

(No Model.)

2 Sheets—Sheet 1.

J. HUTHER.
ALARM LOCK.

No. 462,710.

Patented Nov. 10, 1891.

Fig 1

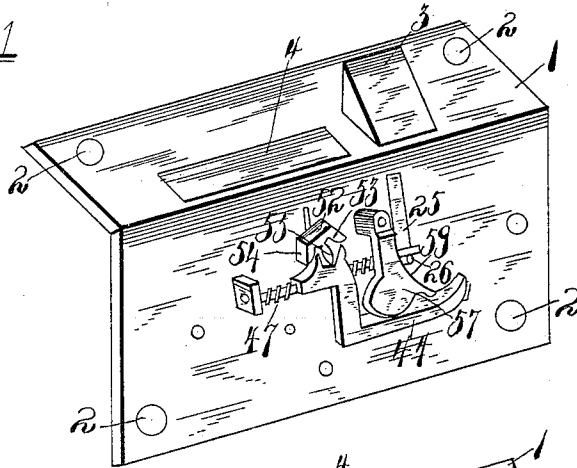


Fig 2

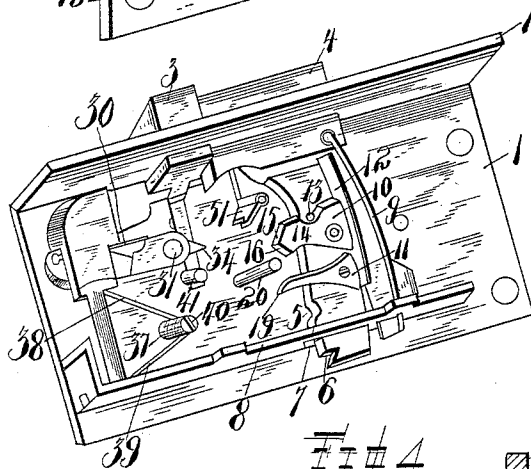


Fig 3

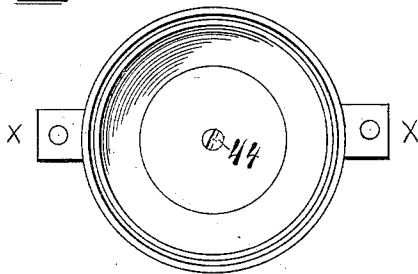
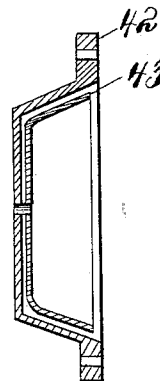


