G. LATCHEM.

DOORBELL AND BURGLAR ALARM.

APPLICATION FILED DEC. 23, 1921.

1,421,091.

Patented June 27, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

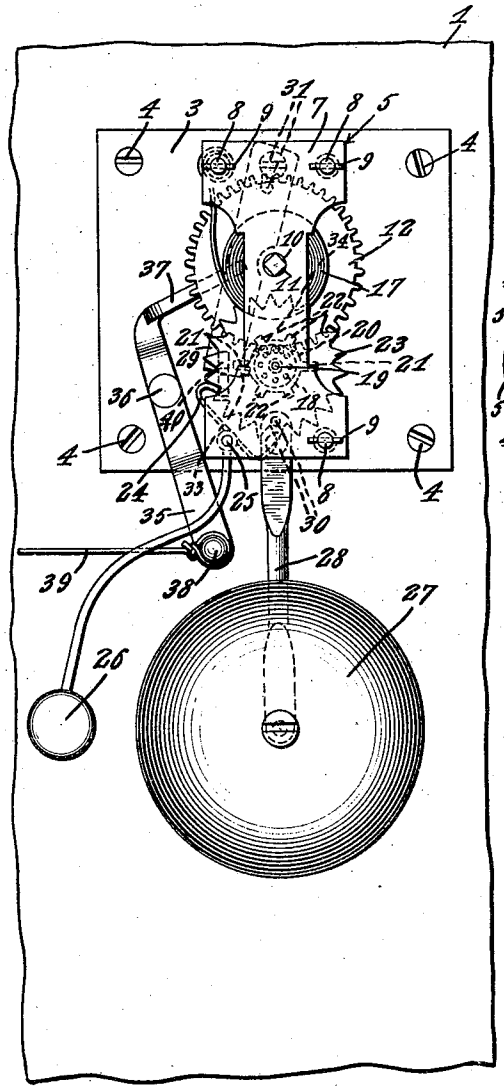
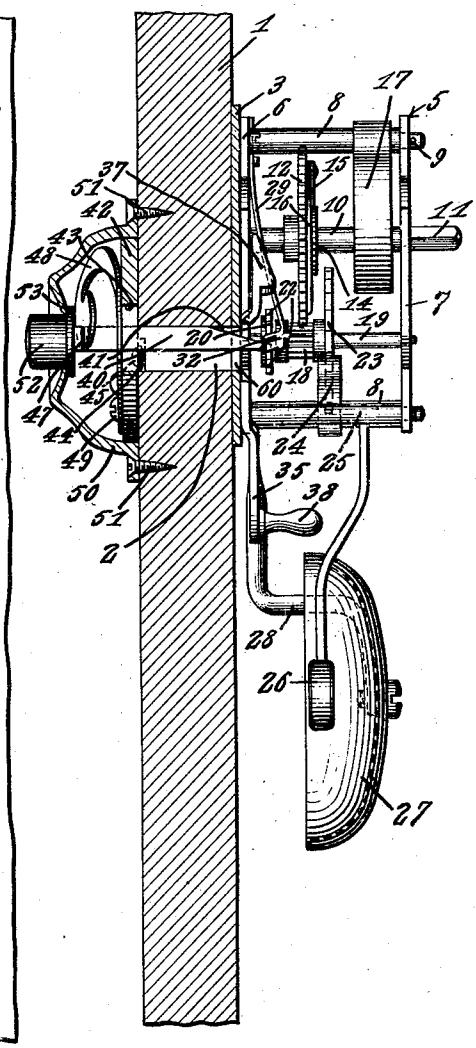


Fig. 2.



G. Latchem, Inventor

By C. A. Snow & Co.

Attorney

G. LATCHEM.

DOORBELL AND BURGLAR ALARM.

APPLICATION FILED DEC. 23, 1921.

1,421,091. Patented June 27, 1922.

2 SHEETS—SHEET 2.

Fig. 3.

