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ELECTRIC BURGLAR ALARM.
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2 SHEETS—SHEET 1.

Fig. 1.

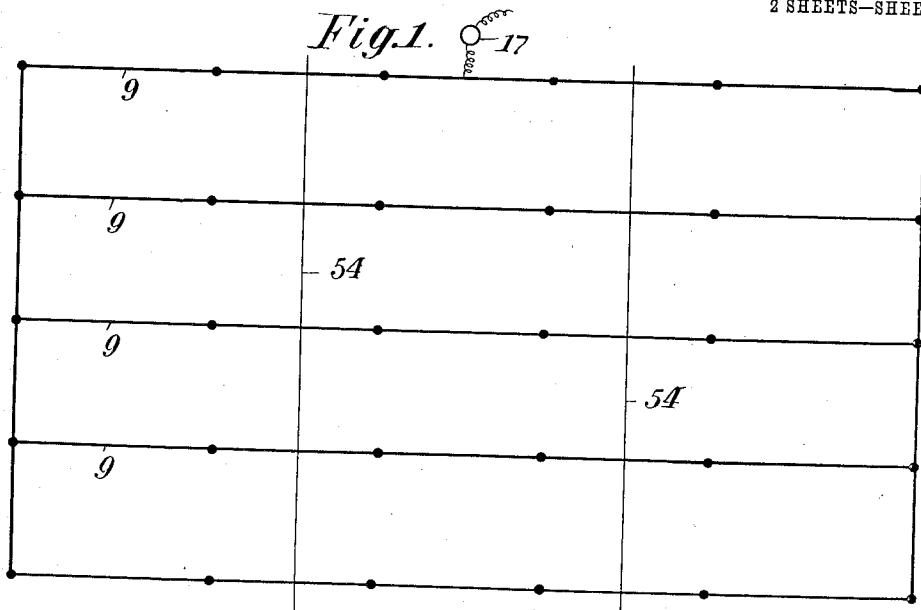
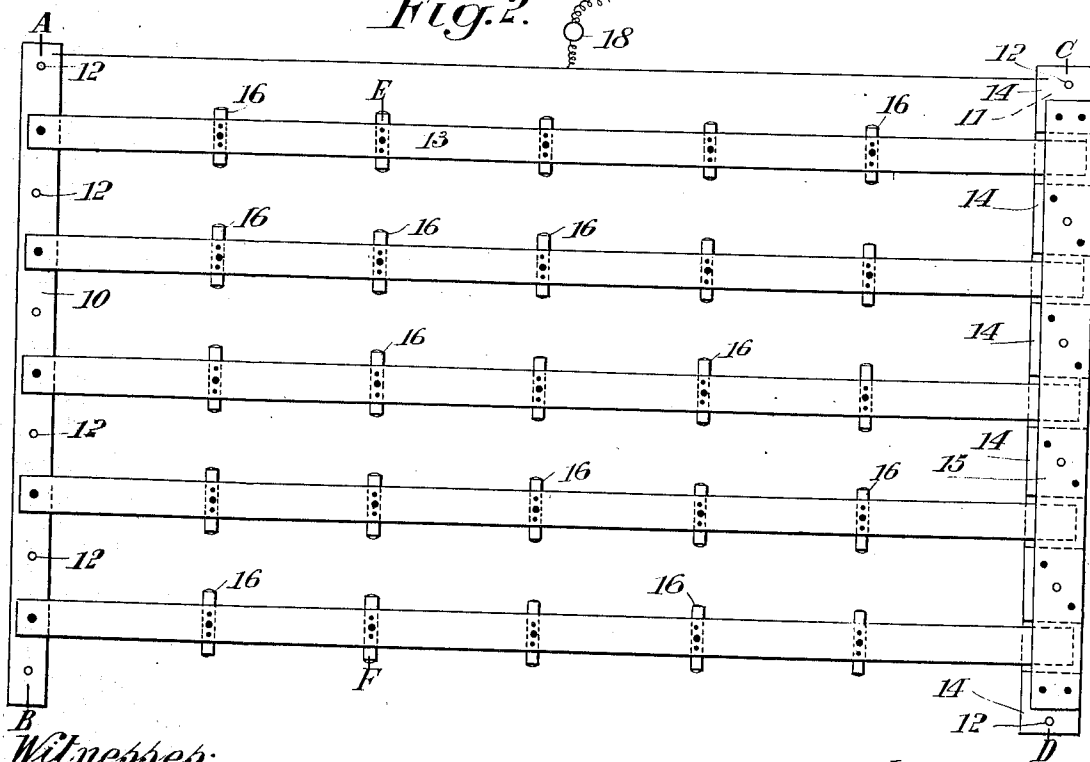


Fig. 2.



