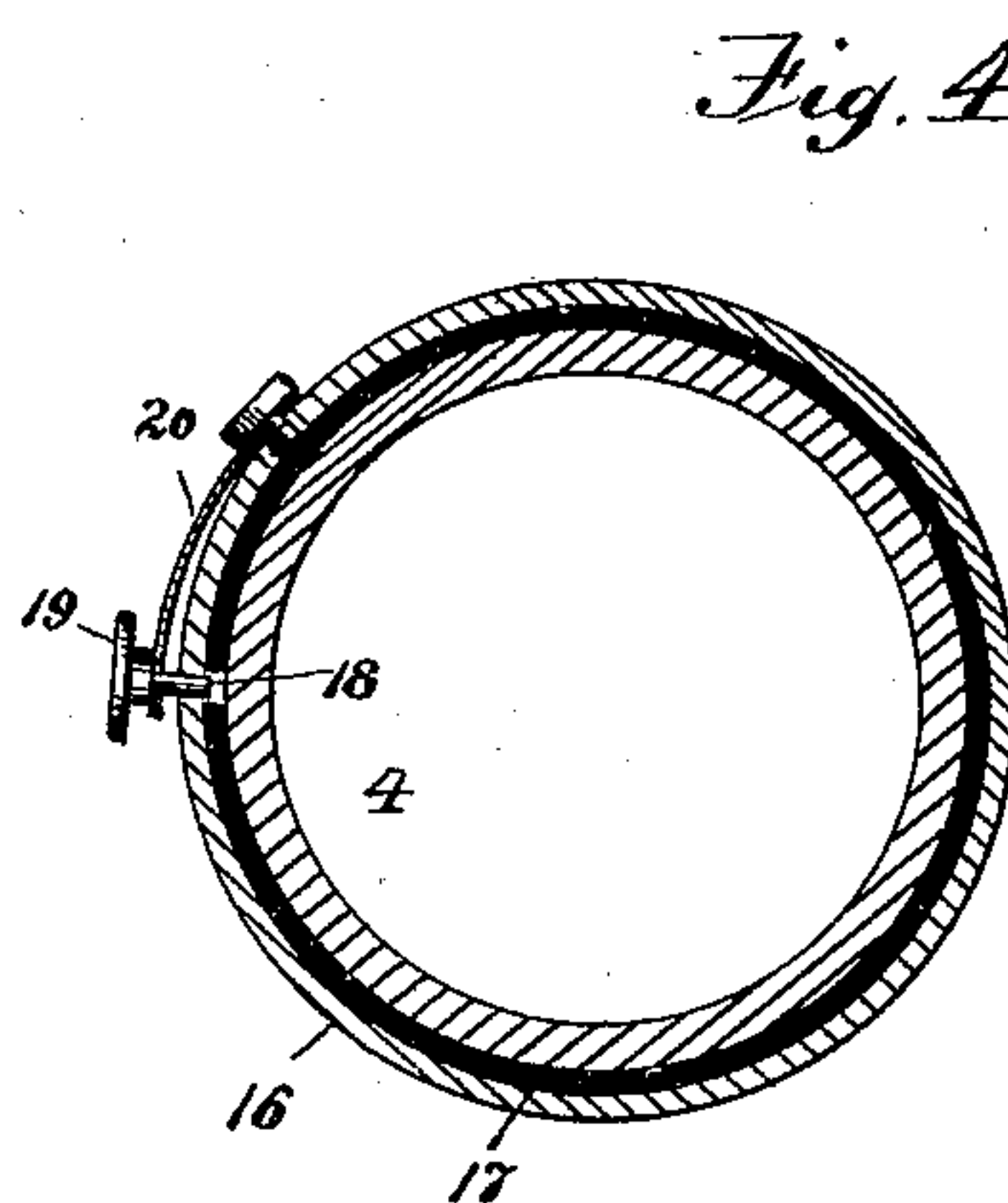