Fig 4



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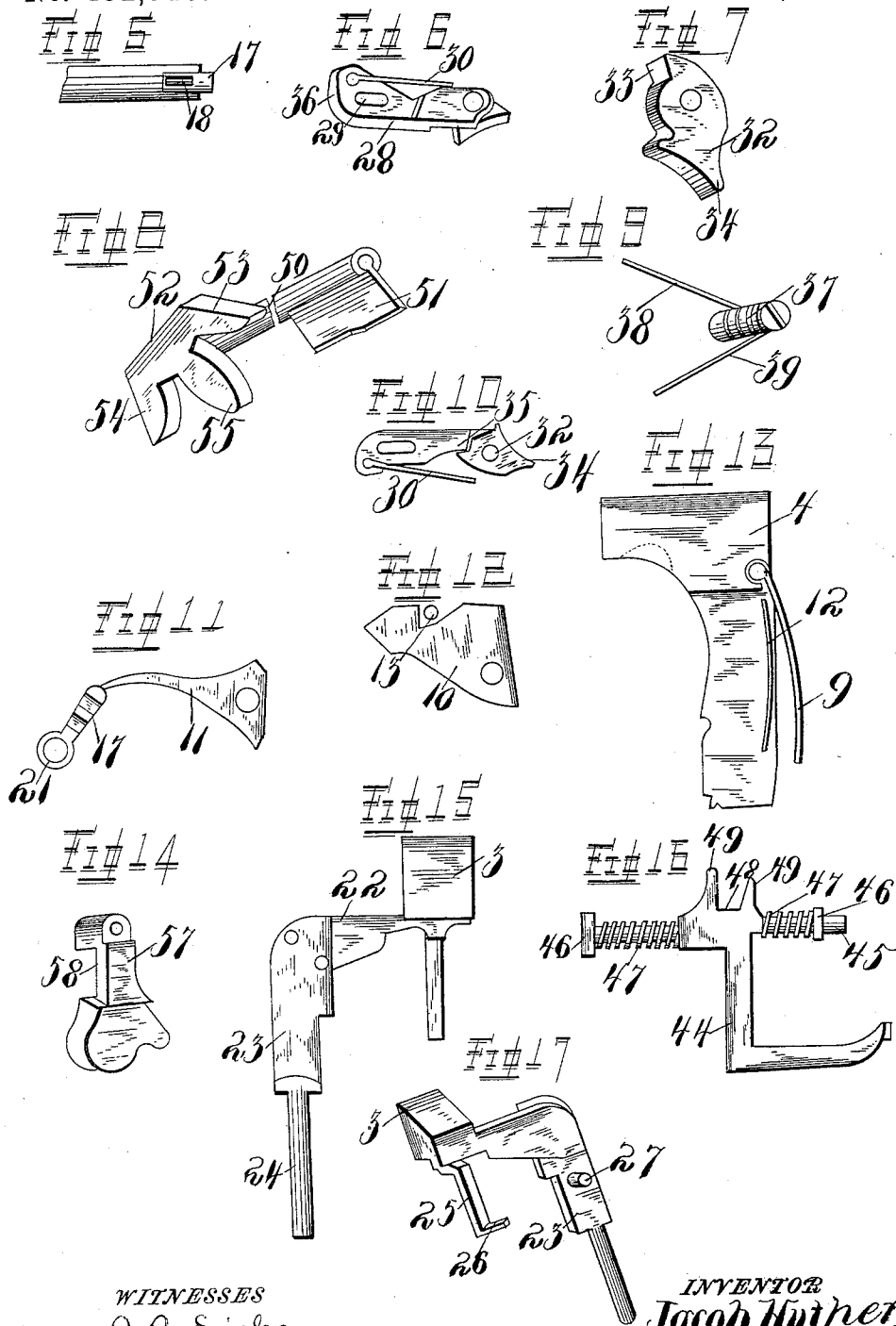
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UNITED STATES PATENT OFFICE.

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ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 462,710, dated November 10, 1891.

Application filed July 16, 1891. Serial No. 399,700. (No model.)

To all whom it may concern:

Be it known that I, JACOB HUTHER, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Alarm-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in alarm-locks for drawers, tills, &c.; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described and designated in the claims.

The object of my invention is to construct an alarm-lock for drawers, tills, cupboards, book-cases, &c., and so devised that an alarm is made by one not acquainted with the operation of the lock whenever he tries to unlock the same, and so constructed that no alarm will be given whenever a person acquainted with the operations of the lock unlocks the same. It may be prefaced in this connection that most alarm-locks are so constructed that an alarm is given whenever the drawer is opened or closed; but my invention is so constructed that an alarm is given whenever the person unacquainted with the operation of the lock tries to unlock the same, for the purpose of opening the drawer.

I will give a further description of the advantages of my invention in connection with the mechanical description thereof.

In the drawings, Figure 1 is a front perspective view of my invention with the bell removed, showing the mechanism by which the bell is sounded. Fig. 2 is a rear perspective with the casing removed, showing the inner mechanism of the lock. Fig. 3 is a front elevation of the alarm-bell. Fig. 4 is a cross-section taken on the line *x x* of Fig. 3. Fig. 5 is an edge view of the web of the key, showing a depression formed therein. Fig. 6 is a front perspective of a lever, which depresses or lowers the latch. Fig. 7 is a perspective view of a pivoted lever, which actuates the lever, described in Fig. 6. Fig. 8 is a perspective view of the lever which actuates the plunger which sounds the alarm-bell. Fig. 9 is a perspective view of a spring which elevates the latch. Fig. 10 is a rear elevation of the parts described in Figs. 6 and 7, showing their relative positions. Fig. 11 is an end

view of a key which I employ in carrying out my invention, showing a pawl in engagement therewith. Fig. 12 is a front elevation of the lever by which the bolt of the lock is elevated. Fig. 13 is a front elevation of the bolt of the lock. Fig. 14 is a perspective view of a pivoted lever, which reciprocates the plunger for sounding the bell. Fig. 15 is a front elevation of the latch of the lock. Fig. 16 is a front elevation of the plunger which sounds the bell; and Fig. 17 is a rear perspective view of the latch.

