

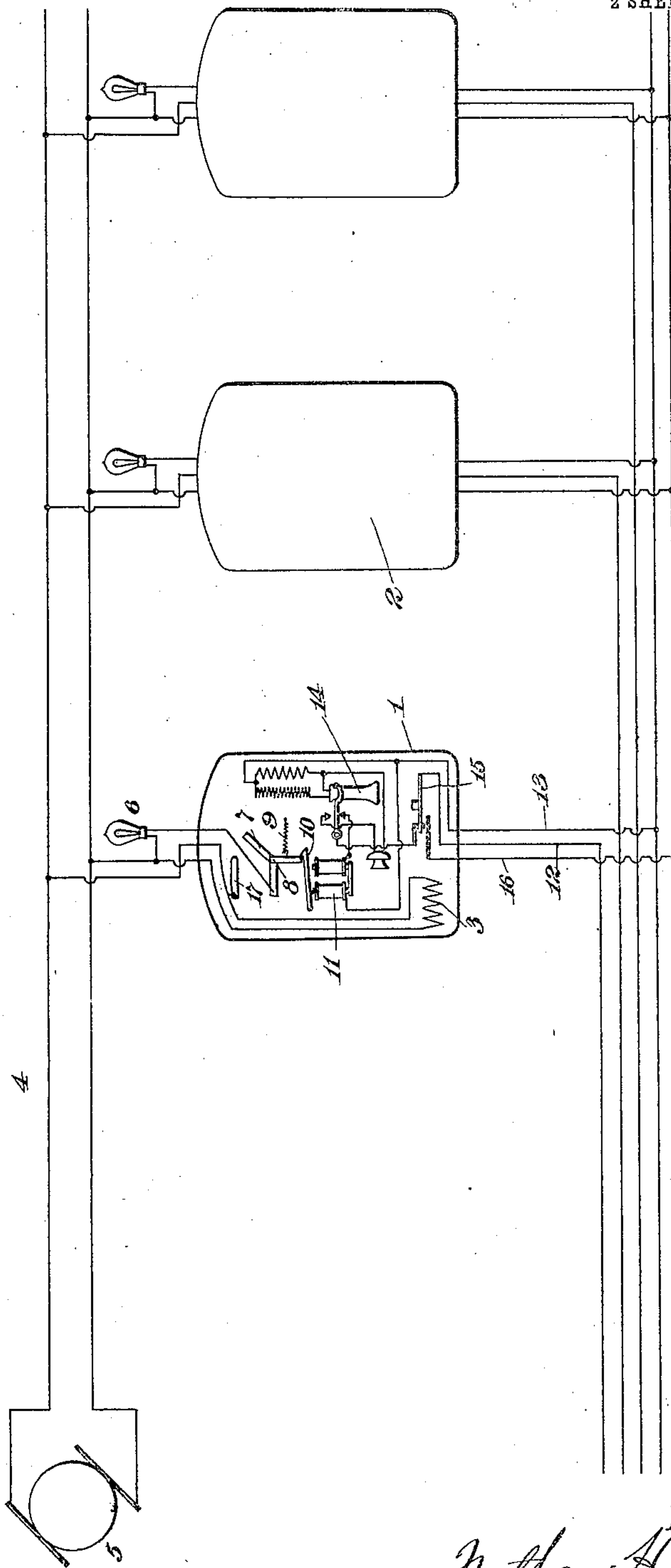
No. 891,786.

PATENTED JUNE 23, 1908.

N. H. SUREN.  
TELEPHONE SYSTEM.

APPLICATION FILED MAR. 16, 1906.

