(Model.)

R. G. VASSAR.

ALARM LOCK.

No. 373,111. Patented Nov. 15, 1887.

Fig. 1.

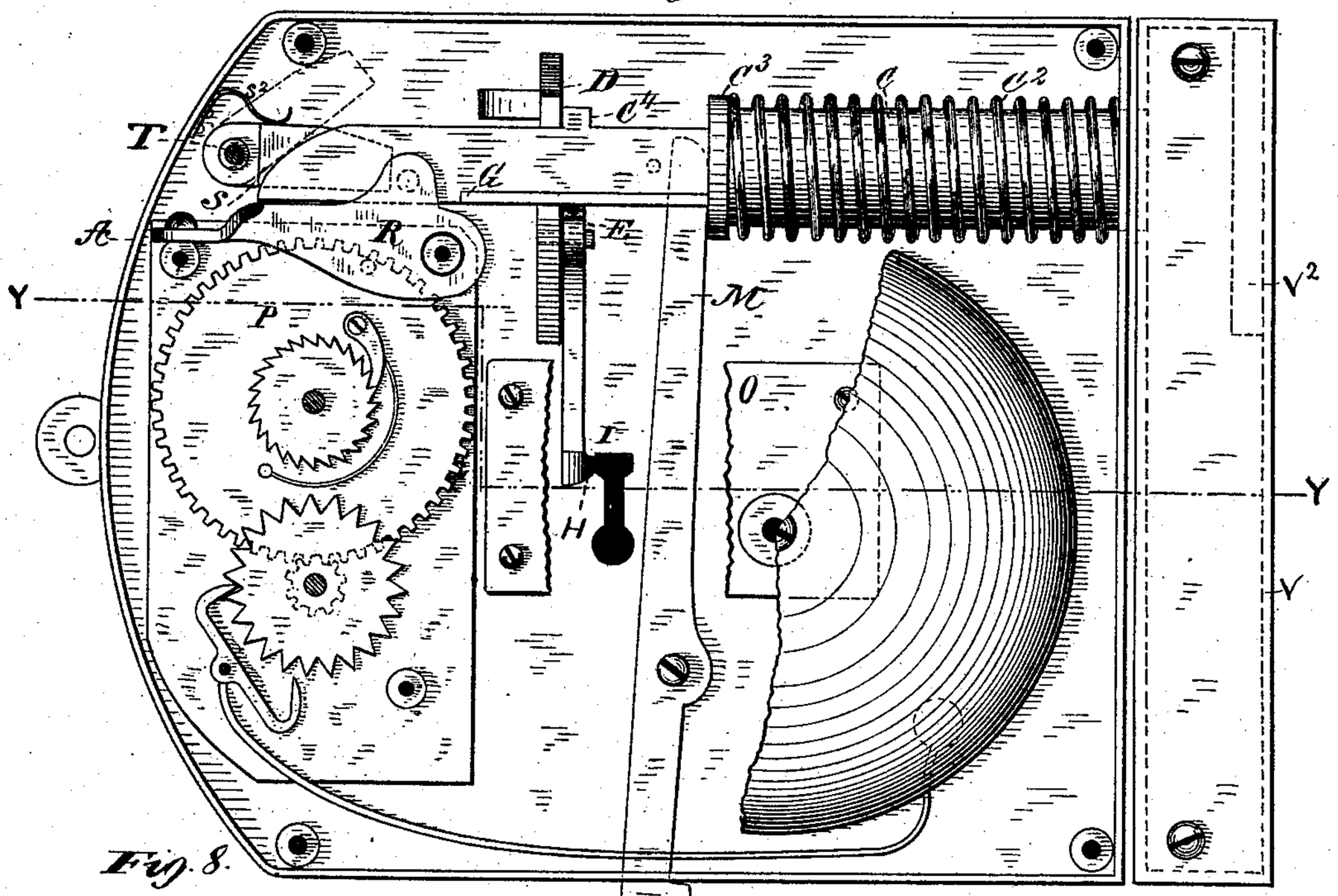


Fig. 8.

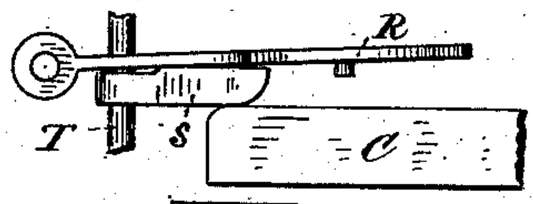


Fig. 2.

