(Model.)

F. MAHANNAH.

ALARM LOCK.

No. 479,374. Patented July 19, 1892.

Fig. 1.

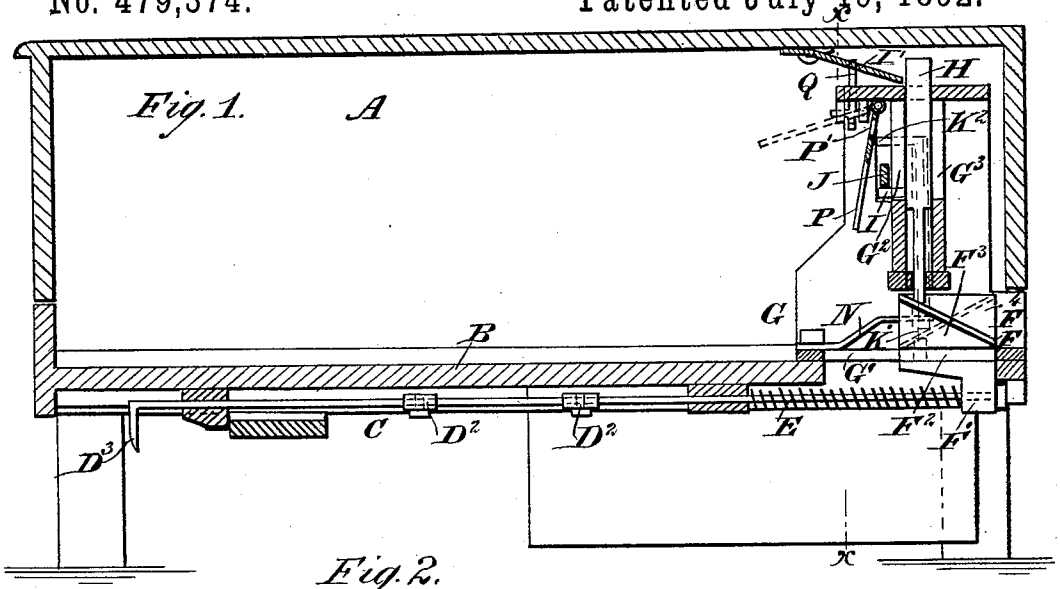


Fig. 2.

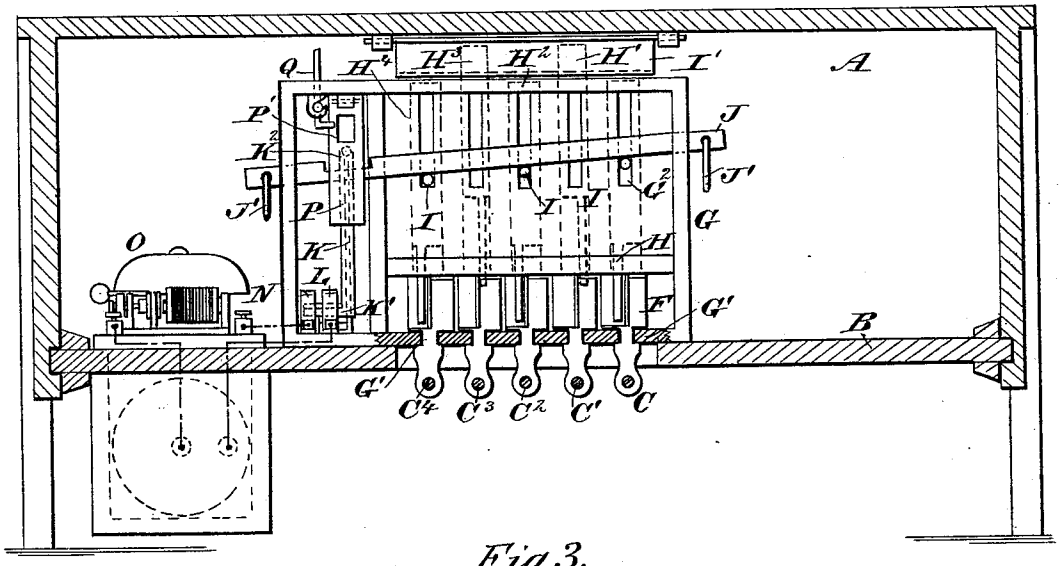


Fig. 3.

