

F. A. MUSCHENHEIM AND F. W. BLASDALE.

ELECTRICAL INDICATOR.

APPLICATION FILED JAN. 12, 1918.

1,327,837.

Patented Jan. 13, 1920.

4 SHEETS—SHEET 1.

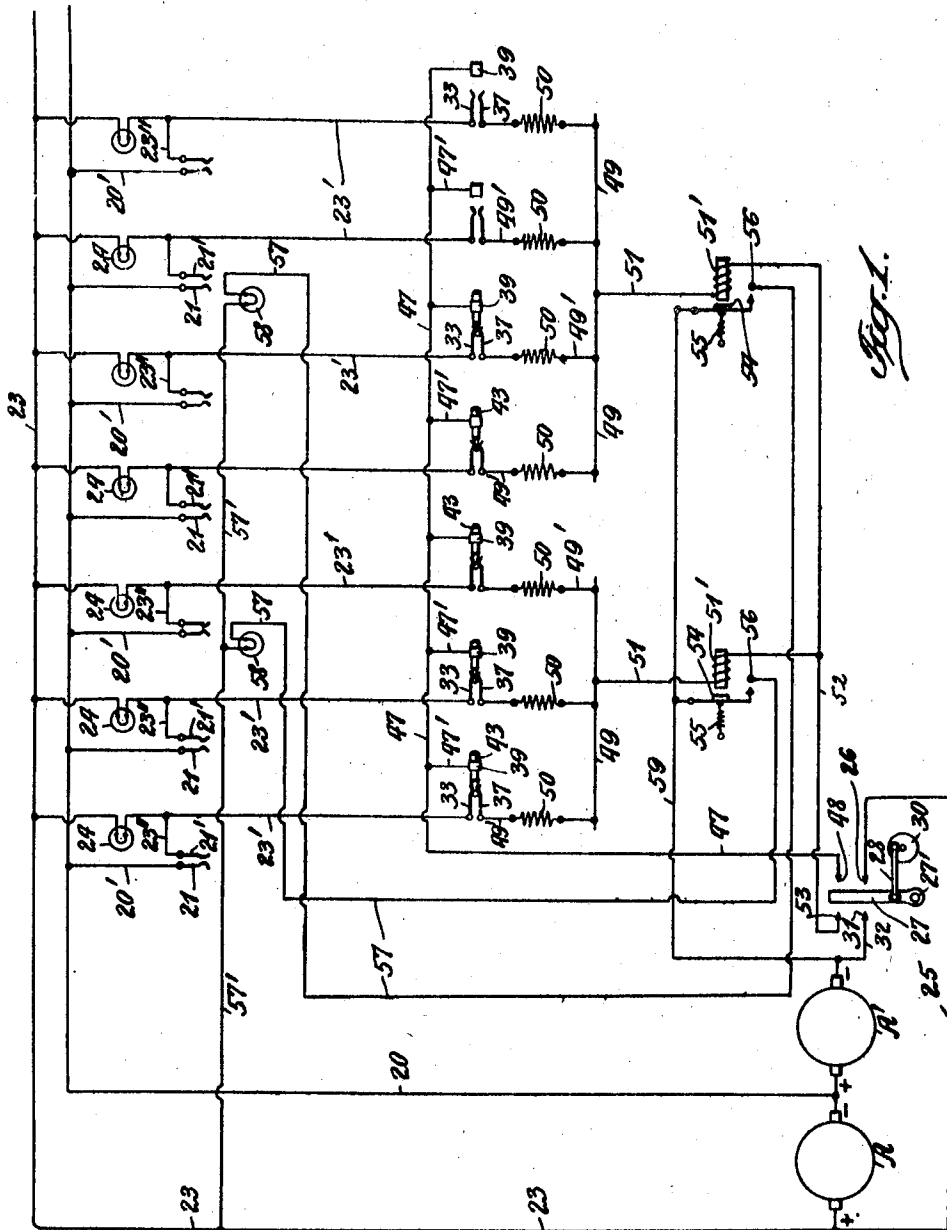


Fig. 1.

INVENTORS
 Frederick A. Muschenheim
 & Frederick W. Bladsdale
 BY
 Frank O. Brierley
 Their ATTORNEY

