No. 671,388. Patented Apr. 2, 1901.

A. P. PRICHARD.

DEVICE FOR PROTECTING SAFES AGAINST BURGLARS.

(Application filed Feb. 6, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

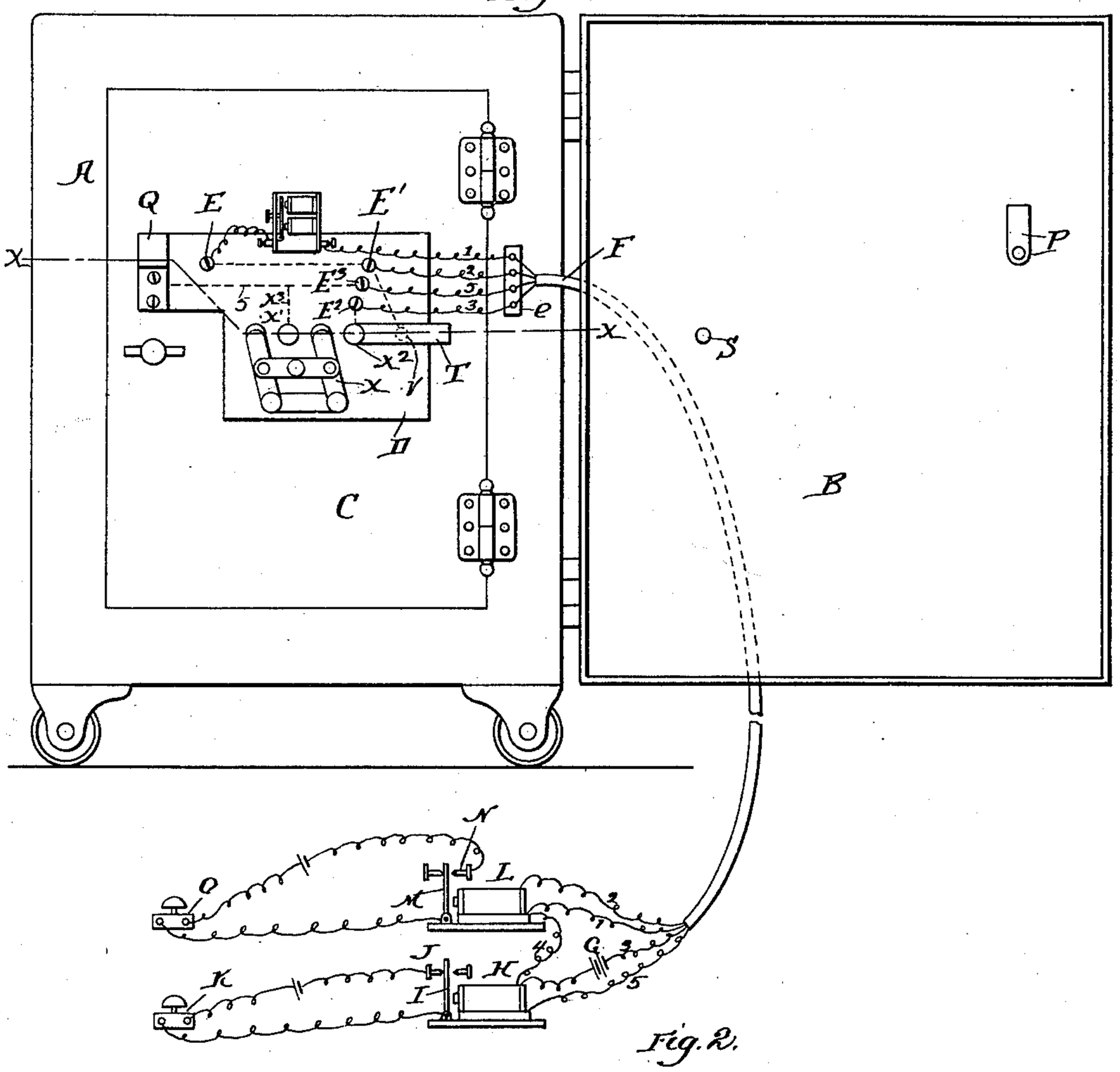
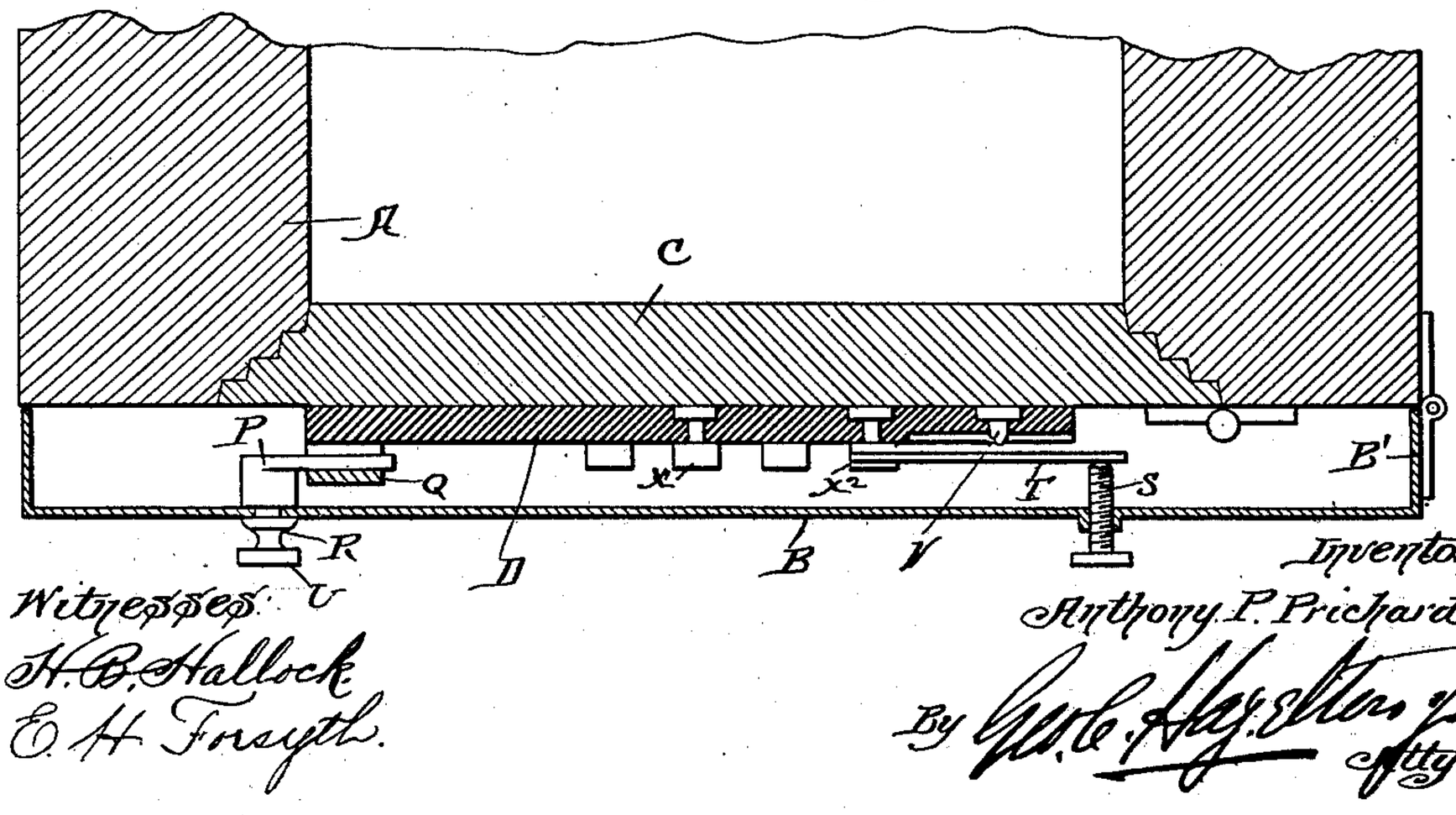


