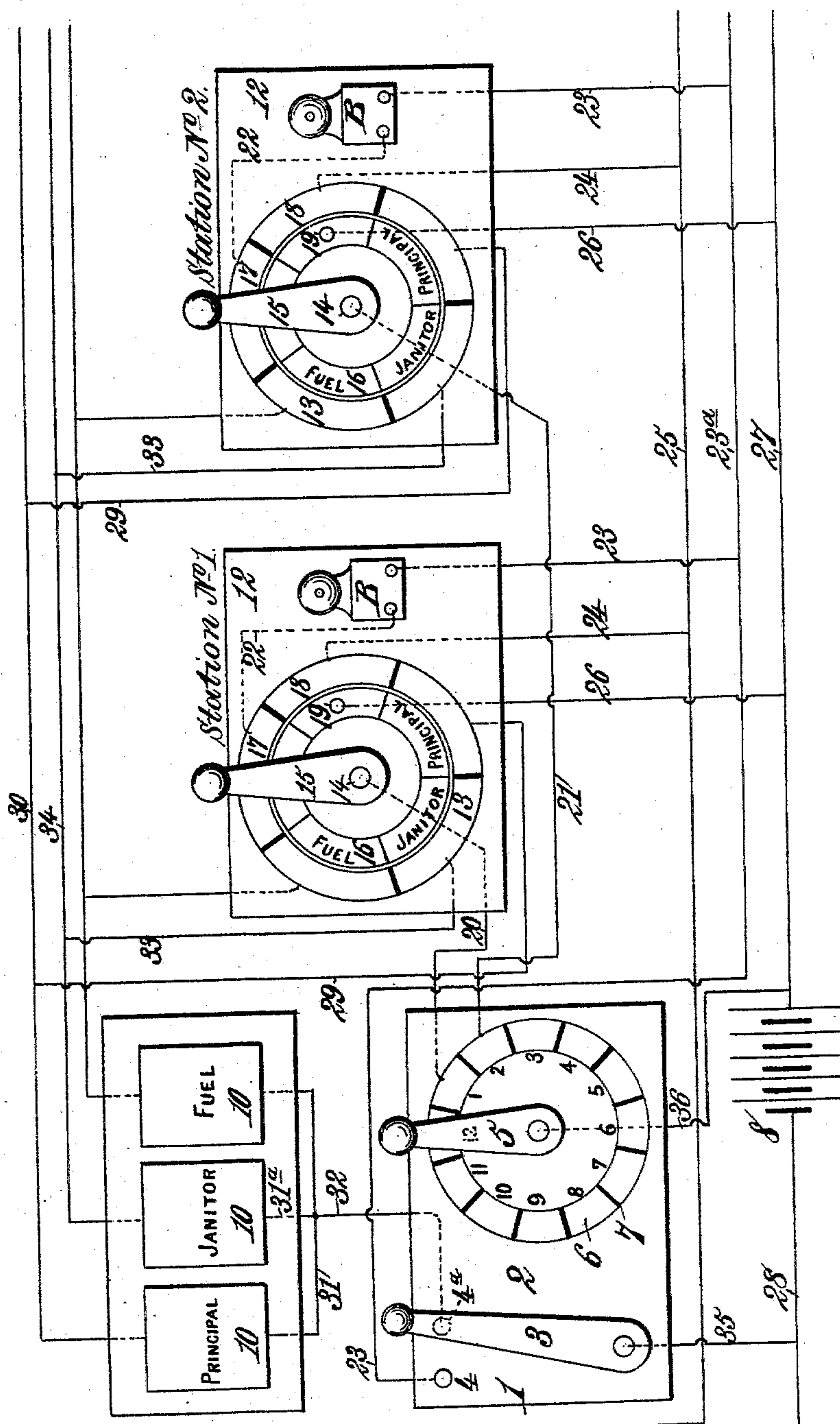


(No Model.)

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ELECTRIC SIGNALING APPARATUS AND CIRCUIT.

No. 589,746.

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UNITED STATES PATENT OFFICE.

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ELECTRIC SIGNALING APPARATUS AND CIRCUIT.

SPECIFICATION forming part of Letters Patent No. 589,746, dated September 7, 1897.

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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 Electric Signaling Apparatus and Circuits, of which the following is a specification.