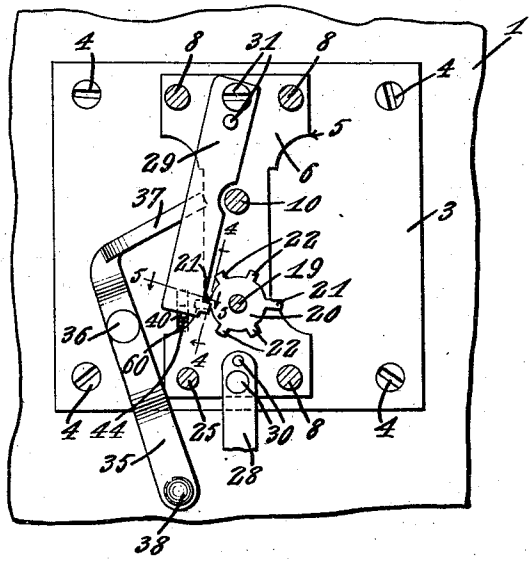


Fig. 4.

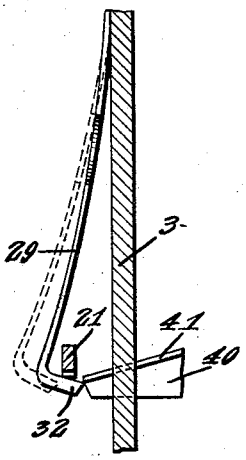


Fig. 5.

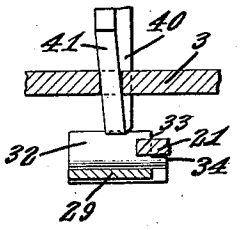
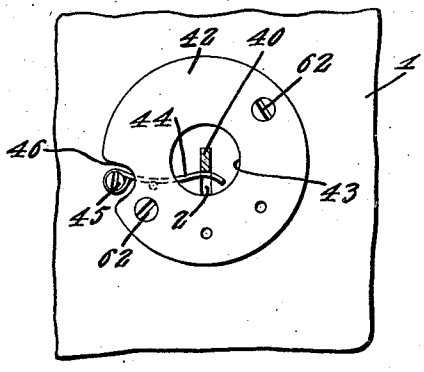


Fig. 6.



G. Latchem, Inventor

By C. A. Snow & Co.

Attorney

UNITED STATES PATENT OFFICE.

GEORGE LATCHEM, OF MARKED TREE, ARKANSAS.

DOORBELL AND BURGLAR ALARM.

1,421,091. Specification of Letters Patent. **Patented June 27, 1922.**

Application filed December 23, 1921. Serial No. 524,464.

To all whom it may concern:

Be it known that I, GEORGE LATCHEM, a citizen of the United States, residing at Marked Tree, in the county of Poinsett and State of Arkansas, have invented a new and useful Doorbell and Burglar Alarm, of which the following is a specification.

This invention aims to provide a device which may be used either as a door bell or as a burglar alarm, and the invention aims, especially, to provide novel means for operating and controlling the movement of the striker.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that, within the scope of what is claimed, changes in the precise embodiment of the invention shown can be made without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in elevation, a device constructed in accordance with the invention; Figure 2 is a vertical sectional view wherein many parts appear in elevation; Figure 3 is a section, the view being in the nature of an elevation wherein parts are removed; Figure 4 is a section on the line 4—4 of Figure 3; Figure 5 is a section on the line 5—5 of Figure 3; and Figure 6 is an elevation showing the means whereby the plunger or operating member is mounted and controlled.

The numeral 1 marks a support, which may be a door, a door frame or anything of the sort, provided with an opening 2, which, preferably, is in the form of a restricted slot as shown in Figure 6. The numeral 5 denotes a frame, the frame being a composite structure, and including a base plate 3 secured at 4 to the support 1. The base plate 3 has an opening 60 registering with the opening 2 in the support 1. A back plate 6 is attached to the base plate 3 and is disposed parallel to a front plate 7, the back plate 6 having posts 8 whereon the front plate 7 is mounted removably, as shown at 9.

