P. A. BROWN.

AUTOMATIC SIGNAL ALARM.

APPLICATION FILED MAR. 22, 1905.

912,359.

Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

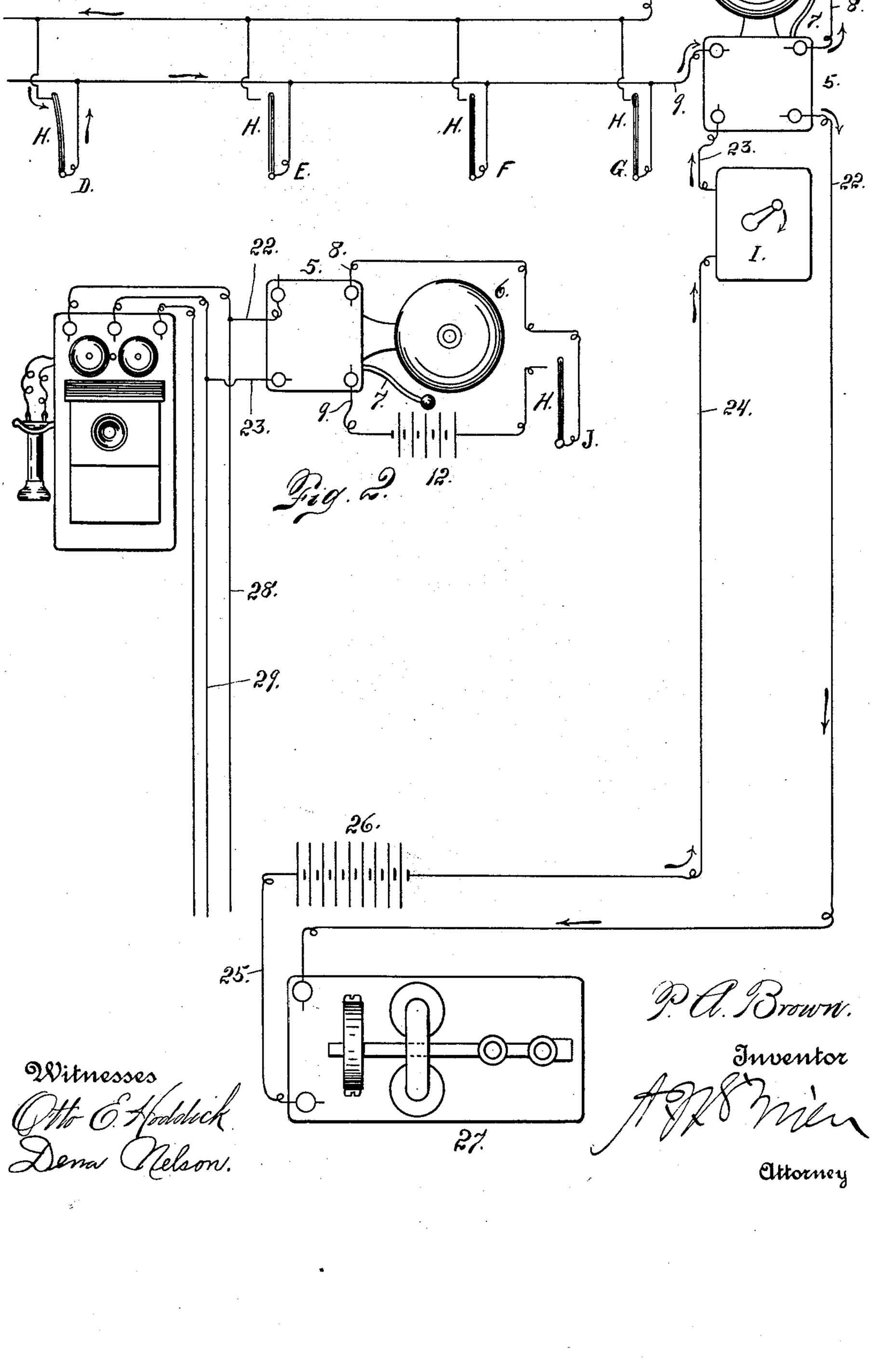

Fig. 2.

