Dec. 23, 1930. A. L. TURNER 1,786,273

BURGLAR ALARM

Filed Aug. 9, 1930 2 Sheets-Sheet 1

Fig. 1.

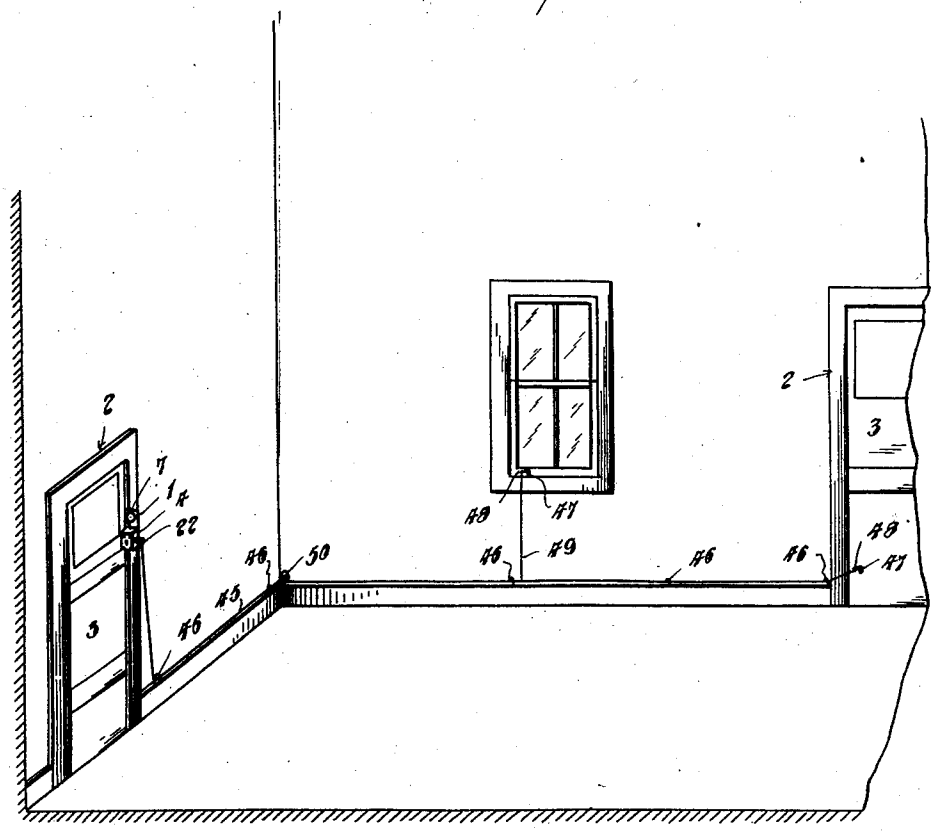


Fig. 2.

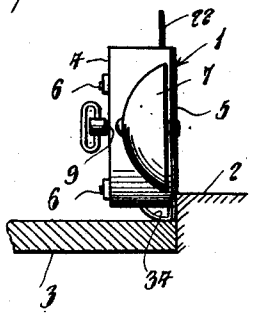
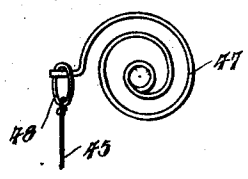


Fig. 3.



