

Apr. 24, 1923.

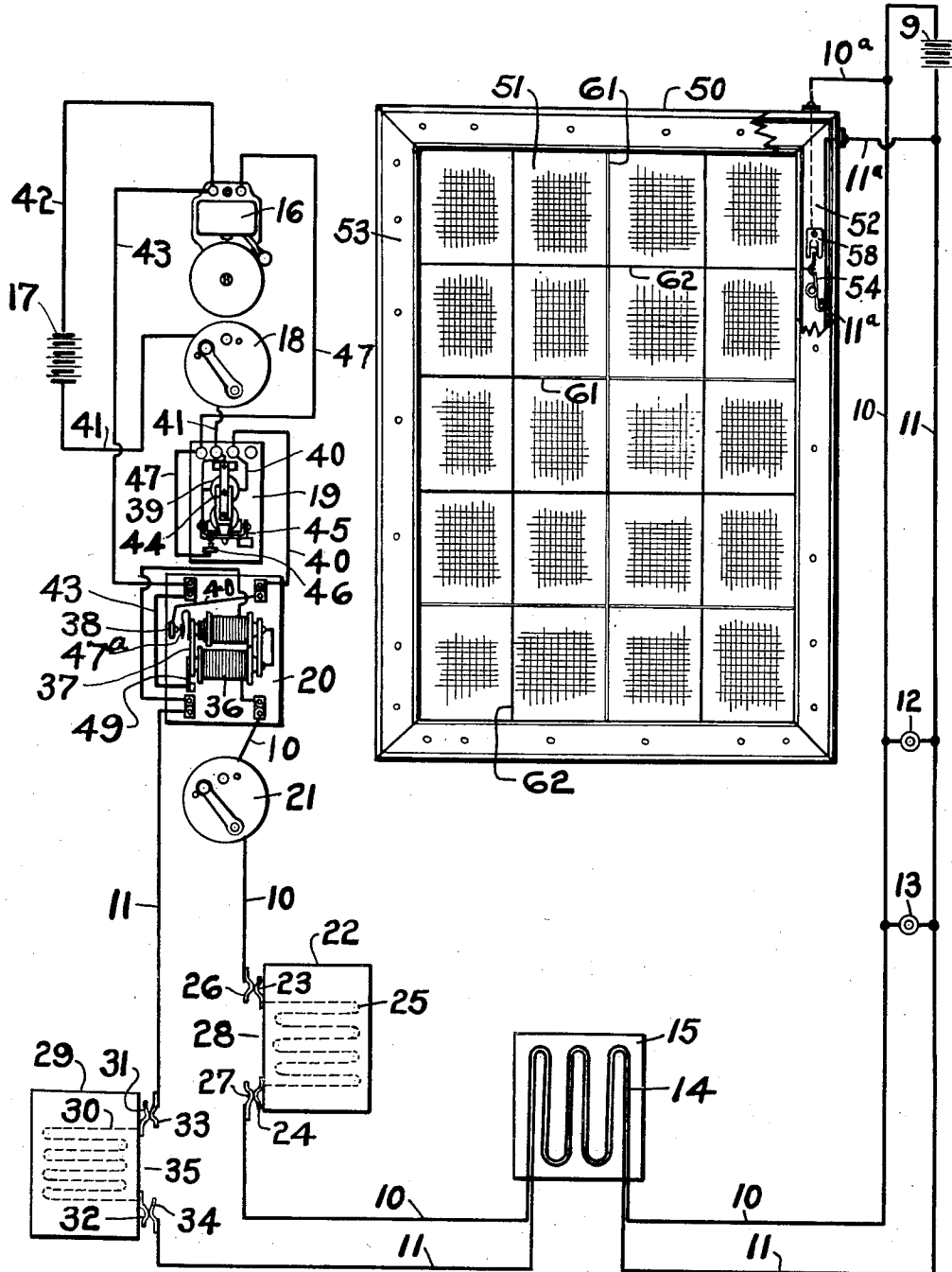
1,452,500

B. GALERMAN

BURGLAR ALARM APPARATUS

Filed Oct. 15, 1918

3 Sheets-Sheet 1



WITNESSES
Milton W. Brown.
Augustus B. Cope.

FIG. 1. INVENTOR
Benjamin Galerman
By Joshua R. H. H. H.
HIS ATTORNEY.

Apr. 24, 1923.

