

E. HARMON.
ALARM-LOCK.

No. 419,769.

Patented Jan. 21, 1890.

Fig. 1.

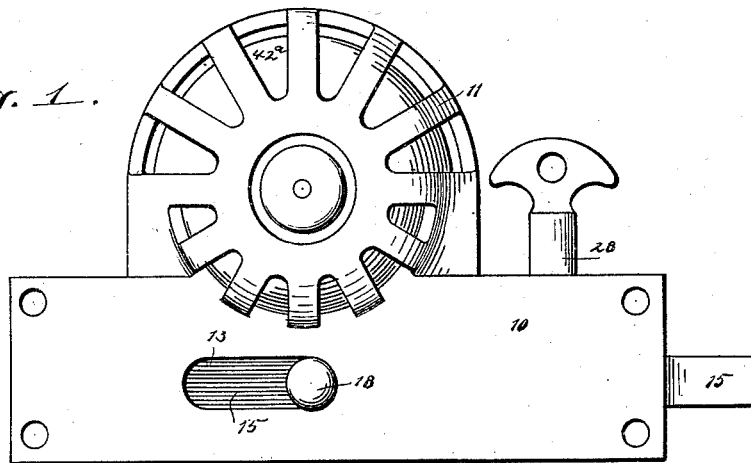


Fig. 2.

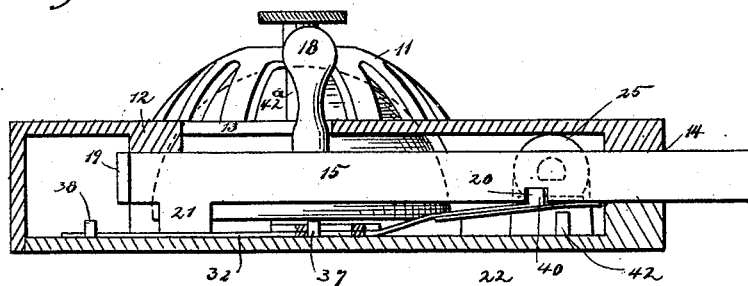
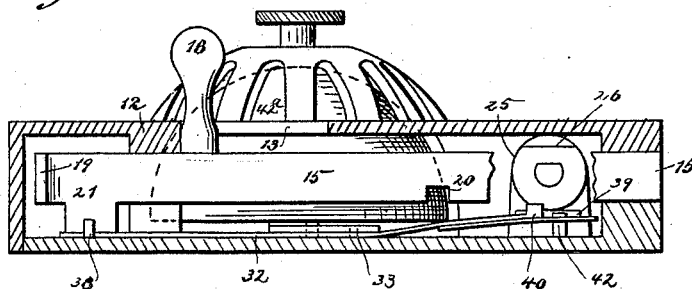


Fig. 3.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

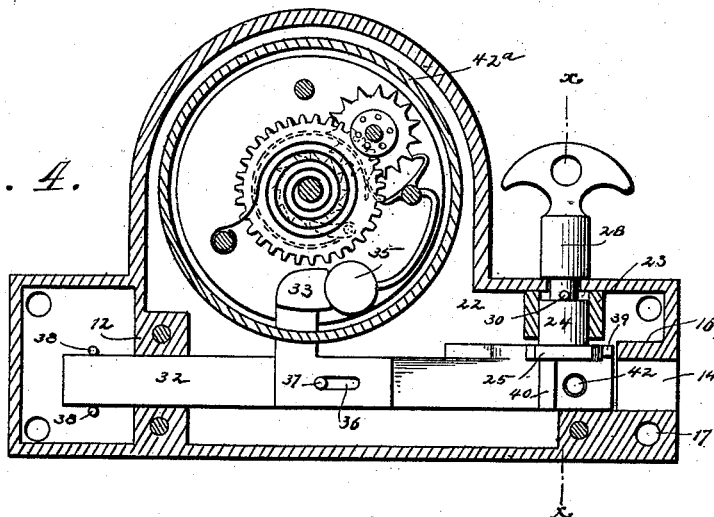


Fig. 5.