Fig. 2.



Witnesses:
H. B. Hallock
E. H. Forsyth.

Inventor.
Anthony P. Prichard.
By Wm. C. Hazelton
Atty.

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Fig. 3.

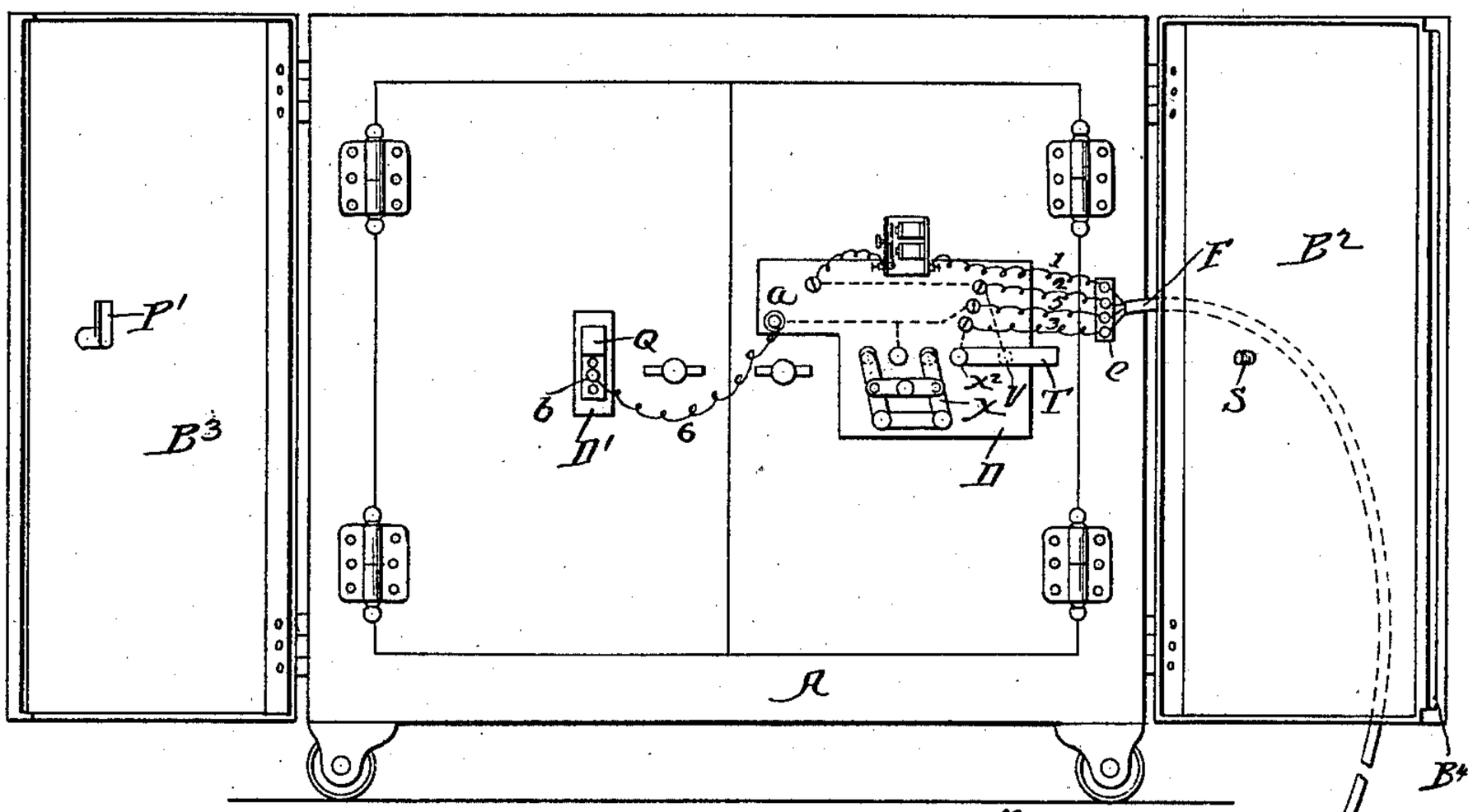


Fig. 4.