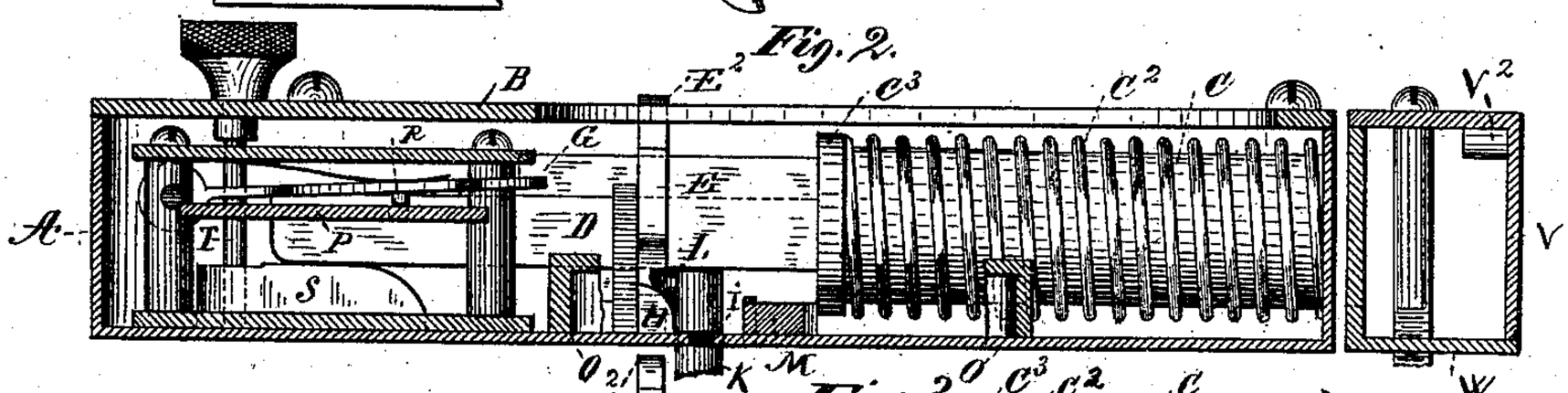


Fig. 3.

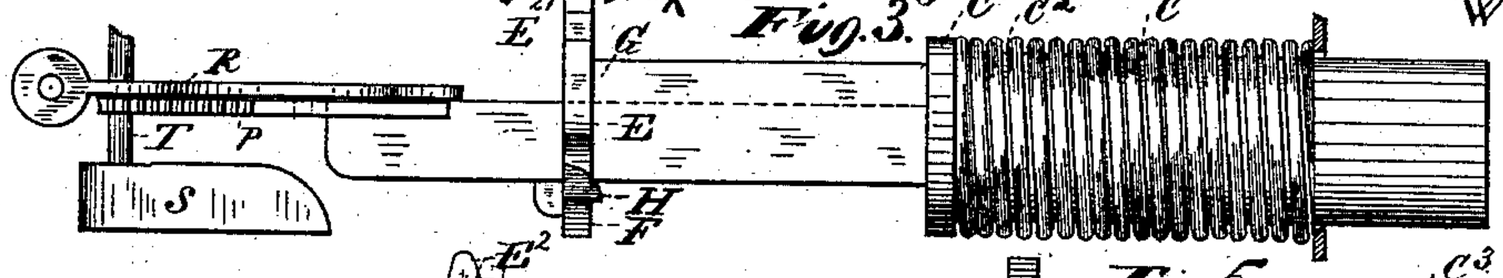


Fig. 4.

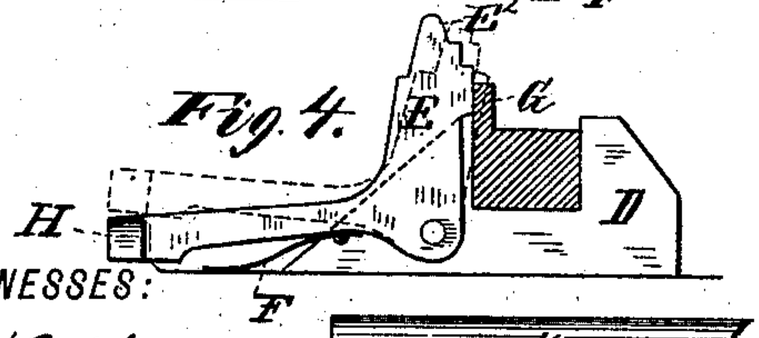


Fig. 5.

