No. 811,836. PATENTED FEB. 6, 1906.

W. FOWLER.

ELECTRICAL HOSE SIGNALING APPARATUS.

APPLICATION FILED JUNE 14, 1904.

4 SHEETS—SHEET 1.

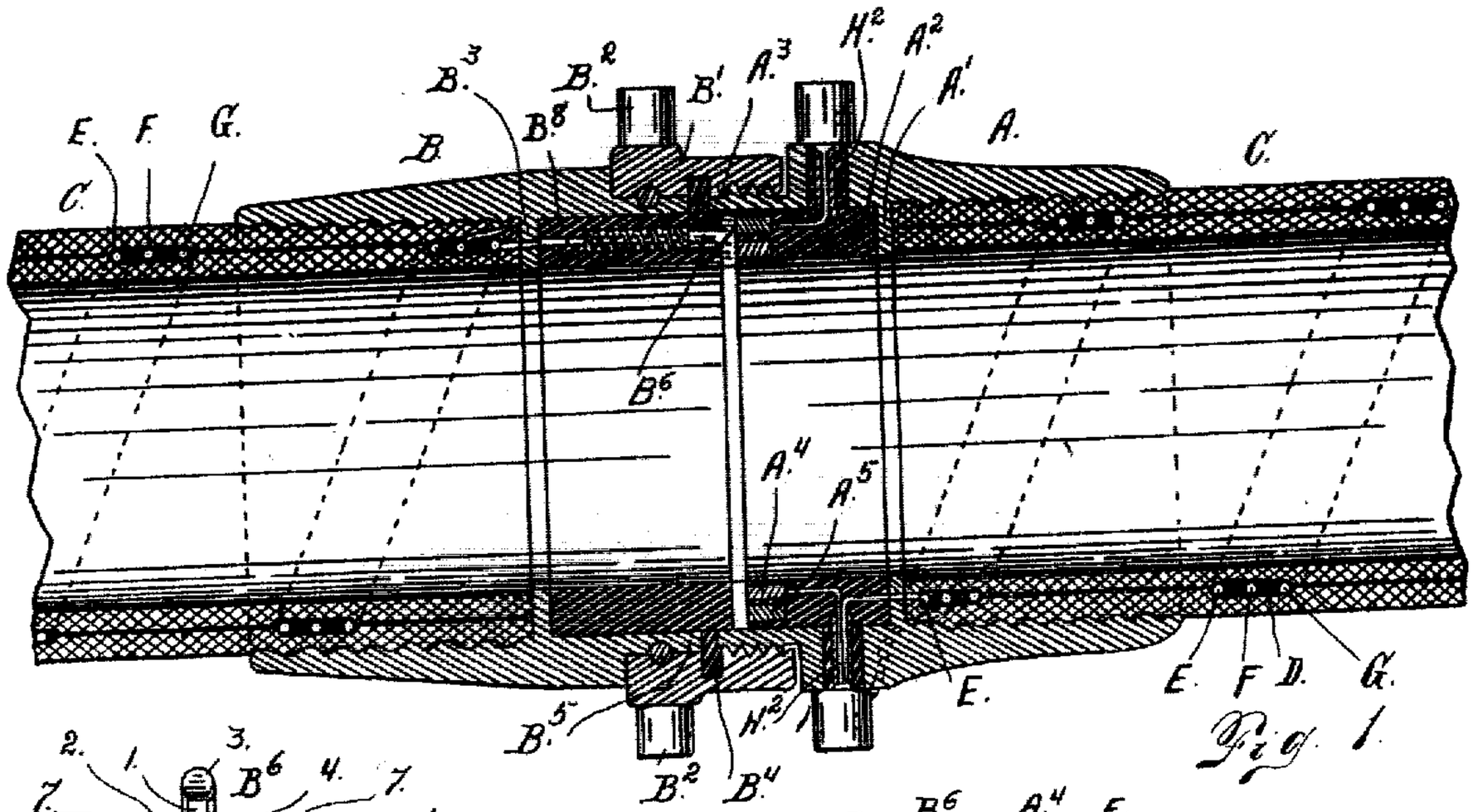

Fig. 1.