Referring to the drawings, 1 indicates the shell or casing to which the operative mechanism is secured. Said shell or casing 1 is provided with perforations 2, through which screws or nails may be inserted in fastening said shell or casing to the drawer. It may be noted in this connection that my invention is more appropriately denominated a "two-bolt lock"—that is, a lock having a latch 3, as illustrated in Figs. 15 and 17, and a bolt 4, as illustrated in Fig. 13. The projecting portions or heads of said latch and bolt are of the ordinary construction. (For illustration see Figs. 1, 2, 13, and 17.) Said latch and bolt are located and move or slide in suitable perforations formed in the shell 1, as can be readily perceived by referring to Figs. 1 and 2.

I will now proceed to describe the construction in detail of the bolt 4 and also the parts secured to and carried by the same, referring to Figs. 2 and 13 for illustration. The lower portion of said bolt is provided with depressions 5 and 6, said depressions being connected together by a rounded portion 7. Said depressions are adapted to be engaged by the rim 8 of the lock, secured to the casing thereof in accordance with the ordinary construction of locks. Secured to said bolt in any suitable and mechanical manner is a back spring 9, which effects the hereinbefore-stated engagement in the usual manner and requires no further elucidation. Pivotaly secured to said bolt 4 in any suitable and mechanical manner is a lever 10 and a pivoted pawl 11, of the construction illustrated in Figs. 2, 11, and 12. The lever 10 as well as the pawl 11 are held in almost a horizontal position by means of a flat spring 12, which is secured in any suitable and mechanical manner to the bolt 4. The normal positions of said lever and

pawl are illustrated in Fig. 2, and whenever the positions as illustrated therein are changed they are caused to resume their normal horizontal positions by means of a spring 12. The lever 10 is free to move downwardly over its pivotal connection; but the upward movement of said lever is restrained by means of a pin 13, which is secured to the bolt 4; or, in other words, whenever the arm 14 of said lever is moved upwardly by any means an upward movement is also communicated to the bolt 4, but when said arm is lowered or pushed downwardly the position of bolt 4 is not affected. It may be noted in this connection that the lever 10 is provided with inclined faces 15 and 16, for the purposes more fully hereinafter described.

The back spring 9 is adapted to move in a vertical direction in an appropriate perforation or hole formed in the rim 8.

I will now proceed to describe the manner in which the bolt 4 is operated—that is, elevated or lowered by means of the key. In order to make this description intelligible to the reader, I will first proceed to describe the peculiar construction of the key, referring to Fig. 5 for illustration, wherein an edge view of the web 17 of the key is shown provided with a depression 18, in which the sharpened point 19 of the pivoted pawl 11 is adapted to be inserted. Fig. 11 shows the pawl 11 in engagement with the web 17 of the key. 20 indicates a pin which is secured in any suitable and mechanical manner to the shell or casing 1, and over said pin 20 the pipe or barrel 21 of the key is adapted to be applied when in use.

Having thus described the construction of the key, I will now describe the manner of elevating the bolt 4 and thus locking the drawer or till, as the case may be, and also the manner of lowering or depressing the same, and thus unlocking the drawer or till, &c.

The operator should first apply the barrel 21 of the key on the pin 20 (with the web 17 extending horizontally toward the left) and then by causing the web 17 of the key to move or rotate to the right and downwardly until it reaches a perpendicular position, and afterward upwardly, said web will, after passing the pivoted pawl 11, which yields on its pivot, come in contact with the lever 10, and by moving the arm 14 of said lever upwardly a like motion will be communicated to the bolt 4, and the till or drawer will thus become locked.

If the operator desires to lower the bolt 4, he should make the same application of the key-barrel to the pin 20 and cause the web 17 to move to the right and downwardly until it reaches a perpendicular position and afterward upwardly until the sharpened point 19 of the pivoted pawl 11 drops into and engages with depression 18, formed in web 17. When said point 19 drops into depression 18 a "click" is heard, and whenever said click is heard the operator should stop the rotation of the web in an upward direction and should turn

said web immediately in a downward direction. As the relative positions of the web 17 and the pawl 11 at this stage of the operation are at an obtuse angle, as illustrated in Fig. 11, whenever the web 17 is lowered said downward motion must necessarily be communicated to the bolt 4.

