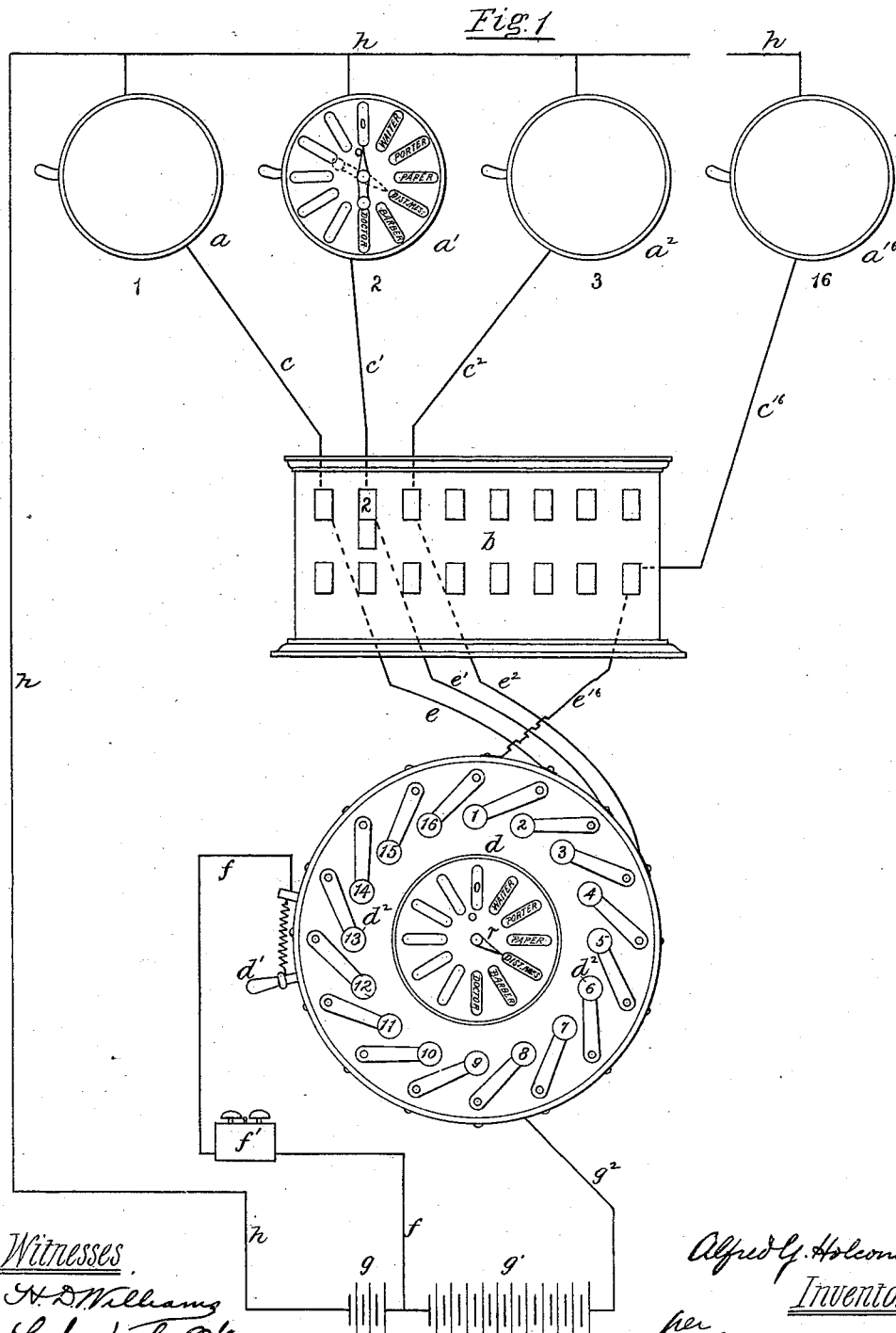


A. G. HOLCOMBE.

ELECTRICAL COMMUNICATING SYSTEM.

