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E. BELLMAN

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BURGLAR ALARM AND LOCK THEREFOR

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Fig. 2

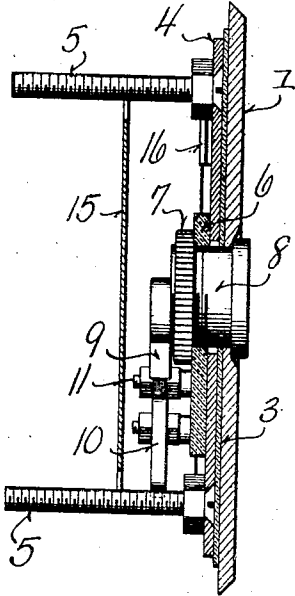


Fig. 3

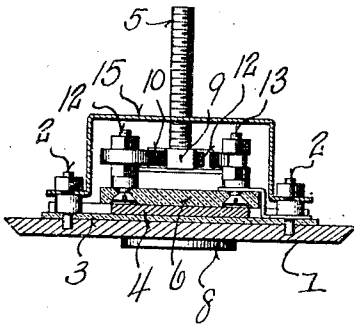
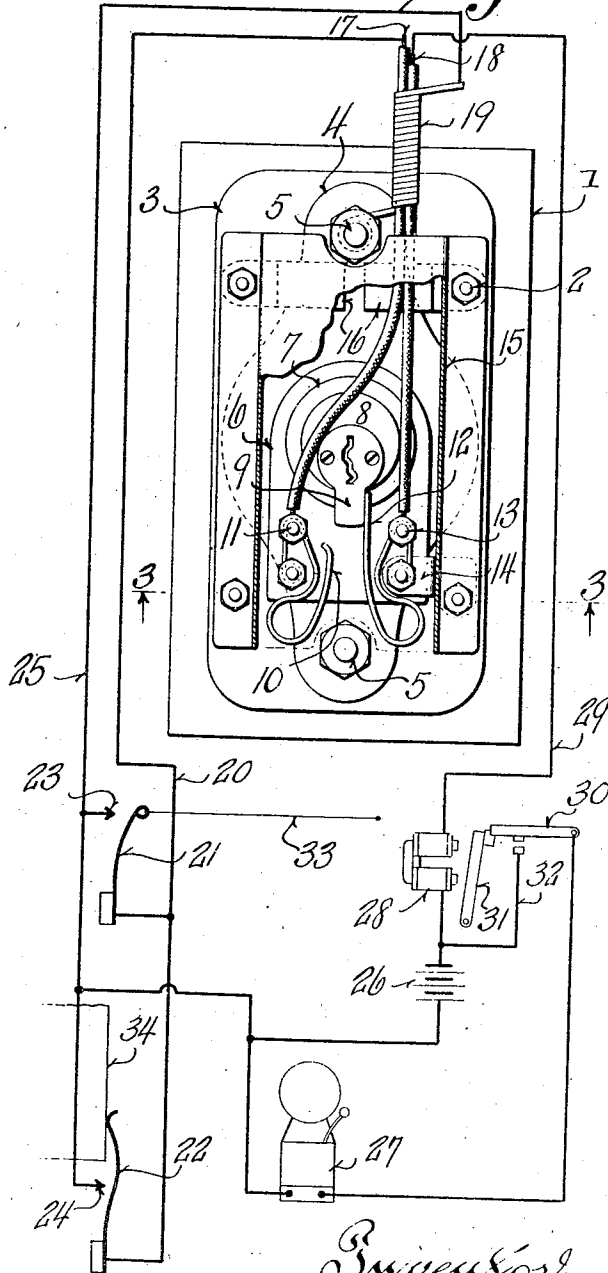


Fig. 1



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UNITED STATES PATENT OFFICE

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BURGLAR ALARM AND LOCK THEREFOR

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This invention relates to a burglar alarm and lock therefor.

Objects of this invention are to provide a novel form of burglar alarm in which a lock is employed, controlled by a removable key for throwing into or out of operation, the entire alarm system, so that the owner of the house or building in which it is installed may readily throw into or out of operation, the entire system, with no more effort than is required to lock a door.

Further objects are to provide a device which is so constructed that it will present no screws or other members which could be removed, but instead, which presents a plate free from any such fastening means and which is so made that if it is attempted to pry the plate loose from the rest of the apparatus in order to pick the lock, that this operation itself will start the alarm; the alarm system being so constructed that the alarm continuously sounds after it is once started. Entrance must be made to the inside at a designated place to stop the alarm. The key to the lock will turn the alarm on, but not off, after the bell has started.