F. A. MUSCHENHEIM AND F. W. BLASDALE.

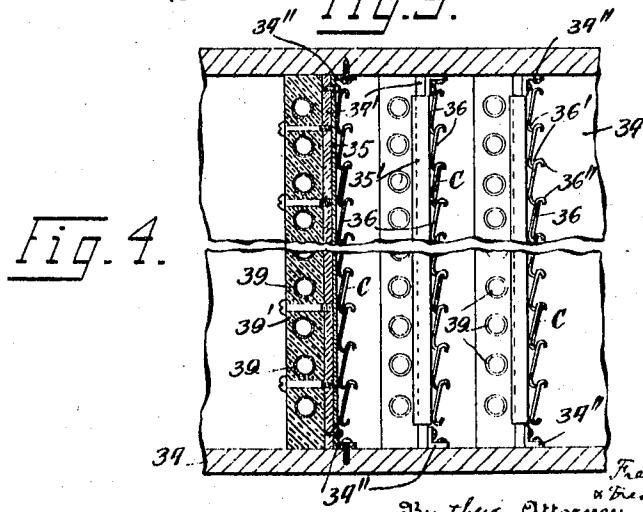
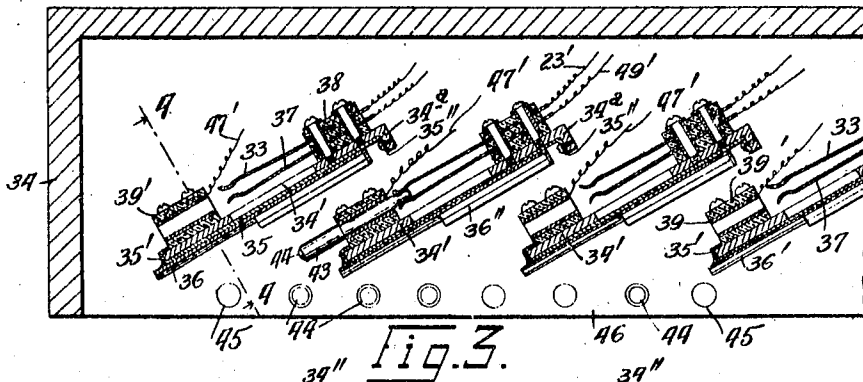
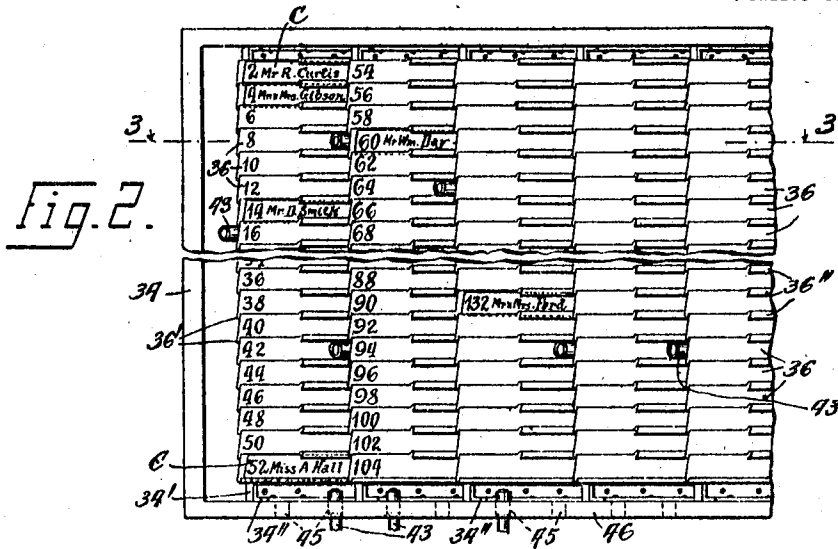
ELECTRICAL INDICATOR.

APPLICATION FILED JAN. 12, 1918.

Patented Jan. 13, 1920.

4 SHEETS—SHEET 2.

1,327,837.



Inventors

Frederick A. Muschenheim
and Frederick W. Blasdale

By their Attorney

Frank W. S. S. S.

F. A. MUSCHENHEIM AND F. W. BLASDALE.

ELECTRICAL INDICATOR.

APPLICATION FILED JAN. 12, 1918.

1,327,837.

Patented Jan. 13, 1920.

4 SHEETS--SHEET 3.

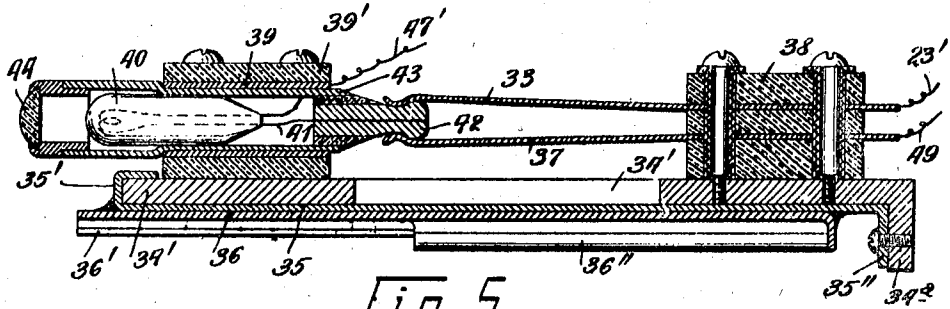


Fig. 5.

