

(No Model.)

S. VAN BENSCHOTEN & H. H. JOHNSON.

ELECTRIC ANNUNCIATOR AND FIRE ALARM.

No. 282,016.

Patented July 24, 1883.

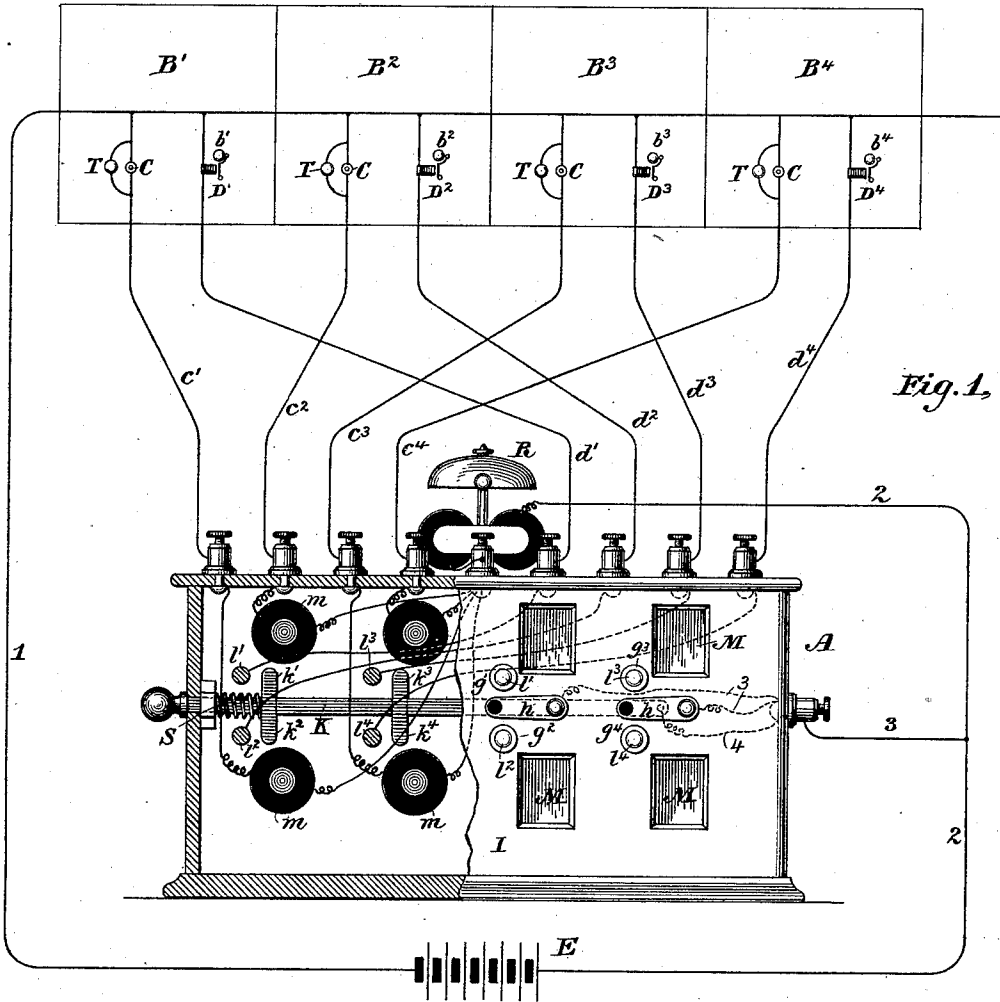


Fig. 1.

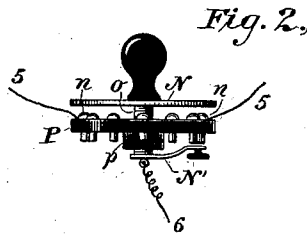


Fig. 2.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC ANNUNCIATOR AND FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 282,016, dated July 24, 1883.

Application filed March 3, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL VAN BENSCHOTEN, of Brooklyn, in the county of Kings and State of New York, and HENRY H. JOHNSON, of Hackensack, in the county of Bergen and State of New Jersey, citizens of the United States, have invented certain new and useful Improvements in Electric Annunciators and Fire-Alarms, of which the following is a specification.

The object of the invention is to provide simple and efficient means whereby a signal may be given in the office or other convenient central point in a hotel from any one of the different rooms, or an alarm or signal may be sounded in any one of the rooms from the office, or a general alarm may be transmitted from the office to all the rooms simultaneously, in the event that it is desired to warn the occupants of the rooms of fire or other danger.

