

(No Model.)

2 Sheets—Sheet 1.

W. FOWLER.
ELECTRICAL HOSE SIGNALING APPARATUS.

No. 539,000.

Patented May 7, 1895.

Fig 1.

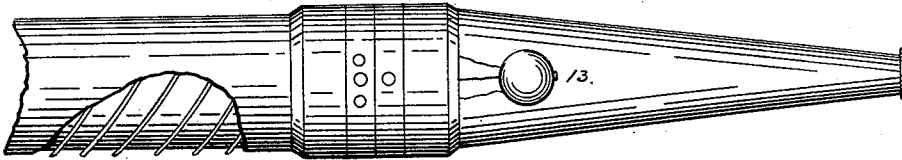


Fig. 8.

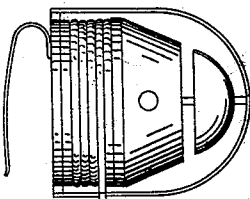
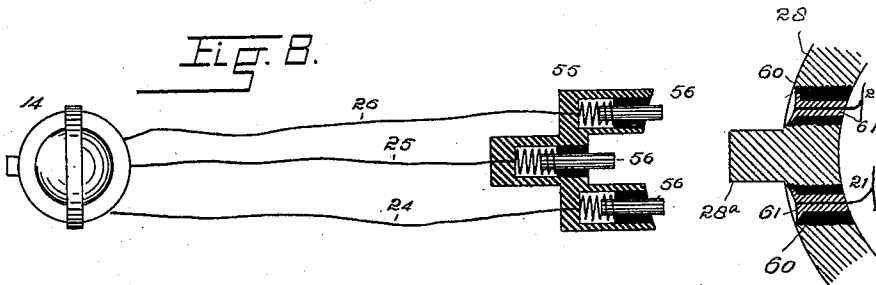


Fig. 9.

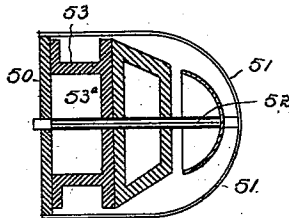


Fig 10.

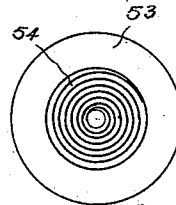


Fig 11

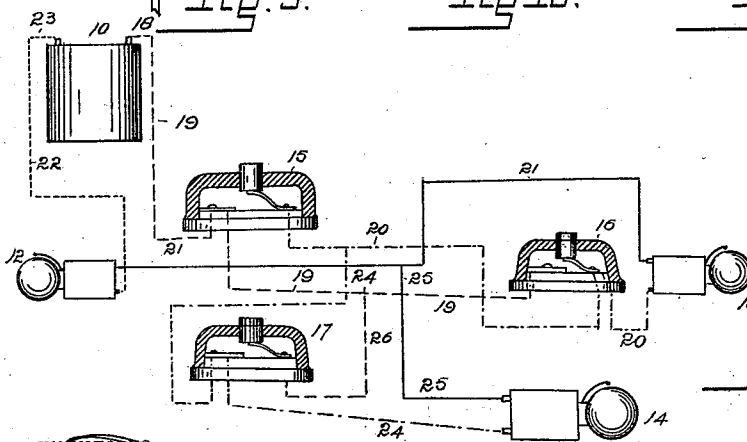


Fig 12.

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(No Model.)