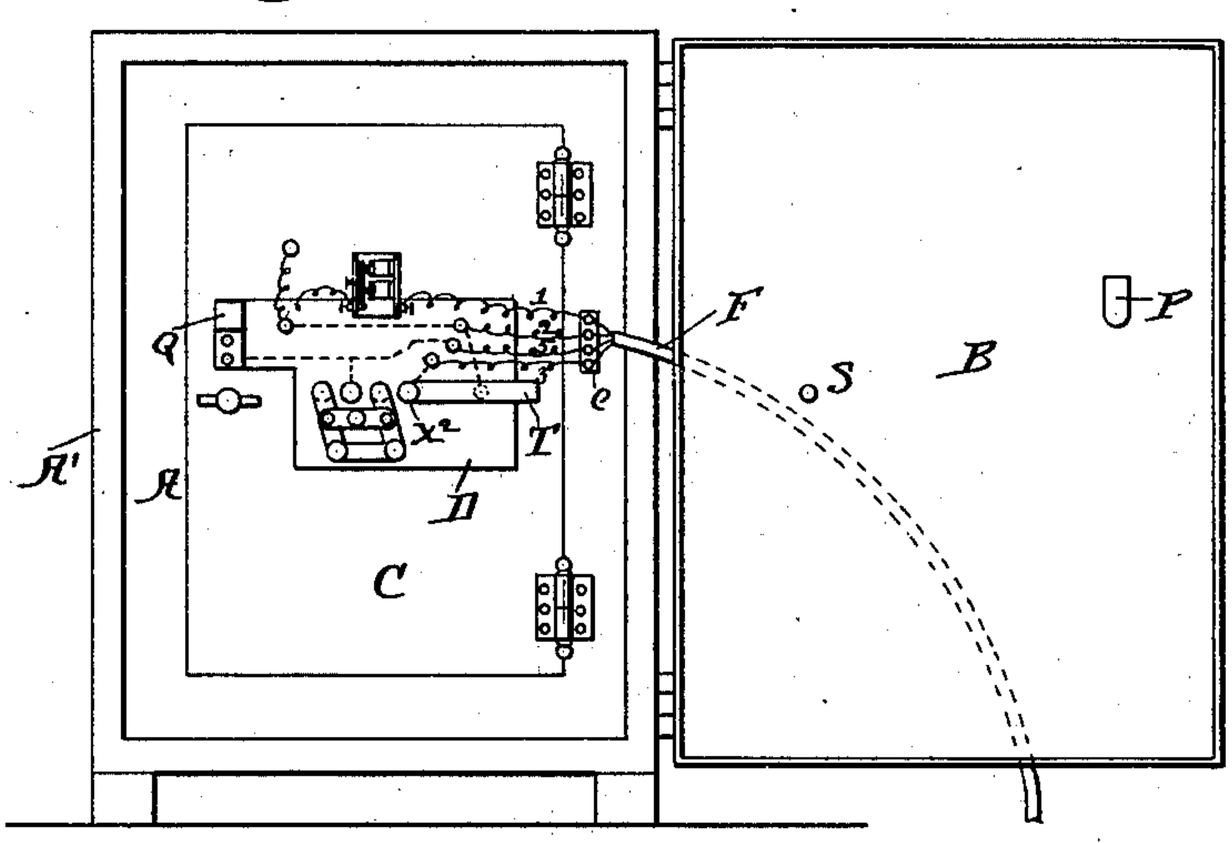
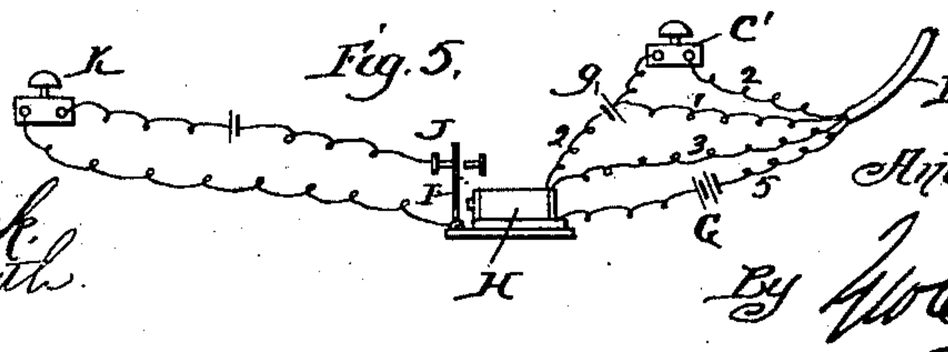


Fig. 5.



Witnesses:
H. B. Hallock.
E. H. Forsyth.

Inventor.
Anthony. P. Prichard.
By Wolcott Hayden & Hayden
Attys.

UNITED STATES PATENT OFFICE.

ANTHONY P. PRICHARD, OF TACOMA, WASHINGTON.

DEVICE FOR PROTECTING SAFES AGAINST BURGLARS.

SPECIFICATION forming part of Letters Patent No. 671,388, dated April 2, 1901.

Application filed February 6, 1900. Serial No. 4,235. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY P. PRICHARD, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented new and useful Improvements in Devices for Protecting Safes Against Burglars and the Like, of which the following is a specification.