Having given a description of the bolt 4, the part secured to and carried by the same, and the method and means of operating said bolt, I will now proceed to describe the construction in detail of the latch 3, referring to Figs. 15 and 17 for illustration. Said latch 3 is provided with a horizontal arm 22, and cast integrally with said arm is a vertical arm 23, terminating in a decreased rounded portion 24, which is located in a suitable perforation formed in the rim 8. Said latch 3 is provided with a shorter vertical arm 25, which moves upwardly and downwardly in an appropriate slot formed in the shell or casing 1. (See Figs. 1 and 17 for illustration.) Formed integrally with arm 25 is a short horizontal arm 26, which extends at right angles with said arm 25.

27 indicates a pin secured in any suitable manner to the vertical arm 23, and mounted on said pin 27 is a lever 28, as illustrated in Figs. 6 and 10. Said lever 28 is provided with an elongated slot 29, through which pin 27 passes, and also carries a spring 30 for the purpose hereinafter described. One end of said lever 28 is pivotally mounted on a pin 31, secured to the shell or casing 1; also mounted on said pin 31, and interposed between said lever 28 and casing 1, is a lever 32, as fully illustrated in Figs. 7 and 10. Said lever 32 is provided with a shoulder 33 and with a rounded arm or portion 34. The shoulder 33 of lever 32 is adapted to come in contact with the shoulder 35 of lever 28. The arm 34 of lever 32 is adapted to be actuated or moved by the web 17 of the key. Said arm 34 normally occupies a horizontal position, as illustrated in Fig. 2, and is held in that position by means of a spring 30, and whenever moved is caused to resume its normal position by the agency of said spring.

I will now proceed to describe the manner of lowering the latch 3, referring to Fig. 2 for illustration. The key is applied on pin 20, as hereinbefore stated, and the web thereof is caused to move upwardly. In its upward movement the web 17 of the key will strike the arm 34 of lever 32. The upward motion of said arm will bring the shoulder 33 downward, and said downward movement of the shoulder 33 will communicate a downward movement to arm 36 of lever 28, and said downward movement of said arm will communicate a downward movement to the vertical arm 23, and consequently a similar movement to latch 3. The latch 3 is moved or elevated automatically upwardly by means of a spring 37, a branch 38 of which presses against the lower edge of the lever 28, and a branch 39 thereof presses against the rim 8, and said

spring is mounted on a screw 40, secured to the casing 1. Arm 34 of lever 32 is free to move downwardly until it reaches a pin 41. This downward movement of said arm is to permit the web of the key to pass downwardly.

Having given a description of the lock or the bolt 4 and latch 3, the method of operating the same by the key, I will now proceed to describe the manner of sounding the bell and giving alarm by the rotation of the key, and then the manner by which the operation of the latch 3 causes the bell to sound. I will first, however, describe the construction of the bell itself, referring to Figs. 3 and 4 for illustration.

42 indicates an outer shell or covering circular in form, and concentrically located in said casing is a circular bell 43. Said circular bell 43 is secured to shell 42 by means of a screw 44. Said shell 42 is secured to the casing 1 in any suitable and mechanical manner.

I will now proceed to describe the mechanism which causes the bell 43 to sound, referring to Figs. 1, 2, 14, and 16.

44 indicates a plunger of the construction illustrated in Fig. 16. Said plunger 44 is rigidly secured to the shaft 45, and said shaft is mounted in bearings 46, which are secured in any suitable and mechanical manner to the shell or casing 1. Said shaft 45 is free to move in a horizontal direction in its bearing, and said plunger 44 is interposed between spiral springs 47, the left one of which, as illustrated in Fig. 16, has the function of restoring plunger 44 to its normal position. Said plunger 44 is provided with a U-shaped recess 48, surmounted by projections 49. Pivotaly secured or located in shell or casing 1 is a lever 50, as illustrated in Fig. 8. Said lever is provided with a flattened arm 51 and with an arm 52 of the shape of a crow-foot or about the same, the same having two outer toes or projections 53 and 54 and an inner or intermediate toe or projection 55. Said inner projection 55 is normally located in the U-shaped depression 48, and the entire arm 52 is adapted to rock over the projections 49 of the plunger 44, thus giving said plunger a reciprocating motion. Said lever 50 is rotated by means of the web 17 of the key, which is adapted to strike the flattened arm 51.