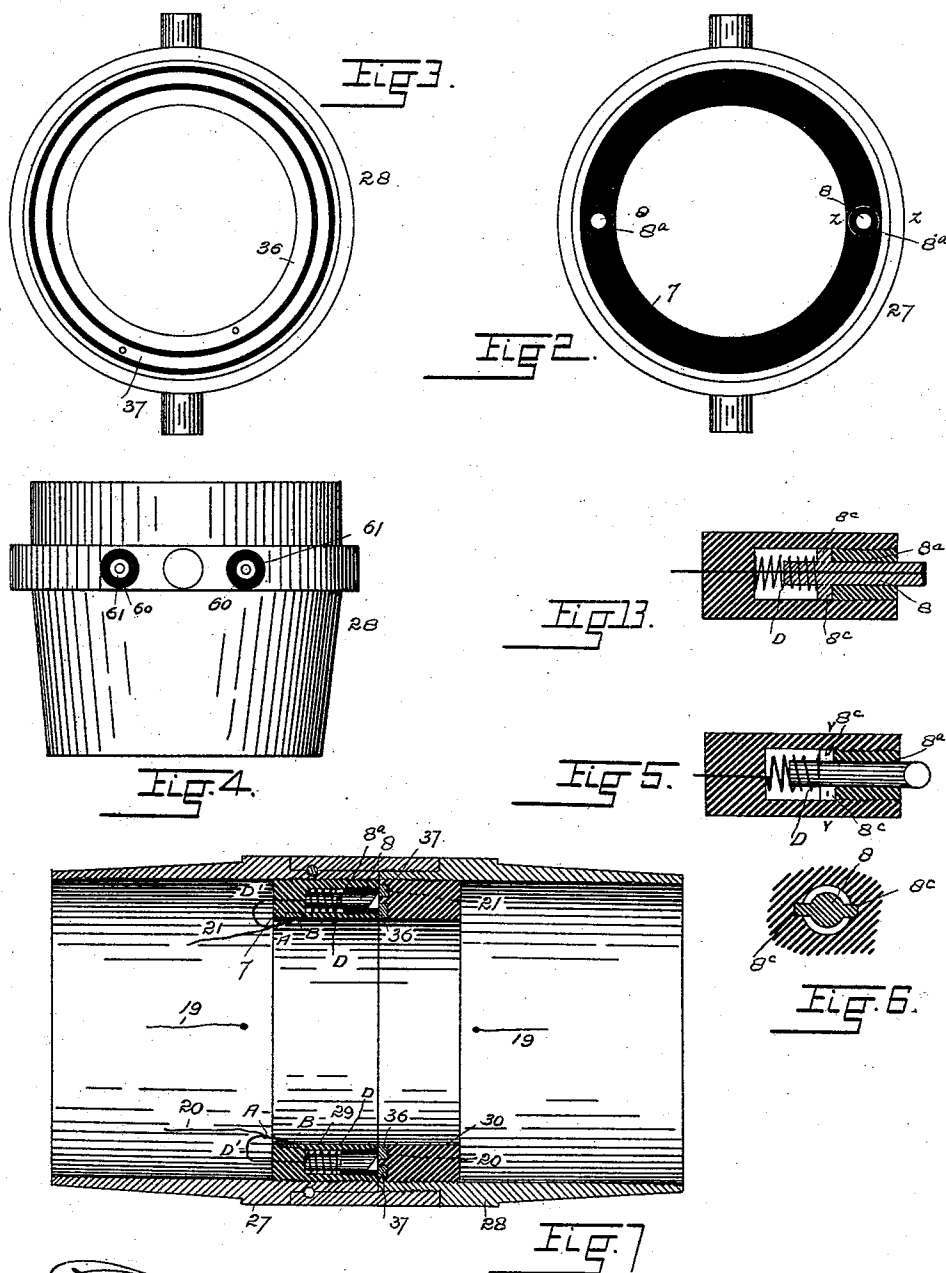
2 Sheets—Sheet 2.

W. FOWLER.

ELECTRICAL HOSE SIGNALING APPARATUS.

No. 539,000.

Patented May 7, 1895.



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UNITED STATES PATENT OFFICE.

WILLIAM FOWLER, OF COLORADO SPRINGS, COLORADO.

ELECTRICAL HOSE-SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 539,000, dated May 7, 1895.

Application filed June 20, 1894. Serial No. 515,208. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FOWLER, a citizen of the United States of America, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented certain new and useful Improvements in Electrical Hose-Signaling Apparatus; 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 improvements in electric hose signaling apparatus.

This invention is of the class shown in my previous patent, No. 486,807, dated November 22, 1892, and may be considered an improvement on the construction shown in said patent, to which reference is hereby made.

My present apparatus consists of the features, arrangements and combinations herein-after described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is an elevation of the nozzle extremity of the hose, showing a single coupling. Fig. 2 is a front view, on an enlarged scale, of one of the coupling-sections. Fig. 3 is a similar view of the opposite coupling-section. Fig. 4 is a side elevation of the coupling-section shown in Fig. 3. Fig. 5 is a section taken on the line *z z*, Fig. 2. Fig. 6 is a section taken on the line *y y*, Fig. 5. Fig. 7 is a longitudinal section taken through the coupling, the two parts being united in operative relation. Fig. 8 shows the means whereby a third or normally detached bell is placed in the circuit at any coupling. Figs. 9, 10, and 11 illustrate a special attachment for the third bell. Fig. 12 is a diagrammatic view of the electrical circuit, showing the location thereon of the alarm mechanism. Fig. 13 is a modified form of the construction shown in Fig. 5.

Similar reference characters indicating corresponding parts or elements in the views, let the numeral 10 designate the battery or other suitable source of electricity, located on the

engine, at the fire hydrant, or other suitable point; 12, an electrical bell at the same end of the line; 13, another bell at the opposite or nozzle extremity of the hose line; 14, a third bell intermediately located with reference to the respective bells which are so connected in the battery circuit that the pressing of one of the push buttons rings all the bells simultaneously.