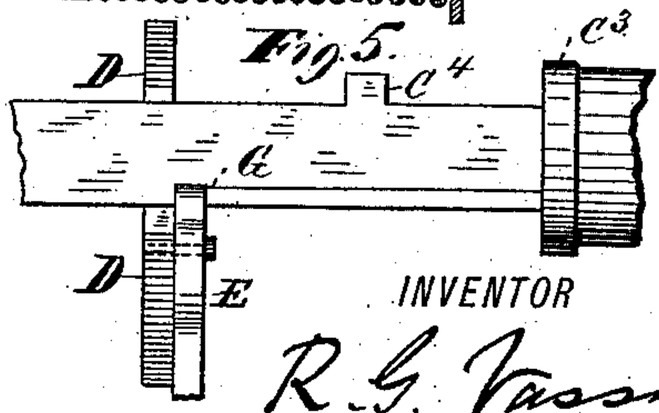


Fig. 6.

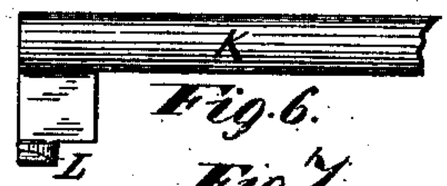
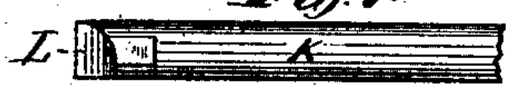


Fig. 7.



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ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 373,111, dated November 15, 1887.

Application filed November 18, 1885. Serial No. 183,164. (Model.)

To all whom it may concern:

Be it known that I, ROBERT G. VASSAR, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Alarm-Locks, of which the following is a specification.

My invention relates to alarm-bolts of the kind in which an ordinary door or other bolt is so combined with an alarm mechanism that a movement of the bolt to unlock a door or other barrier, or the lateral movement of said bolt due to pressure upon the door or to pressure of a tool against the bolt, will cause the alarm mechanism to be released through the action of the bolt upon the detent or releasing devices for said alarm mechanism and an alarm to be sounded.

The object of my invention is to improve the construction of alarm-bolts of the general nature specified and to enlarge and facilitate their uses.

In a prior patent granted to me I have shown an alarm-bolt of the general nature specified; but in said bolt there is no provision made for the operation of the bolt to either lock or unlock the door from the outside.

The object of the present invention is to provide a means whereby said bolt may be shot to lock the door from the outside as well as from the inside, and whereby it also may be released to unlock the door either from the outside or the inside.

The object of the invention is also to provide a means whereby after the bolt has been thrown back or released to unlock the door by the operation of the key inserted from the outside, so as to produce an alarm, said alarm may be brought to rest by the person entering after it has sounded for a limited time and before the spring or other driving power for the bell-hammer has completely run down.

My invention consists in the combination of the bolt, a spring for throwing the same back, an automatic catch for engaging with the bolt and holding the same in locked position, said catch being provided with a stud or projection by which it may be operated from the inside of the door, so as to release the bolt, and a key adapted to be inserted from the outside of the door or other barrier and engaging directly or indirectly with said catch, so as to also effect the release of the bolt by the disengagement of the catch and the consequent freeing of the spring by which the bolt is thrown back.

My invention consists, also, in the combination, with a bolt and spring for throwing the same in a backward direction, of a catch for engaging with the bolt, so as to hold the same in locking position, an operating lever or slide detached from but adapted to engage with the bolt, so as to throw the same into locking position, and provided with an operating thumb or finger piece, by which the bolt may be thrown from the inside of the door or other object, and a key for operating the bolt from the outside of the door.

My invention consists, also, in certain other novel combinations and improvements, that will be described in connection with the accompanying drawings, and then more specifically recited in the claims.

In the drawings, Figure 1 is a plan of the mechanism of an alarm-bolt embodying my invention, with the cover-plate removed. Fig. 2 is a cross-section of the same on the irregular line *y y* of Fig. 1. Fig. 3 is a side elevation of the bolt in locking position, and with the detent mechanism for the alarm set in position for releasing the alarm mechanism on a backward movement of the bolt. Fig. 4 is a side elevation of the automatic catch that holds the bolt projected against the retracting force of a spring. Fig. 5 is a plan of a portion of the bolt and the locking-catch, the latter being shown engaged. Fig. 6 is a side view of the end of a key adapted for use in combination with the devices for releasing the bolt. Fig. 7 is another view of the same. Fig. 8 is a detail view illustrating a modification in the arrangement of the detent devices by which a release of the alarm is effected on a backward movement of the bolt to unlock the door.

