

(No Model.)

E. H. OWEN, C. N. WILLIAMS & F. H. DONALDSON.
ELECTRIC CALL AND CALL ANSWERING APPARATUS.

No. 579,075.

Patented Mar. 16, 1897.

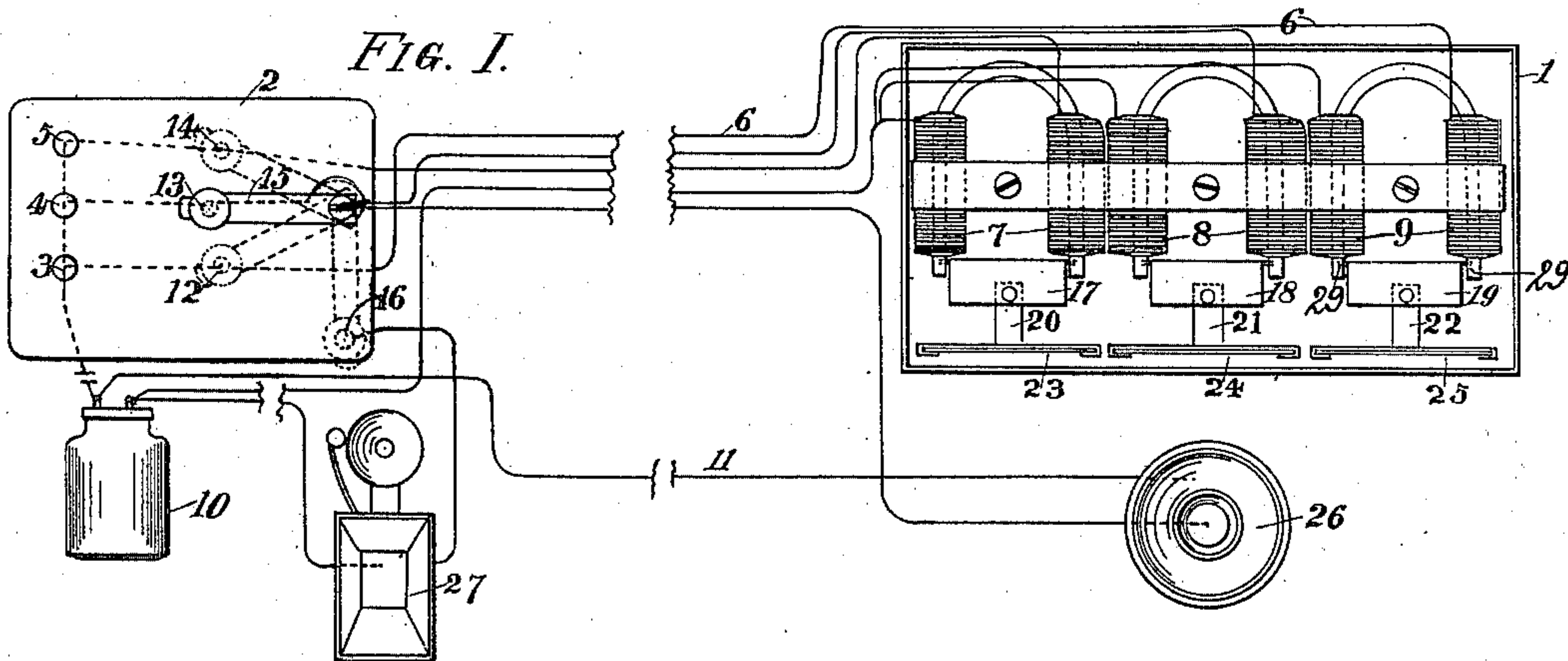


Fig. II.