My invention relates to a new and useful improvement in devices for protecting safes against burglars and the like, and has for its object to so construct such devices as to render it impossible to gain access to the handles or combination-knobs of the doors of the safe, thereby precluding the possibility of inserting explosives without first giving an alarm at the central station or other point.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation of a drill-proof safe, showing my improvement applied thereto; Fig. 2, an enlarged section on the line $x\,x$ of Fig. 1, showing the screen closed; Fig. 3, an elevation of a double-door drill-proof safe, showing my improvement applied thereto; Fig. 4, an elevation of a fireproof safe, showing my improvement applied thereto; and Fig. 5, a system of wiring for a station near by.

In Figs. 1 and 2 I have shown the most improved form of my system for application to what are known as "drill-proof safes," and which consists of the following arrangement: A represents the safe, to which is hinged in any convenient manner the screen B, and to the safe-door C is attached the insulating strip or block D, and upon this block are secured the binding-posts E, E′, E^2, and E^3, to which are attached the wires 1, 2, 3, and 5, respectively. These wires pass into and form the cable F, which cable passes into any distant station, such as a police department or sleeping-room, where the wires are again separated. In practice the screen should be of a size to almost entirely cover the front of the safe, and being provided with the flanges B′ a space will be inclosed therebetween and the front of the safe, to which access cannot be had except by opening or removing the screen. The cable F passes into this space, and thereby access cannot be had to its inner end, which avoids tampering with the wires which branch therefrom without first removing or opening the screen, and this, as will hereinafter appear, is of vital importance to the successful protection of the safe by my improved devices.

The following description of the circuits will explain the operation of the invention.

By referring to Fig. 1, it will be seen that 1 rings the bell O by forward stroke and that H rings the bell by backward stroke. With the screen open and the switch thrown to the left the armature of relay H would fly back and close bell-circuit K and ring the bell. If the switch was closed, the normally open circuit would be closed and the bell would not sound. Should the switch be open and the screen locked, the normally closed circuit would then be closed by the current from 5, through the keeper Q, locker P, and through the screen itself to adjustment-screw S, to the spring-strip, thence to wire 3, to battery, through relay H, and back again on 5, or the reverse. Hence turning the locker or releasing adjustment-screw from a contact with strip breaks the open circuit and closes bell-circuit K, ringing bell K through relay H. Pressing on the screen forces the spring-strip to a contact behind it and closes the open circuit, allowing the current on 3 to pass through 2 and 1 to the buzzer, relay H, and back to battery either by connection, as shown at relay H, or a separate wire from relay L to battery and back on 3 again, and when the open circuit is closed it sounds the buzzer and also rings the bell O by armature of relay L flying forward. Pressing on the screens forces the locker back from the keeper and rings bell K through relay H. At the same time the adjustment-screw forces spring to a contact and sounds the buzzer and bell O through relay L, as described.

In Fig. 3 the same principle applies to

keeper and locker which are on the left-hand side of screen, and when closed the circuit from 5 passes from locker to left-hand screen-door and from it through the right-hand door to the adjustment-screw wire 3, &c., as described.

In Fig 4 the safe itself is connected with open circuits by the short wire at left of the buzzer, and the casing inclosing the safe and insulated from it, as in the closed circuit, (when locked,) as before described, and in case of drilling, &c., the drill would cross the circuits, allowing current in casing and screen from 3 to pass through the drill to the safe and to the wire to 2 and 1, then to buzzer and relay L, to battery, and back on 3 to casing and screen, or reverse, thus sounding bell O and the buzzer. In Fig. 5 the same arrangements at the safe, but a simpler form for one station, using but one relay and main battery.

