March 19, 1935. L. L. WHETHERHULT 1,995,019

ALARM

Filed May 2, 1934

FIG. 1.

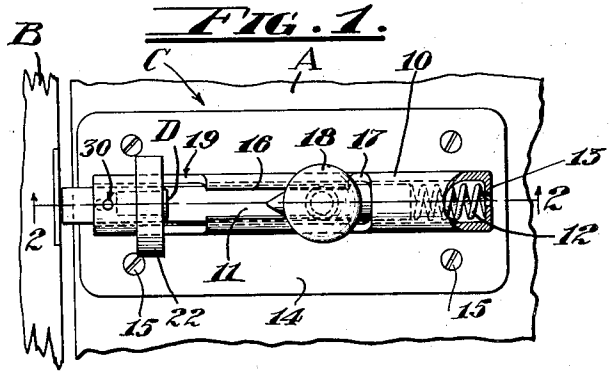


FIG. 3.

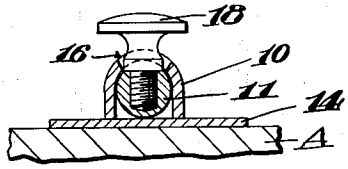


FIG. 4.

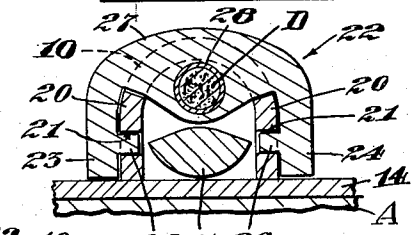


FIG. 2.

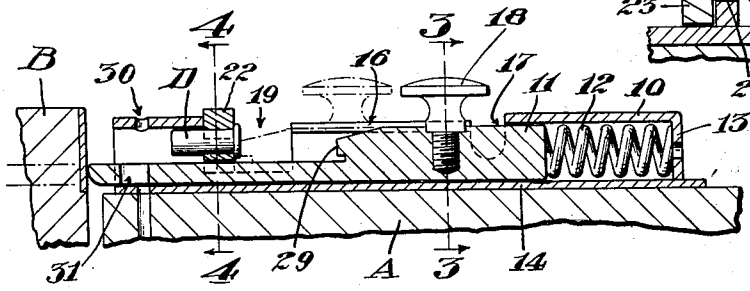


FIG. 5.

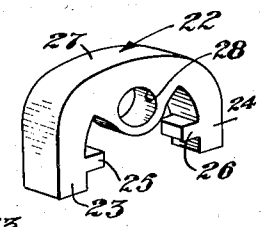


FIG. 7.

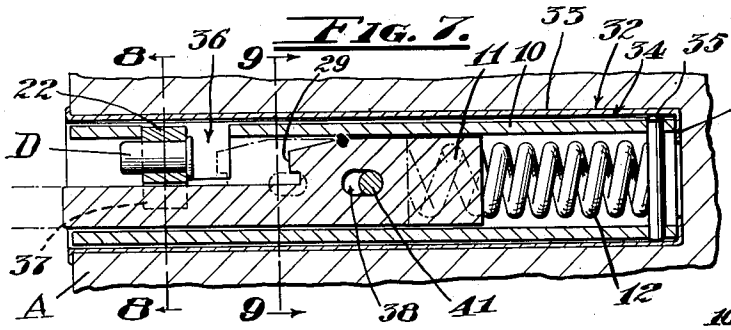


FIG. 6.

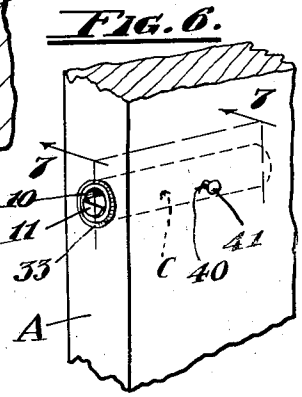


FIG. 8.

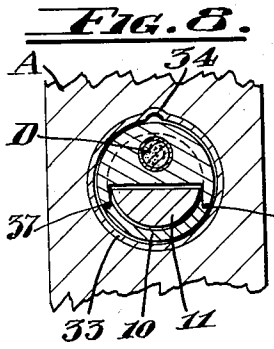
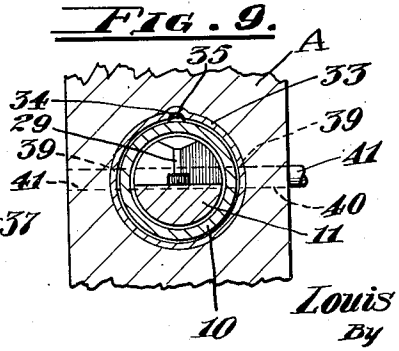


FIG. 9.