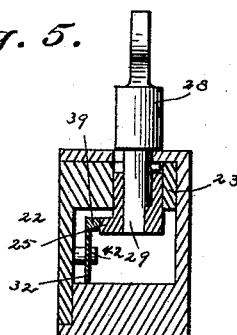


Fig. 6.

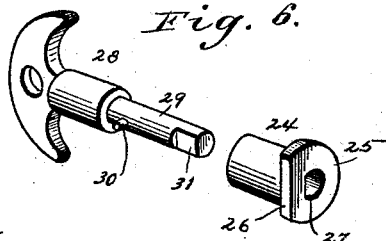


Fig. 7.

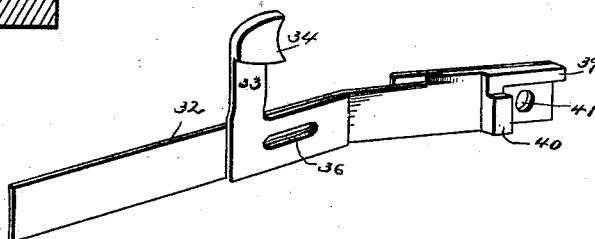
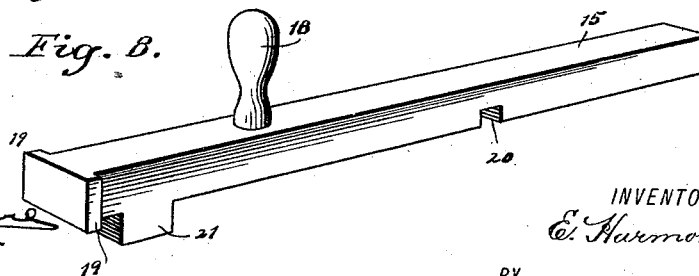


Fig. 8.



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ELEAZER HARMON, OF BALTIMORE, MARYLAND.

ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 419,769, dated January 21, 1890.

Application filed February 13, 1889. Serial No. 299,730. (No model.)

To all whom it may concern:

Be it known that I, ELEAZER HARMON, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Alarm-Bolts, of which the following is a full, clear, and exact description.

My invention relates to alarm-bolts for doors, windows, &c., and has for its object to provide an improvement upon the bolt secured to myself by Letters Patent No. 384,760, dated June 19, 1888, and to so construct and connect the several parts that in the event the key is properly turned and removed from the bolt-casing an alarm will be sounded, if the bolt should be thrown back to even a partially-unlocked position by persons either upon the outside or inside of the room.

It is also an object of the invention to provide a means whereby, when the said key is removed, the latch cannot be carried back to a full unlocked position, and wherein, when the key is introduced and turned, the bolt may be freely slipped in or out of the casing, as desired.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter more fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the lock with the key in the casing. Fig. 2 is a longitudinal section through the same with the key removed, the bolt being in position to sound an alarm upon being carried inward. Fig. 3 is a similar section with the key turned in the casing, illustrating the bolt as in position to move freely in or out of the casing without sounding an alarm. Fig. 4 is a vertical section with the bolt removed, illustrating the key in position in the casing. Fig. 5 is a transverse section on line *xx* of Fig. 4. Fig. 6 is a detail view of the key, the sleeve adapted to receive the key, and the attached cam. Fig. 7 is a perspective view of the alarm trip-plate detached from the casing, and Fig. 8 is a perspective view of the detached bolt.