Witnesses

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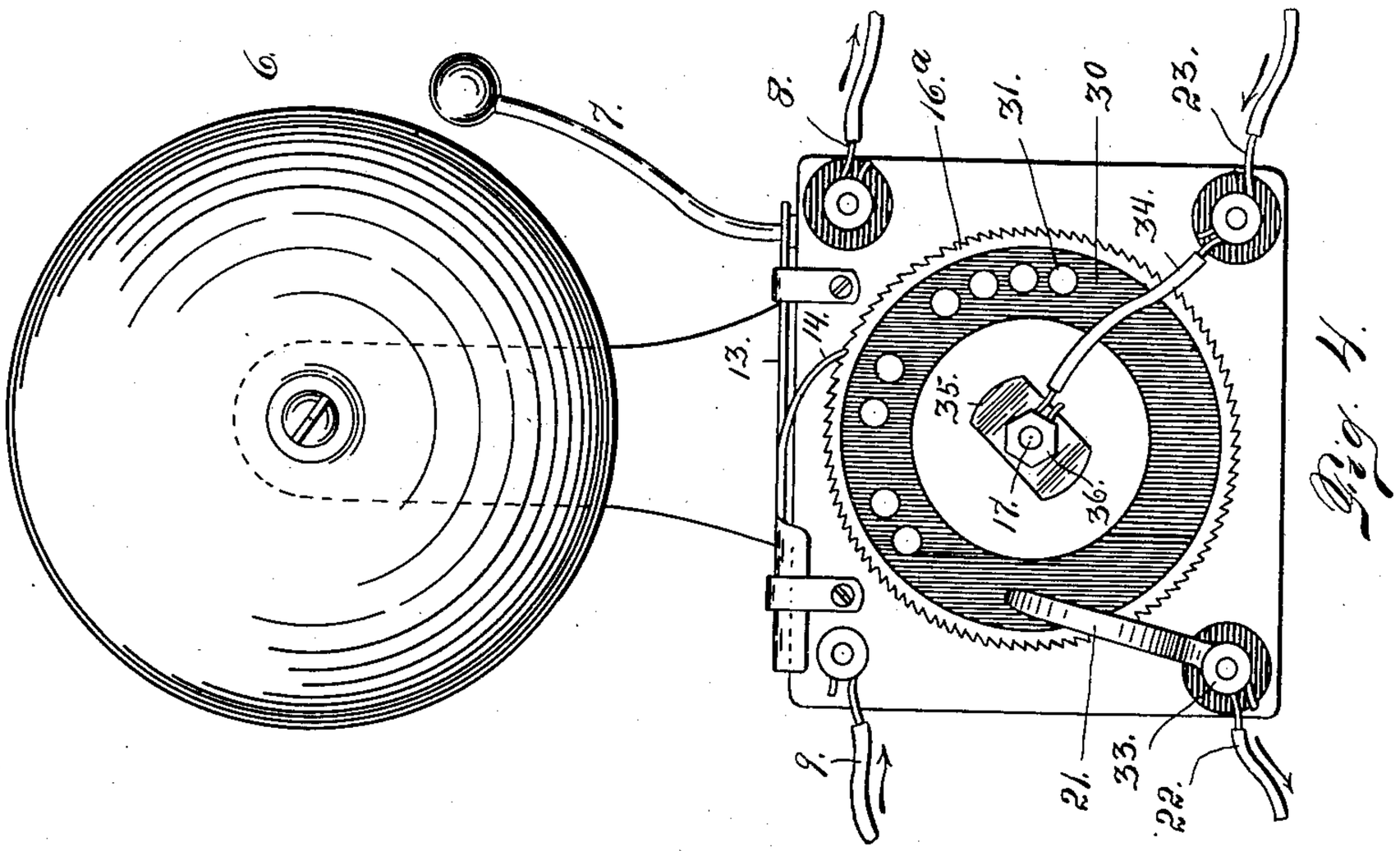

Fig. 4.

