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W. E. JONES.
BURGLAR ALARM.

APPLICATION FILED JUNE 8, 1907.

Fig. 1.

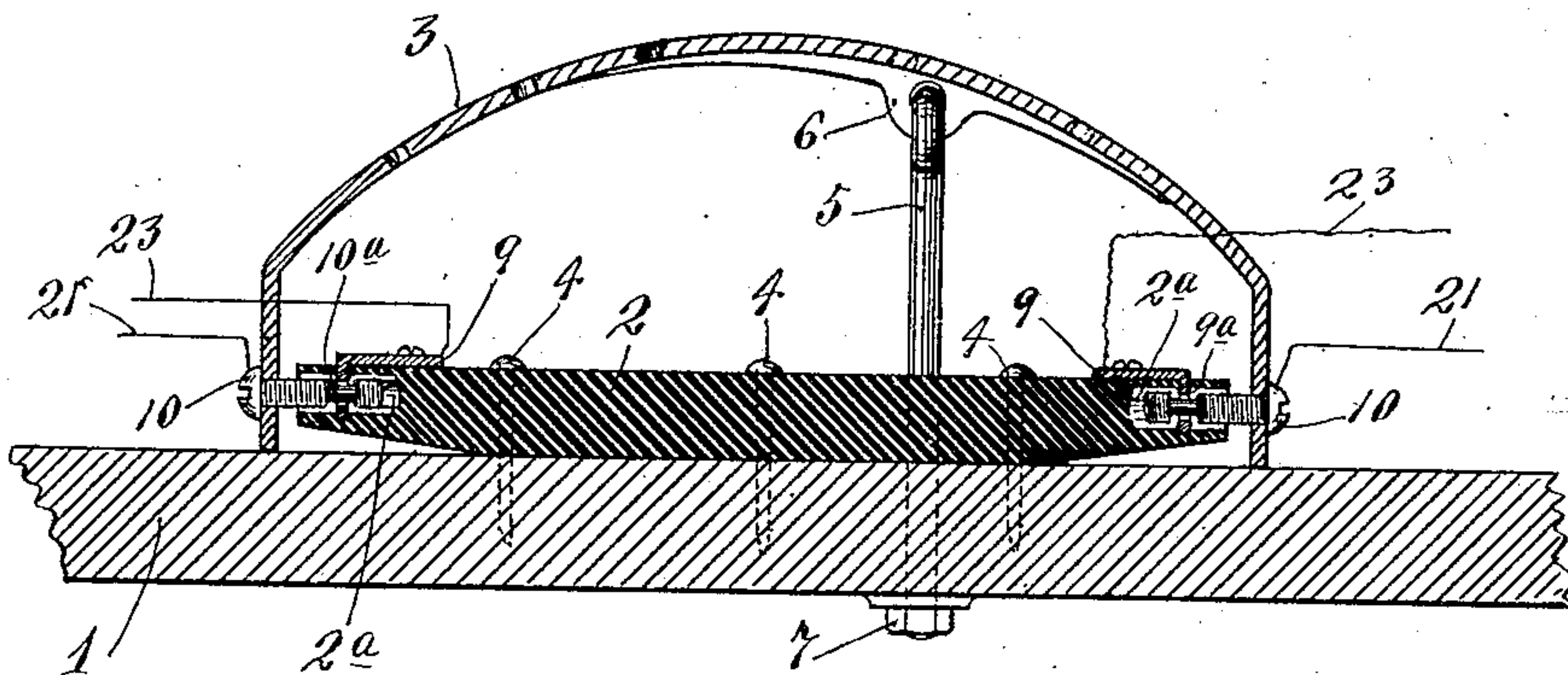
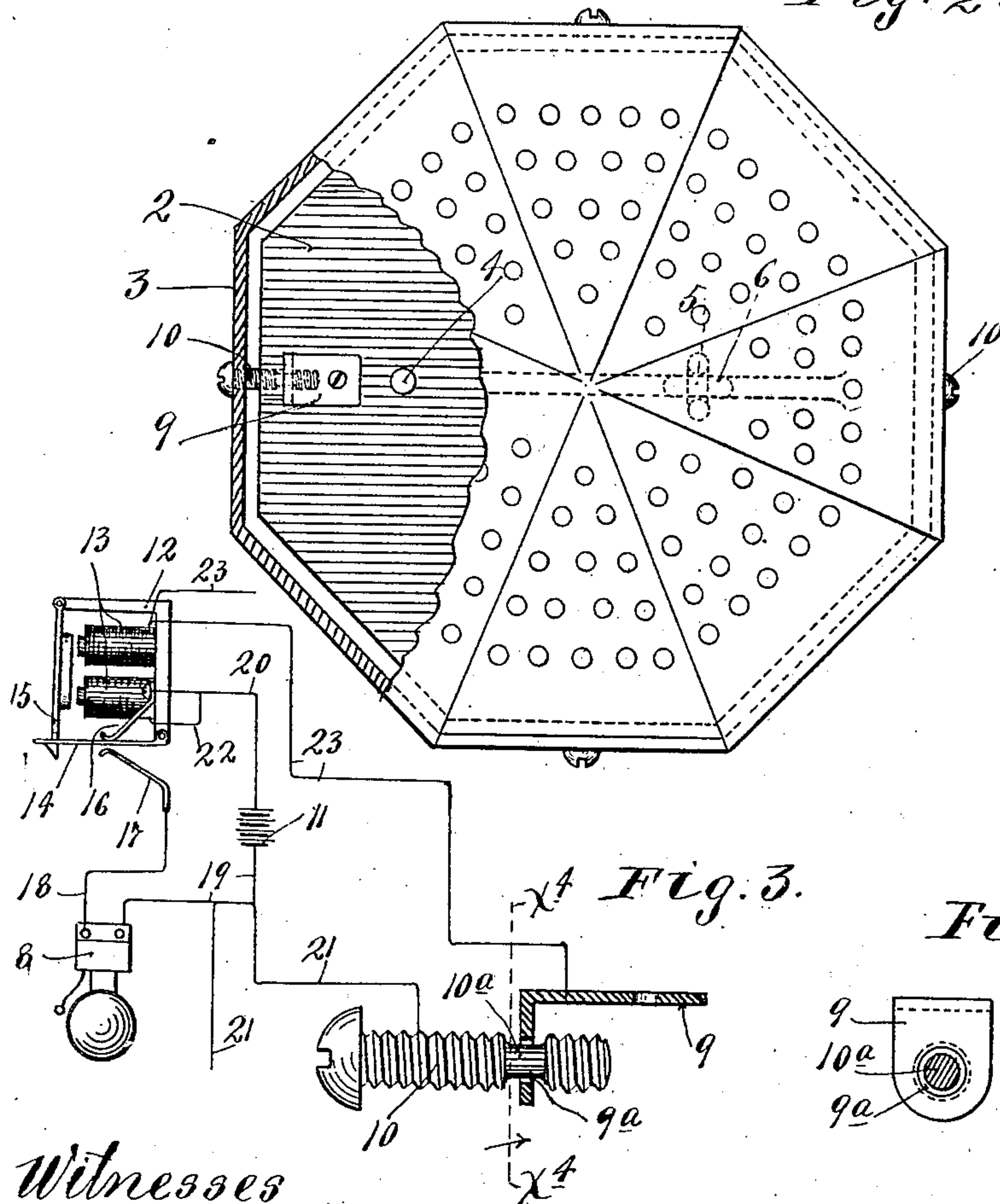