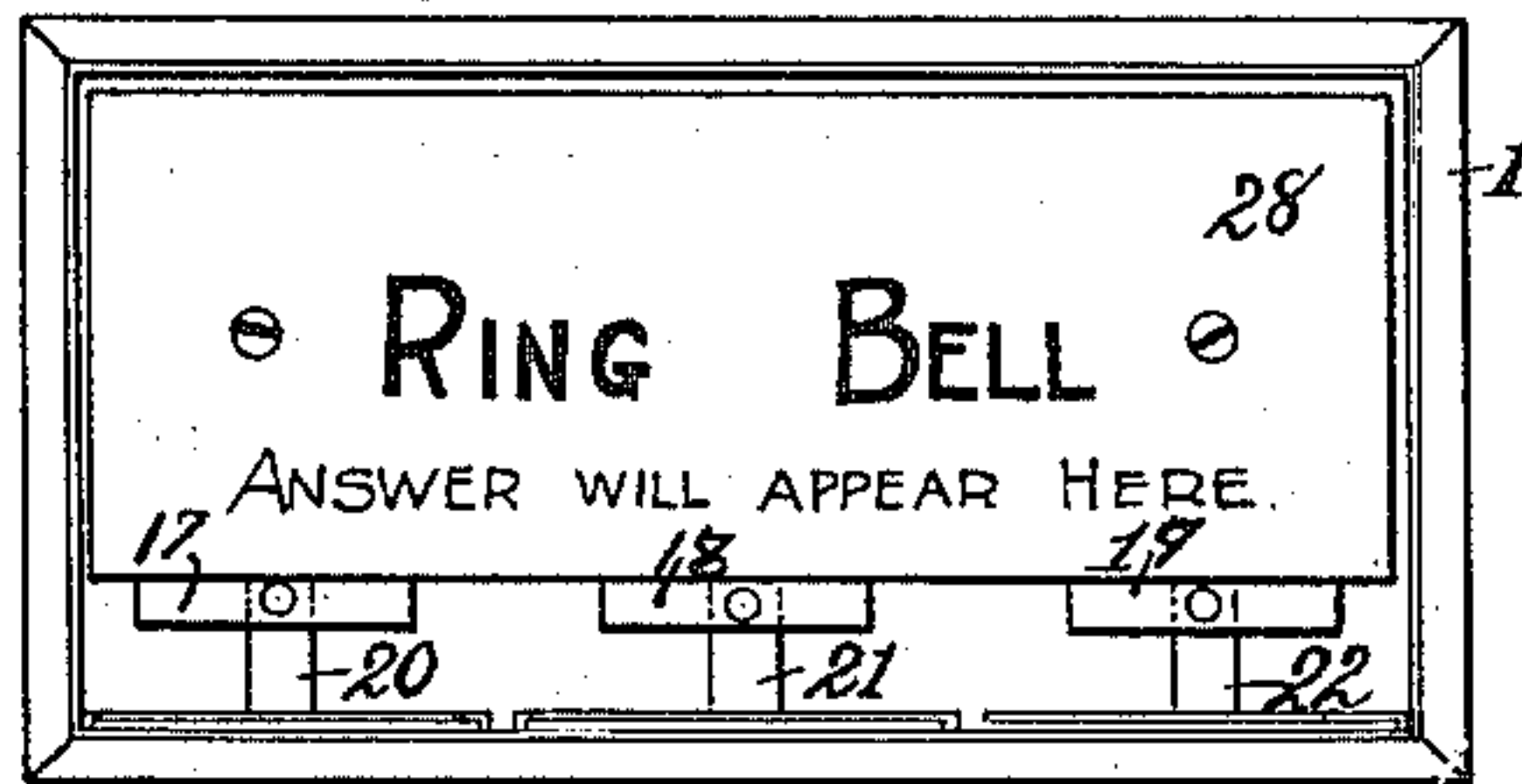


Fig. IV.

Fig. V.