Further objects are to provide a device which is easy to construct and is very easy to install, and which is so made that no thought is required on the part of the user other than merely inserting a key and operating the lock.

An embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a rear view of the lock with parts broken away and in section, such view showing a portion of the system.

Figure 2 is a longitudinal sectional view through the lock.

Figure 3 is a transverse sectional view on the line 3—3 of Figure 1.

Referring to the drawings, it will be seen that the lock comprises an outer metal plate 1. This metal plate is provided with a plurality of threaded pins 2, which are permanently set in the plate on its inner side and secured in any permanent manner, as by soldering, welding or in fact, in any other way. These pins serve to position an insulating sheet 3, which is positioned to the

inner face of the plate 1. This insulating sheet has positioned thereon a metal plate 4, which is provided with a centrally bulged portion, and with rounded ends, as indicated in Figure 1. The metal plate 4 is provided with apertures which are counter-sunk to receive the tapered heads of rearwardly projecting bolts 5, by means of which the lock may be secured in place. This metal plate is held in place by means of an insulating plate 6, (see Figures 1, 2 and 3). The insulating plate is held in place by the threaded ring-nut 7 of the tumbler carrying portion or barrel 8 of the lock. This lock may be of standard construction and may be provided with a key-hole in the usual way, adapted to receive an operating key.

The rotatable portion at the rear of the lock carries a cam member 9 (see Figures 1 and 2), which is equipped with a key-hole into which the key enters when inserted in the lock, so that when the key is operated, the cam portion 9 operates and controls contacts, hereinafter to be described.

A relatively short spring contact 10 is secured by means of bolts 11 to the insulating plate 6. A relatively longer spring contact 12 is also secured by means of bolts 13 to the insulating plate. The longer contact member 12 is movable and normally engages the contact 10; however, when the lock is unlocked, the cam member 9 of the lock member moves the spring contact member 12 outwardly away from the spring contact 10, and the system is now rendered inoperative. When it is desired to throw the system into operation, the user merely inserts his key and operates the lock as if he was locking it. This rotates the cam member 9 in a clockwise direction, as viewed in Figure 1, and allows the contact 12 to engage the contact 10. The contact 12 is connected to a small metal clip 14, which is in turn connected to the inner metal casing 15 of the lock. This inner metal casing is also connected to a pair of inwardly projecting metal fingers 16, or stationary contact members 2 (see Figures 1 and 2), which overhang the metal plate 4.

The bolts 2, or threaded pins, pass through

the inner flanges of the rear casing 15 and through the clip 14 and the contact members or clips 16. Thus, the rear casing 15 and the contact members 16 are all connected to the front plate.

The lock is connected to a metal sheathed flexible cable, having a pair of conductors 17 and 18, and having the metal sheath 19. This metal sheath may be merely a wrapped wire surrounding the insulated conductors 17 and 18. It is connected to the plate 4, so that the metal sheath itself forms one portion of a circuit, hereinafter to be described. One of the conductors, 18, is connected to the spring contact member or movable member 12 and thus to the clips or contact members 16 of the front plate. The other conductors, 17, of the cable, is connected to the contact member 10.

It is obvious that a three-wire cable could be employed, but it is found cheaper to use the sheath of the armored cable as one of the conductors, thus cutting down the expense and also serving an additional purpose, which will hereinafter appear.

The conductor 17 is connected by means of the wire 20 to a plurality of movable contact members, as indicated at 21 and 22, of a plurality of alarm units. These contact members are covered, the cover being removable only in forming a contact, so that when the system is turned on the alarm must respond if covers are removed. The stationary contacts 23 and 24 for such units are connected by means of a conductor 25 to the metal sheath 19.

Further, the wire 25 is connected to one side of a battery 26 and also to one side of an electrical bell or other alarm member 27. The other side of the battery 26 is connected through the coils of an electro-magnet 28 to a wire 29 leading to the conductor 18 of the cable. It is, of course, to be understood that the cable itself constitutes the major portion of the conductors 20, 25 and 29, and may be run through the building as a single means, having these three conducting portions, as described. One side of the bell 27 is connected to a drop lever or trip 30, held in place by the armature 31 of the electro-magnet 28. When this electro-magnet is energized, the lever or catch drops and connects with a wire 32 leading to one side of the battery. The other side of the battery is connected to the bell, as indicated in Figure 1, and consequently, a local circuit, including the bell, or other sounding device, and battery, is established.

It is apparent that the member 21 may be controlled by a wire or thread, as indicated at 33, so that when this thread is touched or broken by the unauthorized entry of a person, or by burning, that the member 21 engages the contact 23 and consequently sounds the alarm.