Our invention relates to electric signaling apparatus and circuits, our object being to provide means for greatly facilitating and expediting communication between a number of separate stations or points, such as the rooms of a hotel and a main station, which may be represented by the clerk's office or by any single point to which all the separate stations are connected. Our purpose is to so connect these stations that by the slight adjustment of a simple form of switch the clerk shall be able to ring approximately simultaneous the calls in every room comprised in the circuit, thus enabling him to give an effective alarm in case of fire; while by the restoration of the switch to its normal position any guest shall be able to sound the call-bell at the office and at the same time indicate the particular thing or service desired, as well as the number of the room from which the call is sent. Finally, we aim to provide an apparatus by which the bell in any room comprised in the circuit may be rung at any moment by the person at the office or main station. It is also one purpose of our invention to materially simplify, cheapen, and improve electric signaling apparatus of this type; and our invention consists in the novel features of construction and new combinations of parts hereinafter fully described, and then particularly pointed out and defined in the claims which conclude this specification.

For the purposes of the following description reference will be had to the accompanying drawing, in which the figure is a diagram showing the arrangement of circuits for a main station and two separate points or line-stations.

The reference-numeral 1 in said drawing indicates an apparatus adapted to be arranged at some point, such as a hotel office, the room of a school principal, or any point from which communication may be desired with a plu-

ality of distant points. The latter may be the several apartments occupied by guests or the rooms in which assistant teachers have their class exercises. Said apparatus consists of a base-plate 2, upon which is placed a pivoted switch-arm 3, two electrically-isolated contacts 4 and 4^a, with either one of which the switch-arm 3 may be engaged, and a second arm 5, having one end pivoted at the center of a circular series of contacts 6, separated from each other by insulating intervals 7. In the present instance we have shown twelve of these contacts, which are numbered consecutively. The apparatus at this point is completed by a battery 8, a bell 9 of any ordinary pattern, and a series of annunciator-plates 10. The electrical connections will be explained hereinafter.

Although we have shown twelve contacts for the switch-arm 5 and may use any number corresponding with the number of separate stations, we will illustrate and describe only two of the latter, as any increased number will merely require duplication of the circuits we are about to describe.

At each separate station or point the apparatus consists simply of a suitable base-plate 12, upon which are placed a series of electrically-isolated contact-plates 13, arranged in a circle about a central pivot 14, on which is mounted a switch-arm 15. Upon suitable plates 16, arranged close to the contact-plates, are represented the several communications or wants, which may be signaled to the main office—such, for example, as the word "Fuel" on one, the word "Janitor" on another, &c. Two of said contact-plates at each station are left blank or without any designation. These blank plates are denoted by numerals 17 and 18. Near the plate, but insulated from it, is a contact-point 19. An electric bell B is also arranged at each station.

The central pivot 14 of station No. 1 is connected by a wire 20 to the contact-plate having the numeral 1 at the main station. A similar wire 21 connects the central pivot of station No. 2 to the second contact-plate at the main station, said contact having the numeral 2. If more stations were shown, each would be connected in the same man-

ner to the third, fourth, and succeeding contact-plates. Contact-plates 17 at stations No. 1 and No. 2 are connected by wires 22 to one terminal of the bell B, and from the other terminal of the bell-coil a wire 23 goes to a line-wire 23^a, which is common to all the stations, its end being connected to the contact 4 at the main station. The second blank contact-plate 18 is connected by a wire 24 to a line-wire 25, which goes to one terminal of the bell-coil at the main station. From the contact 19 a wire 26 goes to a third line-wire 27, which is led to one pole of the battery 8, from the other pole of which a wire 28 is carried to the second terminal of the call-bell 9.

The contact-plates bearing designations of the several calls—such as “Janitor,” &c.—are connected as follows: the first by a wire 29 to a wire 30, common to all the line-stations, its end being connected to the annunciator containing a like designation at the main station, thence by a wire 31 and a connecting-wire 32 to the contact 4^a on the base. The second contact-plates at the line-stations, which may bear, for illustration, the word “Janitor,” are connected by wires 33 to a separate line-wire 34, which goes to the proper annunciator 10, and thence by a wire 31^a to the wire 32. The remaining contact-plates at the line-stations will have similar connections to separate line-wires, the latter being carried to the proper annunciators and from the latter to the wire 32.

The switch-arm 3 is connected by a wire 35 to the line-wire 28, and the arm 5 has a wire 36 going from its pivot to the line 27.

By placing the switch-arm 3 upon the contact 4 and then turning the switch-arm 5 a full revolution, thereby sweeping it over all the contact-plates 6, the operator at the main station can ring all the bells included in the circuit and can repeat the call rapidly or slowly, according to the rate of speed at which the arm 5 is turned.

The apparatus can receive signals from the several line-stations when the switch-arm 3 rests against contact 4^a. To ring a line-station bell, the switch-arm 5 must be turned until it rests on the number corresponding to the station and the switch-arm 3 shifted to bear against the contact 4.