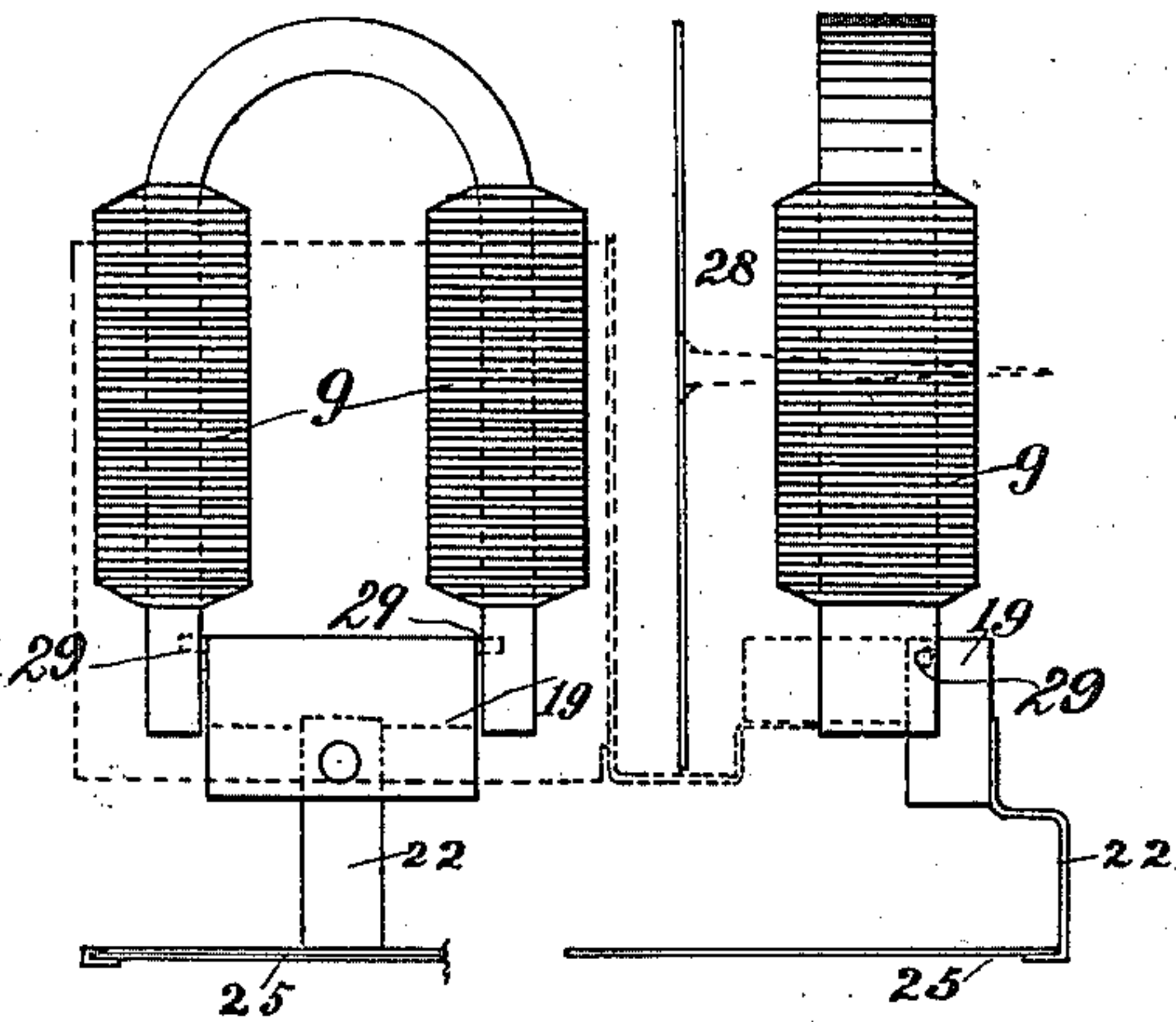
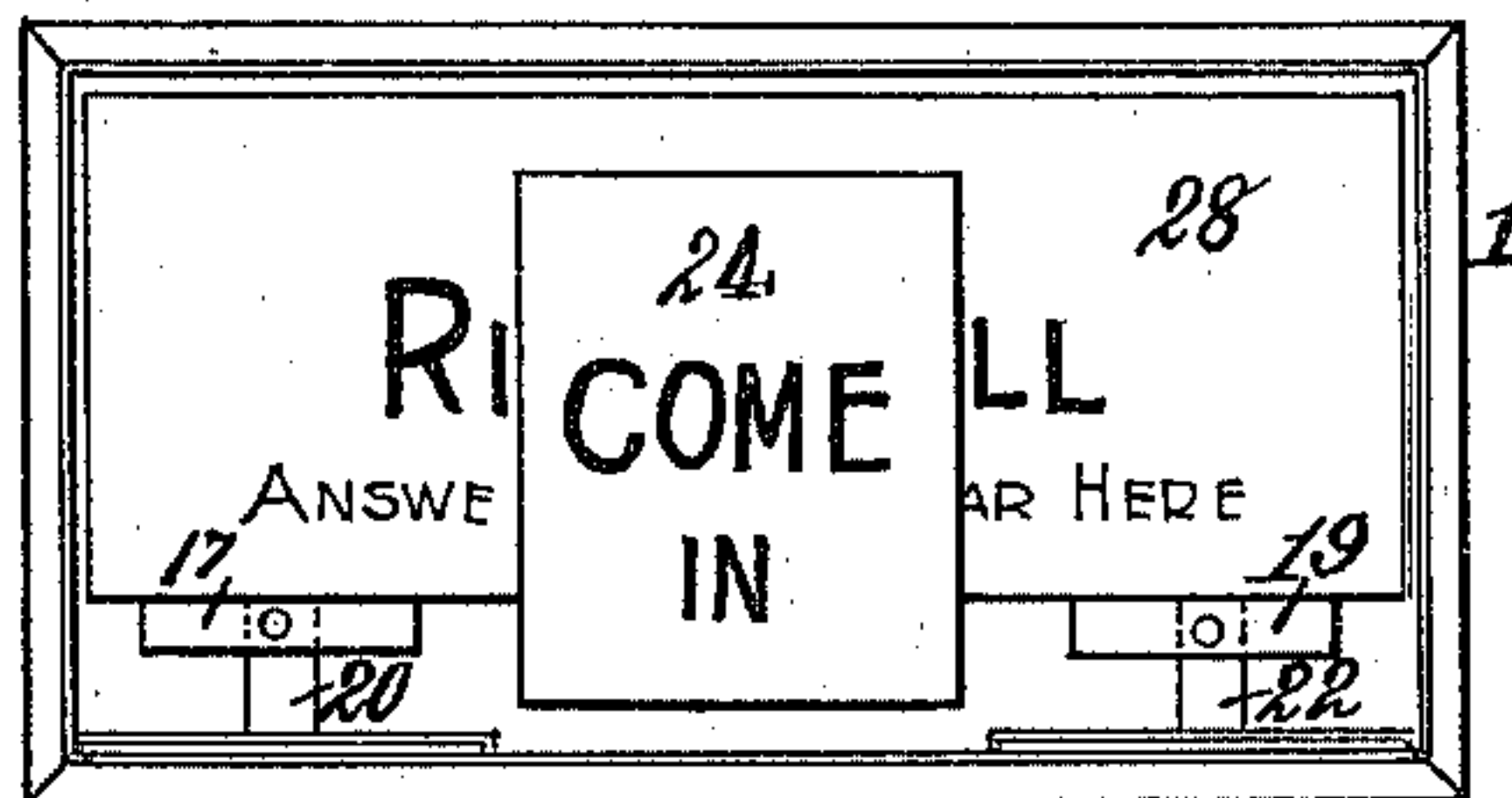