Inventor
A. L. Turner.
By Watson E. Coleman.
Attorney

Dec. 23, 1930. A. L. TURNER 1,786,273

BURGLAR ALARM

Filed Aug. 9, 1930 2 Sheets-Sheet 2

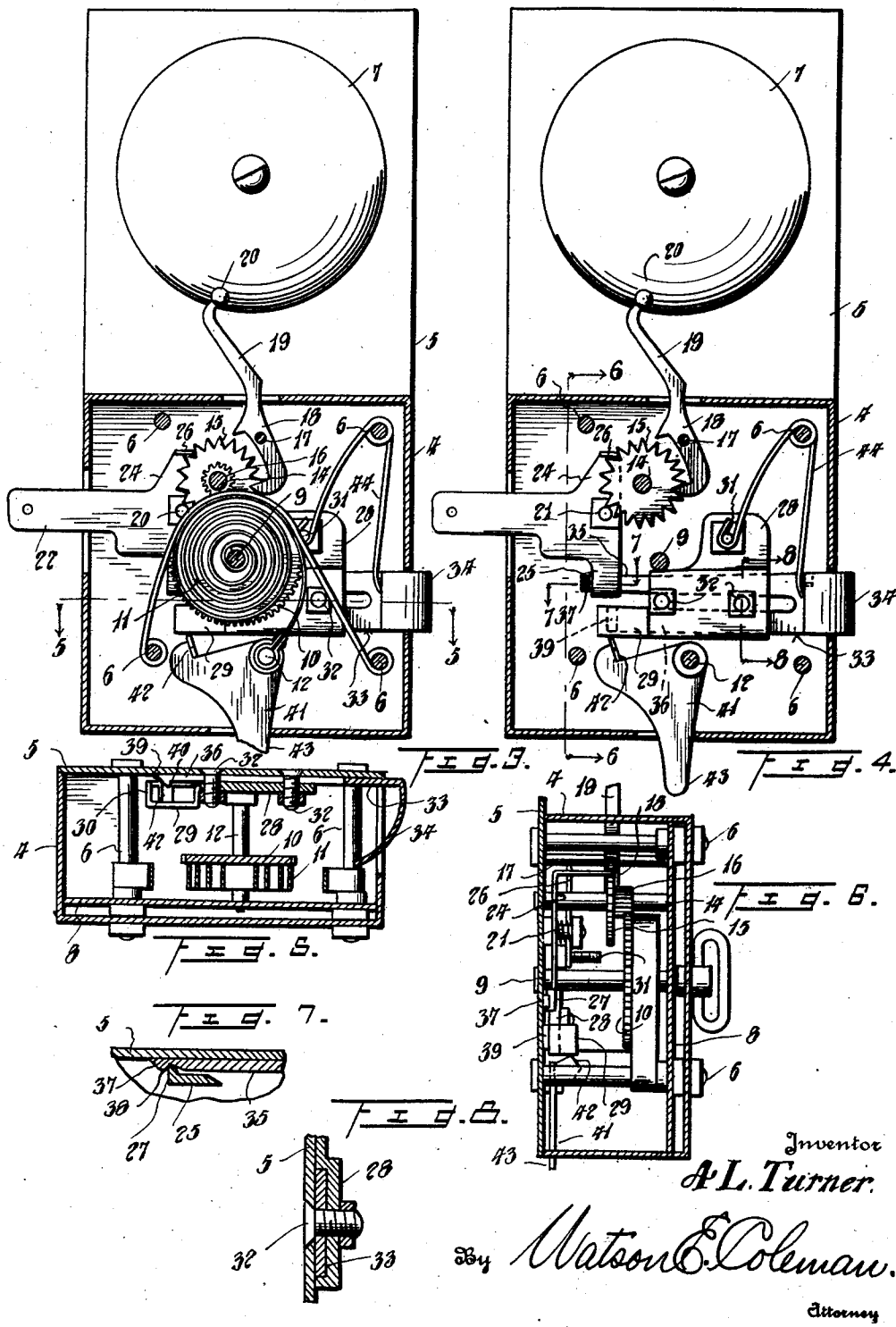


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Inventor
A. L. Turner.
By Watson E. Coleman.
Attorney

Patented Dec. 23, 1930 1,786,273

UNITED STATES PATENT OFFICE

ANDREW L. TURNER, OF DEPEW, OKLAHOMA

BURGLAR ALARM

Application filed August 9, 1930. Serial No. 474,197.

This invention relates to improvements in burglar alarm systems and particularly to an alarm sounding device which is set into operation when any portion of the system is tampered with.

The primary object of the present invention is to provide a burglar alarm which does not require electric power for its operation but which may be as easily and quickly set off as an electrically operated alarm, when any of the actuating elements thereof are effected.

Another object of the invention is to provide a burglar alarm which may be easily and quickly installed in any dwelling, store, barn, garage or other building and which will be set into operation by anyone attempting to enter the building in which it is placed, either through a window or a door.

Still another object of the invention is to provide an improved type of alarm unit which may be set into operation by an actuating cord or cable connected to one or more windows or doors, which unit may also be set into operation independently of the pull cord or cable by the opening of a door adjacent which it may be mounted.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Figure 1 is a view in perspective of a corner of a room showing the application of the alarm embodying the present invention.

Figure 2 is a sectional view through a portion of a door and door frame showing the application of the alarm unit thereto.