The invention consists in combining, with a battery and a conductor extending from one pole thereof throughout the apartments of a building, two systems of conductors proceeding from the opposite pole of the battery and radiating from the office or other central point to the individual apartments, and being there joined to the first-mentioned conductor. In each conductor composing one of these systems is included a visual-signal or annunciator device located in the office, and also a circuit-closing device located in the corresponding room or apartment, whereby the circuit-connections of that conductor may be completed at the will of the occupant of the particular room, and the annunciator in the office actuated. In each conductor of the second system is included a vibrating bell or other signaling device placed in the corresponding room, and a circuit-closing device at the office, whereby the circuit-connections of the battery may be closed through any one of the signal devices individually at the will of the attendant in the office. To this second system of conductors is also applied a general circuit-closer, by means of which the circuit of the battery may be completed simultaneously through all the conductors of the second system, and their respective signal devices may be actuated simultaneously in the event of a fire or other emergency.

In the accompanying drawings, Figure 1 is

a diagram illustrating an arrangement of circuits and apparatus for carrying out our invention, a portion of the apparatus being, for convenience, shown in two different planes. Fig. 2 illustrates certain modifications in the organization of the apparatus.

Referring to Fig. 1, A represents the office of a hotel to and from which it may be desired to transmit signals, and B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup> represent the rooms connected therewith. One pole—say the negative—of a battery, E, is connected with a conductor, 1, extending through the apartments B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup>. The remaining pole of the battery E is connected by a conductor, 2, with a system of conductors, c' c<sup>2</sup> c<sup>3</sup> c<sup>4</sup>, extending from the office A to the rooms B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup>, respectively, and united in those rooms with the conductor 1.

Included in the circuit of each conductor c is an electro-magnet, m, for actuating, when vitalized, an annunciator-drop or other visual-signal device, M, in a manner well understood. The devices M are distinguished by numerals or other arbitrary characters designating the rooms to which their respective conductors lead.

In each room B is a circuit-closing device, C, interposed in the corresponding conductor, c, and normally maintaining the circuit of the battery E, disconnected as regards that conductor. When, however, any circuit-closing device C is actuated, the circuit of the battery E will be closed through that conductor and the corresponding annunciator device, M, will be actuated.

In addition to each circuit-closer C, which preferably consists of an ordinary push-button, we have shown in the drawings a thermostatic circuit-closer, T. The thermostats T are included in the conductors c in the same manner as the push-button C, and are arranged to automatically complete its connections when actuated by an undue increase of temperature in the room.

An audible-signal device, R, may be included in the conductor connecting the annunciator devices with the battery E in a well-known manner.

The system thus far described comprises the usual arrangement of circuits for hotel-annunciators. In addition to this we employ a sec-

ond system of conductors,  $d'$   $d''$   $d'''$   $d^t$ , which, like the conductors  $e$ , are connected at the office with the positive pole of the battery E through the conductor 2, and which radiate therefrom to the respective rooms B' B<sup>2</sup> B<sup>3</sup> B<sup>t</sup>, in which they respectively terminate, each being connected through the coils of a corresponding electro-magnet, D, with the conductor 1. The electro-magnets D are each preferably constructed to actuate a corresponding vibrating bell,  $b'$   $b''$   $b'''$  or  $b^t$ , in a well-known manner, whenever an electric circuit is closed therethrough, although any other form of audible or a visual signal may be substituted therefor.

At the office A is a series of circuit-closing devices,  $g'$   $g''$   $g'''$   $g^t$ , respectively corresponding with and included in the circuit of the corresponding conductor,  $d'$   $d''$   $d'''$  or  $d^t$ . The circuit-closers  $g$  preferably comprise four contact-points,  $l'$   $l''$   $l'''$  and  $l^t$ , and arms  $h$ , for making contact therewith, which arms are of conducting material and pivoted to a suitable board, I, upon which the annunciator devices are supported. The contact-points  $l$  are electrically connected with their respective conductors  $d$ , and the arms  $h$  are likewise connected, through conductors 3 2, with the positive pole of the battery E. The arms  $h$  are normally not in contact with the points  $l$ , and the connections of the conductors  $d$  are thus incomplete. When, however, any one of the arms  $h$  is moved into contact with a contact-point,  $l$ , the circuit of the battery E will be closed therethrough and the bell in the corresponding room will be actuated.

Combined with the circuit-closing devices  $g$  is a general circuit-closer acting to complete the connections of the battery E through all the conductors  $d$ , including the signal devices D, simultaneously. The construction of this device may be varied, as found convenient, under different circumstances. In Fig. 1 we have illustrated the method which we prefer to employ in most instances. This form consists of a longitudinally-movable plate or bar, K, of conducting material, applied to the back of the board I.