Fig. III.



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ELECTRICAL CALL AND CALL-ANSWERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 579,075, dated March 16, 1897.

Application filed September 14, 1896. Serial No. 605,837. (No model.)

To all whom it may concern:

Be it known that we, EDWARD H. OWEN, CHARLES N. WILLIAMS, and FRED H. DONALDSON, citizens of the United States, residing at Garvanza, in the county of Los Angeles and State of California, have invented new and useful Improvements in Electrical Call and Call-Answering Apparatus, of which the following is a specification.

This invention relates to electrical appliances or apparatus for signaling and answering calls at the doors of dwellings or other buildings or for establishing communication between persons occupying different rooms or located at points remote from one another.

The chief object of the present invention is to provide novel, simple, efficient, and economical means for electrically answering calls, such, for example, as responding to the call of a person or visitor who announces his or her presence at the door of a dwelling, room, or other point.

The invention also has for its object to provide a novel electrical apparatus which possesses a plurality of signs or visual-signal devices susceptible of being independently operated when an electric circuit is completed by operating a push-button or similar device in such manner that a person may announce his or her presence at a certain place in the circuit and a person at another point may answer the call or cause the call to be answered by displaying any one of the signs or visual signals which contains the information it is desired to impart to the caller or visitor.

The invention also has for its object to improve electrical call and call-answering apparatus.

To accomplish these objects, our invention involves the features of construction, the combination or arrangement of parts, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a diagrammatical view of an electric call and call-answering apparatus embodying our invention. Fig. 2 is a detail view of the box or case containing the electromagnets and signs or visual signals, any one of which is moved into position for inspection when the electric circuit is completed, as will hereinafter appear. Fig. 3 is a similar

view showing one of the signs moved into position for inspection. Fig. 4 is a plan view of one of the electromagnets and a sign or visual-signal device arranged in operative connection therewith; and Fig. 5 is an edge view of the same, showing by dotted lines the sign or visual-signal device moved into position for inspection and by full lines the position occupied when concealed from view or out of position for inspection.