If any one at a line-station desires any of the supplies or services designated upon the contact-plates 16, the switch-arm 15 at that station is turned until it rests upon the proper contact-plate. This rings the bell at the main station by the passage of the arm 15 over the contact-point 19 and plate 18 in line with said point. For example, if station No. 2 wants a janitor the switch-arm 15 is turned until it rests on the contact-plate having the word “Janitor” upon it. The attendant at the main office being notified by the sound of the bell that some line-station is making a call he turns the switch-arm 5 until it arrives upon a contact-plate 6, where the annunciator-drop bearing the word “Janitor” is thrown up.

This informs him what is wanted, and by looking at the numeral corresponding to said contact-plate he learns the number of the line-station that sent the call.

This apparatus is especially adapted for hotels, schools, offices, stores, steamships, and in fact for all places having a series of more or less widely-separated points with which communication is desired. Any number of such points can be included in such a system by merely increasing the number of contact-plates 6 at the main station to equal the number of line-stations and including as many annunciator-drops as there are separate calls or messages upon the contact-plates at each line-station. It is extremely simple and, involving no complicated apparatus, it is hardly possible that it should get out of order. It has also the advantage that by a partial turn of the switch-arm 5 the operator at the main station can tell not only what is wanted, but from what station the call is sent, both being denoted by closing a single circuit. Moreover, a simple and limited adjustment of the arm 3 and a single turn of the arm 5 will ring an alarm or sound the bells at all the line-stations, which is a valuable feature in case of fire in a hotel, school, or other building, or to signify the hour of dismissal or close of working-hours.

It will be understood, of course, that in all cases the arm 5 can be turned as rapidly or as slowly as may be desired, and as many revolutions of said arm may be made as may be necessary, each successive revolution causing a peal to ring upon the bells at all the line-stations.

What we claim is—

1. An electric signaling apparatus, consisting of apparatus at a central station comprising a call-bell, a battery having one pole connected to the bell-coil and to a switch-arm, two contact-points for said arm, one connected to an annunciator and to a wire having branch connection to other annunciators and the second contact to a line-wire, having branches to all the line-stations, a series of circularly-arranged numbered contacts, an arm to sweep the same, a like series of contacts at each line-station, the first connected through a line-wire and through a bell-coil at a line-station to one of the contact-points at the main station, the second through a separate line and bell-coil at main station to one pole of the battery, and the remainder to line-wires leading to the annunciators, a switch-arm to sweep said contacts, its pivot being connected to a corresponding numbered contact at the main station and a contact-post in line with the second contact at each line-station connected by a line-wire to one pole of the battery, substantially as described.

2. The combination with a battery, and bell-coil, of a wire from one pole of the former to one terminal of the latter, a line-wire from the second terminal, a series of line-stations having each a series of contacts the second

thereof connected by branch wires to said line-wire, a contact-post in line with said contact, a separate line-wire connected to said post at each line-station and to the second pole of the battery, a switch to sweep said contacts, a series of annunciator-drops at the main station, having different communications, line-wires connected by branches to the similarly-designated contacts at the line-stations, a series of numbered contacts at the main station connected to the switch-arms at the line-stations, a switch-arm for said contacts connected to the line-wire from the second pole of the battery, a bell for each line-station having its coil connected to the first contact and to a line-wire, a contact-point at the main station connected to said line-wire, a second contact-point connected to all the annunciator-drops and a switch-arm connected to the bell-coil and battery, substantially as described.

3. In an electric signaling mechanism, a call-receiving apparatus for a main station, comprising two independent switch-arms, the first having two contact-points, one of which is connected to a line-wire having branch wires to call-bells at the line-stations, and the other to a series of annunciators having messages on their drops, a circular series of numbered contact-plates each of which save one is connected to a switch-arm at one of the line-stations, and a battery having one pole connected to the second switch-arm which

sweeps said contact-plates, and its other pole to a line-wire which includes a call-bell at the main station, and to the first switch-arm, said line-wire having branch wires to contact-posts at the line-stations.

4. In an electric signaling mechanism, a call-sending apparatus consisting of a series of contact-plates arranged in a circle, the first plate wired through a branch line, line-wire and local call-bell to a contact-post at a main station, the second through a separate branch, line-wire and call-bell at the main station to one pole of a battery, a contact-post in line with the second contact-plate and connected through a third branch and line wire to the other pole of said battery, the remaining plates having calls and connected through branch and line wires to annunciators having like calls on their drops, and a switch-arm to sweep said contact-plates having connections through a branch and line wire to one of a series of numbered contact-plates at the main station, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

EDWARD H. OWEN.
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FRED H. DONALDSON.

Witnesses:

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