A indicates the shell or casing in which the parts are contained and mounted, while B indicates a suitable cover-plate cut away at the portion where the alarm-bell is located.

C indicates the bolt proper, which is provided with a rearward extension working in a guide-plate or projection, D, rising from and preferably cast in one piece with the base-plate of the shell or casing A.

A spring, C^2, of any desired form, serves to withdraw the bolt when the latter is released. This spring is in the present case shown as a spiral spring embracing the bolt and bearing at one end against the side of the casing and at the other end against a flange or projection, C^3, upon the bolt in such way that when the bolt is projected from the casing by the mechanism to be presently described the spring will be compressed and will serve as the agency for withdrawing the bolt when the same is released.

The bolt is detained or held in locking position against the stress of the spring by means of an automatic catch arranged and constructed in any proper way to automatically engage with the bolt or a part carried thereby when the bolt is thrown to locking position. A simple form of catch for such purpose is indicated at E. It consists of a lever pivoted on the plate or projection D, and having a spring, F, bearing against a portion of it in such way as to tend to throw it toward the bolt and in direction to force the catch behind a shoulder, G, on the bolt when the same has been moved outward to a position, as shown in Fig. 5.

A rounded head or knob, E^2, formed on or connected with the catch E, projects slightly through an opening in the cover-plate B and permits the catch to be operated by hand from the inside of the door to which the bolt is applied. This knob is made of the form shown, so as to make it impossible to operate the catch by a wire or other instrument introduced surreptitiously from the outside of the door.

One of the features of my invention consists in the provision of a suitable means whereby the catch may also be released by the action of a suitable key inserted from the outside. A key for this purpose is shown in Figs. 6 and 7, and is adapted to be inserted through a key-hole, I, in the base-plate of the casing.

On a tail-piece of the catch E, or in any other proper way connected with the same, is a cam, H, arranged, as shown, in suitable proximity to the key-hole I, so that when the key is turned a cam, L, on the bit of the key will engage with the catch and move the same, so as to throw it out of engagement with the shoulder G, and thus permit the spring C^2 to throw the bolt. As will be presently described, such a movement of the bolt is accompanied by the release of the alarm mechanism and a sounding of the bell; but by the devices hereinafter set forth the ringing of the bell may be stopped after the alarm mechanism has operated to a limited extent.

The bolt is thrown to locking position by means of an operating slide or lever adapted to engage with said bolt in one direction only and wholly detached from the same. Such a device is indicated at M, and consists of a lever pivoted on the base-plate and arranged to bear against the head or flange C^3 of the bolt when it is thrown in proper direction from the inside of the door, or by the action of a key inserted from the outside.

An operating finger-piece, N, projects from the lever through the casing to permit the operation of the bolt from the inside, while to permit the bolt to be thrown to locking position from the outside after the door has been closed a key is provided that may be inserted from the outside. Such key is preferably the same key that is employed for operating the catch, and is inserted through the key-hole I. By turning it in the proper direction the web or bit of said key is brought into engagement with the lever M or other part connected with the bolt, so that by turning the key the bolt may be thrown into position where the catch E will engage with and hold it.

P indicates the main wheel of a spring-driven alarm-bell mechanism of any desired kind, which wheel is normally restrained from movement by a locking device—such, for instance, as that shown in a prior patent granted to me May 6, 1884, and consisting, essentially, of a plate or movable support, R, carrying a pin adapted to engage with a perforation in the wheel P. The plate R forms in effect a detent-lever, which is pivoted at one end, as shown, on a post of the alarm mechanism, and at its free end is guided on another post of said alarm mechanism. As shown, the detent-lever has an overhanging arm or projection in position to be engaged by the rearward extension of the bolt on a lateral movement of the same produced by pressure on the door when the bolt is thrown out. Such lateral movement is produced through the rocking of the bolt on a fulcrum at or near the edge of the casing where the bolt passes through it. A suitable spring or other device bearing on the detent-lever R holds it down, so that the pin carried by it will engage with the wheel P and stop the movement of the same. One or more perforations may be provided in said wheel for permitting engagement of the pin carried by the detent-lever, so as to stop the wheel.