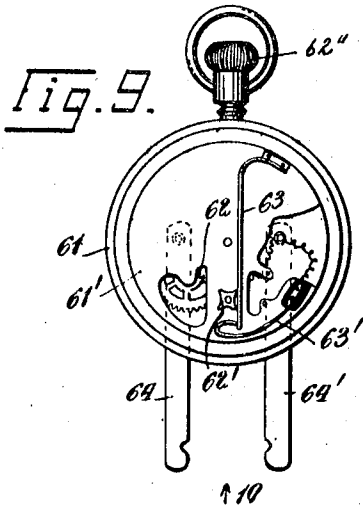


Fig. 9.

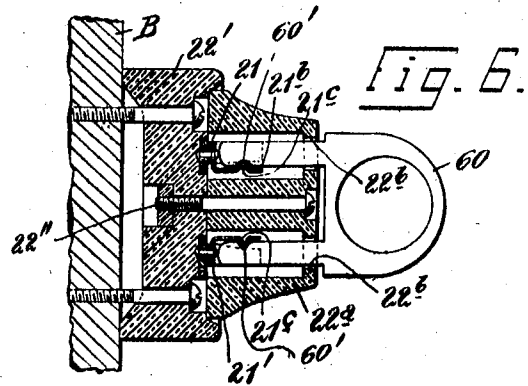


Fig. 6.

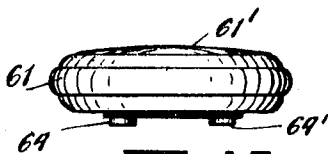


Fig. 10.

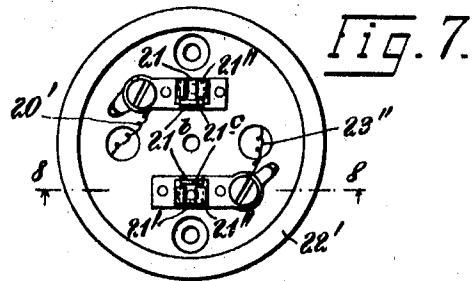


Fig. 7.

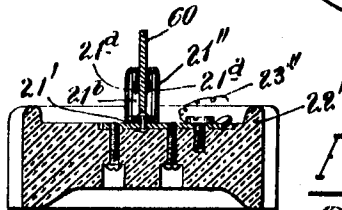


Fig. 8.

Inventors
 Frederick A. Muschenheim
 & Frederick W. Bladsdale
 By their Attorney
 Frank B. Biesed

F. A. MUSCHENHEIM AND F. W. BLASDALE.
ELECTRICAL INDICATOR.

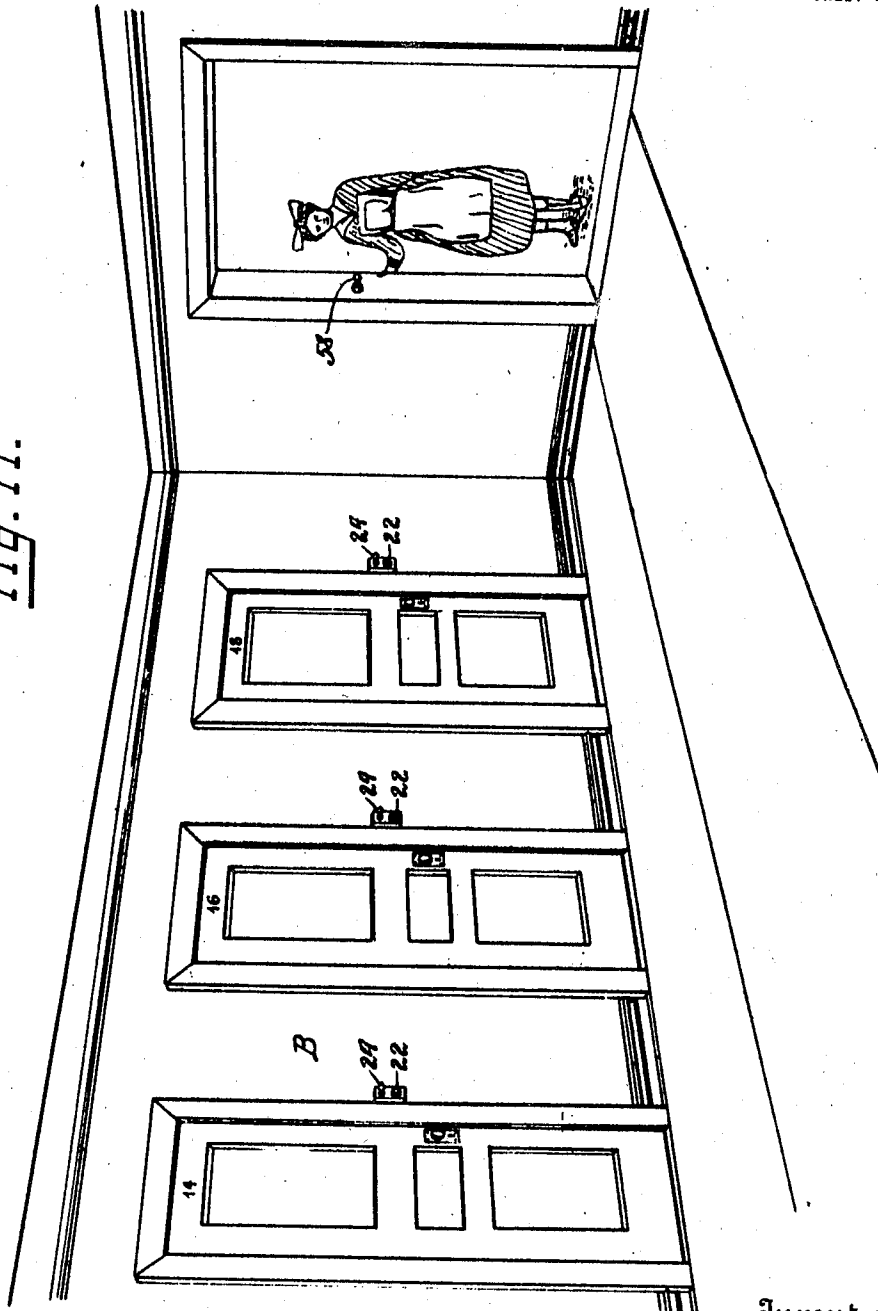
APPLICATION FILED JAN. 12, 1918.