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ELECTRIC BURGLAR-ALARM.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALFRED BLOCH, a citizen of the French Republic, and resident of Paris, France, have invented certain new and useful improvements in and relating to electric warning devices signaling attempts made for breaking or opening locks or the like, of which the following is a specification.

This invention relates to warning devices and more especially to electric warning devices signaling any attempt to break or to open locks of doors, safes and the like as well as any attempt to penetrate clandestinely into apartments and the like.

One of the objects of this invention is to provide a device of this kind adapted to prevent in a most efficient manner any attempt made for penetrating into apartments without the door porter or the watchman being informed by an electric bell while another object of this invention is to provide a device of the aforesaid kind adapted to specially protect such and such a piece of furniture or safe and to render them inviolable.

In the annexed drawing given by way of example: Figure 1 shows a plan view of the wire arrangement of one form of my invention adapted to be arranged on the floor of the apartment to be protected. Fig. 2 shows another part of the device shown by Fig. 1 and intended to be also arranged on the said floor and above the aforesaid wires. Fig. 3 shows a section on line A—B of Fig. 2; Fig. 4 is a section on line C—D of the same figure; Fig. 5 is a section on line E—F of Fig. 2; Fig. 6 shows a board carrying the warning device. Fig. 7 shows a section of a metal-clad wall adapted to be applied to a piece of furniture to a safe or the like according to the second form of embodiment of this invention; Fig. 8 is a similar section of a modified form of a metal clad wall for furniture safes and the like.

The first embodiment of my invention shown by Figs. 1 to 6, has for its special object to reveal the clandestine approach to a safe, a show glass, in one word to a piece of furniture containing precious objects, this device comprising an electric warning bell which is sounded and reveals at the desired spot or spots any criminal attempt. This embodiment of my invention comprises copper-wires 9 arranged around the piece of furniture to be protected or on the floor of the room to be preserved (Fig. 1), these

wires are connected, as will be hereinafter described, with a contact device arranged above them on the aforesaid floor, under the carpets, the linoleum, etc., and completely out of sight. This contact device comprises two rectangular copper bars 10 and 11 having a thickness of about two millimeters (Fig. 2); these plates may be fixed to the floors by means of screws 12.

On the bar 10 are riveted blades 13 made of copper or of steel having a width of 4 to 5 centimeters and a thickness of 4 to 5 tenths of a millimeter; these blades simply rest on the bar 11. Riveted on the bar 11 and between each pair of neighboring blades 13 and outside the end blades, are rectangular plates 14 made of copper and having a thickness of about one millimeter and a length of six centimeters, these blades being covered by a copper blade 15 riveted to the bar 11, this blade prevents the blades 13 from being lifted up, while allowing them to freely slide on the bar 11 between the plates 14. The said blades 13 are maintained at a certain height above the floor by means of springs 16 (Figs. 2 and 3) arranged under each of the blades 13 about 15 centimeters apart from one another. Under the said blades and well secured to the floor are the copper wires 9 (Fig. 1) which are all electrically connected with the same flat terminal 17 arranged on the floor. The two bars 10 and 11 and consequently the blades 13 are connected between one another and with a flat terminal 18 also arranged on the floor. The blades 13 are sufficiently near one to the other (about 6 centimeters) so that it will be impossible to place the foot on the carpet without stepping upon one of them.

It is easily understood that when the flat terminals 17 and 18 are put into connection with a cell and with a bell, the latter will be actuated as soon as one puts the foot on any one of the said blades, because of the latter coming into contact with the corresponding copper thread 9 and thus closing the circuit.