Mechanism for effecting a release of the alarm by the rearward sliding movement of the bolt, under the action of the spring C^2, from a locking position is also provided, and it is suitably constructed to drop or be projected into position where it will on such rearward movement effect a release of the alarm mechanism at the time that the bolt is projected into locking position. A simple device of this kind consists of a cam block or plate adapted to drop or be thrown by a spring into line with the end of the bolt when the bolt is thrown forward, so that on a rearward movement of the bolt a lateral pressure will be brought to bear against the detent-lever R.

In Fig. 1, S indicates a cam plate or block for this purpose, which block is connected to a spindle, T, terminating outside of the casing

in a knob, by means of which the cam may be turned into a position shown in dotted lines, Fig. 1, so as to permit the lever R to move and hold the wheel P from continued movement. Normally, or when the bolt is in position shown at Fig. 1, the cam block or plate S is held by gravity in the position shown in dotted lines, ready to drop behind the bolt into the position shown in full lines, Fig. 1, and in Figs. 2 and 3, where it will serve, on a rearward movement of the bolt, when the same is released, to throw the bolt sidewise against the plate R, thus releasing the wheel of the alarm mechanism. It is obvious that substantially the same action might be produced by engagement of the bolt with a block capable itself of lateral movement, so as to move the lever R, the bolt itself not being in such case moved laterally, but serving only to move another part, by which the release of the alarm could be effected. Such an arrangement is shown in Fig. 8, where the cam S is supposed to be capable of movement toward the plate R, as well as a movement that will permit it to drop behind the bolt into position to be engaged by the same when it is thrown back by the spring C^2.

A spring which shall produce a movement of the releasing mechanism into position to be actuated by the bolt on a rearward movement might be used in place of gravity. Such a spring is indicated at S^2, Fig. 1.

Placed over the cam I, on the interior of the base-plate, is a shield or cover, O, screwed fast to said base-plate, and serving to prevent the insertion of a wire or other device into the interior of the mechanism for the purpose of disabling the bell mechanism to prevent an alarm. A projection, C^4, in the bolt stops the bolt in its reverse movement by abutting against the guide-projection D.

The general operation of the parts as thus far described would be as follows: In Fig. 1 the parts are in normal position, the bolt being held retracted by the spring C^2, and the adjustable cam plate or block that effects the release of the alarm mechanism on a rearward movement of the bolt being shown adjusted out of position, where it is normally held by the rearward extension of the bolt and ready to move by gravity or by the action of a spring when the bolt is projected into position where the bolt on a rearward movement will engage with it and effect a release of the alarm. The cam plate or block S is under the conditions normally supposed to exist in the position shown in dotted lines, Fig. 1, and is held by resting upon the rear end of the bolt. The bolt is thrown from the inside of the door by the operation of the detached operating slide or lever M, operated by means of a finger-piece, N, when it is desired to set the bolt or to lock the door from the inside. When the bolt is thus thrown, the catch E automatically engages with it and holds it from being retracted by the influence of the spring C^2. The end of the bolt that is projected rests under such conditions against a ledge or projection, V^2, formed in the nose-plate, as will be presently described. At the time of projecting the bolt the cam S drops down into the position shown in full lines, Figs. 1 and 2. If it is desired to throw the bolt back from the inside without sounding the alarm, it is only necessary to turn the cam-piece S by means of its knob into position where the bolt will not come into engagement with it, and at the same time to operate the catch E by means of the knob or button E^2, which projects through the casing. The bolt is then thrown back by the action of the spring C^2, and the parts are then in the position shown in Fig. 1. While, however, the bolt is projected, if pressure be applied to the door, the bolt will rock on the fulcrum formed by the side of the casing where it projects, and its rear end will move against the detent R, thus releasing the alarm mechanism, which will continue to sound until the wheel P makes a complete revolution, or longer if the pressure be continued. The bolt may also be released from the outside by the operation of the key K, which, being inserted in the key-hole I and being turned in proper direction, will operate the catch E and release the bolt. It not being within the power of a person on the outside of the door to turn the knob by which the devices for releasing the alarm mechanism are adjusted into position where the slide movement of the bolt in the rearward direction will not release them, it is obvious that the operation of the key will result in the sounding of an alarm, thus giving notice of the unlocking of the bolt. After the entrance of the party holding the key he may throw the cam S into position where it will allow the detent-lever R to resume a normal position, so that on the arrival of the perforation in the wheel P to a proper point the pin of the detent-lever will engage with the wheel and the alarm will cease to sound. If a party, after passing out through the door, desires to set the alarm-bolt so that an alarm will be sounded either by the application of pressure to the door or by the retraction of the bolt, he can do so by simply inserting the key and operating the lever or slide M. In this action the cam S drops down, as before explained, and the mechanism for releasing the alarm devices by a backward movement of the bolt is thus automatically set.