Inventor.
Louis L. Whetherhult
By R. S. Berry
Att'y.

Patented Mar. 19, 1935

1,995,019

UNITED STATES PATENT OFFICE

1,995,019

ALARM

Louis L. Whetherhult, Los Angeles, Calif.

Application May 2, 1934, Serial No. 723,518

4 Claims. (Cl. 116—88)

This invention relates to an alarm and more particularly pertains to a device which is especially applicable for use as a burglar alarm of the type in which an explosive cartridge is fired to effect an audible signal on the alarm being set-off.

An object of the invention is to provide an audible alarm device of the above character which is adapted to be employed on closures, such as doors, windows and the like, and to be actuated after being set, to sound an alarm akin to a pistol shot on unauthorized opening of the closure.

Another object is to provide a device of the above character which, when applied, will have the appearance of a bolt and its purpose thereby disguised, and furthermore which can be produced and marketed at such low cost as to enable its extensive use, and whereby closures such as doors and windows, which are not now ordinarily fitted with burglar alarms may be readily so equipped.

A further object is to provide a construction in a device of the above named character whereby its loading with explosive cartridges is facilitated and whereby the device may be readily set in its alarm signaling condition.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, the invention resides in the parts and in the combination, construction and arrangement of parts hereinafter described and claimed and illustrated by way of example in the accompanying drawing in which:

Fig. 1 is a view of the device as seen in front elevation showing it as applied to a door and depicting it as designed to be positioned on the face of the door.

Fig. 2 is a view in longitudinal section as seen on the line 2—2 of Fig. 1 showing the device as set in readiness for the alarm operation:

Fig. 3 is a detail in vertical section taken on the line 3—3 of Fig. 2:

Fig. 4 is a view in cross section as seen on the line 4—4 of Fig. 2 showing a demountable cartridge carrier in its operating position in the device:

Fig. 5 is a perspective view of the cartridge carrier in Fig. 4:

Fig. 6 is a detail in perspective illustrating a modified form of the invention in which the device is adapted to be countersunk in the edge of a closure:

Fig. 7 is a view in longitudinal vertical section of the device as shown in Fig. 6:

Fig. 8 is a view in cross section as seen on the line 8—8 of Fig. 7 showing the demountable cartridge carrier:

Fig. 9 is a view in section and elevation as seen on the line 9—9 of Fig. 7 in the direction indicated by the arrows:

Referring to the drawing more specifically, in which corresponding reference characters indicate corresponding parts throughout the several views, A indicates generally a closure such as a door but which manifestly may comprise any structure which is movable relative to a fixed structure B or vice-versa, to which the alarm device indicated generally at C may be attached and operated on moving the movable member A relative to the stationary member B.

As here shown the alarm device embodies a tubular shell 10 in which is mounted for longitudinal slidable movement a bolt 11 one end portion of which is adapted to be projected from the forward end of the shell 10 under the urge of a spring 12 encased in the rear portion of the shell 10 and bearing on an end member 13 in the latter and the rear end of the bolt 11.

In the form of the invention shown in Figs. 1 and 2 the shell 12 is mounted on a face plate 14 which is adapted to be attached to its supporting structure by fastening members 15 and in which construction the outer face of the shell 12 is formed with a longitudinally extending slot 16 the rearward end of which terminates in a transverse slot 17. Mounted on the bolt 11 is a knob 18 the shank of which is projected through the slot 16, as shown in Figs. 1 and 2, and is adapted to be positioned in the end portions of the laterally extending slot 17 in which latter position it serves to hold the bolt 11 in a retracted position in opposition to the spring 12.

In the construction shown in Fig. 2 the knob 18 serves as a means for facilitating retraction of the bolt 11 and also in adjusting the position of the bolt lengthwise of the shell 10.

The forward end of the shell 10, as shown in Figs. 1 and 2, is formed with a tranverse slot 19 the forward end wall of which is provided with off-set wall portions 20 formed with longitudinally extending solts 21 opening to the slot 19.