Figure 3 is a horizontal sectional view through the mechanism casing of the alarm unit showing the relative positions of the parts thereof.

Figure 4 is a horizontal sectional view similar to Figure 3 but taken on a lower plane.

Figure 5 is a sectional view taken on the line 5—5 of Figure 3.

Figure 6 is a sectional view taken on the line 6—6 of Figure 4.

Figure 7 is a detailed sectional view taken on the line 7—7 of Figure 4.

Figure 8 is a detailed sectional view taken on the line 8—8 of Figure 4.

Figure 9 is a detailed view of the spring attachment elements for connecting the pull cable with a door or a window.

Referring more particularly to the drawings wherein like numerals of reference indicate corresponding parts throughout the several views, Figure 1 illustrates in perspective a portion of a room showing the application of the present invention.

As shown the invention comprises an alarm unit which is indicated generally by the numeral 1, which unit is preferably mounted upon the inner face of a door frame 2 so that a portion thereof, hereinafter more particularly described, may be engaged by the door 3 when the latter is closed. As shown in the detailed illustration of the alarm unit 1 in Figure 3 the unit comprises a housing 4 having a bottom 5 upon which the mechanism thereof is mounted. The housing 4 is secured to the base or bottom 5 by the screws 6 and upon the base at one end there is mounted a bell 7. These screws 6 in addition to holding the cover in place, also support a plate 8 between which and the base the operating mechanism of the unit is disposed. This operating mechanism comprises a spring shaft 9 which carries a gear 10 and a ribbon spring 11 of the type commonly employed in clocks, one end of the spring being secured to the shaft 9 while the other end is secured to a post 12 mounted adjacent thereto. One end of the shaft 9 extends outwardly through the casing or cover 4 and has detachably mounted thereon a key 13 by means of which the shaft, which is pivotally mounted, may be rotated in winding up the spring. It will, of course, be readily understood that the usual clutch mechanism employed in clocks between the spring and the gear adjacent

thereto, is employed here to permit winding up of the spring without reversely rotating all of the other rotary elements of the device.

Adjacent the spring 11 there is mounted a shaft 14 which carries an escapement gear 15 and an escapement pinion 16, the pinion being in connection with the spring gear 10 as shown. Upon a shaft 17 mounted adjacent the escapement gear shaft 14 there is secured the escapement element 18 which is rocked in the usual manner through the alternate connection and disconnection of the tips or points thereof with the teeth of the escapement gear 15, this escapement element 18 having an arm 19 which carries at its free end the clapper 20 disposed adjacent the bell 7 for contact therewith when oscillated.

Mounted for oscillatory motion upon the pin 21 is an escapement locking lever 22 which is restrained from too free oscillation by a spring 23 which surrounds the pin 21 and bears against the inner end of the lever as shown. This lever at its inner end has the two arms 24 and 25 which are oppositely directed as shown. The arm 24 terminates in a laterally extending portion 26 the edge of which is designed, when the lever is oscillated in one direction, to engage the teeth of the escapement gear 15 to hold the same against rotation. The arm 25 has one edge turned down slightly to form a lip 27 with which another part of the mechanism, about to be described, engages.

Secured to the base 5 is a plate 28 which is so formed that a transverse portion thereof is raised from contact with the base 5 to act as a guide-way in conjunction with the adjacent portion of the base.

At one end of this guide-way portion of the plate 28, the plate is extended to form a resilient arm 29, the free end of which is turned down slightly as indicated at 30, the arm and the guide-way of the plate 28 extending transversely of the base 5, the arm terminating at its free end adjacent the arm 25 of the lever 22.

The plate 28 is held in position by three screws, one of which, the screw 31, passes through the part of the plate adjacent the guide portion thereof while the other two, the screws 32, pass through the raised portion of the plate and are disposed in alignment longitudinally thereof.

Slidably positioned in the guide portion of the plate 28 is a latch bar 33, one end of which projects a substantial distance beyond the edge of the plate 28 remote from the resilient finger 29 thereof and is turned back to form the head 34. That portion of the latch bar which is disposed beneath the guide portion of the plate 28 is longitudinally divided to form the two legs 35 and 36, the leg 35 being of greater length than the leg 36 and disposed to slide beneath the arm 25 of the lever 22. This leg 35 at its forward end is beveled as indicated at 37 to enable it to more easily slip beneath the down-turned lip 27 of the arm 25 and inwardly of the bevel there is formed a notch 38 in which the lip 27 is designed to engage.