The above described electric bell would only be rung an instant or better, will only be actuated as long as the foot would rest upon the carpet; for this reason I prefer the arrangement shown by Fig. 6 which not only renders continuous the function of the electric bell after the circuit has been closed but which also allows when the wires are cut at daytime or at nighttime, i. e. when a lock 19 arranged on a board 24 shown by Fig. 6 has

been opened or closed, to be informed of this fact by a continuous warning sounding of the bell. To this end the wires corresponding to the terminal plates 17 and 18 arranged on the floor, are formed by two cables 20 and 21 confined in a lead tube connected with the terminals 40 and 39 of the board 24 (Fig. 6) while the lead tube 23 is connected with a terminal 25 of the same board. This arrangement will be sufficient as it will be pointed out hereinafter, in order to render it impossible to cut the wires without the bell 26 established on the said board, being rung. Secured on the said board is an electro-magnet 28 adapted to attract when it is energized, an armature 28 adapted to oscillate on a fixed axis 29. This armature is provided at its end with a hook 30 to which is normally attached the end of a spring 31 connected by a wire 22 with the terminal 48 of the bell. At the side of the hook 30 is arranged in the way of the spring 31 a terminal 32 connected with one of the terminals 46 of the electromagnet 27, which terminal 46 is connected with the positive terminal 33 of the board, the latter terminal receives the end of the wire 47 coming from the positive pole of the battery 34 the negative pole of which is connected by means of a wire 38 with a terminal 35 of the board. This latter terminal is connected with the terminal 36 of the bell; a connection 37 connects the wire 38' with the terminal 39 where ends the wire 21. On the other hand the terminal 40 to which is connected the end of the wire 20 is connected by means of a wire 50 with the bolt 42 of the lock 19 the said bolt being pushed in its closing position into contact with an oscillating piece 43 connected by means of a wire 44 with the terminal 25 which is in contact with the lead tube 23.

The operation is as follows: Supposing that the lock 19 be closed and that one steps on the carpet covering the blades 13 (Fig. 2) the current will follow the following way (Fig. 6). The current leaves the positive pole 33 of the battery and goes to the electro-magnet 27 and by the wire 49 to the terminal 25 connected with the bolt 42 of the lock 19 by means of the wire 44 and the member 43 as it is supposed that the bolt 42 is in its closing position; from the bolt 42 the current flows through the wire 50 to the terminal 40 *i. e.* to the wire 20 itself which is in contact, on the floor, with the terminal 17, as a person has stepped on the blades corresponding to the said terminal; the current returns through the terminal 39 and the wire 37 to the negative pole 35. The electromagnet 27 has thus been energized and the armature 28 been attracted. The spring 31 has been brought into contact with the terminal 32 and the current flows then from 33 through the wires 53 and 52 to the spring 31 and through the wire 22 to the terminal 48 of the

bell and from here through the terminal 36 of the latter to the negative pole and the bell is rung in a continuous manner. If the lock 19 had been opened it would have been possible to step on the carpet without the electro-magnet having been actuated and consequently without the bell having been sounded.

If one supposes that the wires were sectioned or cut; in this case the lead tube 23 will be put into contact by means of the scissors employed for operating the said section, with the wire 21 which it incloses and the electro-magnet which has been energized, will attract the armature 28 and allow the bell to be rung. As a matter of fact, the current starting from the positive pole 33 will flow through the wires 53, the electro-magnet and the lead 49 to the terminal 25 and to the lead 23 from here through the scissors to the lead 21, *i. e.* to the terminal 39 and from here through the lead 37 to the negative pole 35. The armature 28 has therefore been attracted and the bell is ringing although the lock 19 has been opened which is very important, as if it were possible to cut the leads when the lock is open *i. e.* during the daytime, without the warning bell being set going, the whole apparatus would only have a relative importance.

Means are provided for preventing the removal or disassembling of that portion of the apparatus disposed beneath the carpet and upon the floor without sounding a continuous alarm and as shown said means consists of the following construction.

A certain number of wires 54 (Fig. 1) perpendicularly arranged with reference to the terminals 13 and in contact with the copper wires 9 have their extremities free. These wires are made of copper having 1/10 of a millimeter in thickness and are consequently very supple. They are disposed below the wire 9 and are sewn into the haircloth on the lower side of the carpet and when the burglar attempts to raise the latter with a view of breaking or unscrewing that part of the apparatus which has been secured to the floor, the wires 54 will bring the wires 9 into contact with the blades 13 and the bell will be rung in an uninterrupted manner.

In order to be warned simultaneously at different places, it will be sufficient to arrange at the places where the warning is to be given, boards which are identical to the board 24 and to connect them between one another by wires corresponding respectively to the terminals of the first board *i. e.* the terminals 25, 39 and 40 of the latter are connected with the terminals 25, 39 and 40 of the other boards.