2 SHEETS—SHEET 1.



**Witnesses :**

Jas. F. Coleman  
John L. Litch

*Inventor*

Nathan A. Suren  
By *[Signature]* a *[Signature]*

**Attorneys.**

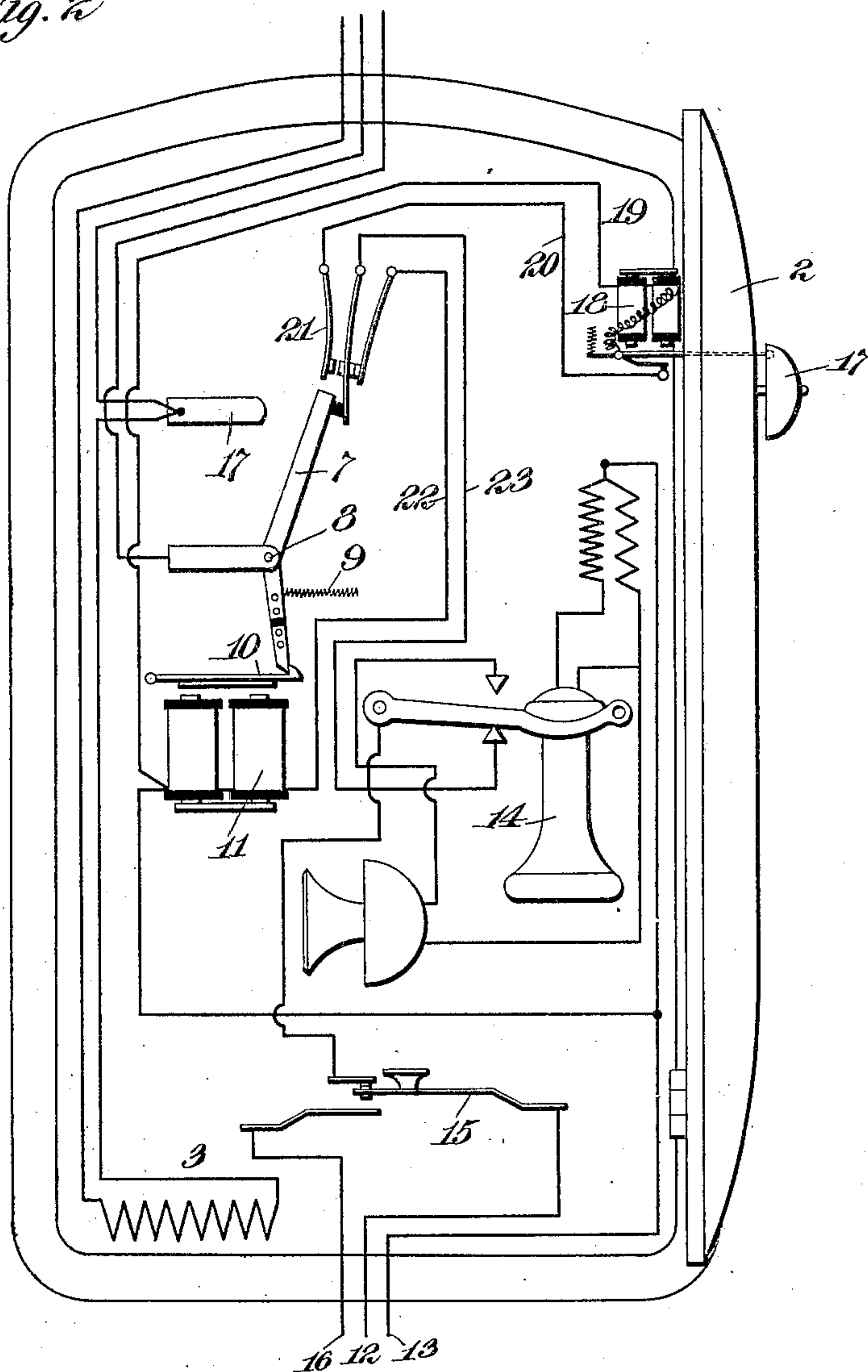
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2 SHEETS—SHEET 2.

*Fig. 2*



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# UNITED STATES PATENT OFFICE.

NATHAN H. SUREN, OF HIGHLANDVILLE, MASSACHUSETTS, ASSIGNOR TO THE GAMEWELL FIRE ALARM TELEGRAPH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## TELEPHONE SYSTEM.

No. 891,786.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed March 16, 1906. Serial No. 306,320.

*To all whom it may concern:*

Be it known that I, NATHAN H. SUREN, a citizen of the United States, residing at Highlandville, county of Norfolk, and State of Massachusetts, have invented a certain new and useful Telephone System, of which the following is a description.

The object I have in view is the production of a telephone system employing closed call boxes, particularly those used in tunnels or such places where dampness is present, and in which it is desirable and necessary to keep the inside of the boxes dry. This object is attained by placing within each of the boxes a suitable heating device, preferably an electrical heating device, made in the form of a coil or laminated plates, which is actuated by current taken from the wires.

The invention also has for object the perfection of the signal call.

One way of carrying out the invention is illustrated in the accompanying drawings, in which

Figure 1 shows a number of call boxes, and a diagrammatic illustration of the circuits, and Fig. 2 shows a view, on a somewhat larger scale, of a modified form of box.