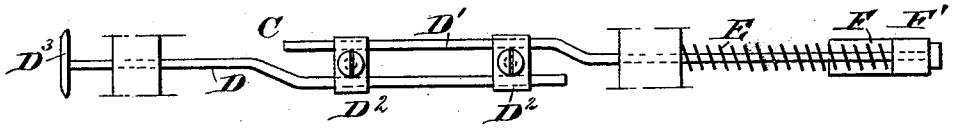
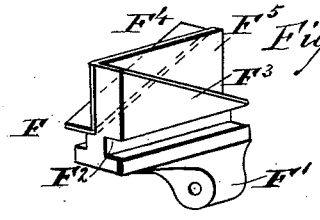


Fig. 4.



WITNESSES:

Donn Twitchell

C. Sedgwick

INVENTOR

F. Mahannah

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRANK MAHANNAH, OF OMAHA, NEBRASKA, ASSIGNOR OF ONE-HALF TO JOHN E. MAHANNAH, OF SAME PLACE.

ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 479,374, dated July 19, 1892.

Application filed September 29, 1891. Serial No. 407,109. (Model.)

To all whom it may concern:

Be it known that I, FRANK MAHANNAH, of Omaha, in the county of Douglas and State of Nebraska, have invented a new and Improved Alarm-Lock, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved alarm-lock, more especially designed for use on cash-drawers, &c., and which is simple and durable in construction, very effective in operation, and arranged to automatically sound an alarm either temporarily or continuously whenever a wrong key is pressed in the lock.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

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

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a transverse section of the same on the line $x\,x$ of Fig 1. Fig. 3 is an inverted plan view of the device for operating the bolts, and Fig. 4 is a perspective view of one of the blocks for raising or lowering the bolts.

In the casing A is mounted to slide in the usual manner the drawer B, on the under side of which are mounted to slide a series of keys C, C′, C^2, C^3, and C^4, each made adjustable, being composed for this purpose of two bars or rods D and D′, connected with each other by clamps D^2, so as to lengthen or shorten the said rods until the desired length is reached. On the outer end of the front rod D is arranged a button or knob D^3 for conveniently pulling the rod. On the rear end of the rod D′ is coiled a spring E, resting with one end against one of the bearings for the said rod, the other end of the spring pressing on a shoulder F′ of a block F, held on the rear end of the rod D′. Each of the blocks F for the several rods C, C′, C^2, C^3, and C^4 is formed with suitable grooves F^2, engaging corresponding guideways G′, arranged in the bed-plate of a frame G, secured in the drawer B, near the rear end of the same, so that the frame moves with the drawer when the latter is opened or closed.

Each of the blocks F is formed on opposite sides with wedges F^3 and F^4, extending in opposite directions, as is plainly shown in Fig. 4. In the frame G are mounted to slide vertically a series of bolts H, H′, H^2, H^3, and H^4, corresponding in number to the number of blocks F, each bolt being adapted to travel on either of the two inclines or wedges F^3 or F^4 of its respective block F. When the lower end of any one of the bolts engages the wedge F^3 of its block F, then the said bolt is in an uppermost position when the drawer B is closed, and when the latter is opened the bolt slides downward by the lower end of the bolt traveling down the incline or wedge. If the position of the bolt is changed, so that its lower end travels on the other incline or wedge F^4, then the bolt stands in a lowermost position when the drawer is closed, and when the drawer is opened the lower end of the bolt travels on the incline or wedge F^4 until it reaches an uppermost position.