In order to enable those skilled in the art to make and use our invention, we will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a box, case, or holder designed to contain a plurality of electromagnets, as at 7, 8, and 9, and a plurality of signs or visual-signal devices, as at 23, 24, and 25.

The box, case, or holder may be of any form, shape, or construction suitable for the purpose in hand, and the signs or visual-signal devices may be in the form of simple square or rectangular plates of any desired material, or they may be of any other construction and be provided with the answer or information which is to be conveyed or imparted to a caller or visitor at the door of a dwelling, room, or other place. In the present example of our invention we have illustrated three separate electromagnets, which are of ordinary horseshoe shape, and three separate signs or visual-signal devices, but we desire it clearly understood that the number of electromagnets and signs or visual-signal devices may be increased or diminished to any desired extent without affecting the spirit of our invention.

The front portion of the box, case, or holder 1 is provided with a fixed or immovable card or plate 28, bearing any desired inscription which will instruct a caller or visitor what act is necessary to produce an answer at the box, case, or holder. The inscription as here shown is composed of the words, "Ring bell. Answer will appear here." This is sufficient to advise the caller or visitor that by simply operating a push-button 26 or its equivalent the answer of the person called upon will be made to appear in proper position to be readily inspected.

The box, case, or holder 1, containing the

electromagnets and signs or visual-signal devices, is designed to be placed upon or near the door of a dwelling or room at which a caller or visitor is supposed to indicate his or her presence. At any desired point inside of the dwelling or room there is arranged a switchboard 2, provided with three ordinary push-buttons or equivalent devices 3, 4, and 5, connected by independent electrical conductors or wires, as at 6, with one of the poles of the electromagnets, the other poles of which have a common return to a battery or electrical generator 10 of any desired or suitable type. The push-button 26 is electrically connected with the battery or generator, and a call-bell or similar call-signal device 27 is arranged in electrical connection with the battery or generator and with a contact-point 16 of the switchboard 2. The electrical conductors or wires leading from the push-buttons 3, 4, and 5 to the electromagnets are provided, respectively, with contact-pieces 12, 13, and 14, in contact or engagement with any one of which a pivoted switch-lever 15 may be placed.

The signs or visual-signal devices 23, 24, and 25 are movable into and out of view, or, rather, into and out of position for inspection, by the caller or visitor, as will be hereinafter explained in detail, and to accomplish this the signs or visual-signal devices are provided, respectively, with thin metallic arms or plates 20, 21, and 22, secured, respectively, to oscillatory armatures 17, 18, and 19. These armatures are preferably in the form of rectangular pieces of metal, and each one is pivoted between the poles of an electromagnet through the medium of delicate pivot-pins 29, as best seen in Figs. 4 and 5. The pivot-pins are located at corner portions of each armature, so that when the electromagnets are de-energized the armatures will fall by gravity and the signs or visual-signal devices will be moved from the position shown in dotted lines to the position shown in full lines, Fig. 5.

By this peculiar manner of pivoting the armatures between the poles of the electromagnets when the latter are vitalized the armatures are drawn in between the poles of the magnets and the magnetic force on the armature increases as the sign or visual-signal device moves into position for inspection, or from the position shown in full lines to the position shown in dotted lines, Fig. 5, in which latter position the sign or visual-signal device, as at 24, Fig. 3, will lie in front of and parallel with the fixed or immovable card or plate 28. The armatures each move through an arc of about ninety degrees between the poles of a magnet, and they are so suspended, as before explained, that during the quarter-revolution the magnetic force applied to them by the electromagnets is least where the least force is required, and increases as more force is required to lift and turn the sign or visual-signal device.

The electromagnets are preferably supported in perpendicular positions in the box, case,

or holder 1, so that when the signs or visual-signal devices 23, 24, and 25 are concealed from view or are out of position for inspection they lie parallel with the bottom wall of the box, case, or holder, and when they are moved into view or into position for inspection they stand perpendicularly in front of the card or plate 28, as shown in Fig. 3. In this figure the sign or visual-signal device 24 is represented as moved into position for inspection, and it bears the words "Come in," which is the information it is desired to convey or impart to the caller or visitor by this particular sign or visual-signal device. It is to be understood, however, that the inscriptions on the sign or visual-signal device will depend on the information it is desired to impart to a caller or visitor who operates the push-button 26 or its equivalent. Therefore the inscription "Come in" represented on the sign 24 is only typical of many different inscriptions that may be provided. A large number of signs or visual-signal devices may be employed, and they may be provided with different inscriptions to answer calls or to give instructions or orders, &c., as will be obvious.