No. 343,374.

Patented June 8, 1886.



*Witnesses*  
*H. D. Williams*  
*Chas. L. Watson*

*Alfred G. Holcombe*  
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*per Alfred Hedlock*  
*att'y.*

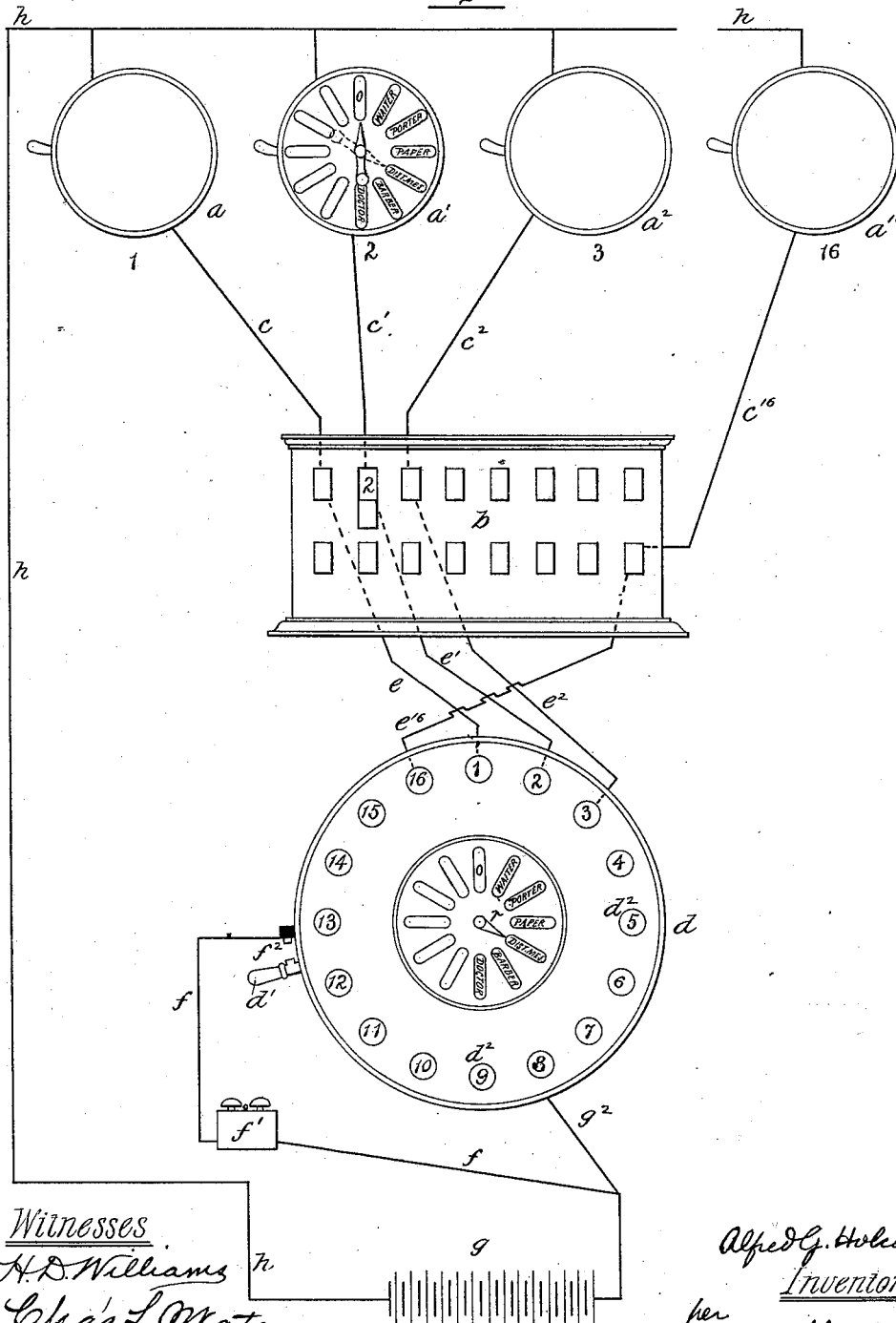
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Fig. 2