Patented Jan. 13, 1920.

4 SHEETS—SHEET 4.

1,327,837.

Fig. 11.



Inventors
Frederick A. Muschenheim
& Frederick W. Bladale
By, their Attorney
Hauko & Brien

UNITED STATES PATENT OFFICE.

FREDERICK A. MUSCHENHEIM AND FREDERICK W. BLASDALE, OF NEW YORK, N. Y.

ELECTRICAL INDICATOR.

1,327,837.

Specification of Letters Patent.

Patented Jan. 13, 1920.

Application filed January 12, 1918. Serial No. 211,502.

To all whom it may concern:

Be it known that we, FREDERICK A. MUSCHENHEIM and FREDERICK W. BLASDALE, both citizens of the United States, and both residents of New York city, in the county and State of New York, have invented certain new and useful Improvements in Electrical Indicators, of which the following is a specification.

This invention relates to an improved apparatus, adapted for use in hotels, clubs and the like, for enabling signals to be given at various points, and particularly at the clerk's desk, different halls or sections of the building and the individual rooms. An important object of the invention is to provide signals of two or more kinds, to indicate certain conditions, such as the presence of a chambermaid or other attendant in the room, and the time when he or she has finished the work therein, as will appear more fully from the detailed description given hereinafter.

An example of an indicating system embodying our invention is illustrated by the accompanying drawings, in which,

Figure 1 is a diagram of the entire apparatus;

Fig. 2, a front elevation of a hotel room rack to be placed at the clerk's desk, with our improved indicators therein;

Fig. 3, a horizontal section on line 3—3 Fig. 2 showing a portion of the rack on an enlarged scale;

Fig. 4, a vertical section on line 4—4 Fig. 3;

Fig. 5, one of the indicator sections of Fig. 3, shown on a still larger scale;

Fig. 6, a central longitudinal section of a wall-socket used in connection with our invention showing a circuit-closer inserted in said socket;

Fig. 7, a front elevation of the body member of said wall-socket, with the cover removed;

Fig. 8, a section on line 8—8 Fig. 7;

Fig. 9, an outside view of another form of circuit closer which we employ in connection with the wall socket shown in Figs. 6 to 8;

Fig. 10, an edge view of said second form of circuit-closer looking in the direction of the arrow 10 in Fig. 9, and

Fig. 11, illustrates the arrangement of a group of rooms with the corresponding signal lights at the individual rooms, the signal

light for the whole group, and the wall sockets for such rooms.

The apparatus, comprises two sources of electricity A, A' which may be two dynamos of like construction and output, connected in series as indicated. From the adjacent or connected poles of such sources of electricity, a wire 20 leads by means of branches 20', to one terminal 21 of each wall socket 22. These sockets may be of any suitable construction, for instance as shown in Figs. 6, 7 and 8, where such socket consists of a body 22' of insulating material secured to the wall B and provided with two terminals 21, 21'. Any suitable terminal may be employed, but we prefer a terminal comprising a U-shaped section 21'' with inwardly bent ends 21^a forming elastic side members and a section 21^b, likewise elastic, extending in a plane at a right angle to that of the U, and provided with a hook 21^c. The sections 21^b are on opposite sides of the two terminals 21, 21' as shown in Figs. 6 and 7. Each terminal may be made of one or more pieces of copper or other suitable material. A screw and nut connection 22'' normally secures to the body 22', a cover 22^a provided with two slots 22^b in alinement with the terminals 21, 21'. The second terminal 21', of each wall socket, is connected by a branch 23'' with a wire 23', and from the several wires 23' (there being one for each room) a return wire 23 leads to one of the main terminals of the source of electricity A, A'. In each wire 23', between the branch 23'' and the return wire 23, a signal lamp 24 is arranged, so that said lamp will light up whenever a current of proper strength passes through that particular wire 23'. The lamps 24 are arranged on the wall B outside of the respective rooms, and preferably the wall sockets 22 are also arranged outside of the rooms.