We prefer to pivot the armatures directly to the limbs of the electromagnets, but it is possible to mount the pivots of the armatures in bearings separate from the magnets, provided the relation of the parts is substantially such as hereinbefore described, and as illustrated in the drawings.

The number of push-buttons or equivalent devices 3, 4, and 5 of the switchboard should correspond to the number of contact-points 12, 13, and 14 and to the number of electromagnets 7, 8, and 9 and signs or visual-signal devices 23, 24, and 25.

The push-buttons referred to may be of any suitable construction, so that when pressed upon they complete an electric circuit and when released the circuit is broken, as is well known in the art of electrical appliances, and further description and illustration of the push-buttons are not deemed necessary.

The switch-lever 15 is electrically connected with the push-button 26, and when the switch-lever is moved into contact or engagement with the contact-piece 16 the electrical circuit is completed through the push-button 26 and the call-bell 27, and therefore if the push-button 26 is depressed by a caller or visitor the bell is sounded, thus attracting the attention of the person called upon, who can subsequently operate any one of the push-buttons 3, 4, and 5 to complete the electrical circuit through any one of the electromagnets 7, 8, and 9 to operate any one of the signs or visual-signal devices 23, 24 and 25. For instance, if the switch-lever 15 is set in contact or engagement with the contact-piece 16 and the push-button 26 is depressed by a caller or visitor the call-bell will be sounded, and the person called upon can subsequently operate the push-button 4, which will complete the circuit

through the electromagnet 8 and thereby rock the armature 18 to cause it to move the sign or visual-signal device 24 into position to be inspected, as shown in Fig. 3. This will convey the desired answer to the caller or visitor and indicate, for example, that he or she is at liberty to enter.

The apparatus may be used to automatically operate any one of the signs or visual-signal devices by the mere depression of push-button 26, so that the person called upon is not required to operate one of the push-buttons 3, 4, and 5. This is accomplished by placing the switch-lever 15 in contact or engagement with one of the contact-pieces 12, 13, and 14, which are, respectively, electrically connected with the push-buttons 3, 4, and 5 and with the electromagnets 7, 8, and 9. Under these conditions the call-bell will not be sounded when the push-button 26 is operated, because the call-bell is electrically cut from connection with the push-button, but when the latter is operated the sign or visual-signal device corresponding with the contact-piece with which the switch-lever is placed in contact or engagement will be operated. Therefore the apparatus can be set so that it will automatically answer a call.

It will be obvious from the foregoing that when automatic action is not desired the switch-lever 15 is set upon the contact-piece 16, which completes the call-bell circuit and causes the bell to be sounded when the push-button 26 is operated by a caller or visitor, which notifies the person called upon, after which the desired answer can be given by simply pressing one of the push-buttons 3, 4, and 5 without disturbing the position of the switch-lever 15, which will operate the required sign or visual-signal device.

The contact-pieces 12, 13, and 14 are simply metallic pieces passing through the switchboard, the wires being attached to them and to parts of the push-buttons 3, 4, and 5, as will be readily understood without further illustration.

The pivot of the switch-lever 15 is connected with only one electrical conductor or wire, and therefore the switch-lever carries a current from one conductor or wire only, this being the conductor or wire which passes through the push-button 26.

By the means described and shown a plurality of signs or visual-signal devices may be operated or displayed by simply pressing the push-button 26. The caller or visitor may announce his or her presence by sounding the call-bell, and the person at the end of the circuit where the call-bell is located may answer through the medium of any one of the push-buttons 3, 4, and 5. Obviously, as before stated, the switch-lever 15 may be set so that the answer will be given automatically when the push-button 26 is operated by the caller or visitor.

The arms or plates 20, 21, and 22, which connect the signs or visual-signal devices 23,

24, and 25 with the armatures 17, 18, and 19, are bent or shaped into angular form, as best seen in Fig. 5, in such manner that the signs or visual-signal devices may be moved into the vertical position indicated by dotted lines, Fig. 5, while the bent portions of the said arms or plates accommodate the lower edge of the immovable card or plate 28, which serves as a cover or partial cover to the front of the box, case, or holder.

The adjustable switch-lever 15, forming a part of the switchboard, is an important and useful feature of our invention in that it enables the electrical apparatus to be set so that it will automatically operate whenever desired, as, for instance, during the absence of the person called.