A winding shaft 10 is journaled for rotation in the frame 5 and is provided with a squared forward end 11 adapted for the reception of a wrench or key. A gear wheel 12 is loose on the winding shaft 10. A ratchet wheel 14 is fixed to the winding shaft 10. A pawl 15 cooperates with the ratchet wheel 14 and is pivoted to the gear wheel 12, the gear wheel carrying a spring 16 which, cooperating with the pawl 15, constrains the pawl to coact with the ratchet wheel 14. The numeral 17 designates a coiled driving spring, one end of which is attached to one of the posts 8, the other end of the driving spring being connected to the winding shaft 10. The pawl and ratchet mechanism 14—15 forms a connection between the gear wheel 12 and the shaft 10, whereby the shaft 10 may be rotated, to put the spring 17 under tension, without rotating the gear wheel 12, the foregoing being a common clock detail, not worthy of specific delineation or extended description.

The gear wheel 12 meshes into a lantern pinion 18 secured to a second shaft 19 journaled in the frame 5, the shaft 19 carrying a stop wheel 20 having oppositely disposed long teeth 21 and any desired number of intermediate short teeth 22. A striking wheel 23 is secured to the second shaft 19 and cooperates with a finger 24 on a shaft 25 mounted to rock in the frame 5, the shaft 25 carrying a striker 26 adapted to coact with an audible signal, such as a bell 27, carried by a bracket 28 secured at 30 to the back plate 6.

The device includes a spring latch 29 secured at 31, at its upper end, to the back plate 6 and provided at its lower end with a foot 32. A notch is formed in the foot 32, and, as shown in Figure 5, the notch produces, in the foot, a shoulder 33 and a shoulder 34, the shoulder 34 projecting beyond the shoulder 33.

A lever or adjusting member 35 is fulcrumed intermediate its ends, as shown at 36, on the base plate 3 and is supplied at one end with a wedge-shaped head 37 adapted to enter behind the spring latch 29, the latch 29 being sprung away from the base plate 3 (Figure 2) more or less, depending on the amount that the head 37 is introduced behind the latch. At its lower end, the lever 35 may be supplied with a finger piece 38 facilitating the operation of the lever. If the device is to be used as a burglar alarm, a flexible element 39, or other connection,

(Figure 1) may be attached to the finger piece 38. The operation of the part 39 will be explained hereinafter, since it is a more or less incidental feature.

The numeral 40 marks an operating member, in the form of a plunger, mounted for longitudinal reciprocation in the opening 2 of the support 1 and in the opening 60 of the base plate 3. The openings 60 and 2 are large enough so that the plunger 40 may have a transverse movement, as well as a longitudinal movement. The inner end of the plunger 40 is adapted to cooperate with the foot 32 of the spring latch 29, to spring the latch outwardly, away from the base plate (compare Figures 2 and 5). Adjacent to its inner end, the plunger 40 has an inclined surface 41.

A disk 42 is secured at 62 to the outer surface of the support 1 and has an enlarged opening 43 shown in Figure 6, the outer end of the plunger or operating member 40 passing through this opening. A spring arm 44 is connected by a securing element 45 to the support 1, the disk 42 having a notch 46 giving access to the securing element. The spring arm 44 extends beneath the plunger 40 and holds the plunger up, in the position shown in Figure 2 for longitudinal sliding movement, in contact with the support 1, at the upper edge of the opening 2. The spring arm 44, however, is adapted to yield, to permit the plunger 40 to move transversely and downwardly, under conditions which will be set forth hereinafter. Adjacent to its outer end, the plunger 40 is connected at 47 to a spiral spring 48 attached at 49 to the disk 42, the spring and the disk being located within a shell 50 mounted at 51 on the support 1. A push button 52 is mounted to slide in the shell 50 and engages the outer end of the plunger 40, the push button having a flange 53, which, cooperating with the shell 50, limits the outward movement of the push button under the action of the spring 48 on the plunger 40.

The spring 17 imparts rotation to the winding shaft 10, the shaft 10 driving the shaft 19 by way of the gear wheel 12 and the lantern pinion 18. When the shaft 19 is rotated, the striking wheel 23, coacting with the finger 24 on the shaft 25, imparts oscillating movement to the shaft 25, the striker 26 moving into and out of engagement with the bell or signal 27 in a way which will be understood readily by those skilled in the art.