The terminals 33 and 35 may also be connected with the terminals having the same designations of the other boards, but it will be possible if desired to have for each board

a distinct battery the positive and negative pole whereof will be respectively connected with the terminals 33 and 35, which will avoid any connivance between the burglar, the watchman, door porter, employee as it would be necessary that a complete understanding would take place between all of them and that neither the one nor the other would close the locks of the boards.

10 The embodiment of this invention which has been shown by Fig. 7 is intended to be applied on a non conducting body such as a wood, stone, etc. body this embodiment being formed by two plates 1 of copper or of
15 any other metal conducting well electricity and separated from each other by a sheet 2 of insulating material such as Chatterton's compound, gutta-percha, cork, leatheroid, peccolithe, megatale, paper, varnish, cardboard and so on. When it is desired to place
20 the said covering on a non conducting body, such as a wooden door, 3, the covering is cut to the desired dimensions, then one applies it to the lower face of the door and fixes it
25 there by means of well insulated screws 4 in order to avoid any electric communication between the said screws and the metallic covering plates; it is even possible if one desires it, to stick the covering to the door.
30 After this operation, the sheets 1 of the covering are respectively connected to the terminals of a bell 5 these connections being made by means of a lead 6 ending at a source of electric current 8 and a lead 7 wherein is
35 interpolated a bell 5 or, better, to the terminals of a device rendering continuous the function of the electric bell.

It will be easily understood that if a burglar makes an attempt to pierce the door
40 even with a most delicate instrument, the two metallic sheets will be put into electrical contact with one another and the bell will be sounded in an uninterrupted manner.

The covering shown in section by Fig. 8
45 is intended to be applied to conducting bodies such as a safe, this covering being formed by a single sheet of copper 1 covered by Chatterton's compound or any other insulating material 2. When it is desired
50 to apply the said cover to the conducting body, the insulating side 2 of the cover is applied to the inner walls 3' of the safe where it adheres. The copper side will
55 alone be visible and when it is given the tint of the inside of the safe, the cover will be completely invisible. Supposing that the safe is connected with one of the wires of an electric bell and that the copper of the
60 cover be connected to the other wire of the same bell, the latter will be sounded as soon as the perforating instrument of the burglar will come into contact with the copper sheet of the cover. Therefore in the second case

described as well as in the first one the breaking open will be impossible as a warning is given of the attempt to do so.

Having now fully described my invention what I claim and desire to secure by Letters Patent is:

1. In an electric warning device of the
70 kind described the combination with an electric circuit containing an alarm bell, of a plurality of conducting wires arranged on the floor and connected with one of the terminals of the said circuit, a corresponding
75 number of conducting blades arranged above the said wires and adapted to contact with the latter when stepped upon, curved springs secured to the said blades and adapted to
80 bear upon the floor to normally hold the said blades at a short distance over the said wires, a carpet covering the said blades and
85 wires, an electromagnet inserted into the electric circuit and adapted to be energized when the said contact wires and
90 blades are put into contact, armature for the said electro-magnet, a spring switch connected with the said armature and adapted to close in a permanent manner the circuit
95 of the said bell when the armature is attracted, a lock bolt inserted into the said electrical circuit and adapted to cut the
100 latter and a lead tube surrounding the conductors leading from the said floor contact wires and bars to the bell connections the
said lead tube being connected with the electric bell circuit so as to close the latter
when an attempt is made to cut the said conductors, substantially as and for the purpose set forth.

2. In an electric warning device of the
kind described the combination with an electric circuit and an alarm bell actuated thereby, of a plurality of parallel conducting
105 wires secured to the floor and connected with one terminal of the said circuit, a corresponding number of conducting plates arranged above the said wires and adapted to
110 contact with the latter when stepped upon, curved springs secured to the underside of the said blades and bearing upon the floor
so as to normally hold the said blades at a short distance over the said contact wires,
115 a carpet covering the said contact blades and wires and flexible conducting cross wires arranged under the said conducting
wires and secured between the latter to the underside of the said carpet, substantially
as and for the purpose set forth.

In testimony whereof I have hereunto set
120 my hand in presence of two witnesses.

ALFRED BLOCIL.

Witnesses:

ADOLPHE STURM,
HERNANDO DE SOTO.