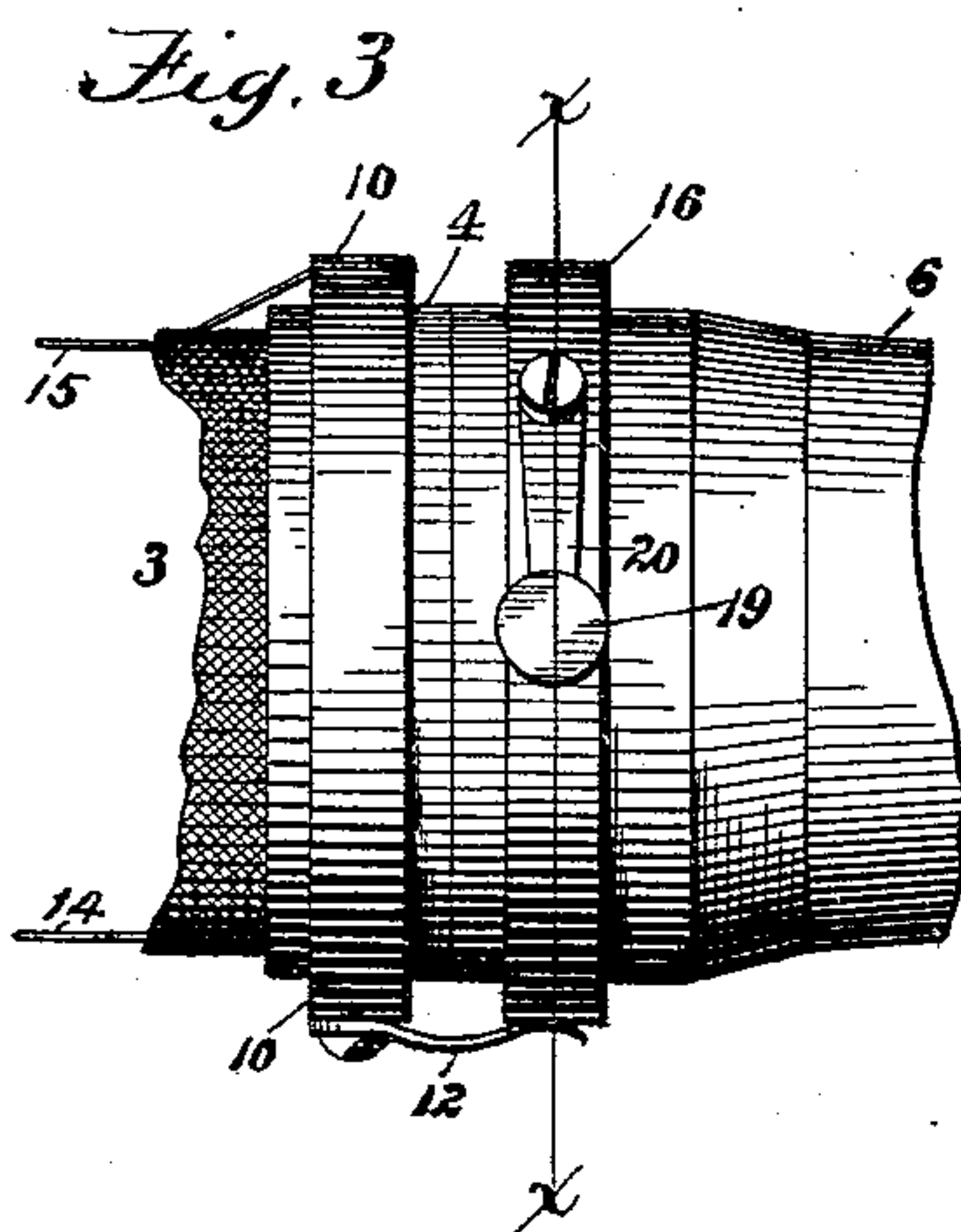