When the button 52 is pressed inwardly, the spring 48 is compressed, and the plunger 40 moves inwardly. The plunger 40 moving inwardly, engages the foot 32 of the spring latch 29 and moves the spring latch out of engagement with the stop wheel 20 whereby permitting the mechanism to operate. After the plunger 40 has been advanced a predetermined amount, the inner end of the plunger slips off the foot 32 of the latch 29, and, thereafter, the latch 29 springs to the left (Figure 2) into engagement with the stop wheel 20, the mechanism being brought to a stand still, and it being impossible for the bell 27 to continue to ring, even though the operator may hold his finger on the button 52. When pressure on the button 52 is relieved, the button and the plunger 40 move outwardly, under the action of the spring 48. Owing to the fact that the plunger 40 is beveled as shown at 41, the latch 29 may spring to the left (Figure 2) as aforesaid and engage with the stop wheel 20.

There are three possible ways in which the device may be operated. First, it may be caused to operate continuously, that is, the bell 27 may be permitted to sound until the spring 16 is in a neutral position. Secondly, a relatively long ring, but not a continuous ring may be produced. Third, a short ring, perhaps not more than a single tap may result. If head 37 of the lever 35 be introduced but a little way behind the latch 29, any of the teeth 21 or 22 of the latch 29 will be engaged by the shoulder 34 on the foot 32 of the latch 29, then the inner end of the plunger slips off the foot 32, and then the latch 29 swings to the left (Figure 2) as hereinbefore explained. If the head 37 of the lever 35 is introduced still further beneath the latch 29, then, the shoulder 34 will cooperate with the long teeth 21 of the stop wheel 20 and the wheel 20 will be permitted to make a half revolution, a longer ring resulting than is produced when the shoulder 33 is permitted to engage any of the teeth 21 or 22 of the stop wheel 20. Finally, the head 37 of the lever 35 may be introduced so far behind the latch 29 as to hold both of the shoulders 34 and 33 out of the path of the teeth 21—22 on the stop wheel 20, whereupon the bell 27 will sound continuously until the spring 17 has run down. This last operation results only when the lever 35 is operated by the flexible element or connection 39. The connection 39 is adapted to be attached to a remote door, a window or the like, and it is obvious that when the door or window is opened, the bell 27 will sound continuously, the device thus being used as a burglar alarm.

Having thus described the invention, what is claimed is:

1. In a device of the class described, a striker; a driving train operating the striker and including a stop wheel; a latch cooperating with the stop wheel; a movable adjusting member under the control of an operator and cooperating with the latch to vary the position of the latch with respect to the stop wheel; and means under the control of an operator for disengaging the latch from the stop wheel.

2. In a device of the class described, a striker; a driving train operating the striker and including a stop wheel having long teeth and short teeth; a latch having a shoulder adapted to cooperate with the long teeth and provided with a shoulder adapted to cooperate with all of the teeth; an adjusting member coacting with the latch to dispose either of the shoulders in operative relation to the proper teeth of the stop wheel; and means under the control of an operator for disengaging the latch from the stop wheel.

3. In a device of the class described, a striker; a driving train operating the striker and including a stop wheel having long teeth and short teeth; a latch having a shoulder adapted to cooperate with the long teeth and provided with a shoulder adapted to cooperate with all of the teeth; an adjusting member coacting with the latch to position either shoulder for engagement with the proper teeth, and coacting with the latch to hold the latch completely out of engagement with the stop wheel; and means under the control of an operator for disengaging the latch from the stop wheel.

4. In a device of the class described, a striker; a driving train operating the striker and including a stop wheel; a latch cooperating with the stop wheel; an adjusting member coacting with the latch to vary the position of the latch with respect to the stop wheel; a plunger engaging the latch; and means for mounting the plunger for longitudinal movement, whereby the plunger will disengage the latch from the stop wheel, and for mounting the plunger for transverse movement, whereby the latch will slip off the plunger, after the plunger has been advanced a predetermined amount.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE LATCHEM.

Witnesses:
J. D. PHILYAW,
T. E. ALLYN.