I will now proceed to describe the operation of the lever 50 and the plunger 44, referring to Figs. 1 and 2 for illustration. The key is applied in the usual way on the pin 20 and turns upwardly toward the right. The web 17 of said key will consequently move toward the right and strike arm 51, and a similar movement will be communicated to the arm 52, and arm 52 will communicate motion to the plunger 44, and when released—that is, when the web 17 has passed by the arm 51—the elasticity of spring 47 will impart to the plunger 44 a rapid motion, and said plunger will come in contact with the bell 43, and thus produce an alarm. The alarm-bell 43 is also

sounded whenever the latch 3 is lowered in the manner I will now proceed to describe. The method, or, rather, the mechanism, by which latch 3 is lowered has already been described in the preceding pages.

Pivotaly secured to the casing 1, referring to Fig. 1 for illustration, is a lever 57, as is illustrated in Fig. 14. Said lever is provided with a recess 58, in which the bearing 46 is placed. Said lever 57 is provided with an outwardly-curved surface 59. Whenever the latch 3 is lowered in the manner hereinbefore described, the horizontal arm 26 thereof slides over the inclined surface 59 and pushes said lever 57 to the left, as seen in Fig. 1. By this movement of lever 57 said lever will come in contact with the plunger 44 and push said plunger to the left; and whenever the web of the key has passed beyond arm 34 of lever 32 the latch will automatically be thrown upward, as hereinbefore described, and consequently the plunger 44 will be released and will be thrown against the bell 43 by the agency of spring 47, and consequently produce an alarm. In other words, the alarm-bell 43 may be sounded by lowering the latch 3, and is also sounded by the rotation of lever 50, as hereinbefore described; or, in other words, as the web of the key passes upwardly it produces two alarms. One alarm is produced when the web of the key passes over arm 34 of lever 32; and another alarm is produced when said web passes over the arm 51 of lever 50. It may also be noticed that an alarm is only produced when the web of the key passes around toward the right, and when said web is turned around toward the left no alarm is produced, as the web is free to move over arms 51 and 34.

In the construction hereinbefore described I apply the key on pin 20 with the web 17, extending in a horizontal direction toward the left; and for a conception of the application the reader is referred to Fig. 2; and as the web of the key passes upwardly toward the right two alarms are produced, as hereinbefore stated.

The inclined surfaces 15 and 16 of lever 10 are to permit the web 17 of the key to pass or slide over said lever.

Having fully described my invention, what I claim is—

1. An alarm-lock having a bolt 4, a pivoted lever 10, and pawl 11, carried by the same, in combination with a key, the web 17 of which is provided with a depression 18, in which the sharpened end 19 of said pawl is adapted to engage, substantially as set forth.

2. An alarm-lock having a latch 3, the same being provided with a horizontal arm 22, a vertical arm 23 secured to the same, a lever 28, suitably mounted on said vertical arm, a spring 30, carried by said lever, a lever 32 for actuating said lever 28, and a key for operating said lever 32, substantially as set forth.

3. An alarm-lock having a bell 43, secured to the casing thereof, the shell 42, inclosing

said bell, a plunger 44, located within said bell and movably mounted in bearings 46, secured to the casing 1, a U-shaped recess 48, formed in said plunger, projections 49, surmounting said recess, a lever 50, pivotally secured in said shell or casing 1, provided with projection 55, and adapted to engage with said recess 48, and an arm 51, adapted to be struck by the web of the key, whereby said lever 50 is rotated, and a reciprocating motion is imparted to the plunger 44, substantially as set forth.

4. An alarm-lock having a bell, a plunger

44, of the character described, located therein, a lever 57, adapted to be brought in contact with said plunger for imparting to the same a reciprocating motion, a latch 3, provided with a horizontal arm 26 for actuating said lever 57 in the downward motion of the latch, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB HUTHER.

Witnesses:

BENJ. J. KLENE,
ED. E. LONGAN.