The same terminal of the source of electricity which is connected with the wire 23, is also connected by a wire 25 with a contact 26, adapted to be engaged periodically by a contact arm or switch 27. This arm may for instance, be pivoted at 27' and operated by means of a connecting rod 28 from a motor 30, say an electric motor. The arrangement may be such as to have the arm 27 oscillate to the left and right respectively at regular intervals, say of three seconds. When moved away from the contact 26, the arm 27 will engage a contact 31, connected

by a wire 32 with the other main terminal of the source of electricity A, A'.

Each of the wires 23' is connected on the side of the branch 23'' opposite to the signal light 24, with a terminal 33 of an indicating apparatus located at the clerk's desk, and preferably constructed as a unit with the hotel room rack having numbered compartments or holders for receiving cards, such as C, bearing the names of the guests occupying the respective rooms. While racks of this type are well known, we have somewhat modified their construction so as to provide spaces for the placing of the indicating lights which according to our present invention, are used in connection with such racks.

The rack comprises a frame 34 with uprights 34' extending obliquely with respect to the front of the frame, between the top and bottom members of the frame. The connection of each upright with the said frame members may be made by means of horizontal angle irons 34''. Against the front face of each upright, between the corresponding angle irons 34'', is secured a piece of sheet metal 35, the forward edge 35' of which may be bent to fit the corresponding edge of the upright, while its rear edge 35'' is bent at right angles so that it may be readily fastened (say by screws) to the corresponding rear portion 34'' of the upright 34'. To the metal sheet 35 we secure, as by soldering, a series of superposed horizontal holders 36 for the cards C, the cards being adapted to have written thereon the guest's name, room number, and other data. Each holder 36 has its back inclined forwardly and upwardly as shown in Fig. 4, and preferably projects slightly beyond the sheet 35 at its forward edge. Each holder has a horizontal channel 36' along its entire lower edge, and a horizontal channel 36'' along the rear half or portion of its upper edge, the edges of the cards C sliding in said channels as the cards are inserted or removed. The back of each card holder rests at its upper end against the bottom channel 36' of the next holder above. At the front end of each holder the room number is painted. The holders of adjacent sets or columns are preferably overlapping, but a sufficient space is left between adjoining holders belonging to different sets to interpose the signaling or indicating apparatus mentioned above as located at the clerk's desk. This apparatus comprises forwardly extending contacts or terminals 33, 37 the rear ends of which are secured to a suitable stationary carrier 38 (fastened to the upright 34') in such a manner, that one terminal will be insulated from the other. At the forward portion of each card holder is secured a conducting socket 39. The sockets of the same column,

may be, for instance, carried by a vertical bar 39' of insulating material, secured by screws or otherwise to the respective upright 34'. Each socket 39 extends horizontally lengthwise of the holder, and is adapted to receive one of the clerk's signal lights. This light comprises a suitable bulb 40 with a filament 41 one end of which is secured to a metallic plug 42 adapted to be fitted between the terminals 33, 37 the plug preferably having a groove to receive the curved outer ends of said terminals, which latter are made of spring metal. The bulb is fitted into a tubular casing 43, of a conducting material to which the other end of the filament 41 is secured. Said casing is adapted to slide in or out in the conducting socket 39, and is provided at its forward portion with an opening in which is set a lens 44, to direct the clerk's attention to the card or card holder corresponding to the room that is signaling. It will be understood that the parts 40, 41, 42, 43, 44 are connected with each other rigidly and move as a unit when being inserted into, or removed from the socket 39. When not in their sockets 39, these signal units may be kept in any manner convenient for the clerk's use, and we prefer to set them, when not in use, in vertical sockets 45 (say, of wood) located in a board 46 at the bottom of the room rack and slightly in advance thereof, so as to be within the clerk's reach.