The wire 3 leads from the station end of the cable to the battery G, which is preferably a gravity-battery, adapted for the closed circuit, and in passing from this battery this wire 3 leads to the bobbin of the relay H and the wire 5 connects with the opposite end of the bobbin of said relay, thus putting the relay in the closed circuit in which the battery G is included, which, as is obvious, will cause the armature I of said relay to remain out of contact with the point J when the screen is in its proper position. This will hold the circuit of the bell K open, preventing the ringing of said bell until the armature has been relieved, when it will spring into contact with the point J, as is well understood. The wire 2 leads to one end of the bobbin L, and the wire 1 leads from the opposite end. The wire 4 connects the two relays L and H. Thus it will be seen that the armature M and the relay L will be held out of contact with the point N until either or both of the wires 1 and 2 are crossed with either or both of the wires 3 and 5, in which case the relay will be energized, thereby bringing the armature M into contact with the point N, which will ring the bell O, and it will be seen that crossing the wires 1 and 3 or 1 and 5 will cause the bell K to ring, and crossing the wires 2 and 3 or 2 and 5 will cause the bell O to ring, and the cutting of the wires 3 or 5 will cause the bell K to ring. Thus it will be seen that in the event of any one tampering with the cable either one of the bells will be caused to ring either by the crossing of the wires or by the cutting of the same. The screen B when closed is held in place by the latch P, which is adapted to swing behind the keeper Q. This keeper is connected by the wire 5 to the closed circuit, and the latch P, being carried by the spindle R, journaled in the screen, conducts the circuit through said screen to the adjustable screw S, which is threaded through the screen, then when the screen is in the closed position, as shown in Fig. 2, bears against the spring-strip T, which is electrically connected with the binding-post E^2, and thereby the wire 3. Thus the closed circuit through the relay H is formed, so that as long as the latch is in engagement with the keeper this circuit will remain closed, and consequently the bell K will not be sounded; but should the knob U be turned in either direction the spindle to which it is attached will be correspondingly turned, and consequently the latch carried out of contact with the keeper, thus opening the circuit and sounding the bell. Should the slightest pressure be brought to bear against the screen to cause it to move inward, the latch will be moved out of contact with the keeper and a like result will take place.

As a further protection to my safe I provide underneath the spring-strip T a contact-point V. Said contact-point when the screen is closed and in its normal position is out of contact with said spring-strip, but in close relation thereto. Said contact-point V is in electrical connection with the binding-post E′, and thereby the wire 2, so that upon the inward motion of the screen not only the bell K will be rung by opening the closed circuit, but the bell O will also be rung by closing the open circuit by current being formed from the battery G through the wire 4, through the bobbin of the relay L, to the wire 2, to the contact-point V, and by means of the spring-strip to the wire 3 back to the battery.

If an attempt is made to force the screen outward from the safe, the adjusting-screw S will be brought out of contact with the spring-strip T, thereby opening the closed circuit and ringing the bell K. If the adjusting-screw S is screwed inward, this will force the spring-strip T into contact with the point V, thereby closing the open circuit and ringing the bell O, as before described. If the adjusting-screw S is screwed outward, the bell K will be rung the same as if the screen itself had been forced outward. By this arrangement the slightest attempt to force open the screen or clamp the same to the safe will ring one or both of the bells.

For convenience of the person authorized to close the safe a buzzer may be included in the wire 1, so that a test can be made to ascertain if the apparatus is in working order before closing the safe for the night. For convenience in stopping the ringing of the closed-circuit bell when the screen is opened by an authorized person I provide a double switch X, which is adapted to be swung into contact with the posts X′ and X^2. A wire or strip X^3 leads from the post X′ to the wire 5. Thereby when the switch is swung in the position described it will permit a continuous flow of the electricity in the closed circuit, thus holding the bell K out of action.

In Fig. 3 I have shown the most improved form of my system to what are known as "double-door drill-proof safes," and which consists

of the following arrangement: The insulating-strip D and the elements connected therewith secured to one of the doors of the safes is the same as before described, except that the keeper Q, instead of being secured upon this strip, is secured upon a separate smaller insulating-strip D′, secured to the other door of the safe, to which electrical connection is made with the wire 5 by means of two plugs *a* and *b*, connected by a flexible wire 6, the plug *a* fitting in a socket in electrical connection with the wire 5 and the plug *b* fitting into a socket in the keeper Q, such connection being made after the doors are closed. This makes it possible to use double screen-doors, which are represented as B^2 and B^3, the latch P′ being located in the door B^3, the door B^2 having a ledge B^4 upon its edge, over which fits the door B^3, thereby preventing the door B^2 from being opened without first opening the door B^3. Thus any inward pressure upon the door B^3 will open the closed circuit, and by means of the ledge upon the door B^2 will also push that door inward, and thereby closing the open circuit, as before described, and by prying the screen apart will also break the closed circuit, thereby ringing the bell K. In this figure I have shown another form of wiring which will be used when alarms are desired to be sounded in two separate stations, such as the police department and the sleeping-room, and consists in providing an additional relay Y, and the wire 3 instead of coming directly to the bobbin of the relay H will come to the bobbin of the relay Y, and the wire 7 will lead from the other end of the bobbin of the relay Y to the bobbin of the relay H, the wire 5 connecting to the other end of the bobbin of the relay H in passing into the cable. Thus both relay H and the relay Y will be included in the closed circuit, and whenever the bell K is rung in one station the bell Z will also be rung in the other station.