The free end of the shorter leg 36 is also beveled at its forward end as indicated at 39 and is formed to provide a lug 40.

The beveled end of the leg 36 passes beneath the down-turned portion 30 of the spring arm 29, when the latch bar is forced inwardly a sufficient distance, so that the latch bar may be held against movement at certain periods when the alarm device is not in use. In order to release the leg 36 from connection with the resilient arm 29 there is provided an oscillating release key 41 which is mounted upon the post 12, which key has a pointed beveled head 42 arranged to slide beneath the resilient arm 29 when the key is oscillated, and an arm 43 which passes through an opening in the cover 4 to facilitate the manipulation of the key without removing the cover.

When the alarm unit 1 is mounted for operation it is placed, as previously stated, upon the inner face of the door frame, so that the head 34 of the latch bar will be engaged by the door, when the latter is closed, and forced inwardly. When this latch bar is forced inwardly it is moved against the tension of a spring 44 which is mounted in any appropriate manner upon the base of the device. At the same time the leg 35 will be forced in and will engage beneath the arm 25 of the lever 22, the notch 38 receiving the lip 27 and thus causing the lever to oscillate so that the up-turned portion of the arm 24 will be brought into engagement with the escapement gear teeth and thus prevent the rotation of this gear. It will be readily seen, of course, that when the door is opened the spring 44 will force the latch bar outwardly and due to the connection between the leg 35 and the arm 25 the lever 22 will be oscillated so as to release the escapement gear and thus permit the escapement to oscillate and ring the bell 7.

It will also be readily seen that while the door is closed and is holding the latch bar inwardly in the manner described, the oscillation of the lever 22 may be accomplished without effecting the latch bar as the lip 27 may be freely swung away from the notched end of the leg 35. In order that the unit may be employed for signaling the opening of any other door or window of the room in which it is mounted there is connected to the free end of the lever 22 a cable or cord 45 which is run through suitable guide eyes 46 disposed about the room, preferably along the baseboard thereof, to the other doors and windows therein. Each window of the room has secured to the sash thereof one end of a coil spring 47, the other end of which

is formed to support a ring 48 which is connected with the main pull cable or cord 45 by a short connecting cable 49. Another door of the room may have attached thereto one of the springs 47 to the free end of which the main cable 45 may be directly connected or may be connected through the medium of an auxiliary cable, as found necessary or convenient. It will be noted that the free end of the spring 47 which is used upon the window sash is so disposed that when it has been placed under a certain amount of tension due to the pull exerted thereon by the attached cable in the event that the window sash is raised, the ring 48 will slip therefrom. This will prevent breaking of the cable. The disconnection of the ring from the spring 47 will not take place, however, until a sufficient amount of pull has been exerted upon the lever 22 to disconnect the up-turned portion of the arm 24 from the escapement gear 15.

During periods when the alarm unit may not be in use, as for example during the daytime, it is desirable that the latch bar be held back so as to free it from contact with the adjacent door and also to keep the alarm from sounding. In order to do this the spring arm 29 has been provided beneath the down-turned free end of which the end or tip of the leg 36 passes when the latch bar is forced inwardly a sufficient distance. This connection of the spring arm 29 with the end of the leg 36 prevents the latch bar moving outwardly again until the spring arm is raised. In order to raise the spring arm and release the leg 36 the key 41 may be oscillated to force the inclined face of the head 42 beneath the spring arm 29 so as to lift it and cause it to release the leg of the bar 33.

While there has been shown in the present drawings the application of the alarm to one room only it will, of course, be apparent that the pull cable or cord may be extended to adjacent rooms through suitable passages formed through the dividing walls thereof, for example, as indicated by the numeral 50.

Having thus described my invention, what I claim is:

1. In a burglar alarm system of the character described, a signal unit designed to be mounted adjacent a door, a shiftable element forming a part of said unit adapted to be held in a predetermined position by the door when the latter is closed and to shift for the operation of the signal unit upon the opening of the door, a locking element designed to control the operation of said unit independently of said shiftable element, a cable connected to said locking element and designed to be shiftably supported in proximity to door and window openings, and means for connecting said cable with the closure elements for said door and window openings.