The construction and arrangement of electromagnets, armatures, and signs or visual-signal devices described and shown are simple and efficient and enable an apparatus of this character to be very economically manufactured.

Having thus described our invention, what we claim is—

1. The combination in an electric call and call-answering apparatus, of a case or holder, a plurality of electromagnets secured therein, an armature pivoted in juxtaposition to the poles of each magnet and provided with an attached sign or visual-signal device which is moved in a circular path by the motion of the armature, a switchboard having a plurality of contact-pieces and a plurality of push-buttons electrically connected with said contact-pieces, a switch movable into engagement with any one of said contact-pieces, a call-bell electrically connected with the switch, an electric generator, an electric circuit including the electromagnets, the switch, the contact-pieces, the push-buttons and the call-bell, and a device remote from the signs or visual-signal devices and switchboard for making and breaking the circuit independently of said push-buttons, substantially as and for the purposes described.

2. The combination in an electric call and call-answering apparatus, of a plurality of electromagnets, an armature pivoted to the poles of each magnet and provided with an attached sign or visual-signal device which is moved in a circular path by the motion of the armature, a switchboard having a plurality of contact-pieces and a plurality of push-buttons, a pivoted switch-lever movable into engagement with any one of said contact-pieces, a call-bell electrically connected with the switch-lever, an electric generator, an electric circuit including the electromagnets, the switch-lever, the contact-pieces, the push-buttons and the call-bell, and a push-button for making and breaking the electric circuit, substantially as and for the purposes described.

3. The combination in an electric call and call-answering apparatus, of a suitable case or holder, a plurality of electromagnets se-

5 cured thereto, an armature pivoted in opera-
 tive connection with the poles of each mag-
 net and provided with a projecting arm, a
 sign or visual-signal device secured to the
 10 projecting arm of each armature and moved
 in the arc of a circle by the motion of such
 armature, a switchboard provided with a plu-
 rality of contact-pieces and a plurality of
 push-buttons, a pivoted switch-lever movable
 15 into engagement with any one of the contact-
 pieces, a call-bell electrically connected with
 the switch-lever, an electric generator, an
 electric circuit including the magnets, the
 switch-lever, the contact-pieces, the push-but-
 20 tons and the call-bell, and a push-button for
 making and breaking the circuit at a point
 distant from the sign or visual-signal devices,
 substantially as and for the purposes de-
 scribed.
 25 4. The combination in an electrical call and
 call-answering apparatus, of a plurality of
 electromagnets, each having projecting pole-
 pieces, an armature pivoted at its corner por-
 tions directly to and swinging in the space be-
 30 tween the two projecting pole-pieces of each
 magnet, a sign or visual-signal device which
 is moved in a circular path by the motion of
 the armature between the pole-pieces of each
 magnet, a switchboard having a plurality of
 35 contact-pieces and a plurality of push-but-
 tons, a switch-lever movable into engagement
 with any one of said contact-pieces, an audi-
 ble signal electrically connected with said
 switch-lever, an electric generator, an elec-
 tric circuit including the electromagnets, the

switch-lever, the contact-pieces, the push-
 buttons and the audible signal, and a device
 remote from the visual-signal devices for mak-
 ing and breaking the circuit, substantially as
 described.

5 5. The combination in an electrical call and
 call-answering apparatus, of a plurality of
 electromagnets, an armature pivoted in jux-
 taposition to the poles of each magnet and
 provided with an attached sign or visual-sig- 45
 nal device which is moved in a circular path
 by the motion of the armature, a switchboard
 having a plurality of contact-pieces and a
 plurality of independent push-buttons elec-
 trically connected with said contact-pieces, a 50
 switch common to all of the contact-pieces
 and movable over the same into engagement
 with any one thereof, a call-bell electrically
 connected with the switch, an electric genera-
 55 tor, an electric circuit including the electro-
 magnets, the switch, the contact-pieces, the
 independent push-buttons and the call-bell,
 and a push-button for making and breaking
 the said electric circuit independently of said
 60 push-buttons, substantially as and for the
 purposes described.

In testimony whereof we have hereunto set
 our hands in presence of two subscribing wit-
 nesses.

EDWARD H. OWEN.
 CHARLES N. WILLIAMS.
 FRED H. DONALDSON.

Witnesses:

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 GEORGE W. GIBSON.