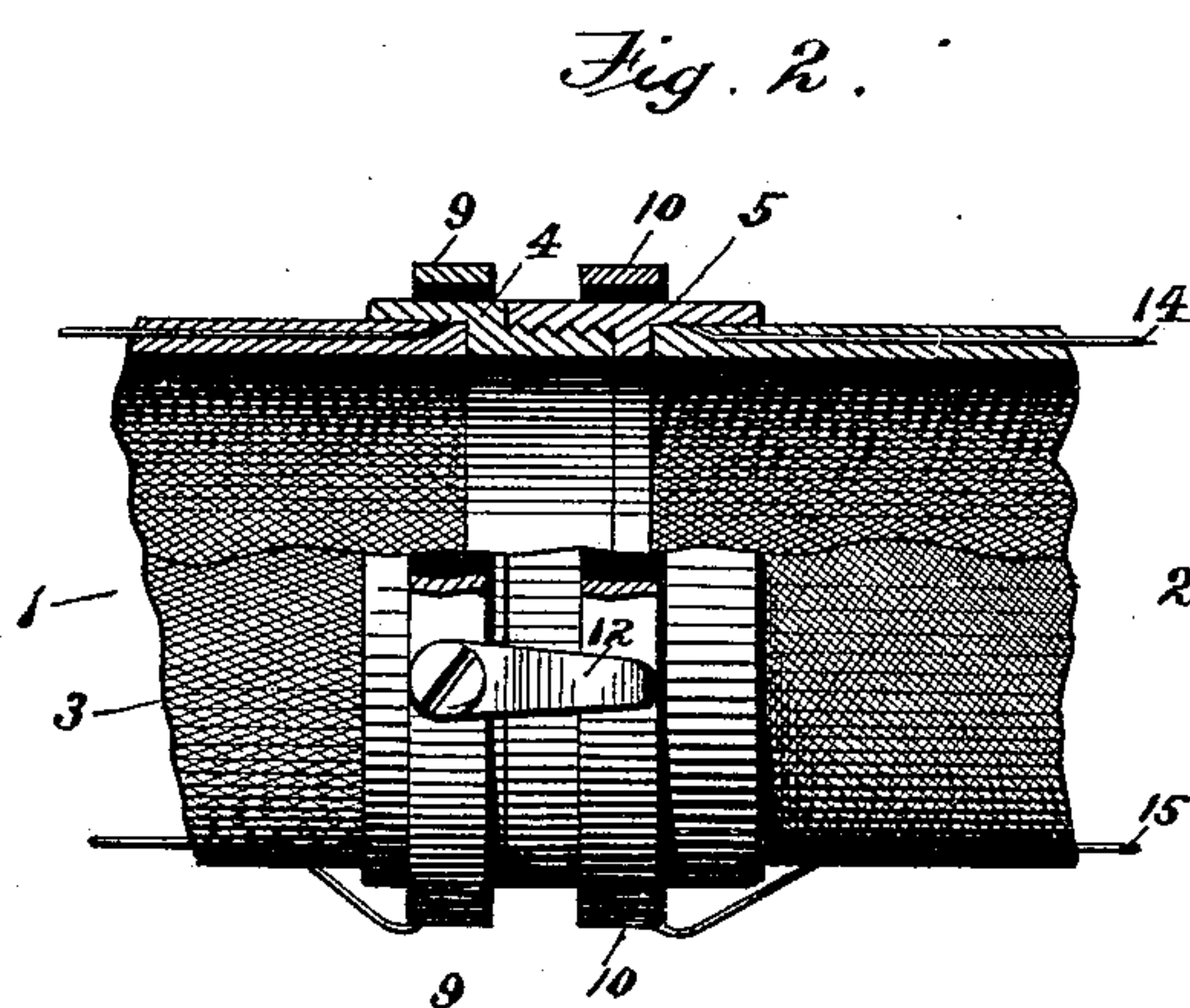