The operating slide or lever M engages with the bolt in direction only to project said bolt. A movement of the lever M in the opposite direction can produce no effect on the bolt and affords no means to unauthorized persons of withdrawing such bolt.

The nose-plate for the bolt is formed of two metal plates, V W, each cast in one piece and each forming two adjoining sides of a hollow box. The two parts V W can be fitted together and secured by screws to the jamb of a door. The part V is provided with the ledge or rest V^2, against which the nose of the bolt rests. This ledge is formed at a part farthest

removed from the bolt, so that the leverage provided for releasing the alarm on a sidewise movement of the bolt due to pressure shall be as great as possible.

I do not limit myself to any special mechanism or form of devices for operating the automatic catch by the action of a key, as the gist of the invention, so far as this feature is concerned, consists in the provision for the bolt and alarm mechanism, with its automatic detent or catch, of a key adapted to operate the catch from the outside of a door.

What I claim as my invention is—

1. The combination, with a bolt, of an automatic catch, a spring tending to retract the bolt, an alarm mechanism, a detent for the same, and a cam block or plate, S, that is thrown automatically into the path of the bolt in its rearward movement when said bolt is projected, as and for the purpose described.

2. The combination of a bolt, an alarm mechanism released by said bolt on a rearward sliding movement of the same, an automatic catch provided with means for operating the same from the inside of a door, and a key for actuating said catch from the outside of a door, as and for the purpose described.

3. The combination, with a bolt and spring for withdrawing the same, of an automatic catch for holding the bolt projected, an alarm mechanism, detent devices for the same, adjustable into and out of position where a release will be effected by a rearward movement of the bolt, and a key for effecting a disengagement of the catch from the outside of a door, as and for the purpose described.

4. The combination, with a bolt and an alarm mechanism having releasing devices actuated by said bolt on a lateral movement of the latter, of an operating slide or lever having a finger or thumb piece for moving the bolt into locking position from the inside of a door, and a key for operating said bolt from the outside of a door, as and for the purpose described.

5. The combination, with a bolt and an operating slide or lever engaging with the same in one direction only and having a finger or thumb piece whereby it may be actuated from the inside of a door, of a key adapted to be inserted from the outside of a door and to engage with said lever or slide for the purpose of setting the bolt, as and for the purpose described.

6. The combination, with the bolt and its retracting spring, of an automatic catch-lever having the operating-knob E^2 and a tail-piece provided with a surface, H, with which a key may engage, as and for the purpose described.

7. The combination, with the bolt, of an automatic catch for holding the same projected and an operating slide or lever for projecting the same, said catch and lever being provided with attachments whereby they may be operated from the inside of a door, and being also arranged in suitable proximity to a key-hole, I, so that they may both be actuated by a key inserted from the outside of a door, as and for the purpose described.

8. The combination of the bolt C, operating-slide M, automatic catch E, alarm mechanism and detent-lever therefor, and a cam-plate, S, having an operating-knob whereby it may be withdrawn from position where the alarm is released, as and for the purpose described.

9. The combination, with the wheel P for the alarm mechanism, of a detent-lever, R, pivoted at one end and guided upon a post at the opposite end, said lever being provided with an overhanging or projecting portion arranged in proximity to a bolt, as and for the purpose described.

10. The combination, with an alarm-lock having a key-hole, I, of a projecting cap, O, secured to the base of the casing over said key-hole to prevent the introduction of instruments for rendering the bell inoperative, as and for the purpose described.

11. The nose block or plate having the ledge or rest V^2 formed in the same at a point removed from the side where the nose of the bolt enters, as and for the purpose described.

12. The combination of the bolt, the spring for withdrawing the same, an automatic locking device for engaging with the bolt and holding it projected against the stress of the spring, and a key that operates upon said locking devices and disengages the same from the bolt, so that the spring may withdraw, as and for the purpose described.

Signed at New York, in the county of New York and State of New York, this 17th day of November, A. D. 1885.

ROBERT G. VASSAR.

Witnesses:

WM. H. CAPEL,

J. VAN VALKENBURGH.