A demountable cartridge holder 22 is provided, which embodies spaced side portions 23 and 24 adapted to be positioned astride the shell 10 and which are formed with inwardly projecting tongues 25 and 26 slidably engageable with the slots 21 as particularly shown in Fig. 4. The cartridge holder embodies a wall portion 27 connecting the ends of the side members 23 and 24, and which wall portion is formed with an opening 28 adapted to receive a cartridge D; the opening 28 being arranged to extend in the di-

rection of the length of the shell 10, when the holder 22 is mounted thereon, and being disposed to lie wholly within the space bordered by the inner periphery of the shell 10, whereby a cartridge D mounted on the holder 22 will extend within the outer end portion of the shell 10 with the cap portion of the cartridge presented to the slot 19.

The bolt 11 is formed with a reduced forward end portion from which is erected a shoulder carrying a firing pin 29 presented toward the forward end of the bolt and arranged to strike the cap on the end of the cartridge D on advance of the bolt 11; the firing pin 29 being so positioned on the length of the bolt that when the latter is retracted the firing pin will be disposed in spaced relation to the cartridge.

Formed on the forward end portion of the shell 10 is an opening 30 and formed in the forward end of bolt 11 is an opening 31 which openings are designed to be disposed in alignment with each other and to have a pin engaged therewith to hold the bolt 11 in a partly retracted position.

In the form of the invention shown in Figs. 6 and 7 the shell 10 is adapted to be inserted longitudinally into a bore 32 formed in the front edge of the closure A, and which bore is preferably lined by a tube 33. In this instance the shell 10 is formed to have slidable fit with the tube 33 and is of a length to substantially conform to the length of the bore 32 so that when the shell 10 is fully inserted in the bore its outer end will extend substantially flush with the outer end of the tube 33. The tube 33 is formed with a longitudinally extending channel 34 on its interior with which the outer end of a pin 35 constituting the rear end member 13 of the shell 10 projects to hold the shell 10 against turning relative to the tube 33.

The shell 10 is formed adjacent its forward end with a transverse slot 36, the end margins of which lie on a plane extending through the axis of the shell and are formed with channels 37 extending longitudinally thereof. In this instance the side members 23 and 24 of the cartridge holder 22 are formed to seat in the channels 37.

The cartridge holder 22 is of less width or thickness in the direction of the length of the shell 10 than the longitudinal length of the slot (19 or 36) and which slot is formed of a length exceeding that of the cartridge D whereby when a cartridge is positioned in the cartridge holder the latter may be disposed in the rear portion of the slot (19 or 36) and then advanced to position the cartridge holder so that it will abut against the forward end of the slot, as particularly shown in Figs. 2 and 7.

As a means for holding the bolt 11 in a retracted position the bolt is formed in the construction shown in Fig. 7 with an elongated transverse opening 38 extending therethrough adjacent its rear end, which opening is arranged to be aligned with diametrically opposed openings 39 in the tube 33 and which openings 39 align with openings 40 formed in the closure A and into which openings 40 a pin 41 may be inserted to engage the opening 38 in the bolt 11 to hold the latter in a retracted position in opposition to the spring 12. In the construction shown in Fig. 7 the bolt 11 is retracted by pressing the outer end of the bolt inwardly to shift the bolt against the spring 12.

In order to facilitate positioning of the cartridge holder 22 in the slot (19 or 36) the spring 12 is formed of such length and tension that when in its normal position the bolt will be disposed with its firing pin extending adjacent the rear end of the slot (19 or 36) so as not to require any material retraction of the bolt, such as would place the spring under tension while loading the device, thus eliminating any possibility of the bolt being accidentally actuated to fire the cartridge while loading the device. The spring, however, when under tension will act to impel the bolt forward on release of the latter, such distance and with such velocity as to effect firing of the cartridge.

In the operation of the invention, a cartridge is placed in the holder 22 and the latter positioned in the slot (19 or 36) as shown in Figs. 2 and 7 whereupon the bolt 11 is retracted in opposition to the spring 12 and retained in its retracted position as by moving the knob 18 into the transverse slot 17 in the construction shown in Fig. 2, or by engaging the opening 38 with a pin 41 in the construction shown in Fig. 7; the shell 10 being withdrawn from the tube 33 in the construction shown in Fig. 7, sufficiently to permit positioning of the holder 22 in the slot 36.

The closure is then disposed in its closed position whereupon the bolt 11 is released and allowed to be partially advanced under the urge of the spring 12 until the forward end of the bolt abuts against the stationary member B. The bolt will then be disposed in a partly retracted position with the spring 12 under tension. In event of opening of the closure while the device is thus disposed, the projecting forward end of the bolt rides clear of the stationary member B, whereupon the spring 12 will act to suddenly impel the bolt in a forward direction and thereby cause the firing pin to strike the cartridge D and effect explosion thereof, thus giving an alarm which has the characteristics of a pistol shot.