The manner of connecting the bells in the circuit is as follows: From one pole 18 of the battery leads a wire 19 to the button 15, and thence to the button 16 where it terminates. From button 15 leads another wire 20 to button 16, and thence to bell 13, where it may be said to terminate. From bell 13 leads another wire 21 to bell 12, while from said last named bell still another wire 22 leads to the other pole 23 of the battery. From wire 20 leads a branch wire 24 to button 17, and thence to bell 14, from which leads another wire 25 to wire 21. From wire 19, leads a wire 26 to button 17, where it terminates. From this arrangement of the bells in the circuit, it will be observed that by pressing any one of the buttons 15, 16 or 17, all the bells 12, 13 and 14 sound in unison. If button 15 is pushed, the current may be said to pass from pole 18 of the battery through wires 19 and 20 to bell 13, and thence through wire 21 to bell 12, and through wire 22 to the other pole of the battery, and from wire 20 through wire 24 to bell 14, and thence through wire 25 to wire 21. If button 16 is pressed, the current passes from pole 18 of the battery *via* wires 19, 20 to bell 13, thence through wire 21 to bell 12, and through wire 22 to pole 23 of the battery, while from wire 19 the current passes to button 16, back through wire 20 to its junction with wire 24 and thence through said last named wire to bell 14, and *via* wire 25 to wire 21, bell 12, and wire 22 to pole 23. When button 17 is pressed, the current passes from pole 18 *via* wires 19, 26, 24 to bell 14, and thence *via* wires 25 and 21 to bell 12, and thence from wire 22 to pole 23; also from wire 19 through wire 26 to button 17, and back through wire 24 to wire 20, thence through button 16 to bell 13, and thence to wire 21, completing the circuit through bell 12 and wire 22.

The wires 19, 20 and 21 are attached to the line of hose in any suitable manner, being

preferably concealed within the layers of the hose material, and wound spirally there-around as shown in Fig. 1.

To the adjacent extremity of any two hose sections are secured the metallic couplings 27 and 28 adapted to be screwed together. Within these metallic coupling sections 27 and 28 are suitably secured the insulating rings 29 and 30 respectively.

From an inspection of the drawings it will be observed that the chief distinction between my present construction and that shown in the aforesaid patent, lies in the means for completing the circuit through the two parts of the coupling, whereby this electrical connection is greatly simplified and rendered much more effective. The part 27 of this coupling is interiorly threaded to receive the insulating ring 29 which is correspondingly threaded exteriorly. This ring 29 is recessed to receive two spring-actuated, bevel-faced metallic contact plugs 8. As shown in the drawings, these plugs are provided with lugs 8^a which enter corresponding grooves formed in the walls of the recess, whereby after the plugs are inserted they cannot be turned without removing them from their recesses or sockets. A coil spring D surrounds the lower part of the plug and is made fast thereto at one extremity. This spring bears against a shoulder which forms a stop therefor when the plug is pressed. One extremity D' of the wire which forms the spring is carried outward through an aperture in the insulating ring 29 and connected with the adjacent extremity of the circuit wire carried by the line of hose. If there are projecting parts where these connections are made, as shown at A, they may be pressed down and soldered to small metallic plates B set into the insulating ring on the inside. This feature is only for convenience in securing these projecting extremities of the wires, whereby they are prevented from engaging the metallic part 27 of the coupling, as might be possible if they were not suitably secured. The parts B are made of metal since it is impossible to solder the wires directly to the insulating material of the ring. The opposite part 28 of the coupling is provided with the insulating ring 30 which is screwed into the coupling part. In the face of this insulating ring are set two metal contact rings 36 and 37 which are insulated from each other. These metallic rings are exposed on the coupling part, and are adapted to engage the contact plugs 8 of the opposite part when the coupling parts are connected in operative relation. One plug 8 engages the ring 36, while the other plug 8 engages the ring 37. The contact extremities of these plugs are so beveled that by giving them a half turn they may be made to engage the one metal ring or the other, as may be desired. The plugs 8 are locked in place by insulating collars 8^a which are screwed into the insulating ring 29 around the plugs. The third circuit wire is electrically connected at the coupling by attaching

its adjacent extremities to the metallic sections 27 and 28 in any suitable manner. (See Fig. 7.) The third electric bell, or that designated as 14 in Fig. 12, is provided with a suitable stationary base 50, which may, for convenience, be made fast to the belt of the fireman. To this base is attached the bow-shaped metallic strap 51 which passes around the bell mechanism. To the center of the base and the metallic strap are attached the extremities of a post 52. These extremities are angular and enter apertures of corresponding shape formed in the base and strap. On this post is pivoted a hollow drum 53. In the hollow 53^a of this drum is located a coil spring 54. One extremity of this spring is attached to the post 52, around which it is coiled, the opposite extremity being made fast to the drum.

