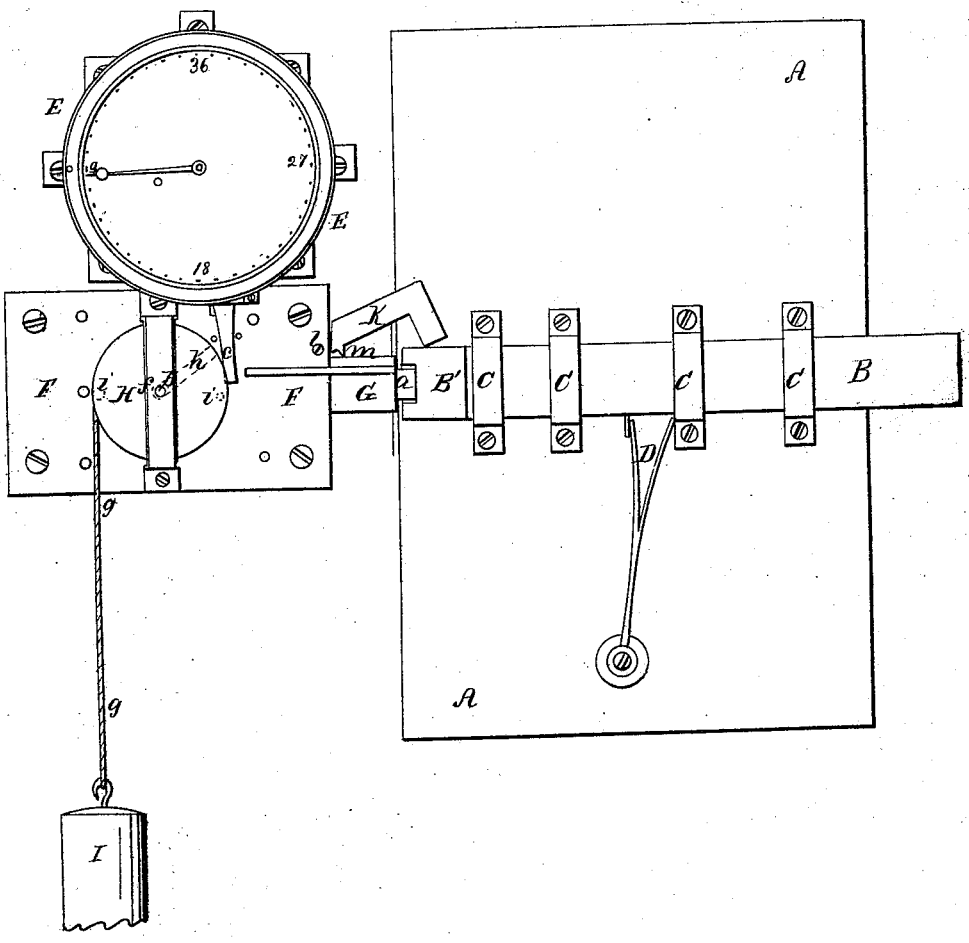


Fig: 1



UNITED STATES PATENT OFFICE.

JNO. Y. SAVAGE, OF NEW YORK, N. Y.

IMPROVEMENT IN CHRONOMETRIC LOCKS.

Specification forming part of Letters Patent No. **5,321**, dated October 9, 1847.

To all whom it may concern:

Be it known that I, JOHN Y. SAVAGE, of the city of New York, in the State of New York, have made certain new and useful improvements in the manner of constructing a self-acting lock or fastening for the doors of bank-vaults, of safes, and of other apartments of a like character, to which it is adapted; and I do hereby declare that the following is a full and exact description thereof.

My self-acting lock or fastening is to be placed entirely within the vault or apartment which is to be secured, there not being any key-hole or other opening through the door for the introduction of a key or other instrument to operate on the bolt or fastening.

Within the vault or apartment there is to be placed a time-piece, which is to be so constructed as that it shall be capable of running for the greatest length of time that it may be necessary to keep the door closed.

In the drawings accompanying this specification I have represented an index-plate having thirty-six divisions, representing hours; but the time-piece and the apparatus appended thereto may, of course, be so constructed as to be adapted to operate for a less or greater number of hours, if desired; probably sixty hours may be sufficient in most cases.

The time-piece may be constructed in any of the known ways of making such instruments; but I intend, in general, to employ an eight-day time-piece, furnished with two main-springs, each of sufficient strength to keep the time-piece in motion should one of them break by accident; and as a further guard I intend to add a detached lever escapement to prevent the possibility of its being stopped by a sudden jar. On the hour-socket I affix a roller or wheel resembling the roller on a detached lever. A tooth on a lever or arm that releases the bolt at a given hour is made at the proper time to fall into a notch on the periphery of the above-named roller, and when it does so the apparatus by which the retracting of the bolt or bar by which the door is secured is effected, is brought into operation. Besides the bolt or bar and the other apparatus which I am about to describe, and which is to be operated on without the intervention of a key, any additional fastening may, of course, be used; but this I deem not only unnecessary, but unadvisable, as I prefer to make the door that is to be secured of one flat plate without any openings through it, and to cause it to fit in such manner within its frame that neither around its edges or elsewhere there may be any opening for the introduction of any instrument by which force could be applied to it.