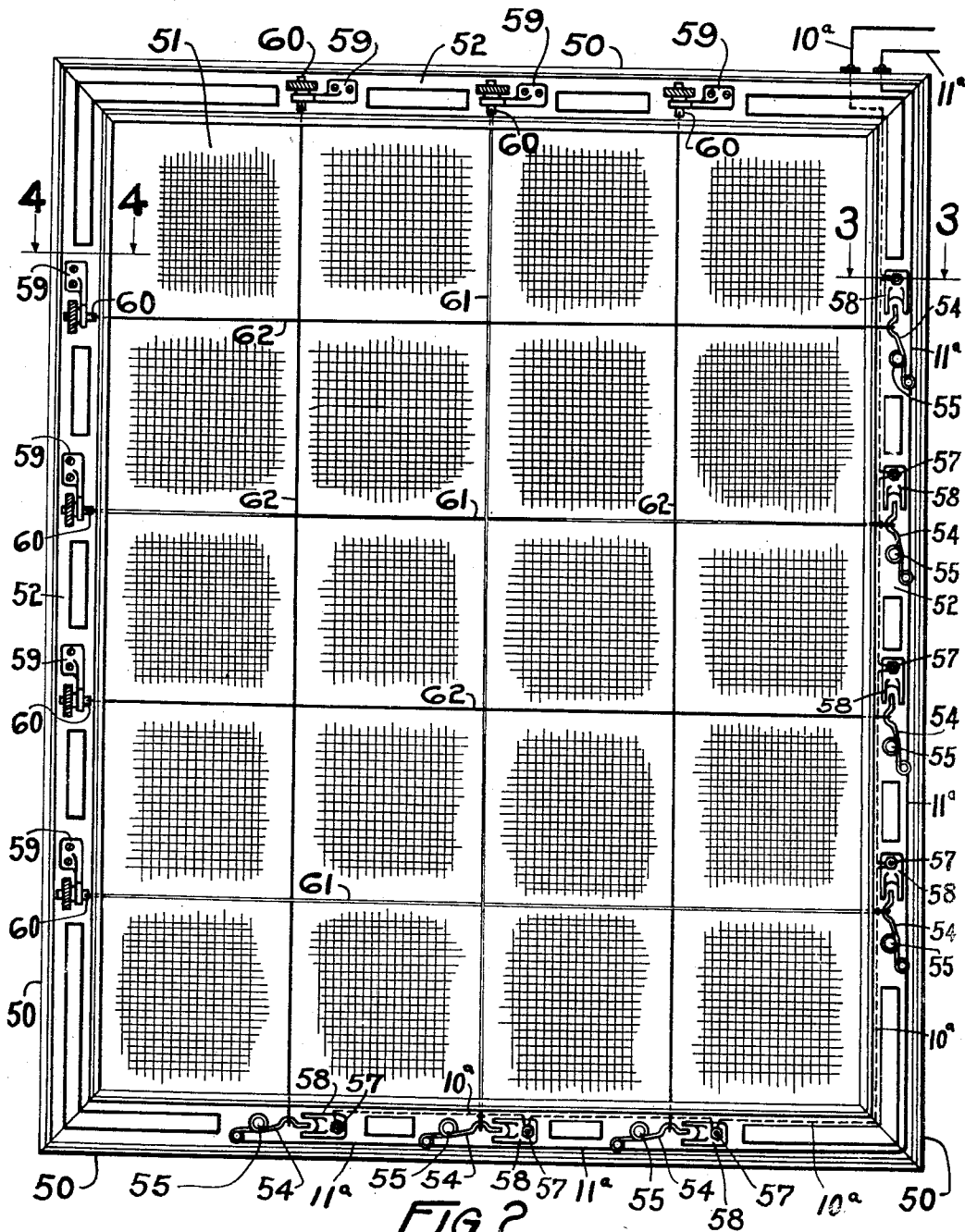
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3 Sheets-Sheet 2



WITNESSES
Milton W. Brown.
Augustus B. Lopes

INVENTOR
Benjamin Galerman
Joshua H. F. F. F.
HIS ATTORNEY.

Apr. 24, 1923.

1,452,500

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3 Sheets-Sheet 3

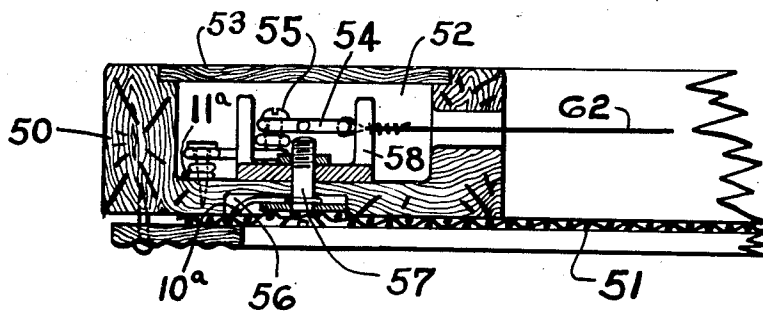


FIG. 3.