Each of the conducting sockets 39 is connected by a branch 47' with a wire 47 leading to a contact 48, located in such a manner as to be engaged by the switch 27 at the same time as the contact 26. Each of the terminals 37 is connected by a branch 49', which preferably includes a resistance 50, with a group wire 49, since for reasons set forth below it is desirable to arrange and operate the lights 24 and 40 in certain groups. For instance, the lights corresponding to all the rooms on one floor may form a group, or the group may comprise all the rooms opening on the same hall, etc. Each of the group wires 49 is connected by a wire 51, which includes a magnet coil 51' with a wire 52 leading to a contact 53 adapted to be engaged by the switch 27 simultaneously with the contact 31. The magnet coil 51' when energized will cause the attraction of an armature 54, normally retracted by a spring 55, and will bring said armature into engagement with a contact 56, connected by a wire 57, in which is included a signal such as an incandescent bulb 58, with one of the main terminals of the source of electricity A, A'; for instance, the two wires 57 may be connected with the wire 23, as by a wire 57'. The other main terminal of the source of electricity is connected with all the armatures 54, as by a wire 59. The signals 58 may be termed "group signals," and each

of them would be located at some convenient point, for instance, each group signal would be located at the station of the maid or other attendant in charge of the rooms belonging to that particular group.

In addition to the devices described above, the apparatus or system comprises circuit-closers adapted to be used by the chambermaid or other room attendant. We provide two kinds of such circuit-closers, one kind being shown in Figs. 6 and 8 and the other in Figs. 9 and 10, but it will be understood that all of these circuit-closers whether of one kind or another, will fit the wall-sockets 22 provided for the several rooms.

The circuit-closer shown in Figs. 6 and 8 consists simply of a bow or U-shaped flat piece of metal 60 the ends of which are adapted to be inserted through the slots 22^b of the cover 22' to connect the terminals 21, 21' as illustrated by Fig. 6. The side members of the circuit-closer or key 60 are provided at their inner edges with notches 60' to be engaged by the hooks 21^c of the terminal sections 21^b to hold the key against accidental separation. The ends of the key fit between the ends 21^a of the terminals which press elastically against the side surfaces of said ends.

The other circuit-closer shown in Figs. 9 and 10 comprises a casing 61 which may have a transparent cover 61' and contains a suitable motor or clockwork 62. This clockwork drives a star wheel 62' to operate an intermittent circuit-closer consisting of two contacts 63, 63' one of which, 63, is periodically separated from the other by the action of the star wheel, and then snaps back to contact. These two contacts and the terminals 64, 64' with which they are connected are insulated from each other and their relative position is such that they will properly fit the two slots 22^b of a wall socket 22, to engage the terminals 21, 21' of said socket. These terminals 64, 64' are notched and shaped like the ends of the key 60. The clockwork driving the wheel 62' may for instance, cause the circuit to be interrupted say four times during the three-second periods during which the switch arm 27 remains in its contact making position.

The room signal lights 24 and the desk signal lights 40 are preferably of the same voltage, say 16 volts, while the group signal lights 58 are of a higher voltage, say 22 volts, each of the resistances 50 being such as to take, say 6 volts.

In operation, the arm 27 swings periodically from engagement with the contacts 26, 48 to engagement with the contacts 31, 53, remaining in engagement with each set for a suitable period, say three seconds each time. As long as all the desk signal lights 40 are removed from their conducting sockets 39,

no circuits will be closed by the switch arm 27. Now, suppose the clerk desires to inform the maid or other attendant that her services are required in a certain room, he will put the signal light 40 in the socket 39 corresponding to that room. Then, as the oscillation of the switch arm 27 brings it against the contacts 31 and 53, the following circuit will be closed: first, from contact 53, through wire 52 to wires 51 and 49 of the particular group to which said room belongs, the branch 49' and resistance 50 corresponding to that room, terminal 37, plug 42, terminal 33, wire 23' and signal light 24 of the particular room, wire 23, source of electricity A, A', wire 32, contact 31 and switch arm 27, thus lighting the lamp 24 corresponding to that room.

The passing of the current through the wire 51 will by means of the coil 51' energize the corresponding magnet to attract the armature 54 and close the following circuit: from source of electricity A, A' through wire 59 and armature 54 to contact 56, wire 57, the corresponding group signal light 58, and back to the other terminal of the source of electricity through wires 57', 23. This will cause the group signal light 58 to flash thus signaling the attendant at her station that she is wanted in one of the rooms belonging to the group under her care, and her attention having thus been attracted, she will see which of the room lights 24 is flashing. While theoretically, the group light 58 will flash after the room light 24, the two occurrences are practically simultaneous.

The circuits described above, causing the room signal 24 and the corresponding group signal 58 to flash, will remain closed only as long as the switch arm 27 engages the contacts 31 and 53, and no circuit will be closed (under the conditions set forth so far) when the switch arm 27 engages the contacts 26 and 48, that is to say as long as none of the circuit-closers shown in Figs. 6, 8, 9 and 10 is inserted in the corresponding wall socket 22. It will be noted that under the conditions described so far, the high voltage current derived from both dynamos or other sources of electricity A, A' connected in series will pass through the group signal 58 and room signal 24, the resistance 50 effecting a proper reduction of voltage in the circuit of the low-voltage lamp 24. The desk signals 40 will not light up under the conditions so far described.