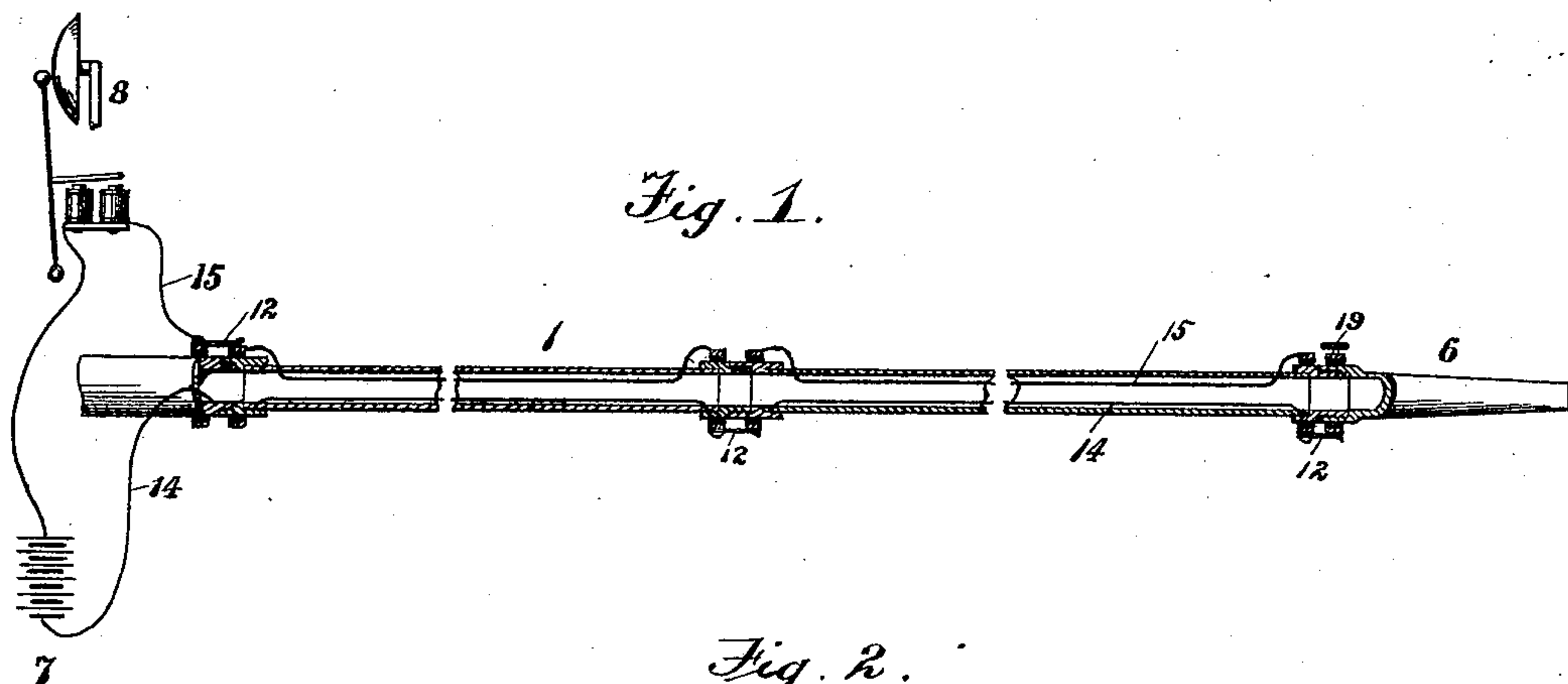