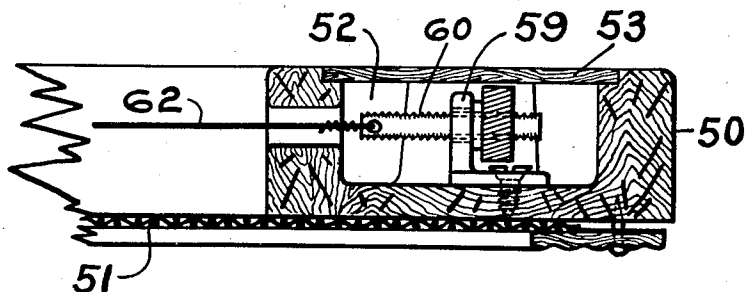


FIG. 4.

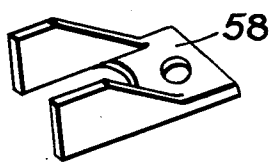


FIG. 5.

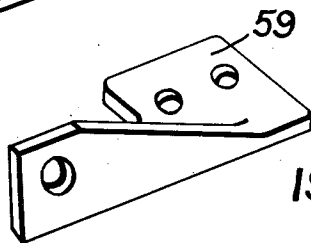


FIG. 6.

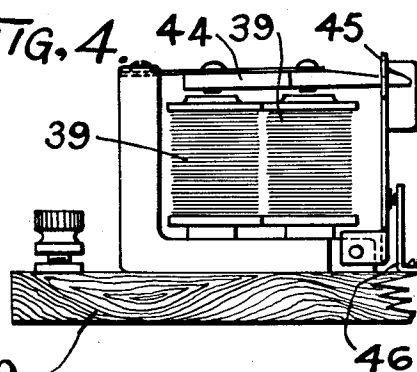


FIG. 7.

WITNESSES

Milton W. Brown.
Augustus B. Coppes

INVENTOR

Benjamin Galerman
By Joshua R. Potts
HIS ATTORNEY.

UNITED STATES PATENT OFFICE.

BENJAMIN GALERMAN, OF PHILADELPHIA, PENNSYLVANIA.

BURGLAR-ALARM APPARATUS.

Application filed October 15, 1918. Serial No. 258,251.

To all whom it may concern:

Be it known that I, BENJAMIN GALERMAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelpha and State of Pennsylvania, have invented certain new and useful Improvements in Burglar-Alarm Apparatus, of which the following is a specification.

One object of my invention is to provide burglar alarm apparatus of comparatively simple construction which is readily adapted for use in buildings, residences, or the like and which will operate to produce an alarm either by the breaking of an electric circuit such as by breaking a wire or throwing out a switch and which will also be operative to produce an alarm by the engagement of wires or ground contacts.

Another object is to so construct my invention that it can be readily applied to window sashes, screens, doors or the like so that by opening of the windows, doors or screens an alarm will be produced.

A further object is to so construct my invention that the alarm will be produced by the burning of cords, ropes or the like in case of fire.

A still further object is to include means which will cause the continuous production of an alarm after the alarm device is initially started.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a diagrammatic elevation of my invention,

Figure 2 is an enlarged elevation of a portion of my invention in the form of an electrically connected screen such as would be used in a window or doorway and in which cover strips are removed to illustrate certain of the operative parts,

Figure 3 is an enlarged fragmentary section taken on the line 3—3 of Figure 2,

Figure 4 is an enlarged fragmentary section taken on the line 4—4 of Figure 2,

Figures 5 and 6 are perspective views of certain of the parts of my invention, and

Figure 7 is a side view of the automatic drop which I preferably use in carrying out my invention.

Referring to the drawings and particularly to Figure 1, 9 represents a source of electrical energy in the form of an electric battery, the opposite poles of which are connected by wires 10 and 11.

12 and 13 represent push buttons which are interposed between the wires 10 and 11 and it will be noted that any number of these push buttons may be employed and that the operation thereof will effect an alarm, as will hereinafter be more fully described.

The wires 10 and 11 can be bare or free of their insulation at any location within their length and the mere contacting of these wires will produce an alarm. For example, these wires are freed of their insulation and bent into a number of convolutions 14 so as to cover a window sash or the like, as illustrated diagrammatically at 15, so that if attempted to break said window and the two adjacent wires in each convolution were brought in contact with each other, an alarm would be produced.

The following other instruments or devices are illustrated in circuit; namely, an electric bell 16, electric battery 17, switch 18, automatic drop 19, magnetic relay 20 and switch 21.