Upon the plate or rod K is carried a series of circuit-closing arms,  $k'$   $k''$   $k'''$   $k^t$ , arranged to be respectively placed in contact with the inner extremities of the contact-points  $l'$   $l''$   $l'''$   $l^t$ , when the plate is moved longitudinally toward the left hand. The arms  $k'$   $k''$   $k'''$  and  $k^t$  are all electrically connected, through the plate K and conductors 4 and 3, with the conductor 2, leading from the positive pole of the battery E. The plate K is normally held toward the right-hand side of the board, with the arms  $k$  away from their respective contact-points  $l$ . For this purpose a spring, S, may be applied to the plate and arranged to exert a tension in the required direction. It will now be evident that if the plate K be drawn toward the left hand the switch-arms  $k$  will be placed in connection with their respective

contact-points  $l$ , and each of the bells  $b$  in the various rooms will be caused to give a signal simultaneously. Any convenient means may be employed for retaining the plate K in its left-hand position.

A modification in the application of the general circuit-closing device is illustrated in Fig. 2. In this figure each of the conductors  $d$  is considered as connected by a corresponding conductor, 5, with a corresponding contact-point,  $n$ . The contact-points  $n$  are arranged in an annular series upon a plate, P, and above them is supported a metallic plate or disk, N, which is connected by a conductor, 6, with the conductor 2, leading from the positive pole of the battery E. The disk N is supported upon a screw,  $o$ , which passes through a corresponding nut,  $p$ , formed in the plate P. The disk N is normally held out of contact with the points  $n$ ; but when, in case of fire or other emergency, it is desired to sound the alarms in all the rooms, the disk is forced down upon the points  $n$  by means of the screw  $o$ , and the individual circuits will thus be closed. The plate N preferably partakes of the circular movement of the screw  $o$ , and thereby makes a frictional contact with the points  $n$  when forced downward, insuring a good electrical connection. The individual connections are made by means of a revolving contact-arm, N', carried upon and in electrical connection with the screw  $o$  beneath the plate P. The arm N' may be turned upon the screw  $o$  as an axis until in the same radial plane as the contact-point  $n$ , connected with the room in which it is desired to actuate the signal device. The arm N' is preferably flexible, and may then be pressed upward against the lower extremity of the contact  $n$ , which projects through the plate P. It is obvious that the arm N' may be constructed rigid or but slightly flexible, and that normally the screw  $o$  may be turned until the extremity of the arm N' is in the same plane as the lower extremities of the contacts  $n$ . When not in use it would then be placed between any two contact-points. This modification will be found of especial importance in applying the invention to the existing forms of annunciator systems, for the reason that it may be applied to or combined with such a system without disturbing the former arrangement of circuits and apparatus further than to make the necessary circuit-connections therewith.

In some instances it may be found desirable to lead all of the conductors 5 to a contact-point common to all, instead of providing individual contact-points  $n$ , as last described. In such case a push-button or other form of manual circuit-closer may be substituted for the disk N.

We claim as our invention—

1. The combination, substantially as hereinbefore set forth, of a battery, a main conductor extending from one pole of said battery throughout the rooms of a building, two series of conductors electrically connected with

the other pole of said battery, radiating from a central point to the respective rooms and electrically connected with said main conductor, a circuit-closing device interposed in each of said radiating conductors of one series in the respective rooms, and a signaling device included in each of said conductors at said central point, a circuit-closing device included in each of the conductors in the second of said series and located at the central point, a signal device included in each of the last-mentioned conductors in each of said rooms, and a circuit-closing device whereby the circuit of said battery may be closed through all of said second series of conductors simultaneously.

2. The combination, substantially as hereinbefore set forth, of a battery, an annunciator, conductors leading from said annunciator to the individual rooms in a building, means in each of said rooms for closing the circuit of said battery through said annunciator, a second series of conductors respectively leading to said rooms, a signal device in each of said

rooms respectively included in the conductors of said second series, and means, substantially such as described, whereby the circuit of said battery may be closed at the central point through each of the last-named signal devices individually, or all of the same simultaneously.

3. The combination, substantially as hereinbefore set forth, of the independent circuit-closing arms and their respective contact-points, the sliding bar or plate, the switch-arms mounted thereon, and the contact-points respectively located in the paths of said switch-arms, and respectively connected with the first-mentioned contact-points.

In testimony whereof we have hereunto subscribed our names this 1st day of March, A. D. 1883.

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HENRY H. JOHNSON.

Witnesses:

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