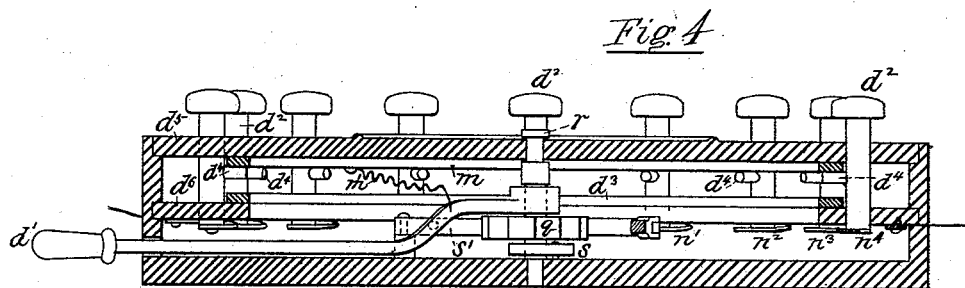
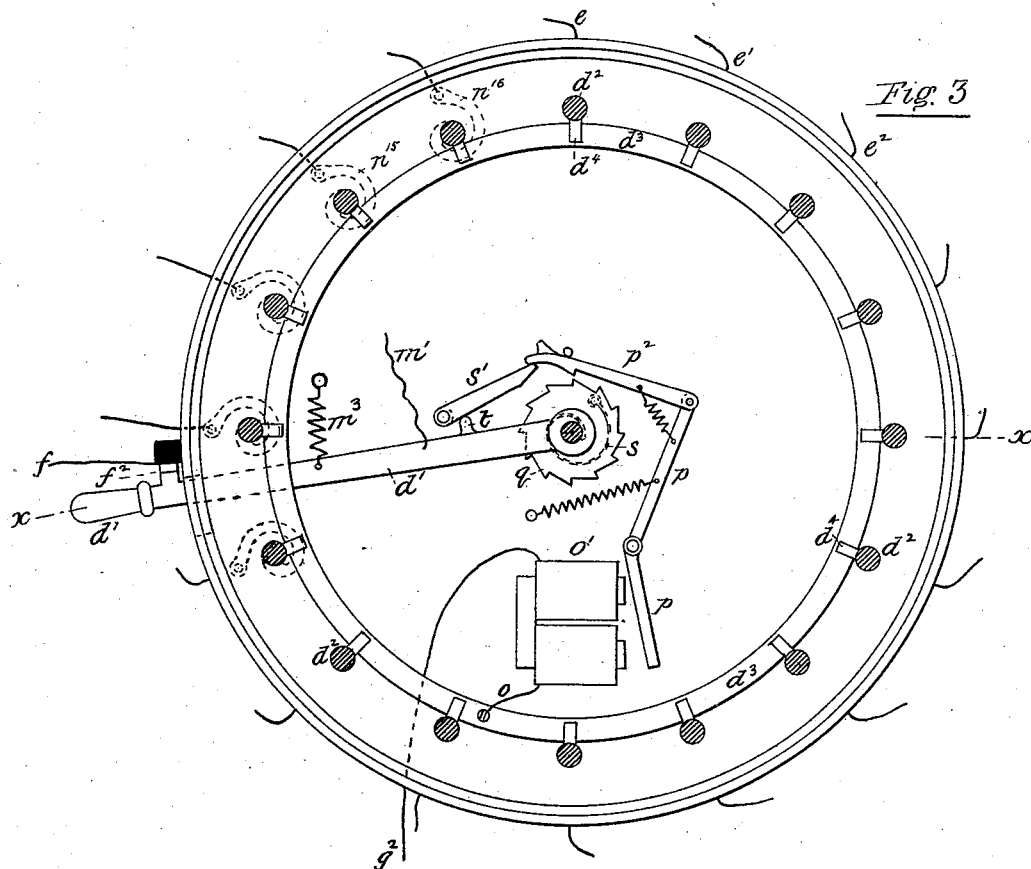


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Atty.