A window sash, screen or other movable device is illustrated at 22 and has contacting fingers 23 and 24 thereon which are connected by a wire 25 which can be made in a series of convolutions as illustrated, or in any other form desired.

Two other contacts 26 and 27 normally respectively engage the contacts 23 and 24, there being a breach 28 provided in the wire 10. However, the wire 25 normally completes the electric circuit within the wire 10. A movement of the member 22, which will separate the respective contacts, will break the circuit and produce an alarm.

In similar manner I have shown an element 29 which can be in the form of a window sash or other movable object and which includes a wire 30 having its ends attached to contacts 31 and 32 which respectively engage contacts 33 and 34 attached to the wire 11; there being a breach 35 formed in said wire 11 so that under normal conditions the wire 30 and said latter contacts complete the circuit within the wire 11.

The switch 21 is interposed within the length of the wire 10 and is connected to the magnetic relay 20, the wire 11 also being attached to said relay. Thus, when the switch 21 is closed a current will pass from the battery 9 through the electro-magnets 36 of the relay 20, causing them to be energized and to attract their armature 37.

A contact 38 adjacent the armature 37 is in electric connection with the magnets 39 of the automatic drop 19 by means of a wire 40, said magnets 39 also being in connection with the second mentioned battery 17 through the medium of said switch 18 and the wire 41.

The battery 17 is in connection with the armature 37 by means of wires 42 and 43. The automatic drop 19 includes an armature 44, of well known construction, which normally holds a pivoted plate 45 in a raised position and free of a contact 46. However, when the magnets 39 are energized the armature will be moved, due to the magnetic attractive action of the magnets to free the plate 45 and permit it to drop upon the contact 46.

The contact 46 being in electric connection with the bell through the medium of the wire 47 and the bell having the battery 17 in circuit through the medium of the wires 42 and 41, it will be readily understood that when the plate 45 engages the contact 46 current will pass from the battery 17 through the bell 16 to operate the latter, and that the bell 16 will continue ringing as long as the plate 45 is in engagement with the contact 46. It will, of course, be understood that the wire 41 is in electric connection with the plate 45.

The armature 37 of the magnetic relay 20 has a finger 47^a which is in electric connection with the wire 43 through the medium of the armature and when the magnets 36 are energized the finger 47^a will be held out of engagement with the contact 38, and since the plate 45 and contact 46 of the automatic drop are normally disengaged the bell 16 will remain silent.

However, if anything happens to deprive the magnets 36 of their current, the armature 37, which is supported by a plate spring 49 the tension of which serves to move the armature away from the magnets 36, will move the finger 47^a into engagement with the contact 38 and thereby cause current to pass through the magnets of the automatic drop 19 to effect the engagement of the plate 45 and contact 46. This latter action will complete the electric circuit through the bell 16 and the bell 16 will ring continuously while the plate 45 and contact 46 are in engagement.

The electro-magnets 36 of the magnetic relay 20 can be deprived of their current in numerous ways. For example, if either

of the wires 10 or 11 is broken the battery 9 cannot supply current through the magnets 36. These wires can be broken either by actually breaking the strand of wire or the elements 29 and 30 can be moved out of position to separate their respective contacts and in so doing the result will be the same as the actual breaking of the wires 10 and 11. Also, by opening the switch 21 the current from the battery 9 to the magnets 36 will be stopped. The pushing of either of the buttons 12 or 13 will also deprive the magnets 36 of their magnetism from the battery 9 since it will short circuit the current through the battery. In similar manner if the wires 10 and 11 are brought into engagement with each other the battery 9 will be short circuited and an alarm will be produced.

It will thus be noted that my invention includes two general circuits—a closed circuit and an open circuit, said open circuit including the alarm device and rendered operative by either short circuiting the battery of the closed circuit or by otherwise effecting the inoperativeness of the battery of the closed circuit so as to deprive the magnets of the relay of their current.

Wires 10^a and 11^a respectively connect the wires 10 and 11 and lead to a frame 50 which is covered by a metallic screen 51 such, for example, as an insect screen. The frame 50 has a channel 52 formed therein which is normally covered by closure strips 53.

The wire 11^a extends longitudinally throughout the channel 52 and is electrically connected with a plurality of contacting fingers 54 which are preferably made of resilient wire which is coiled around posts 55.

The wire 10^a extends within a groove in the opposite portion of the frame and is connected at various points to bolts 57. These bolts 57 extend through the screen 51 and thereby form a ground for the wire 10^a on the screen 51.