Fig. 2.



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BURGLAR-ALARM.

No. 880,668.

Specification of Letters Patent.

Patented March 3, 1908.

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To all whom it may concern:

Be it known that I, WILLIAM E. JONES, citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Burglar-Alarms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to burglar alarm systems, such as are especially designed for use in connection with banks, safety deposit vaults, or other repositories for the storage of articles of value, hereinafter designated as a protected apartment.

More particularly, the invention is directed to an improved form and arrangement of a sectional bell housing or inclosing case and associated electrical devices so disposed and related that they positively protect the bell actuating and controlling circuits from interference either from within or outside of the protected apartment, and provide for closing an electrical circuit to actuate the bell when the relative positions of the parts of the housing are moved with respect to each other. This housing, which is preferably made up of two parts, may be applied directly to one of the walls of the protected apartment, or may be located at a point distant therefrom. When the housing is located at a point distant from the protected apartment, the alarm bell, a battery, and a contact-drop or automatic circuit-closer, are preferably all located within the bell housing; but when the housing is used on the wall of the protected apartment, the bell only will preferably be placed within the housing, and the contact-drop and battery will preferably be placed within the protected apartment.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings; Figure 1 is a view in vertical section showing the improved housing and cooperating circuit-closing devices applied to the wall of a protected apartment, such as a safety deposit vault. Fig. 2 is a plan view of the housing, some parts being broken away. Fig. 3 is a view

chiefly in diagram, with some parts shown in full and some in section, particularly showing the way in which the circuit connections to the normally separated circuit protecting contacts are made; and Fig. 4 is a detail in section on the line $x^4 x^4$ of Fig. 3.

In Fig. 1, the numeral 1 indicates a part of one of the walls of a protected apartment, such as a safety deposit vault or bank safe, and to which, as illustrated, the divided or sectional bell housing is applied.

The bell housing, as preferably designed, comprises a flat base member 2 and a dome-like shell 3. The shell 3 is of metal, while the base 2 may be of any suitable material, but is preferably made of a suitable hard insulating material and, as shown, it is secured to the wall 1 by nails 4, although it may, of course, be secured in any suitable way. The edge of the shell 3 surrounds but is spaced apart from the edge of the base member 2, and is firmly clamped against the wall 1 by the inclosed clamping bolt 5, the outer end of which is shown as connected to an internal lug 6 on the said shell, and the inner end of which projects through the wall 1 into the protected apartment, and is provided with a nut 7. The shell 3 is perforated to permit the exit of sound from the alarm bell 8 shown in diagram in Fig. 3, but in practice is located within the shell and secured to the base 2. The alarm actuating contacts are shown as arranged in duplicate, one at each side of the shell 3 and base 2. The contact members 9 are in the form of angular metallic brackets that are secured to the insulating base 2 and have perforated depending portions which, as shown, are countersunk within the said base. The contact members 10 are in the form of screws that have reduced intermediate portions 10^a . These screws are screwed through the rim of the shell 3 and work with freedom for lateral and vertical movements in suitable seats 2^a formed in the base 2. In the normal adjustment of the parts, the reduced portions 10^a of the screws are passed with clearance through the perforations 9^a of the contacts 9, as shown in Figs. 1 and 3. The threads of these screws are of such diameter that they cannot be passed through the perforations 9^a without engaging with the contacts 9 and thereby closing the circuit.

In Fig. 3, the battery is indicated by the numeral 11. This battery and the contact-drop or automatic circuit-closer are preferably located within the protected apartment. Said contact-drop may be of the standard or any suitable construction, and comprises a base frame 12, a pair of connected electro magnets 13, a contact lever 14, an armature equipped trip lever 15, and a pair of fixed contacts 16 and 17. The trip lever 15 is pivoted to the base 12 and normally holds the contact lever 14 in engagement with the upper contact 16, but when the magnets 13 are energized, they attract the trip lever 15 and cause the same to drop the contact lever 14 into engagement with the lower contact 17. The lower contact 17 is, as shown, connected to one of the terminals of the bell coil by a wire 18, and the other terminal of the said bell coil is connected by a wire 19 to one terminal plate of the battery 11. The other terminal of the plate 11 is connected by a wire 20 to the upper contact 16, and hence to the base 12 and contact lever 14 through the said upper contact 16. It is, therefore, evident that when the contact lever 14 is dropped into engagement with the lower contact 17, the bell circuit will be closed and the bell will be actuated.