In both of the views, like parts are designated by the same reference characters.

In Fig. 1, the character 1 represents a call box having a cover, such as 2. The call box to the left in the drawing is shown as open, having its cover removed for clearness of illustration of the interior. Within each call box is a heater 3. This heater is preferably an electric heater, and may be in the form of a coil, or laminated plates. In the embodiment illustrated, it is connected with the mains 4 from the generator 5. In connection with each box I may use a signal, for indicating that the box had been called, such signal preferably consisting of a lamp 6 located outside of the box. With this lamp is used a device for switching it in. As shown in the drawing, this device consists of a switch 7, which is pivoted at 8. It is moved by means of a spring 9, when released by a hook on the armature 10. This armature is actuated by magnets 11, which are in the telephone circuit 12—13. As shown in the drawing, the lamp is arranged in multiple with the heater, but the electric arrangement may be varied, if desired. Within the box is shown a telephone 14, and in connection with this, an annunciator switch

15 for completing a second circuit through the wires 12—16. This latter is for service when it is desirable to send a call signal from the box.

In use as many boxes as may be desired may be placed in the tunnel, or other location, and connected with the mains 4, and the telephone and annunciator wires. The heating coils 3 being constantly in circuit, will keep the interior of each box warm, and will therefore evaporate and drive out all moisture, protecting the other parts of the apparatus from injury. In operation, as soon as a signal is received by the box, the armature 10 will be attracted to the magnet 11, and the switch 7 tripped, whereupon it will connect with the plate 17 and the circuit through the lamp 6 will be completed. Attention thereby being directed to the box by the illumination of the lamp, the call can be answered by opening the door of the box, and using the telephone. The switch 7 may be returned to its place by hand, or by a simple mechanical connection with the door, so that when the door is closed, this switch will be returned to place.

In Fig. 2 the box is shown with the addition of an audible signal. In this embodiment of the invention, the bell or gong 17' is located on the outside of the door or cover 2. The actuating mechanism 18 is located inside of the box, and is so arranged that it will ring the bell or sound the gong when current passes through the circuit, which includes the wires 19 and 20. These two wires connect with a 3-point switch 21, having a central moving elastic member which normally contacts with that member of the switch that connects with the wire 20. The third member connects with the wire 22, and to the magnets 11. The central member connects with the wire 23 through the receiver contacts, and switch 15 to the circuit 12. The central member of the switch 21 is held out of engagement against its own elasticity with that member which connects with the wire 20, by means of the arm 7, and is forced against the member which connects with the wire 22, so that the circuit will be formed through the wires 22 and 23. In the operation of this embodiment, when the call signal is sent through the wires 12 and 13, the circuit will be completed through the switch 15, the wires 23, 22 and magnet 11, and back through the wire 13. The magnet 11 being



energized, will attract the armature 10, release the switch 7, and permit the lighting circuit to be completed. It will also change the position of the central member of the switch 21, permitting it to contact with the end member, which is in communication with the wire 20. The circuit will be completed through the bell actuating mechanism 18, the circuit including the wires 19, 20, and 23. The bell will ring and continue to ring so long as the circuit is kept closed by the person sending the signal.

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

1. In a signal system, the combination with a lighting circuit including a lamp, and a telephone circuit including a telephone, of a box, the telephone being inside of the box, means within the box for affecting the lamp, and a drying device within the box, the said drying device being in the form of a resistance in multiple with the lamp and within the lighting circuit, and receiving current therefrom.

2. In a signal box, the combination with a light circuit including a lamp, and a telephone circuit including a magnet, an armature adapted to be actuated by the magnet

and having a hook, a switch engaged by the hook and adapted to complete the circuit through the lamp, and a heating coil connected to the light circuit in multiple with the lamp, the said coil being constantly in circuit and the lamp being put in circuit by the energizing of the magnet.

3. In a signal box, the combination with a light circuit including a lamp, and a telephone circuit including a magnet, an armature adapted to be actuated by the magnet and having a hook, the switch engaged by the hook, and adapted to complete the circuit through the lamp, and a heating device connected to the light circuit in multiple with the lamp, said heating device being constantly in circuit and the lamp being put in circuit by the energizing of the magnet, and the 3-point switch having a central member, in engagement with the switch actuating the lamp, and a bell in circuit with the switch, the said bell actuating mechanism being inside the box and the bell outside.

This specification signed and witnessed this 12th day of March, 1906.

NATHAN H. SUREN.

Witnesses:

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