In Fig. 4 I have shown the most improved form of my system for application to what are known as "fireproof safes," and consists of the following arrangement: I provide a casing A′, which is of sufficient size to permit the safes to be placed therein and insulated therefrom in any suitable manner, as by non-conducting strips, (not here shown,) and to this casing is hinged the screen-door B. The insulating-strip D is secured to the door C of the safe and is the same in all respects as that described in Fig. 1, except that an electrical connection is made from the binding-post E to the door C of the safe, thereby including the safe itself in one portion of the open circuit. Thus when the screen-door B is closed and the closed circuit formed, as before described, and by reason of the said screen and casing being insulated from the safe itself it is obvious that any connection being made between the screen B or the casing A′ and the safe, such as by a drill, will cause the open circuit to be closed by reason of the current flowing from the battery G through the wire 3 to the binding-post E^2, and thence through the spring-strip T to the adjustable screw S through the screen, and by means of a drill or other connection to the safe, and from thence to the binding-post E, and consequently the wire 2, back through the cable to the relay L, back to the battery, thus causing the bell O to ring. Therefore any attempt to drill the safe will close the circuit, since the drill in passing through the casing or screen comes in contact with the safe, and consequently rings the bell O.

By the use of my improved system in the manner last described a safe with but little resisting power will be made perfectly burglar-proof from the fact that when the bells are properly located an immediate alarm will be given should any attempt whatever be made to tamper therewith either by drilling or otherwise.

The system of wiring shown in Fig. 5 can be used when the station is near by and necessitates only one relay. The bell K and the relay H are the same as before described and are included in the closed circuit. The bell C′ takes the place of the bell O in other figures and is included in the open circuit, a dry battery *g* being included in the wire 2, which leads from the bell C′ to the relay H. That portion of the wire 2 leading from the bell C′ is connected with the zinc of battery *g*, and that portion of wire 2 leading to relay H is connected to the other pole of battery *g*, the wire 1 being also connected to the zinc of this battery, so that the crossing of the wires 2 and 3 or 2 and 5 rings the bell C′, the cutting of the cable rings the bell K, and the movements of the screen and adjusting-screw cause the bells to ring, as before described in Fig. 1.

To facilitate the proper distribution of the wires and to hold them securely in place when they branch out from the cable upon the face of the safe, I provide a strip *e*, to which are secured binding-posts for holding the wires in their proper position.

Of course I do not wish to be limited to the exact form of wiring I have here shown, as it is obvious that any number of relays and bells could be used and alarms could be sounded in any number of stations and any one of the systems I described could be used on any of the forms of safes I have described.

Having thus fully described my invention, what I claim as new and useful is—

1. A system for protecting safes, consisting of a screen hinged to the safe and adapted to close over the front thereof, a cable leading to the space between the screen and the safe, a closed circuit, the wires of which pass through said cable, one or more relays included within said closed circuit having armatures which close an open circuit, a bell included in the open circuit, when the said closed circuit is open, an open circuit having

its wires passing through the cable, relays included within said open circuit, having armatures adapted to close an open circuit, a bell included in the last-named open circuit, when the first-named open circuit is closed, an insulated strip secured to the safe-door, binding-posts projecting from said strip to which the cable-wires are connected, a keeper secured upon the insulated strip and included in the closed circuit, a latch carried by the screen-door and adapted to enter into contact with the keeper for holding said door closed, an adjustable contact-screw also carried by the screen-door and adapted to bear against the spring-strip when the door is closed so as to complete the closed circuit through the screen, a contact-point located beneath the spring-strip and an electrical connection with one part of the open circuit and adapted to come in contact with the spring-strip upon any inward motion of the same, thereby closing the open circuit whereby the open-circuit bell will be sounded as specified.