The two inclines or wedges F^3 and F^4 are separated from each other by a thin wall F^5, and the lower end of the bolt is cut in such a manner that it can engage either of the inclines or wedges F^3 or F^4.

In order to hold the bolt in the proper position relative to the corresponding wedge F^3 or F^4, a pin I is secured to each bolt and is adapted to engage either a front slot G^2 or a rear slot G^3, formed in the frame G. As shown in Fig. 2, when the pin I engages the front slot G^2 the lower end of the respective bolt travels on the incline F^4, and when the bolt is turned, so that the pin engages the rear slot G^3 in the frame G, then the lower end of the bolt travels on the incline or wedge F^3.

When the bolts move into an uppermost position, they extend above the top plate of the frame G on which rests the lower end of a plate I′, pivoted to the under side of the casing A. When the drawer B is closed, as shown in Figs. 1 and 2, the free end of the plate I′ rests on the top plate of the frame G in front of the bolts H, H′, H^2, H^3, and H^4 and the bolts which are in an uppermost po-

sition abut against the free end of the plate I′, thus preventing opening of the drawer until the said bolts are lowered. In order to do this, the corresponding keys C C′, &c., have to be pressed or pulled forward to move the corresponding blocks forward to lower the respective bolts in the manner above described, the said bolts traveling down the incline F on the forward movement of the respective blocks.

The pins I, projecting from the front of the bolts in the slots G^2, support a transversely-arranged bar J, mounted to slide vertically in the sides of the frame G. A displacement of the bar J is prevented by rings J′, held in the bar J at the ends projecting beyond the sides of the frame G, as shown in Fig. 2.

The bar J is adapted to engage at one end a foot K^2, projecting from a sleeve K, mounted to slide vertically in a suitable post arranged in the casing G. The lower end of this sleeve K is provided with an arm or foot K′, adapted to connect the spring-plates L and N with each other, so as to establish a circuit of the electric alarm O of any approved construction and held on the drawer B. When the bar J is in the normal lowermost position, the sleeve K is in the lowermost position and the foot K′ is disengaged from the plates L and N, so that the circuit is interrupted and the alarm is not sounded. When, however, the sleeve K is raised by the bar J, the alarm is sounded as the connection is made between the plates L and N.

The foot or arm K^2 is adapted to be locked in an uppermost position when the bar J raises the said sleeve K by the said foot passing into an aperture P′, formed in an arm P, pivoted to the under side of the top of the frame G. When the sleeve K is raised, the free end of the arm K^2 rests on the arm P, and in its upward movement causes the latter to swing outward until the arm passes into the aperture P′, after which the arm swings back to its former vertical position and the foot K^2 is engaged in the aperture P′, and the sleeve K is thus prevented from dropping down. The two plates L and N then remain connected with each other by the foot K′, so that the alarm is continuously sounded, even if the bar J should drop to a lowermost position. If this continuous alarm is not desired, the arm P is locked into a horizontal position by means of a lever Q, pivoted in the frame G and provided with an arm adapted to engage the under side of the arm P when the latter is swung into a horizontal position, as shown in dotted lines in Fig. 1.

As shown in the drawings, the bolts H′ and H^3 form a combination and abut against the free end of the plate I′ when the drawer B is closed. Now when it is desired to open the drawer the operator has to press the keys C′ and C^3 simultaneously, so as to cause the blocks F, carried on the said keys, to slide forward in order to lower the bolts H′ and H^3 until the tops of the said bolts are below the upper surface of the top of the frame G. As there is no obstruction now on the plate I′, the drawer B can be opened by a further pull on the said keys or on the separate part of the drawer.

When the drawer is locked by the bolts H′ and H^3 and a party who does not know the combination presses either of the other keys, then the respective block F is also moved forward; but the corresponding bolt is lifted and by its pin I, engaging the bar J, places the latter so that the sleeve K is moved upward and the foot or arm K′ makes electric connection between the plates L and N, so that the electric alarm is sounded. As the bolts H′ and H^3 remain in an uppermost position, the drawer cannot be opened, and, in addition to this, the other bolt raised by the wrong key being pressed assists in further locking the drawer.