When the attendant enters a room to work therein, she is supposed to insert in the wall socket 22 of that room, the permanent circuit-closer or key 60 shown in Figs. 6 and 8. With this arrangement, the engagement of the switch arm 27 with the contacts 31 and 53 will close the same circuits as described above, sending the current of both sources of electricity through the room lamp 24 and

the group lamp 58. The operation however, will differ in this respect, that a large portion of the current passing from the wires 52, 51, 49 and 49' to the wire 23' will be shunted through the branch 23'', terminal 21', key 60, terminal 21, branch 20' and wire 20, so that the current from the source of electricity A' will be short-circuited through this shunt, leaving practically only the current from the source of electricity A to pass through the lamp 24 whenever contact is made between 27 and 31, 53, which will result in the lamp 24 burning quite dim at the time of such contact, or not at all, this depending on the voltage of the current and of the lamp.

When, with the conditions as just described, the switch arm 27 engages the contacts 26 and 48, the following circuit will be closed: from one pole of source of electricity A, through wire 25, contact 26, switch arm 27, contact 48, wire 47, branch 47', conducting socket 39, casing 43, filament 41, plug 42, terminal 33, wire 23', branch 23'', terminal 21' key 60, terminal 21, branch 20', and wire 20 to the opposite pole of the source of electricity A. The desk signal 40 will therefore, be caused to flash in substantially the same manner in which the room signal 24 flickers during the engagement of the switch arm 27 with the contacts 31 and 53, as first described above. This flashing of the desk signal (with intervening periods of darkness while the switch arm 27 is off the contacts 26, 48) will inform the clerk at the desk that the attendant is working in the room, while a similar information will be imparted to the guests or other persons in the hall outside the room, by the dim flashing of the room signal 24 (with intervening periods of darkness while the switch arm 27 is off the contacts 31, 53).

When the maid or other attendant is through with her work, and leaves the room, she will remove the permanent circuit-closer from the wall socket 22 and substitute the intermittent circuit-closer or clockwork shown in Figs. 9 and 10. It will be obvious that this will close exactly the same circuits which have been set forth above in connection with the operation of the permanent circuit-closer, except that these circuits will be opened and closed several times while the switch arm 27 engages the contacts 31, 53 or 26, 48 respectively. The result will therefore be, that the room signal 24 will flicker when the switch arm 27 engages the contacts 31, 53 and the desk signal 40 will flicker while the switch arm 27 engages the contacts 26, 48, the change from flash to flicker indicating to the clerk as well as to persons in the vicinity of the room that the attendant has left the room.

It will be understood that the attendant will wind the clockwork 62, as by means of

a handle or key 62''. It is presumed of course, that the corresponding desk signal 40 is still in its socket 39 at the time the attendant substitutes the clock work circuit-closer for the key 60. As a rule, the intermittent circuit-closer will be left in its wall socket 22 only a short time. It will be understood however, that the exact manner and sequence of using the various instrumentalities described, may be modified to suit the owner's convenience. The room clerk will generally remove the lamp 40 as soon as it gives the flicker signal, showing that the attendant has left the room.

The group signal 58 will continue to flash as long as the switch arm 27 engages the contacts 31 and 53, whenever one or more desk signals 40 are inserted in their sockets 39, irrespective of whether the circuit is open at 21, 21' (no circuit-closer in wall socket 22) or whether the circuit gap at that point is closed either permanently or intermittently by the insertion of a circuit-closer of the corresponding type.

When the desk clerk notices by the flashing of his desk signal 40 that the attendant has left the room, he removes the said signal from the socket 39, thus stopping the operation of the signal lights pertaining to that particular room.

Should the clerk insert a second lamp 40 in a socket 39 while another socket 39 of the same group contains such a lamp, and while a circuit-closer is in the socket 22 corresponding to such other socket 39, the resistance 50 in the circuit of such second lamp 40 will reduce the amount of current shunted through such second lamp, to such an extent that this lamp will not be affected at all, or but very slightly, by the operation of the circuit-closer inserted at 22. Proper signaling at the clerk's desk is thus insured even when two or more lamps 40 are inserted in sockets 39 of the same group.

We do not claim, in this application, certain structural and electrical features of the room rack or switchboard, of the clockwork switch, and of the wall-socket circuit closer or electrical connector disclosed herein, as these are separate inventions and in part form the subject-matter of divisional applications filed August 17, 1918, under Serial Nos. 250,288; 250,289 and 250,290.

We claim:

1. In a signaling system, a source of electricity, a plurality of circuits connected therewith, and having a portion in common, each of the separate portions of said circuits containing a gap, and the common portion also containing a gap and including a relay, individual signals controlled by the separate portions of said circuits, a circuit connected with said source of electricity and including a gap controlled by said relay, a group signal controlled by the last named

circuit, a permanently operating circuit-closer for periodically opening and closing the gap in the common portion of the first named circuits, and another circuit-closer under the operator's control, for closing the gap in one of the separate portions of said circuits and causing the operation of the corresponding individual signal.