# UNITED STATES PATENT OFFICE.

ALFRED G. HOLCOMBE, OF NEW YORK, N. Y., ASSIGNOR TO THE EQUITABLE  
ELECTRIC COMPANY, OF SAME PLACE.

## ELECTRICAL COMMUNICATING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 343,374, dated June 8, 1886.

Application filed January 8, 1886. Serial No. 187,991. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED G. HOLCOMBE, a citizen of the United States, residing at New York, county and State of New York, have  
5 invented certain new and useful Improvements in Electrical Communicating Systems, of which the following is a specification.

Letters Patent No. 336,809 were granted to me on February 23, 1886, for an improved  
10 electrical communicating system for hotels.

This invention relates to certain improvements in the message-receiving indicator and the arrangement of the call-bell line in said system.

15 Figure 1, Sheet 1, of the accompanying drawings, is a diagram view showing the general arrangement of the circuit lines and apparatus used in my electrical communicating system described in my above-mentioned application. Fig. 2, Sheet 2, is a view similar  
20 to Fig. 1, showing this modification in the call-bell circuit. Fig. 3, Sheet 3, is an enlarged view of the message-receiving indicator with the cover removed, designed to work with  
25 the modification in the call-bell circuit shown in Fig. 2; and Fig. 4, Sheet 3, is a transverse section of the same cut on the line *x x*.

In the arrangement and combination of the devices as described in my before-mentioned  
30 Patent No. 336,809, and shown in Fig. 1 of the drawings of this application, the call-bell *f'* at the central office is in a line, *f*, connecting the wires *e e' e''*, &c., through a contact-plate, and its handle *d'* in the indicator *d* to the part *g* of  
35 the battery which is in the main line *h*. This main line is connected to the electro-magnetic device in the indicator *d*, and to all the communicators *a a' a''*, &c., in the rooms. Individual lines *e e' e''*, &c., join the communicators *a a' a''*, &c., to their respective number-  
40 actuating devices in the annunciator *b*, said devices being connected to the indicator *d* by the wires *e e' e''*, &c. Normally all circuits are open, and all that any of the occupants of  
45 the rooms has to do when requiring service is to set the pointer of his communicator opposite the message he desires to send to the central office. This closes the circuit of the communicator, and allows the current from the bat-  
50 tery *g* to flow through the communicator, but

in quantity insufficient to actuate its electro-magnetic device through the annunciator *b*, thereby exposing the designating-number of the room, and through the call-bell *f'* giving  
55 aural notice that a communicator in one of the rooms has been set.

To ascertain the want of the occupant of the room from which the call has emanated, the handle *d'* of the indicator is pressed down, thereby breaking all the individual lines and  
60 the call-bell line, and the button of the indicator corresponding to the number exposed in the annunciator is pressed in, and the circuit comprising the individual line of room and the main line is closed. Sufficient cur-  
65 rent now passes through the circuit to actuate the electro-magnetic devices in the communicator and indicator. The pointer of the communicator thus brought into action moves back to the zero-mark, and the pointer of the  
70 indicator moves forward over the same number of divisions the other pointer passes in moving backward, and stops opposite the division corresponding to the division or message at which the pointer of the communicator  
75 was originally set. Upon the button and handle of the indicator being released all the individual lines and the call-bell line are again put in circuit, and the feeding-pawl of the  
80 pointer of the indicator unlocked, which allows the pointer to move back to the zero-mark. Now, as the individual line of the room in communication with the central office is the only one closed, the act of setting any of the  
85 communicators in the other rooms in no way interferes with the working-circuit or the instruments in action, and such set communicator or communicators remain quiescent, and no indication is had that other rooms require  
90 service at the central office while a message is being received; but as soon as the indicator is again normally set the call-bell rings and the annunciator indicates the rooms in which the communicators in the interim have been set,  
95 and the messages are separately received as before described.