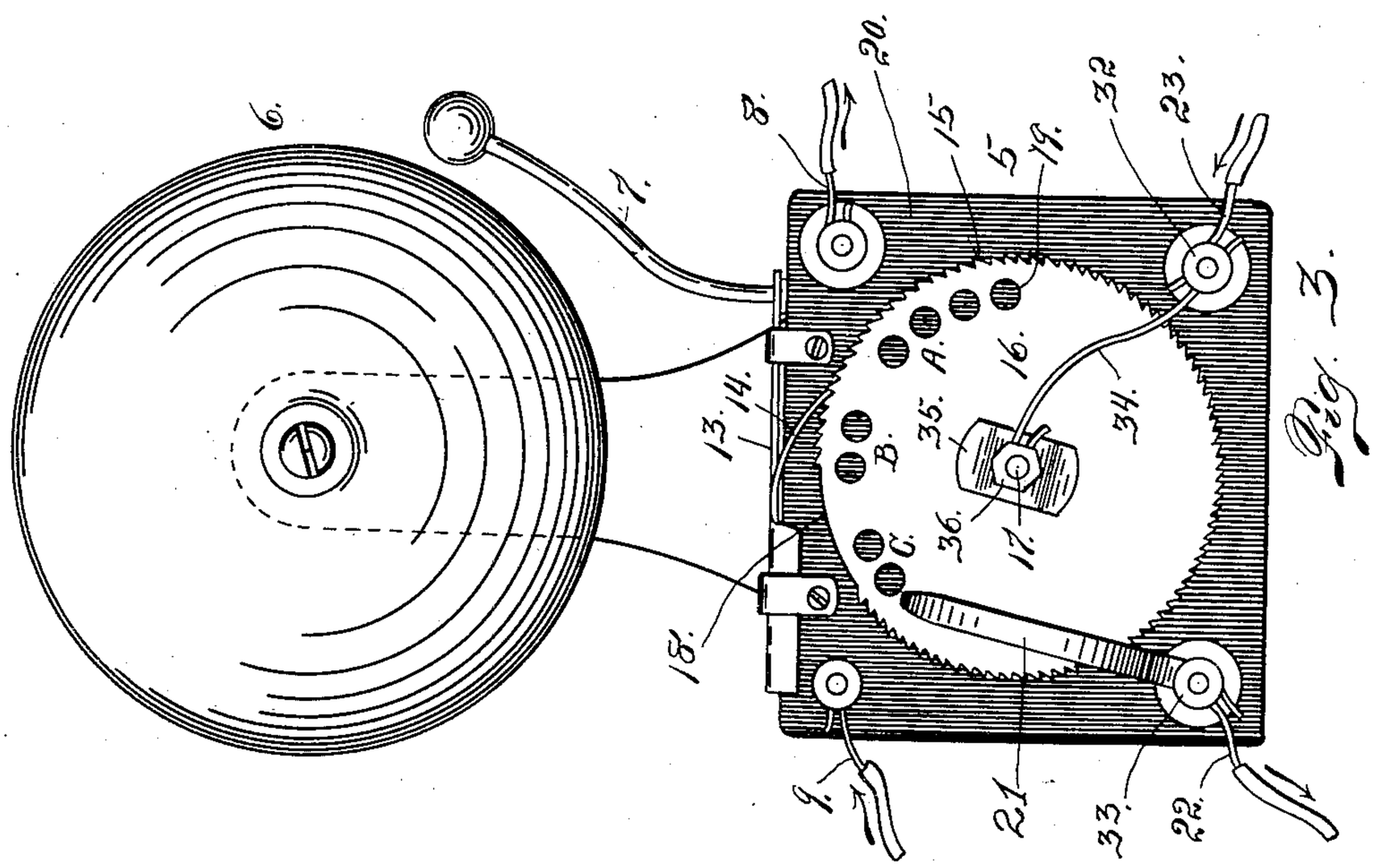

Fig. 3.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC SIGNAL-ALARM.