2. In a signaling system, a source of electricity, a plurality of circuits connected therewith, and having a portion in common, each of the separate portions of said circuits containing a gap, and the common portion also containing a gap and including a relay, individual signals controlled by the separate portions of said circuits, a circuit in shunt relation to the first named circuits and including a gap controlled by said relay, a group signal controlled by the last named circuit, a permanently operating circuit-closer for periodically opening and closing the gap in the common portion of the first named circuits, and another circuit-closer under the operator's control, for closing the gap in one of the separate portions of said circuits and causing the operation of the corresponding individual signal.

3. In a signaling system, a source of electricity, a plurality of circuits connected therewith, and having a portion in common, each of the separate portions of said circuits containing a gap, and the common portion also containing a gap and including a relay, individual signals controlled by the separate portions of said circuits, a circuit including a gap controlled by said relay, a group signal controlled by the last named circuit, a permanently operating circuit-closer for periodically opening and closing the gap in the common portion of the first named circuits, and another circuit-closer under the operator's control, for closing the gap in one of the separate portions of said circuits and causing the operation of the corresponding individual signal.

4. In a signaling system, a source of electricity, a plurality of circuits connected therewith, and having a portion in common, each of the separate portions of said circuits containing a gap, an individual signal on one side of said gap, and a resistance on the other side of the gap, the said common portion of the circuits also containing a gap and including a relay, a circuit including a gap controlled by said relay, a group signal controlled by the last named circuit, a permanently operating circuit-closer for periodically opening and closing the gap in the common portion of the first named circuits, and another circuit-closer under the operator's control, for closing the gap in one of the separate portions of said circuits and causing the operation of the corresponding individual signal.

5. In a signaling system, a source of elec-

tricity, a plurality of circuits connected therewith, and having a portion in common, each of the separate portions of said circuits containing a gap, a circuit-closer adapted to close said gap and having a light giving filament, the common portion of said circuits also containing a gap, another circuit including said filament and connected with said source of electricity, said circuit also including a gap, individual signals controlled by the separate portions of the first named circuits and a permanently operating circuit-closer for periodically opening and closing the gap in the common portion of the first named circuits and also periodically opening and closing the gap in the filament circuit.

6. In a signaling system a source of electricity, a plurality of circuits connected therewith and having a portion in common, each of the separate portions of said circuits including a gap, the common portion of said circuits also containing a gap, individual signals controlled by said separate circuit portions, a shunt around each of the signal controlling portions, each of said shunts likewise containing a gap, means for closing the shunt gap, means under the operator's control for closing the gaps in said separate circuit portions, and a permanently operating circuit-closer for periodically opening and closing the gap in the common portion of the first named circuits.

7. In a signaling system, two sources of electricity connected in series and having two end terminals and an intermediate terminal, a periodically operated automatic switch, two contacts adapted to be engaged by said switch alternately and to be connected respectively with opposite end terminals, a plurality of circuits connected with one of said end terminals and with the contact which the switch is adapted to connect with the other end terminal, each of said circuits containing a gap, an individual signal controlled by that portion of each circuit which is between said gap and that end terminal with which the circuits are permanently connected, a conducting member located adjacent to each of said gaps and connected with the other contact adapted to be engaged by said switch, an electric signal having one terminal adapted to bridge said gap and another terminal adapted at the same time, to engage said conducting member, a plurality of said circuits having a portion in common and a relay in such common portion, a group circuit connected with said end terminals and having a gap controlled by said relay, a group signal controlled by said group circuit, shunts connected at one end with said intermediate terminal and at the other end with points of the separate circuit portions between their gaps and the signal controlling portions, each of

said shunts containing a gap, and means for closing the shunt gaps.

8. In a signaling system, two sources of electricity connected in series and having
 5 two end terminals and an intermediate terminal, a periodically operated automatic switch, two contacts adapted to be engaged by said switch alternately and to be connect-
 10 ed respectively, with opposite end terminals, a plurality of circuits connected with one of said end terminals and with the contact which the switch is adapted to connect with the other end terminal, each of said circuits containing a gap, an individual signal con-
 15 trolled by that portion of each circuit which is between said gap and that end terminal

with which the circuits are permanently connected, a conducting member located adjacent to each of said gaps and connected with the other contact adapted to be en- 20 gaged by said switch, an electric signal having one terminal adapted to bridge said gap and another terminal adapted at the same time, to engage said conducting member, shunts connected at one end with said inter- 25 mediate terminal and at the other end with points of the respective circuits between their gaps and their signal controlling portions, each of said shunts containing a gap, and means for closing the shunt gaps.

FREDERICK A. MUSCHENHEIM.
 FREDERICK W. BLASDALE.