Any form of communicator or automatic signal-transmitter adapted to send signals over the line upon being released by an electric  
100 current emanating or set in motion from a dis-

tant station may be used with this system of communication between a central station or office and sub-stations or rooms. Special apparatus for this purpose are described and claimed in my before-mentioned Patent No. 336,809.

In Figs. 2, 3, and 4 of the drawings of this application is shown an improved form of message-receiving indicator and novel arrangement of the call-bell line, which consists, mainly, in means for breaking all the individual circuits at one point to which they all connect, instead of breaking each individual circuit, and in allowing the whole energy of the battery to act on the circuit when a call is sent from any of the rooms through the call receiver or bell at the central office, it being found by reason of the resistance of the call-bell circuit or the intermittent character of the current when a vibratory bell is used that the current then flowing from the battery is incapable of producing an actuating effect in the electro-magnetic devices of the communicators, so that the communicators will remain inactive until they are separately called up by their respective individual lines being closed at the indicator. The current from the battery then flowing through the line is adequate to actuate the electro-magnetic devices of the communicator in circuit and the message-receiving indicator, as the resistance of the circuit is reduced or a constant current caused to flow by the elimination of the call-bell from the circuit. By this arrangement it is seen that one battery performs all the work, and that its energy is fully economized, as it is called upon to do only one thing at a time—that is, to supply current to actuate the call-receiver or to actuate the message-receiving apparatus, the message-receiving indication being out of circuit when the call-receiver is in operation, and vice versa.

The electro-magnet  $o'$  and the indicating device  $p\ p^2\ q\ r\ s\ s'$  are in all essential respects similar to those described in the before-mentioned application, similar reference-letters being used in both cases. The push-buttons  $d'$  are provided with straight stems, which pass through and are guided in holes in the two plates of insulating material  $d^b$  and  $d^c$ , and are, by means of the springs  $n\ n'\ n^2$ , &c., bearing against or connected to the lower ends of the stems placed in electrical connection with the wires  $e\ e'\ e^2$ , &c. Projecting from the sides of the stems of the push-buttons  $d^2\ d^3$  are the contact-pins  $d^1\ d^4$ , which, by the springs  $n\ n'\ n^2$ , &c., are caused to bear against the metal rings or contact-block  $m$ , secured to the insulated plate  $d^2$  and connected by the wire  $m'$  to the handle  $d'$ . This handle is pivoted at the center of the indicator or any other convenient part, and makes contact at  $f^2$  with the call-bell line  $f$  when it is held up by the spring  $m^3$ , and at the same time a lug,  $t$ , projecting from its side holds the retention-pawl  $s'$  and the feeding-pawl  $p^2$  away from the ratchet-wheel  $q$ , allowing the spring  $s$  to bring the pointer  $r$

back to the zero-mark of the indicator. On the insulated block  $d^b$  is secured a ring or contact-block,  $d^3$ , connected by the wire  $o$  to one end of the coils  $o'$  of the electro-magnetic device, the other end of which is joined by the wire  $g^2$  to the battery  $g$ .

When the handle  $d'$  is depressed, all the individual lines and the call-bell line  $f$  are broken at  $f^2$ , and any one of the individual lines closed by pressing in its button  $d'$ , so that the contact-pin  $d^1$  comes in contact with the ring or block  $d^3$ , thus completing the circuit through the coil  $o'$  of the electro-magnet, the battery  $g$ , the main line  $h$  through the electro-magnetic device of the communicator which is set, and through the annunciator back to the indicator.