In the accompanying drawings, Figure 1 is a view of the apparatus placed in the interior of a vault.

A A is the door, and B B the bolt or sliding bar by which it is to be fastened. The end B′ of this bolt is beveled in the manner of the spring-bolt of a common lock, and the door is fastened, therefore, by merely pushing it to. At *a* it is shown as furnished with a friction-roller by which its motion when pushed back is facilitated. It is made to slide with little friction in the staples C C, and may bear on friction-rollers within them. D is a spring by which it is forced forward when the door is closed.

E E is the time-piece, the face of which is represented as divided into thirty six equal parts, to either of which the index may be set. F F is a box, similar to that of a lock and containing a sliding bolt, G, (shown most distinctly in Fig. 2,) which is a view of the back part of that apparatus.

In Fig. 1 the bolt G is shown as protruded from the box F, and in the position which it occupies when the door is capable of being opened.

In Fig. 2 the bolt G is shown as retracted, and when it is in this position the bolt B is forced forward so that its end B′ secures the door A and prevents its being opened.

In Fig. 2, *b* is the wheel or roller on the hour-socket, which is represented in dotted lines. This roller lies directly against the inside of the dial-plate.

c c is a lever or arm that works on a joint-pin at *d*, and has on its upper end a detent or tooth, that falls into a notch on the periphery of the roller *b*, when said roller has arrived at the point designated for the opening of the door. *e* is a spring that bears against the socket of the hour-wheel, serving to keep the upper end of the lever *c* in contact with the wheel *b*, and to cause the detent or tooth to fall into the notch. H is a pulley or grooved wheel affixed on a stout arbor, at *f*, and I a

weight suspended by a cord or chain, *g g*, that passes around the groove in the pulley. On the inner side of this pulley and firmly affixed to it there is an arm or projecting piece, (shown by the dotted lines *h h*,) the outer end of which arm, when the pulley is turned round, will be brought into contact with the stop-pins (shown by the dotted lines *i i*) that project out from the face of the box F F, so as nearly to touch the pulley H. Upon the outer end of this arm *h* the lower end of the lever *c* bears, while the tooth at its upper end rests on the periphery of the roller *b;* but when this tooth falls into the notch on said roller, the lower end of the lever *c* will be freed from its bearing on the arm *h*, and the weight I will cause the pulley H to perform a half-revolution, the arm being arrested by one of the stop-pins, *i*.

On the inner side of the plate F F and on the same arbor *f* there is a crank, or rather a wheel, J J, Fig. 2, that carries a crank-pin, *j*, situated, say, half an inch from its center, or one-half the distance that the bolt G is to traverse. This crank-pin passes into a slot or mortise, *k k*, in the bolt G, which is widened out at its center, as shown in the drawings, for that purpose. If the crank-pin is half an inch from the arbor the bolt G will traverse an inch by the semi-revolution of the pulley.

K is a latch, that is intended to fall behind the projecting part B′ of the bolt B when said bolt is in the position to fasten the door. This will prevent said bolt from being moved back by any instrument introduced through holes drilled in the door. This latch has its joint-pin at *l*, and has a lip on its under side at *m*, by the aid of which the bolt G lifts it as soon as it begins to advance.

It is not necessary to designate the number of teeth on the wheels, or of leaves on the pinions that are to govern the movement of the time part of the apparatus, as these will be varied according to the number of divisions on the dial-plate, and other circumstances with which every maker of such movements is familiar.

The manner of using the apparatus will be obvious from the foregoing description of it; all that is necessary, the time-piece being wound up, the bolt G being retracted, and the pulley, with the weight appended thereto, placed in the proper position, being to set the index to the point that designates the number of hours that are to elapse before the door can be opened. In setting it the index is first turned to 36, and the tooth on the lever will be then forced into the notch on the roller by the action of the spring. The lower end of the lever is then out of the way of the arm *h*. When the index is moved from this position an inclined plane on the tooth of the lever causes it to rise onto the periphery of the roller, throwing the end of the lever onto the arm *h*, where it will remain until by the going of the time-piece the tooth falls into the notch on the roller, admitting of the opening of the door.

Having thus fully described the manner in which I construct my self-acting lock, and shown the manner in which the respective parts thereof operate, what I claim therein as new, and desire to secure by Letters Patent, is—

The manner herein set forth of securing the doors of bank-vaults, safes, and other structures of a like character by placing within such structure a time-piece which may be so set as to cause the bolt or bar by which the door is fastened to slide back under an arrangement of parts, substantially the same within that herein set forth—that is to say, by the action of the lever or arm *c c*, the roller *b*, the pulley and weight H and I, and the crank-pin *j*, operating on the bolt G G, as set forth, the whole combination and arrangement being substantially the same with that herein fully made known, together with such variation in the form or connection of the respective parts as may be made therein without altering the principle of action, producing a like result by means substantially the same.

JOHN Y. SAVAGE.

Witnesses:

THOS. P. JONES,

LEML. WILLIAMS.