In order that a person may open the closure without firing the cartridge after the device has been set, a pin may be inserted through the opening 30 or 40 and engaged with the opening 31 or 38 in the bolt from either side of the closure thus preventing advance of the bolt under the urge of the spring on opening the closure.

After the cartridge has been fired, or in event it is desired to remove a non-fired cartridge, the holder 22 is detached and the cartridge disengaged therefrom.

By the provision of the detachable holder it may be removed from the device so as to prevent unauthorized loading of the latter where required.

While the invention has been here shown as applied to a door it manifestly is adapted to be applied to any movable closure such as a sliding window, in which event an opening will be provided in a casing into which the end of the bolt will be projected on shifting the window. Likewise the bolt may be mounted on a stationary member and arranged so that its outer end will abut against a movable member so that on shifting the latter the bolt will be disengaged and caused to operate in the same manner as above described.

While I have herein shown and described specific embodiments of the invention I do not limit myself to the exact details of construction and arrangements shown, but may employ such changes and modifications as occasion may require coming within the meansing and scope of the appended claims.

I claim:

1. In an alarm device, a reciprocating bolt, a shell carrying said bolt through one end of which said bolt is adapted to project, means engageable with the projecting end of said bolt for holding the bolt in a retracted position, said means and bolt being relatively movable to effect release of the latter, a spring for impelling said bolt to its advanced position arranged to be placed under tension by retracting said bolt into said shell, a firing-pin carried on said bolt intermediate the ends thereof, and a cartridge holder carried by said shell adapted to receive a cartridge with the cap thereof presented toward said firing-pin in spaced relation thereto when said bolt is retracted; said bolt being adapted to be advanced under the urge of said spring to forcibly bring said firing-pin against a cartridge in said holder.

2. In an alarm device, a reciprocating bolt, a shell carrying said bolt through one end of which said bolt is adapted to project, means engageable with the projecting end of said bolt for holding the bolt in a retracted position, said means and bolt being relatively movable to effect release of the latter, a spring for impelling said bolt to its advanced position arranged to be placed under tension by retracting said bolt into said shell, a firing-pin carried on said bolt intermediate the ends thereof, and a cartridge holder carried by said shell adapted to receive a cartridge with the cap thereof presented toward said firing-pin in spaced relation thereto when said bolt is retracted; said bolt being adapted to be advanced under the urge of said spring to forcibly bring said firing-pin against a cartridge in said holder, said cartridge holder being separable from said shell.

3. In an alarm device a tubular shell open at one of its ends, a longitudinally reciprocating bolt mounted in said shell and arranged so that when in an advanced position its forward end will protrude from the open end of said shell, means engageable with the projecting end of said bolt for holding the bolt in a retracted position, said means and bolt being relatively movable to effect release of the latter, a spring in said shell for moving said bolt to its advanced position and adapted to be placed under tension by retracting said bolt into said shell, a firing-pin carried by said bolt intermediate its ends, said shell being formed with a transverse slot located adjacent the open end of said shell and forward of said firing-pin, a demountable cartridge holder adapted to be positioned in said slot having an opening for the reception of a cartridge, said opening being disposed to position the capped end of a cartridge in alignment with said firing-pin, and said holder when positioned in said slot being disposed to position the cartridge carried thereby in spaced relation to the firing-pin when the bolt is in a retracted position.

4. In an alarm device, a tubular shell open at one of its ends, a longitudinally reciprocating bolt mounted in said shell and adapted when in an advanced position to protrude from the open end of said shell, means engageable with the projecting end of said bolt for holding the bolt in a retracted position, said means and bolt being relatively movable to effect release of the latter, a spring in said shell for advancing said bolt to its advanced position and adapted to be placed under tension by retracting said bolt into said shell, a firing-pin carried by said bolt intermediate its ends, said shell being formed with a transverse slot located adjacent the open end of said shell and forward of said firing-pin, a demountable cartridge holder adapted to be positioned in said slot having an opening for the reception of a cartridge, said opening being disposed to position the capped end of a cartridge in alignment with said firing-pin, said holder when positioned in said slot being disposed to position the cartridge carried thereby in spaced relation to the firing-pin when the bolt is in a retracted position, and means for engaging said bolt intermediate its ends, to hold it in a retracted position in opposition to said spring independent of the first named holding means.

LOUIS L. WHETHERHULT.