2. A signal unit of the character described, designed to be mounted adjacent a door for actuation thereby, comprising a sound producing element, means for sounding said element, and shiftable means adapted to be engaged by said door and moved in one direction when the door is closed, said last mentioned means when shifted by the closing of the door operating to prevent the actuation of said sounding means.

3. A signal unit adapted to be actuated by a swinging door, comprising a sound producing element, means for sounding said sound producing element including a striker actuating escapement and an escapement gear, oscillatable means arranged to engage said gear to prevent the rotation thereof, and a spring controlled reciprocable member adapted to connect with said oscillatable means when shifted against the tension of said spring by a closing door, said shiftable element when moved in the opposite direction under the urge of said spring releasing said oscillatable member from engagement with said gear.

4. A signal unit adapted to be actuated by a swinging door, comprising a sound producing element, means for sounding said sound producing element including a striker actuating escapement and an escapement gear, oscillatable means arranged to engage said gear to prevent the rotation thereof, a spring controlled reciprocable member adapted to connect with said oscillatable means when shifted against the tension of said spring by a closing door, said shiftable element when moved in the opposite direction under the urge of said spring releasing said oscillatable member from engagement with said gear, and means for securing said reciprocable element in retracted position to prevent sounding of the first mentioned element when the adjacent door is shifted.

5. An alarm unit comprising a bell, a spring operated sounding mechanism for the bell including a rotatable escapement gear and a hammer actuating escapement, an oscillatable locking element comprising a pair of arms, one thereof being adapted to engage said gear to prevent rotation thereof, a reciprocable bar moving in a path at right angles to the other of said arms and adapted to engage the said other arm, and resilient means normally urging said reciprocable element away from said other arm to effect oscillation of the first mentioned arm and the release of said gear.

6. An alarm unit comprising a bell, a spring operated sounding mechanism for the bell including a rotatable escapement gear and a hammer actuating escapement, an oscillatable locking element comprising a pair of arms, one thereof being adapted to engage

said gear to prevent rotation thereof, a reciprocable bar moving in a path at right angles to the other of said arms and adapted to engage the said other arm, resilient means normally urging said reciprocable element away from said other arm to effect oscillation of the first mentioned arm and the release of said gear, said reciprocable element including a leg, a resilient latch plate adapted to engage said leg when the reciprocable element is shifted a predetermined distance against the tension of said spring, and means mounted adjacent the leg for disconnecting the resilient element therefrom.

7. A signal unit of the character described, comprising a base, a bell mounted on the base, means for sounding said bell including a spring controlled escapement gear and a hammer carrying escapement having connection with said gear, an oscillatably mounted locking lever disposed adjacent said gear and having a pair of oppositely directed arms, one thereof being designed for engagement with the gear, a guide plate mounted upon said base and having a raised portion forming with the base a guide passage, a shiftable bar disposed in said guide passage and formed to provide a pair of legs, one thereof being arranged to move at right angles to the other of said arms, means for effecting a coupling between the other of said arms and the said one of the legs, resilient means normally urging said bar in a direction away from said lever whereby the leg of the bar connected with the lever arm will cause oscillation of the lever for the removal of the first mentioned arm from engagement with said gear, means for engaging the other leg of said bar for holding the bar in retracted position, and a releasing key for the control of said last mentioned means.

8. A signal unit of the character described, comprising a base, a bell mounted on the base, means for sounding said bell including a spring controlled escapement gear and a hammer carrying escapement having connection with said gear, an oscillatably mounted locking lever disposed adjacent said gear and having a pair of oppositely directed arms, one thereof being designed for engagement with the gear, a guide plate mounted upon said base and having a raised portion forming with the base a guide passage, a shiftable bar disposed in said guide passage and formed to provide a pair of legs, one thereof being arranged to move at right angles to the other of said arms, means for effecting a coupling between the other of said arms and the said one of the legs, resilient means normally urging said bar in a direction away from said lever whereby the leg of the bar connected with the lever arm will cause oscillation of the lever for the removal of the first mentioned arm from engagement with said gear, a resilient latching finger overlying the other of said legs and adapted to engage the same upon retraction of the bar to a predetermined point, and an oscillatable releasing key designed to disengage said finger from the leg connected thereto.

In testimony whereof I hereunto affix my signature.

ANDREW L. TURNER.