2. In combination with a system of the character described for protecting safes, an insulating-strip adapted to be secured to the face of the door of the safe, a screen-door hinged to the safe and adapted to be closed over said insulating-strip, wires 1, 2, 3 and 5 formed into a cable, binding-posts E, E′, E^2 and E^3, to which said wires are attached respectively, a keeper Q which is electrically connected with the binding-post E^3, and consequently with the wire 5, a latch carried by the screen-door and adapted to enter into electrical contact with the keeper in serving to hold the screen closed, and a spring-strip also secured to the insulating-strip and electrically connected with the binding-post E^2, and consequently with the wire 3, an adjustable contact-screw threaded through the screen-door and adapted to bear against the spring-strip when said door is closed, a contact-point V arranged beneath the spring-strip so that any inward motion of said strip will establish a connection therewith, said contact-point being electrically connected with the post E′ and consequently with the wire 2, open circuits composed of wires 1, 2, and 3 in multiple, being connected by the wire 4, a relay L included in these open circuits, closed circuits composed of wires 3 and 5, a battery G and a relay H included in these closed circuits, a bell K included in a circuit with a suitable battery, the closing of said circuit being dependent upon the opening of the circuit in which the relay H is included, and a bell O included in a circuit with a suitable battery, the closing of said circuit being dependent upon the closing of the circuit in which the relay L is included, as specified.

3. In combination with a system of the character described for protecting double-door safes, an insulating-strip D secured to one of the doors of the safe, an insulating-strip D′ secured to the other door and having a keeper Q secured thereon, two screen-doors B^2 and B^3 hinged to the safe and adapted to be closed over said insulating-strip, the door B^3 adapted to close over a ledge B^4 formed upon the door B^2 for the purpose of holding the latter closed, wires 1, 2, 3 and 5 formed into a cable, binding-posts E, E′ E^2 and E^3 secured upon the insulating-strip D to which said wires are attached respectively, a socket located in the insulating-strip D and having electrical connections with the binding-post E^3 and consequently with the wire 5, a removable electrical connection 6 between the said socket and the keeper Q, a latch carried by the screen-door B^3 and adapted to enter into electrical contact with the keeper in serving to hold the screen-door closed, a spring-strip also secured upon the insulated strip D and electrically connected with the binding-post E^2 and consequently with the wire 3, an adjustable contact-screw threaded through the screen-door B^2 and adapted to bear against the spring-strip when said door is closed, a contact-point V arranged beneath the spring-strip so that any inward movement of said strip will establish a connection therewith, said contact-point being electrically connected with the post E′ and consequently with the wire 2, a closed circuit composed of the wires 3 and 5, a relay included in said closed circuit, a bell adapted to be sounded when said closed circuit is open, and open circuits composed of the wires 1, 2, and 3 in multiple connected by a wire 4, a relay included in said open circuit, and a bell adapted to be sounded when said open circuit is closed, as specified.

4. The herein-described system for protecting fireproof safes consisting of a suitable casing adapted to receive a safe and be insulated therefrom, a screen-door hinged to the casing and adapted to close over the front of the safe, a cable consisting of the wires 1, 2, 3 and 5 leading to the casing, a binding-post secured to the door of the safe to which the wire 1 is attached, an insulating-strip also secured to the door of the safe, binding-posts E′, E^2 and E^3 secured upon the insulating-strip to which the wires 2, 3 and 5 are attached respectively, a keeper also attached to the insulating-strip, a wire or strip connecting the binding-post E^3 with said keeper, a latch carried by the screen-door and adapted to enter into electrical contact with the keeper while serving to hold the screen-door closed, a spring-strip also secured upon the insulated strip D and electrically connected with the binding-post E^2 and consequently with the wire 3, an adjustable contact-screw threaded through the screen-door B^2 and adapted to bear against the spring-strip when said door is closed, a contact-point V arranged beneath the spring-strip so that any inward movement of said strip will establish a connection therewith, said contact-point being electrically connected with the post E′ and consequently with the wire 2, a closed circuit composed of the wires 3 and 5,

a relay included in said closed circuit, a bell adapted to be sounded when said closed circuit is open, and open circuits composed of wires 1, 2 and 3 in multiple connected by wire 4, a relay included in said open circuit, and a bell adapted to be sounded when said open circuit is closed, as specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

ANTHONY P. PRICHARD.

Witnesses:

A. G. PRICHARD,

A. A. MILLER.