The bolts 57 secure bifurcated contacts members 58 within the channel 52 and the free ends of the contacting fingers 54 are interposed between the furcations of the contacts 58, as clearly shown in Figures 1 and 2. Brackets 59 are secured within the channel 52 opposite the contacting fingers 54 and form a support for adjusting screws 60.

Cords and wires 61 and 62 respectively connect the adjusting screws with the spring contacting fingers 54, said cords and wires crossing within the screen and serving, under ordinary conditions, to hold the contacting fingers midway between the furcations of the contacts 58.

It will be noted that if any one of the wires or cords is cut the resiliency of its contacting finger 54 will cause it to be moved into engagement with one of the furcations of the contact 58. This will cause the bat-

tery 9 to be short circuited and thereby produce an alarm in the manner above described.

In a similar manner if any one of the cords 61 is burnt its contacting finger 54 will be relieved of tension and will engage the adjacent contact 58. On the other hand, if any one of the cords or wires is depressed or pulled the resultant action will be to move the contacting finger in engagement with the opposite furcation of the contact 58 and thereby produce an alarm. Also, the mere engagement of any one of the wires 62 with the screen 51 will short circuit the battery 9 to produce an alarm.

For example, if any one of the wires 62 were pressed against the screen 51, which as previously stated is grounded on the wire 10^a, the circuit through the battery 9 would be shortened and closed through the medium of the pressed wire 62, its contacting finger 54 and the wire 11^a.

It will thus be understood that with my improved apparatus a continuously operative alarm will be produced either by breaking of conduits or short circuiting the closed circuit battery. Thus by the use of my invention it is impossible for a burglar or other unauthorized person to enter a premise by first bridging a circuit to render the alarm device inoperative since the mere attempt of bridging any of the wires of my improved apparatus will in itself produce an alarm for reasons comprehensible from the above description.

It will be further understood that devices such for example as the push buttons 12 and 13 can be employed so that a person within a premise can give an alarm merely by touching a button or, for example, by opening the switch 21.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination in alarm apparatus of a circuit including a generator and an alarm device; a conductor, circuit closing means in said circuit comprising a movable and a fixed contact and means for holding said conductor under tension with the movable contact in circuit opening position with a bias toward a circuit closing position; a metallic screen positioned in a plane adjacent said conductor and spaced therefrom throughout its length, means for connecting said

screen to one contact of said circuit closer and means for connecting said conductor to the other contact of said circuit closer, whereby said circuit will be closed to energize said alarm if the conductor is severed or if the conductor contacts with the screen.

2. The combination in alarm apparatus of a circuit including a generator and an alarm device; a conductor, circuit closing means in said circuit comprising fixed and movable contacts, one of which has two opposed contact portions and means for holding said conductor under tension with one of said contacts in circuit opening position with a bias toward a circuit closing position, a metallic screen positioned in a plane adjacent said conductor and spaced therefrom throughout its length, means for connecting said screen to one contact of said circuit closer and means for connecting said conductor to the other contact of said circuit closer, whereby if the conductor is pulled or severed or contacts with said screen the circuit will be closed to energize said alarm.

3. The combination in alarm apparatus, of means providing an electric circuit including a generator; an alarm device, said circuit including two members respectively connected to opposite poles of said generator, one of said members being adapted, due to its resiliency, to engage the other of said members; means for placing said resilient member under tension and holding it out of engagement with the other of said members, said resilient member being so disposed with respect to the other member that when said latter means is pulled it will engage the other of said members to close said circuit to effect the operation of said alarm device, said latter means being a conductor of electricity; and a metallic screen positioned in a plane adjacent said latter means throughout its length and in electric connection with the pole of said generator to which said latter mentioned members is connected whereby when said latter means engages said screen, the circuit will be closed through said screen and generator to effect the operation of said alarm device; substantially as described.

4. The combination in an alarm apparatus of a normally open electric circuit including a generator and an alarm device; a normally closed circuit including a generator, a magnetic relay and two series of co-acting conducting members connected respectively to opposite poles of the generator, the members of one series being resilient; connections between the relay and the alarm circuit whereby de-energizing the magnets of the relay will close that circuit and actuate the alarm; a metallic screen in electric connection with the pole of the generator in the closed circuit and electric conducting members crossing

the screen, but normally out of contact there-
with, and adapted to hold the resilient mem-
bers out of contact with the co-acting mem-
bers whereby, when a screen-crossing mem-
5 ber contacts with the screen or is bent or
broken, the closed circuit will be short cir-
cued and the alarm circuit closed.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

BENJAMIN GALERMAN.

Witnesses:

Miss MOLLIE GALERMAN.

CHAS. E. POTTS.