No. 912,359. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed March 22, 1905. Serial No. 251,257.

To all whom it may concern:

Be it known that I, PEABODY A. BROWN, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Automatic Signal-Alarms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to automatic signal alarms and may be used as an attachment for an ordinary electric bell, whereby a signal may be given at any desired distance from the bell, through the instrumentality of the vibrating bell hammer.

As illustrated in the drawing, the use of the device is shown in connection with either a normally open or a normally closed signaling circuit. The circuit of the electric bell is normally open and as illustrated in the drawing it is arranged to be closed through the instrumentality of one or more thermostats. If more than one thermostat is used, they may be located in different rooms, and if the temperature of the room rises to any predetermined degree, the thermostat located in that room will close the bell circuit, and the vibration of the hammer will operate my improved signaling attachment whereby signals may be transmitted to any desired distance over a telegraph, telephone or other circuit.

Having briefly outlined my improved device as well as the function it is intended to perform, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a general view illustrating the manner of transmitting signals through a normally closed circuit as a telegraph circuit. Fig. 2 illustrates the manner of operating the device in connection with a normally open circuit. Fig. 3 is a detail view of an electric bell equipped with my improvements, the form of the device used in connection with the normally closed circuit, being employed. Fig. 4 is a similar view showing another form of construction or a construction adapted for use with a normally open circuit.

By having the two forms of construction shown in Figs. 3 and 4, adapted for use with either open or closed circuits, the normal condition of the circuit is preserved at all times except during the short period when signals are transmitted through the instrumentality of my attachment.

The same reference characters indicate the same parts in the different views of the drawing.

Referring first to Fig. 3 let the numeral 5 designate an ordinary electric bell considered in its entirety. Also let 6 designate the gong and 7 the vibrating hammer. 8 and 9 are conductors leading to the respective poles of an electrical source 12 as shown in Figs. 1 and 2. This electrical source 12 energizes the magnet and vibrates the hammer 7 whereby it is made to engage the gong 6 in the ordinary manner.

Connected with the hammer 7 is a device 13 which I will term a pawl holder. This pawl holder is movably mounted on the casing of the magnet and carries a pawl 14 adapted to engage the ratchet teeth 15 of a disk 16 revolubly mounted on the magnet casing as shown at 17. This disk as shown in Fig. 3 of the drawing has a plain or untoothed portion 18 while the periphery of the disk is otherwise toothed. Also by reference to said figure it will be observed that the disk is provided with a number of orifices 19 arranged in groups. As shown in the drawing these groups may be designated A, B and C. The A group contains four openings, the B group two openings and the C group two openings. These openings are all arranged in the same arc of a circle. Below the disk and preferably immediately in contact therewith is an insulating plate 20. This disk is relatively thin, and mounted on the plate 20 so that a contact spring 21 forming a part of the signaling circuit, will break the said circuit as the contact extremity encounters an opening in the disk, the circuit being at all other times closed by virtue of the engagement of the spring contact with the body of the disk which is composed of suitable conducting material as metal.

Assuming that the aforesaid is true, sig-

nals would be transmitted through conductors 22, 23, 24, 25, and an electric source 26, to a signaling instrument 27, as the disk 16 is actuated by the vibration of the bell hammer. For instance as the extremity of the contact spring encounters the openings 19 of group A in quick succession, this will designate the first figure or a predetermined number indicating the location of the thermostat through whose instrumentality the electric bell circuit has been closed. As the disk continues to move and engages the openings in group B, the two signals transmitted by the breaking of the circuit as the two openings are encountered in succession, will indicate the next figure of the number and so on, the group C indicating the same figure as group B. In this event a person in the vicinity of the instrument 27 would understand that the increased temperature or the fire for instance is located at No. 422, and this number will indicate its exact location to the person in the vicinity of said instrument.