The wire 19 is connected by wires 21 to the two contact screws 10. The wire 20 is connected by a short wire 22 to one of the magnet coils 13 of the contact-drop, and the other magnet coil of said drop is connected by wires 23 to the two contact brackets 9. The two magnet coils 13 are, of course, electrically actuated.

As already indicated, Figs. 1 and 3 show the parts in their normal positions with the bell circuit and the controller circuits, which include the cooperating contacts 9 and 10, all open. Any slight movement of either of the two parts of the bell housing, made up of the base 2 and shell 3, the one with respect to the other in any direction will cause engagement between one or both of the screws 10 with a cooperative contact bracket 9 and this will close the circuit to the battery 11 and magnet coils 13, thereby causing the latter to move the trip lever 15 and drop the contact lever 14 into engagement with the lower contact 17, thereby closing the bell circuit and causing the bell to be sounded. By this arrangement, it is evident that if the controller circuit be closed, even for the shortest interval of time, the contact lever 14 will be dropped into engagement with the contact 17 and will maintain that engagement until the said lever 14 is again reset, thereby insuring a long or continued action of the bell regardless of whether the controller circuit is closed for a short or a long time.

The arrangement described makes it impossible to get access to the interior of the

housing or to reach the bell without causing the bell to be sounded. The battery and the contact-drop may be located either within the housing or within the protected apartment when the housing is applied to the exterior of the protected apartment, but when the housing is applied to a point distant from the protected apartment, the battery and contact-drop, as well as the bell, should be located within the bell housing. Of course, the exact arrangement of the wires or electrical connections of the several parts described is immaterial as long as the general result above set forth is attained. The term "electric bell" or gong, is herein used in a sense broad enough to include any kind of an electrically actuated sound or alarm producing device.

It will, of course, be understood that in burglar alarm systems of this character, various protective devices for preventing tampering with the protected apartment will be employed, and that usually several circuits will be extended from the protected apartment to the magnets of the contact-drop when any of the said several circuits are tampered with. The specific arrangement of such devices, however, forms no part in my present invention.

What I claim is:—

1. In a burglar alarm system, the combination with an electrically actuated bell located outside of the protected apartment, of a sectional housing inclosing said bell, and circuit connections to said bell including a source of electrical energy and normally separated circuit closing contacts, which contacts are subject to movement by the sections of said housing and have parts that lie in the path of movement, each with the other, in every direction, whereby the circuit will be closed when either section of said housing is moved in any direction with respect to the other, substantially as described.

2. In a burglar alarm system, the combination with an electrically actuated bell located outside of the protected apartment, of a sectional housing inclosing said bell, and circuit connections to said bell including a source of electrical energy, and a pair of normally separated controlling contacts, one of which contacts is perforated and applied to one section of said housing and the other of which contacts is applied to the other section of said housing and projects with clearance through the perforation of the said perforated contact, substantially as described.

3. In a burglar alarm system, the combination with a bell located outside of the protected apartment, of a sectional housing inclosing said bell, and circuit connections to said bell including a source of electrical energy, and a pair of cooperating circuit

controlling contacts, one of which contacts is
in the form of a perforated metal member se-
cured to one of the sections of said housing,
and the other of which contacts is in the
5 form of a screw applied to the other section
of said housing and having a reduced inter-
mediate portion that normally projects
through the perforations of said first noted

contact with clearance, substantially as de-
scribed.

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In testimony whereof I affix my signature
in presence of two witnesses.

WILLIAM E. JONES.

Witnesses:

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