Any form of call-receiver may be used at the central office, its principal function being to give notice when any of the communicators are set, and also to indicate the room from which the call emanates. An ordinary hotel-annunciator, as shown in the drawings, may be used, as my invention contemplates the employment of an ordinary hotel-annunciator system without addition to or change in the circuit-lines for automatic communication between the central office and rooms by substituting for the push-buttons in the rooms the communicators, and by connecting the message-receiving indicator to the individual lines and the main line at the central office, the call-bell of the annunciator or call-receiver being so connected to the indicator as to be cut out of circuit when a message is being received.

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

1. In an electrical communicating system, in combination, an electrical circuit comprising one main line from the central station or office to all of the sub-stations or rooms, and individual lines from all the sub-stations or rooms to the central station or office, a battery in the main line, communicators constructed to send any of a set of signals or messages included in the individual lines at the sub-stations or rooms, a message-receiving indicator at the central station or office connected to the main line and provided with mechanism to break all the individual lines, thus cutting out of circuit all of the communicators, and to complete the circuit of any one of the communicators through its individual line, the indicator, and the main line, a branch line connecting the terminals of all the individual lines at the receiving-indicator to the main line between the indicator and the battery, and a call-bell located at the central station or office and included in said branch line, the whole of said battery being in circuit when the call-bell is actuated by manipulation of the communicators at the sub-stations or rooms and when one of the communicators is placed in circuit with the message-receiving indicator, substantially as set forth.

2. In a message-receiving indicator, in combination, a series of spring-acting contact de-

vices or push-buttons connected to a series of individual lines, contact ring or block against which the contact devices are normally held, a lever or handle connected to the blocks and provided with a contact-point which closes a call-bell circuit in connection with a main line, contact rings or blocks normally open, and against which the contact devices or push-buttons bear, when depressed, and an electro-magnetic indicating device connected to the normally-open contact ring or block and to the main line.

3. In a message-receiving indicator, the combination, with an electro-magnetic indicating device constructed to move a pointer opposite any of a set of messages marked on the case by successive feeding actions of a pawl on a motor ratchet-wheel, of the lever or handle  $d'$ , upheld by the spring  $m^3$ , and provided with a projection,  $t$ , which releases the ratchet-wheel of its actuating and retention pawls, the contact-point  $f^2$  of the bell-line  $f$ , the ring or block  $m$ , connected to the lever  $d'$ , the ring or block  $d^3$ , connected to the coils of the electro-magnetic device, the spring-acting push-buttons  $d^2 d^2$ , connected to the lines  $e e'$ , &c., and provided with contact-pins  $d^4 d^4$ , normally held against the ring or block  $m$ , and caused to bear on the ring or block  $d^3$  when the push-buttons are depressed.

4. In an electrical communicating system, in combination, the main line  $h$ , the communicators  $a a' a^2$ , &c., connected to the main line  $h$ , the indicator  $d$ , connected to the other end of the main line  $h$  by its electro-magnetic device, the battery  $g$  in the main line  $h$ , the individual lines  $c e' e^2$ , &c.,  $e e' e^2$ , &c., the annunciator  $b$  in the individual lines, the fixed ring or block  $m$ , the push-buttons  $d^2 d^2$  in the indicator, connected by the individual lines to the communicators and caused to bear against the block  $m$ , the lever  $d'$ , connected to the block  $m$ , the bell-line  $f$ , connected at one end to the main line  $h$  and brought in contact with the lever  $d'$  by contact-stop  $f^2$  at its other end, the contact ring or block  $d^3$ , connected to the main line  $h$  through the electro-magnetic device of the indicator, and against which the pins  $d^4$  of the push-buttons bear when the push-buttons are depressed.

In witness whereof I have hereunto set my hand, at New York, county and State of New York, this 5th day of January, 1886.

ALFRED G. HOLCOMBE.

Witnesses:

ALFRED SHEDLOCK,  
H. D. WILLIAMS.