(No Model.)

J. C. WHARTON & J. W. BRAID.
ELECTRIC SIGNALING DEVICE FOR FIRE HOSE.

No. 479,540.

Patented July 26, 1892.



Witnesses

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UNITED STATES PATENT OFFICE,

JOHN C. WHARTON AND JAMES W. BRAID, OF NASHVILLE, TENNESSEE.

ELECTRIC SIGNALING DEVICE FOR FIRE-HOSE.

SPECIFICATION forming part of Letters Patent No. 479,540, dated July 26, 1892.

Application filed November 11, 1891. Serial No. 411,614. (No model.)

To all whom it may concern:

Be it known that we, JOHN C. WHARTON and JAMES W. BRAID, citizens of the United States, residing at Nashville, State of Tennessee, have invented certain new and useful Improvements in Electric Signaling Devices for Fire-Hose; and we do hereby 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.

Our invention relates to signaling means for fire-hose; and the objects in view are, first, to establish electrical communication between the pipeman at one end of a fire-hose and the engineer at the steamer or engine at the other end of the hose, so that by prearranged signals desired information can be instantly conveyed to the engineer; secondly, to utilize the hose itself and the couplings between the sections thereof as the means for carrying the conductors and as a part of the electrical circuit, and, thirdly, so arrange the parts that the sections of the hose can be readily coupled and uncoupled without interference from the wires, the coupling of the hose-sections serving at the same time to connect the conductors of the circuit by which the electrical impulses are transmitted to the signal device.

With these ends in view our invention consists in the combination, with a hose and the metallic couplings between the sections or lengths of the hose, of metallic bands or rings mounted or secured on the hose or coupling-sections, but insulated therefrom, and adapted to be electrically connected together when the lengths of hose are coupled, two conductors extending longitudinally through the hose, with one conductor attached to the metallic couplings and the other conductor connected to the insulated bands or rings, a contact-maker included in the circuit and situated on or near to the play-pipe or nozzle, and a signal device and battery adapted to be carried on the engine or steamer and also included in the electric circuit.

Our invention further consists in the construction and combination of parts, which will be hereinafter more fully described, and pointed out in the claim.

To enable others to more readily understand

our invention, we have illustrated the same in the accompanying drawings, in which—

Figure 1 is a diagrammatic view illustrating the circuit, battery, signal, and contact-maker in connection with a line of hose divided into lengths, which are joined by suitable metallic couplings. Fig. 2 is an enlarged detail view, partly in elevation and partly in section, illustrating the coupling, the circuit-wires, the insulated bands, and one means for electrically connecting the two adjacent insulated bands on adjoining ends of two sections of hose. Fig. 3 is an elevation showing a portion of the play-pipe or nozzle connected to one member of a coupling and illustrating the contact-maker to be operated by the pipeman. Fig. 4 is a transverse section on the plane indicated by the line *xx* of Fig. 3.

Like numerals of reference denote corresponding parts in all the figures of the drawings, in which—

1 designates the line of hose, which is divided into lengths or sections 2 3 of any desired number, and 4 5 are the members of an ordinary metallic coupling. One pair of these couplings is used to unite the adjacent ends of two sections of hose, the female member 4 being secured in one end of one hose-section 2 and the male member 5 being secured in the other end of the same section 2 or of the adjacent hose-section 3. (See Figs. 1 and 2.) The couplings may be secured to the hose in any suitable way common to the art, and although we have shown the coupling as of ordinary threaded variety in the drawings as one embodiment of our invention, yet we do not confine ourselves to this particular form of coupling, as any other kind may be used.

On the male member 5 of the coupling at the end of the hose is screwed the play pipe or nozzle 6, adapted to be manipulated by the pipeman, and on the steamer or fire-engine at the other end of the hose is the electric battery 7 for energizing the electric circuit, and the signal 8, adapted to be operated by the current passing through the circuit.

On the male and female members 5 4 at the ends of each section of hose are arranged the external bands or rings 9 10, made of metal or suitable conductor of electricity. These external bands are held or fixed in any suit-

able manner on the coupling members, and each ring is insulated by an intermediate layer of insulating material 11 from electrical communication with the members of the metallic hose-coupling. The external bands or rings are designed to form a part of the electric circuit for transmission of the current of electric energy, and said bands are so disposed or arranged that they are connected electrically when the members of the coupling are screwed together. This result may be attained in any suitable way, and in the drawings we have illustrated spring-clips 12 as one way of attaining the end, one end of the clip being permanently fastened to one insulated ring and the free end of the clip extending outward, so as to bear upon the other adjacent ring when the hose-sections are coupled. It will be understood, however, that we do not confine ourselves to this specific means for electrically connecting the bands, as we may employ suitable links or arrange and construct the bands so that they themselves are brought into direct contact as the coupling is united and are separated with the uncoupling of the members 4 5. The rings may be placed on the hose instead of the coupling.

The conductors of the electric circuit are indicated at 14 15.