The electrical mechanism of the bell is not shown inasmuch as nothing is claimed thereon. This bell is placed in the circuit through the medium of what may be termed an electrical key. This key is composed of a forked part 55 carrying three contact pins 56 located in chambers or recesses formed in the two arms and the base of the forked key. These pins are surrounded by coil springs which are attached to the pins at one extremity, while their opposite extremities pass out of the key through suitable apertures. The conducting wires 24, 25 and 26 are electrically connected, or continuous, with these protruding extremities of the springs in the key. These wires are insulated and lead to the push button and bell mechanism, which, when referring to Figs. 8, 9 and 10, must be considered within the same casing. After attaching the wire extremities to the respective parts of the bell mechanism they are twisted together (preferably inclosed within a common sheath or covering) and wound around the drum. The wires may be of any convenient length, and so wound on the drum that the tension of the spring 54 will be increased by unwinding the wires. The operation of winding the wires on the drum should be accomplished before the wires are attached to the key, which should normally be held close to the belt, whereby it will be out of the way but always convenient for use. Hence, the key may be drawn outward from the belt to any desired extent while using the same, but as soon as it is released, the wires will be automatically wound around the drum, and the key returned to its original position close to the belt. On either side of a projection 28^a formed on the coupling part 28 is formed an aperture in the coupling section. Each aperture is threaded to receive an insulating tube 60 which is screwed thereinto. This tube carries a metallic contact 61 which is preferably screwed into the tube. The inner extremities of these contacts are respectively electrically connected with the circuit wires 20 and 21 carried by the hose.

The shape of the electrical key is such that

it is adapted to straddle the projection 28^a of the coupling part 28. Hence, as the key is applied to this part of the coupling, the center contact 56 engages the projection 28^a; while the other contacts 61 of the coupling, thus placing the bell 14 in the circuit. Hence, by means of this arrangement, such an electrical connection is established that if any push button is pressed, all the bells 12, 13 and 14 will be simultaneously sounded. The outer extremities of the contacts 61 are not flush with the surface of the coupling part 28, but terminate a short distance below said surface, whereby the possibility of accidentally establishing a short circuit between the contacts while using the hose is avoided.

If desired, the spring D surrounding the contact plugs 8 may be independent of the circuit wires carried by the hose. (See Fig. 13.) In this figure, the circuit wire is passed through an aperture in the center of the plug and made fast to its outer extremity.

Having thus described my invention, what I claim is—

1. In an electrical hose signaling apparatus, the combination with the two coupling parts and the conductors carried by the hose, of an insulating ring suitably attached to one part and provided with recesses whose centers lie in the same circle, contact plugs located in said recesses and normally protruding therefrom, their outer extremities being beveled, and the plugs so arranged that said extremities lie in different circles, said plugs being provided with lugs engaging grooves formed in the walls of the recesses whereby they cannot be turned therein, coil springs surrounding the plugs and located in their recesses, one extremity of each spring being attached to the plug, while the other extremity is carried out of the recess and connected with the conductor carried by the hose, the recess within which the spring is located being shouldered to form a stop therefor when the plug is

pressed whereby there is no movement of the plug outside of the recess, contact rings set into the insulating ring of the other coupling part and so located as to respectively engage the outer extremities of the contact plugs of the other coupling part, and locking collars screwed into the open ends of the recesses around the plugs, substantially as described.

2. The combination with the coupling part, of the insulating ring attached to said part and provided with a recess, a bevel-faced contact plug located in said recess and having a lug engaging a groove formed in the wall of the recess whereby the plug cannot be turned within said recess, an insulating locking collar screwed into the recess around the plug, a coil spring surrounding the plug within the recess and attached thereto at one extremity, the opposite extremity being passed through the insulating ring, the recess being so shaped that it forms a stop for the spring, whereby the movement of the plug does not move the protruding extremity of the spring, substantially as described.

3. In a hose signaling apparatus, the combination with the coupling part, of the insulating ring located in said part and provided with a recess, a spring-actuated bevel-faced contact plug located in said recess and having a lug engaging a groove in the wall of the recess whereby the plug cannot be turned therein, an insulating locking collar inserted in the outer extremity of the recess around the plug and adapted to engage the lug thereon whereby the plug is secured against accidental removal, and a circuit wire carried by the hose and passed through a longitudinal aperture formed in the plug and secured to the outer extremity thereof, substantially as described.

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

WILLIAM FOWLER.

Witnesses:

A. J. O'BRIEN,
CHAS. E. DAWSON.