In carrying out the invention the case 10

is preferably made rectangular, with an integral cage-like section 11 projected at a right angle from the upper edge at or near the center. Integral with the rectangular section of the casing, at or near the inner end, a transverse centrally-recessed partition 12 is formed, and forward of the said partition a longitudinal slot 13 is produced in the outer face of the casing, as is best illustrated in Figs. 1, 2, and 3. A transverse recess 14 is made in the front of the casing to permit the outward movement of the bolt 15, hereinafter described, and from the upper wall of the said recess a short horizontal partition 16 is projected, and the enlargement 17 of the casing constitutes the corresponding lower wall of the said recess 14, as best illustrated in Fig. 4. The bolt 15 is preferably made rectangular in cross-section, and is adapted to slide in the recess of the rear partition 12 out through the forward recess 14. The bolt is provided with a knob or handle 18, adapted to extend outward through the casing-slot 13, and a shoulder 19, projected from the opposite sides of the rear end, which shoulder, when brought in contact with the rear partition, limits the outward throw of the bolt. The bolt is further provided forward of the center with a transverse groove 20 in the inner face, and a boss 21 integral with the same face near the rear end, as best illustrated in Fig. 8.

The casing is provided with a detachable back 22, screwed or otherwise fastened into place, which back is made to conform to the contour of the casing. From the inner face of the back 22 a lug 23 is horizontally projected at the upper edge of the rectangular section, having a vertical bore produced therein. In the bore of the lug 23 a sleeve 24 is loosely inserted, which sleeve extends beyond the under face of the lug, and is provided at that point with an attached or integral cam 25, usually constructed in the form of a disk having one flattened peripheral surface, as shown at 26 in Fig. 6.

The bore of the sleeve 24 is cylindrical from the upper end to a point at or near the outer face of the cam, at which point the surface diametrically opposite the flattened surface 26 of the cam is flattened to correspond, as illustrated at 27 in Fig. 6. The bore of the

sleeve is extended through the cam 25, flattened at one side, as above set forth.

The sleeve 24 is adapted for the reception of the key 28, the stem 29 of which key is provided with a pin 30 at or near the upper end and a flattened surface 31 at the extremity, as illustrated to the left in Fig. 6. The key 28 is purposed to rotate the sleeve 24, and to that end a key-hole is formed in the upper face of the rectangular portion of the casing, through which the shank of the key is entered and passed downward into the sleeve until the flattened face 31 of the shank is brought in contact with the similarly-shaped inner face of the cam.

The pin 30 serves a dual purpose: first, to guide the key properly into place, as the key-hole, which is circular, is provided with an intersecting slot to permit the entrance of the pin, and, secondly, when the key is introduced, as shown in Fig. 4, the pin is below the top of the casing, so that when the key is turned to manipulate the cam to throw the alarm trip-bar out of contact with the bolt, for instance, the pin will have passed beyond the slotted portion of the key-hole, and the key cannot be removed.

The alarm trip-bar 32 consists of a strip of spring metal bent upon itself at or near the center to extend outward at the ends. From the outer face or edge of the trip-bar an arm 33 is projected upward at a right angle, provided with a tongue 34, having one concaved face for close contact with the hammer 35 of an alarm-bell employed in connection with the bolt, as illustrated in Fig. 4 and in detail in Fig. 7.

To the rear of the bend in the trip-bar a longitudinal slot 36 is formed, adapted to receive a pin 37, integral with the back of the casing, which pin limits the longitudinal movement of the said bar, as shown in Fig. 4. The bar is prevented from moving vertically by reason of two guide-pins 38, secured to the back of the casing, one at each side of the inner end of the said bar. A longitudinal rib 39 is formed upon the upper edge of the bar at the outer end, which rib is adapted for contact with the under face of the cam-carrying lug 23, and the inner end of the said rib 39 is intersected by a thicker rib 40, formed transversely upon the outer face of the trip-bar. Between the said transverse rib 40 and the outer end of the bar an aperture 41 is formed, and immediately beneath said aperture, when the bar is carried to its farthest forward throw and when the tongue 34 is in contact with the bell-hammer 35, a stud 42 is projected from the back of the casing 22, which stud, when the forward or outer end of the trip-bar is depressed, will extend upward through the aperture 41, as illustrated in Fig. 3.