Now assuming that it is desired to give signals through a telephone circuit or other normally open circuit, an electric bell equipped with my improvements may be connected with the wires 28 and 29 of the telephone circuit which in this event will be the signaling circuit. These connections will be made in any suitable manner to close the signaling circuit intermittently through the instrumentality of the construction shown in Fig. 4 of the drawing in which the contact spring 21 engages an insulating washer 30 mounted on the disk and provided with perforations 31 to allow the said spring to engage the disk and close the signal circuit every time the contact spring enters an opening 31. These openings in the disk may be grouped substantially the same as shown in Fig. 3, but the signals will be transmitted by closing the signaling circuit instead of breaking it as in the form shown in Fig. 3. In other respects the operation of the two forms of construction is exactly the same.

Let the reference letters D, E, F and G indicate thermostats located in a number of different rooms and so arranged that the vibrating member H of the thermostat or that composed of two substances adapted to expand and contract unequally, will close the bell circuit when the instrument is subjected to a predetermined temperature. The circuit-closing position is illustrated in the case of the bar H of the thermostat D. This will close the bell circuit through the battery 12 and assuming that the bell 5 is equipped with the mechanism shown in Fig. 3, as soon as the bell hammer 7 begins to vibrate, the disk 16 will be actuated by the pawl 14 and the signaling circuit connected with the instrument 27 will be intermittently broken as the contact spring 21 enters the orifices 19 of the plate 16. The path of the circuit will be readily understood by reference to Figs. 1 and 3 of the drawing. An ordinary call box is located in this circuit and designated I. The binding posts on the bell of this signaling circuit are designated 32 and 33, respectively. A conductor 34 leads from one of these binding posts to a contact piece 35 mounted on the pivot post 17 of the disk, the part 35 being held in place by a nut 36. The contact spring 21 is connected with the binding post 33. Hence the current may be said to pass from one pole of the source 26 through the conductor 24, through the call box I, the conductor 23, binding post 32, the conductor 34, the contact 35, the disk 16, the contact 21, the binding post 33, the conductor 22, to and through the instrument 27, and thence through the conductor 25 to the opposite pole of the source 26. It is evident that the transmission of signals through the instrument 27 will be the same no matter which thermostat is employed to close the bell circuit.

When closing a normally open circuit as shown in Fig. 2, the bar H of the thermostat J. will act to close the bell circuit when the temperature has reached the desired or predetermined degree. It is assumed in this case, that the frame of the bell 5 is equipped with the construction shown in Fig. 4. In this event the action of the vibrating hammer 7 will actuate the disk 16^a, and the normally open signaling circuit will be closed every time the contact spring 21 comes in contact with the disk 16^a through the orifices 31 of the insulating part 30 as will be readily understood.

In the case of the normally open circuit, the ratchet teeth extend entirely around the periphery of the disk 16^a, so that the operation of the disk will be continued as long as the bell circuit is closed and the signal transmitted will be repeated every time the disk makes a complete rotation.

While in the form of construction shown in Fig. 3, there is a part 18 on the periphery of the disk containing no ratchet teeth. Hence when the signaling circuit is a closed circuit, the operation of the disk will cease when the pawl 14 reaches the blank space 18 on the periphery of the disk.

Having thus described my invention, what I claim is:

1. In an automatic signal alarm, the combination with an electric alarm having a vibrating hammer, of a part connected with the hammer and provided with a pawl, a ratchet disk mounted in suitable proximity to the alarm mechanism and engaged by the said pawl, the disk being provided with perforations arranged in groups, a signaling circuit provided with a contact located to engage the different groups of perforations

as the disk is actuated, having an untoothed or blank space on its periphery for the purpose set forth.

2. In an automatic signal alarm, the combination with an electric alarm having a vibrating hammer, of a part connected with a hammer and provided with a pawl, a revolving member mounted in suitable proximity to the alarm mechanism and engaged by the said pawl, the said revolving member being provided with perforations arranged in groups, and a signaling circuit provided with a contact located to engage the different groups of perforations as the said member is revolved, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

PEABODY A. BROWN.

Witnesses:
A. J. O'BRIEN,
DENA NELSON.