Further, it is apparent that the member 22 may bear against a window sash or door, indicated by the reference character 34 in Figure 1, and when said window sash, or other movable member, is moved, that the member 22 engages the contact 24, thus sounding the alarm.

Further than this, if a burglar attempts to render the alarm system useless by cutting through the wire wound or metal sheath cable, he will establish a connection between the conductor 17 or 18 and the metal sheath, which is connected through the conductor 25 to the battery. Thus, the alarm is sounded whenever the cable is cut.

Further, it is to be noted that if an attempt is made to pry the front metal plate off, that this will cause the contact member 16, rigidly secured thereto, to engage the metal plate 4 and consequently sound the alarm.

It is, of course, obvious that there are times when it is desired to render this alarm system inoperative, as, for instance, when the house is in normal use and when people are entering or leaving the house, or operating the windows protected by this system. This is readily accomplished by unlocking the lock or master control member. However, whenever the occupant desires to throw the alarm into active condition, it is merely necessary for him to lock the lock; hence, it is a simple matter to throw the alarm into or out of use.

It will be seen further, that a very simple and highly effective alarm has been provided by this invention, and it will be seen that a novel form of master control member or lock has been provided, which can not be tampered with without setting off the alarm.

Nothing can stop the alarm after it has started except entrance to building to the provided place, such as the magnetic drop and private switch to battery, which is usually connected close thereto. A push button is also connected to conductors 17 and 18, which is for testing purposes. To push this button is the same as turning key and is located inside to test the alarm without the key, usually close to the magnet drop, so that it can be shut off instantly.

Although the invention has been described in considerable detail, such description is intended as illustrative rather than limiting, as the invention may be variously embodied and as the scope of such invention is to be determined as claimed.

I claim:

1. In an alarm system having three conductors, a lock comprising an outer plate, a pair of contact members connected to two of said conductors, one of said two conductors being connected to said metal plate, a cam member controlled by said lock for operating said contact members, and means

connected to the third conductor and adapted to contact with a portion of the lock connected to one of said two conductors, when the lock is pried loose.

5 2. In an alarm system having a metal sheathed, two-conductor cable, the combination of a lock having an outer plate, an inner metal plate insulated therefrom, said inner metal plate being connected to the
10 metal sheath of said cable, the outer metal plate having contact brackets normally out of contact with and over-hanging the inner metal plate, said outer metal plate being connected to one of the two conductors of
15 said cable, a spring contact member connected to such conductor, a second spring contact member adapted to engage said first mentioned contact member and connected to the other conductor of said cable, and
20 means operated by said lock for operating the contact members.

3. In an alarm system having a metal sheathed, two-conductor cable, the combination of a lock having an outer plate, an
25 inner metal plate insulated therefrom, said inner metal plate being connected to the metal sheath of said cable, the outer metal plate having contact brackets normally out of contact with and over-hanging the inner
30 metal plate, said outer metal plate being connected to one of the two conductors of said cable, a spring contact member connected to such conductor, a second spring contact member adapted to engage said
35 first mentioned contact member and connected to the other conductor of said cable, and means operated by said lock for operating the contact members, said means comprising a cam member carried by the barrel
40 of said lock and adapted for actuation by a key.

4. A lock for an alarm system comprising an outer metal plate, threaded pins secured thereto and projecting inwardly from the
45 inner face of said metal plate, a metal cover carried by said pins, a pair of contact members carried by said pins and spaced inwardly from said outer plate, an inner metal plate positioned between said outer metal
50 plate and said contact members and out of contact with both said outer plate and said contact members, an insulating plate mounted inside of said inner metal plate, spring contact members urged toward contact with each other, and cam means controlled by said lock for operating said
55 spring contact members.

5. A lock for an alarm system comprising an outer metal plate, threaded pins secured
60 thereto and projecting inwardly from the inner face of said metal plate, a metal cover carried by said pins, a pair of contact members carried by said pins and spaced inwardly from said outer plate, an inner
65 metal plate positioned between said outer

metal plate and said contact members and out of contact with both said outer plate and said contact members, an insulating plate mounted inside of said inner metal plate, spring contact members urged toward
70 contact with each other, and cam means controlled by said lock for operating said spring contact members, said inner metal plate being held in position with reference to said outer metal plate by insulating members, and attaching screws carried by said
75 inner metal plate and adapted to secure said lock in place.

In testimony that I claim the foregoing I have hereunto set my hand at Rockford, in the county of Winnebago and State of
80 Illinois.

EDWARD BELLMAN.

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