Each length of hose has within itself a portion of each of the two conductors, and in the manufacture of hose adapted to the purposes of our invention we propose to embed or lay the wires in the web or material forming the hose, as indicated in Fig. 2 of the drawings. The conductor 14 has one end thereof electrically connected to the male member 5 at one end of the hose-section and the other end of the wire 14 is likewise connected to the female member 4 at the other end of the hose-section, while the conductor 15 is connected electrically at its ends to the insulated bands or rings 9 10 on the members 4 5 at the ends of each length of hose. In coupling the lengths of hose together the male member 5 is screwed into the female member 4 of the coupling, thus forming a path for the current from the conductor 14 in one length of hose to the other part of the conductor 14 in the other length of hose, and at the time of connecting the members 4 5 together the clips 12 connect the bands 9 10, and thereby form a connection between the two parts of the conductor 15 in the lengths of hose, thus effecting the electrical connection of the divided parts of the two conductors 14 15 at the time of coupling the hose-lengths and permitting the disconnection of the hose-sections without damage to the parts of the electric circuit.

The play-pipe or nozzle 6 of the hose has an external band 16 thereon near or at its inner end, which band is insulated from the metallic part of the pipe by an intermediate layer of insulating material 17, and through this ring 16 and insulation 17 are formed aligned openings 18. Through these openings is

adapted to pass a stud on the contact-maker 19, which is carried by a spring 20, having one end rigidly and permanently fastened to the band or ring 16 on the play-pipe.

In the drawings we have shown the contact-maker in the form of a push-button adapted to be depressed by the thumb or finger, so that the inner end of the stud thereof is adapted to make electrical contact with the inner end of the play-pipe; but we would have it understood that we do not confine ourselves strictly to this form of contact-maker, as we are aware that the same may be modified and changed by skilled mechanics without departing from the spirit of our invention.

As the conductor 14 is attached to the male member 5 and as the conductor 15 is attached to the band 9, which in turn is connected to the band 16, that carries the contact-maker 19, the circuit is broken at the play-pipe by the button being raised by the spring 20 out of contact with the pipe; but when pressure is applied to the contact-maker the inner end of the stud passes through the openings in the band 16 and insulation 17, so that the contact-maker bears on the pipe 6, thus closing the circuit. One of the conductors is connected to the battery, the other conductor to the signal 8, and the battery and signal are connected as indicated in Fig. 1.

The operation of our invention is as follows: The lengths of hose are joined by the couplings and the divided parts of the conductors are connected by the metallic couplings and by the insulated bands and clips, as shown. The circuit is normally open, (or it may be arranged for operation as a closed circuit,) being broken at the play-pipe; but when the pipeman desires to convey a signal to the engineer it is only necessary to depress the contact-maker one or the necessary number of times, according to a previously-arranged code of signals. The depression of the contact closes the circuit and causes a current of electric energy to pass through the conductor 14 and the hose-couplings 4 5, thence through the contact-maker, through the conductor 15 and the bands and clips connected thereto, thence to the magnets of the signal 8 to attract the armature thereof and sound the alarm, and from thence back to the battery.

It is evident that modifications and changes in our system of electric signaling for fire-hose can be made without departing from the spirit or sacrificing the advantages of our invention—as, for instance, any suitable signal device can be used in lieu of the audible signal 8, herein shown and described as an embodiment of our invention, and we therefore reserve the right to make such changes and modifications as fairly fall within the scope of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination, with a hose, a play-pipe, and the couplings thereof, of an internal con-

ductor connected to the members of the couplings, the external bands 9 10, seated directly upon the coupling members and insulated therefrom, another band 16, insulated from
5 the play-pipe and carrying a transverse contact-maker 19, which operates through aligned openings in the band 16 and its insulation 17 to make contact with the coupling member to which the play-pipe is connected, another internal conductor connected to the insulated
10 bands 9 10, the short bridge-pieces between

the bands 9, 10, and 16 on the couplings and the play-pipe, a signal, and a battery, substantially as and for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN C. WHARTON.
JAMES W. BRAID.

Witnesses:

CHAS. L. EASTMAN,
JAS. IRVINE.