The bell 42^a employed may be of any approved construction, the bell preferred, however, being one having an attached mechanism whereby a spring-actuated train of gear-

ing will operate the hammer when said hammer is free, and wherein when the hammer is bound the gearing will cease to operate. Such a bell is illustrated in Fig. 4, and is attached to the extension of the back of the casing, while it is covered in front by the casing 11 of the casing proper.

In operation, when the bolt is thrown forward and the key is in the lock, in order to withdraw the key the cam 25 must be turned to the position illustrated in Fig. 2, which will bring the flat surface 26 in engagement with the rib 39 of the alarm trip-bar 32, whereupon, the outer end of the said trip-bar being elevated, the rib 40 will enter the groove 20 in the bolt. Now, when the bolt is slid inward from either the outer or the inner side of the room, the trip-bar will also be slid to the rear by reason of the connection it has with the bolt, and the tongue 34 being removed from the hammer 35 an alarm will be sounded. The slot 36 is of sufficient length only to permit the bolt when in engagement with the trip-bar to slide back to a partially-unlocked position only. In order to open the bolt without giving an alarm, it is necessary that the key be entered in the sleeve 24 and the said sleeve turned until the cylindrical surface of the cam is brought to bear upon the longitudinal rib 39 of the alarm trip-bar. This contact depresses the forward end of the trip-bar, as shown in Fig. 3, and causes the stud 42 to extend upward through the slot 41 of the trip-bar, and thereby prevent its movement in one direction or the other, and as the forward end of the trip-bar is thus depressed and held so the inner end is slightly elevated, whereupon the bolt may be slid to, either in or out of the casing, without the rib 40 of the trip-bar engaging with the groove 20 of the bolt.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an alarm-bolt, the combination, with an alarm device, of a movable bolt, a sliding spring trip-bar engaging the bolt and provided with an arm for engaging the hammer of the alarm device, the sliding movement of the trip-bar being less than the movement necessary to carry the bolt to an unlocked position, and a cam for disengaging the trip-bar from the bolt, whereby when the trip-bar engages the bolt the said bolt cannot be carried back to a full unlocked position, substantially as described.

2. In an alarm-bolt, the combination, with an alarm device, of a movable and a notched bolt, a sliding spring trip-bar provided with a rib for engaging the notch of the bolt and with an arm for engaging the hammer of the alarm device, a cam for disengaging the trip-bar from the bolt, a key for operating the cam, and means for locking the trip-bar stationary when disengaged from the bolt, to permit the bolt to be operated without disengaging the arm of the trip from the hammer, substantially as herein shown and described.

3. In an alarm-bolt, the combination, with

a casing and an alarm device, of a sliding and notched bolt, a sliding spring trip-bar provided with a rib for engaging the notch of the bolt, an arm for engaging the hammer of the alarm device, a slot through which a pin passes for limiting its sliding movement, and an opening for receiving a stud to lock it stationary, a cam for disengaging the trip-bar from the bolt and pressing it into engagement with the said stud, and a key for operating the cam, substantially as herein shown and described.

4. The combination, with a movable bolt provided with a boss and a groove upon the inner face, an alarm device, a hammer mounted to strike the alarm, a disk-cam provided with a flat peripheral surface, and a key capable of rotating said cam, of a sliding spring

trip-bar having one end forwardly inclined and provided with a transverse locking-rib capable of entering the groove in the bolt, a longitudinal rib capable of contact with the cam, and an aperture within the angle of the two ribs, an arm projected from the upper edge of the trip-bar at one side of the center, provided with a tongue capable of contact with the hammer, a stud adapted to engage the aperture of trip-bar, and means, substantially as shown and described, for guiding the said bolt in its movement, as and for the purpose specified.

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Witnesses:

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