From the foregoing it will be understood that when the keys of the combination are pressed the corresponding locking-bolts are lowered to free the plate I, and when the wrong keys are pressed the corresponding bolts are raised, in addition to the bolts of the combination. As soon as the pressure on any one of the keys is released the respective spring E returns the key, its block F, and corresponding bolt to the normal position.

When it is desired to change the combination, the bar J is removed by first removing one or both of the rings J′ and then the respective bolts are lifted upward and given a half-turn, so as to drop or engage the pin H′ with either the front or rear slot G^2 or G^3, as the case may require. When the bolts have been changed, the bar J is again put in position and the device is reset.

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

1. The combination, in an alarm-lock, with a stationary frame, a series of vertical locking-bolts mounted thereon, an alarm, and connections between the bolts not in the combination and the said alarm, of a series of sliding blocks, one for each bolt, each block having on its upper face at opposite sides of its longitudinal center reversely-extending inclines, one incline serving to lower the bolt when it is active and the other to raise it when inactive or out of the combination.

2. The combination, with the vertically-sliding reversible bolts, of a sliding block beneath each bolt, each block having on its upper face at opposite sides of its longitudinal center reversely-extending inclines, one incline serving to lower the bolt when active or in the combination and the other serving to raise the same bolt when inactive or out of the combination, substantially as set forth.

3. The combination, with the vertically-sliding bolts and their operating-blocks, of keys formed of two longitudinally-aligned

rods having overlapped parallel inner ends adjustably clamped together, substantially as set forth.

4. In an alarm-lock, the combination, with a series of locking-bolts, of a sliding block for each locking-bolt and each block being provided with two wedges or inclines arranged in opposite directions and adapted to engage the lower end of the respective bolt, substantially as shown and described.

5. In an alarm-lock, the combination, with a pivoted plate arranged in a casing, of a series of locking-bolts mounted to slide vertically in the drawer, sliding blocks for the said locking-bolts and each provided with two inclines arranged in opposite directions, the inclines being adapted to engage the lower end of the respective bolt, and keys for imparting a sliding motion to the said blocks, substantially as shown and described.

6. In an alarm-lock, the combination, with a pivoted plate arranged in a casing, of a series of locking-bolts mounted to slide vertically in the drawer, sliding blocks for the said locking-bolts and each provided with two inclines arranged in opposite directions, the inclines being adapted to engage the lower end of the respective bolt, keys for imparting a sliding motion to the said blocks, and springs pressing on the said keys for returning the same to a normal position for being pressed, substantially as shown and described.

7. In an alarm-lock, the combination, with bolts provided with pins and mounted to slide vertically, of a bar adapted to be engaged by the pins of the bolts not forming a combination and a sleeve adapted to be actuated by the said bar to establish an electric connection with an electric alarm, substantially as shown and described.

8. In an alarm-lock, the combination, with bolts provided with pins and mounted to slide vertically, of a bar adapted to be engaged by the pins of the bolts not forming a combination, a sleeve adapted to be actuated by the said bar to establish an electric connection with an electric alarm, and an electric alarm provided with two spring-plates adapted to be connected with each other by the said sleeve, substantially as shown and described.

9. In an alarm-lock, the combination, with a series of bolts mounted to slide vertically and each provided with a pin, of a bar adapted to be raised by pins of the bolts not forming a combination, a sleeve adapted to be raised by the said bar and arranged to establish an electric connection with an electric alarm, and a pivoted arm adapted to lock the said sleeve in an uppermost position and raised by the said bar, substantially as shown and described.

FRANK MAHANNAH.

Witnesses:
H. A. LEWMAN,
JAMES F. MORTON.