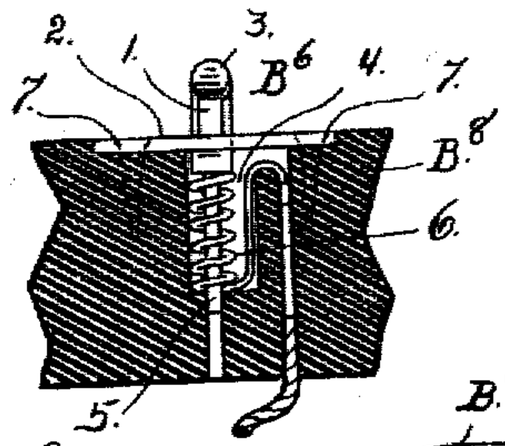

Fig. 5.

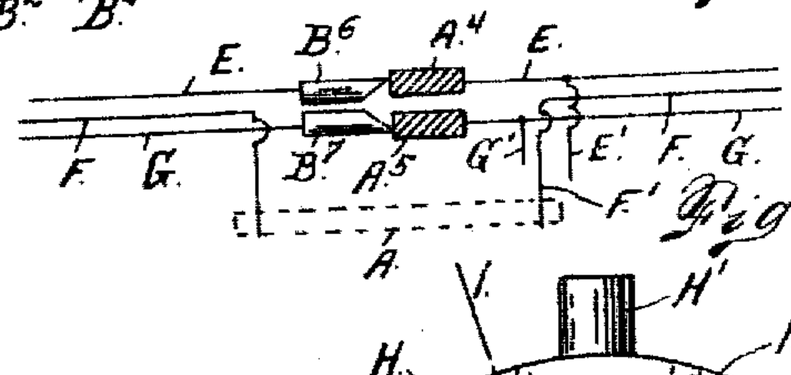

Fig. 17.

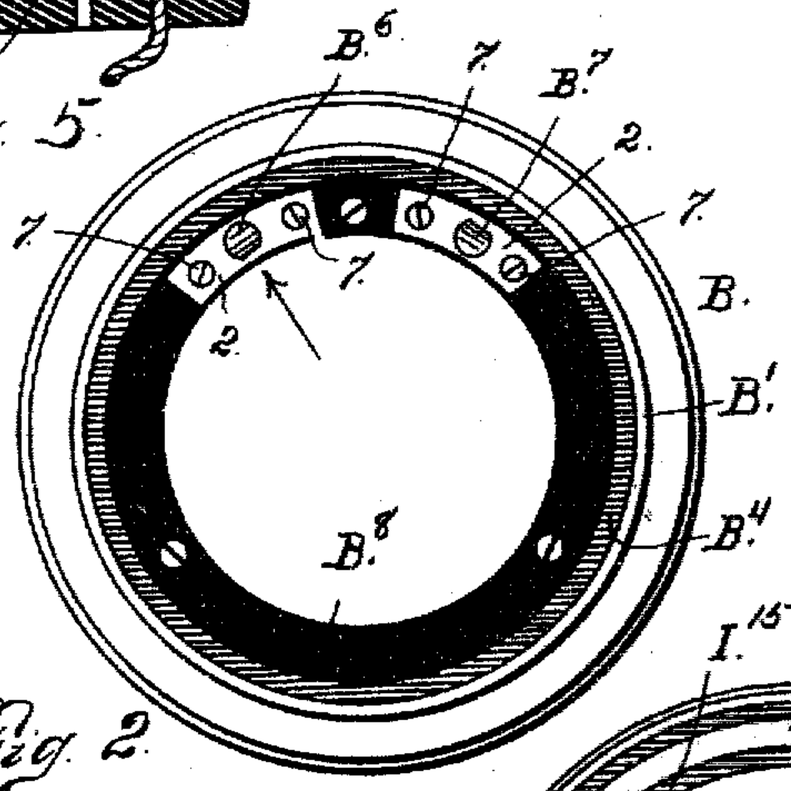

Fig. 2.

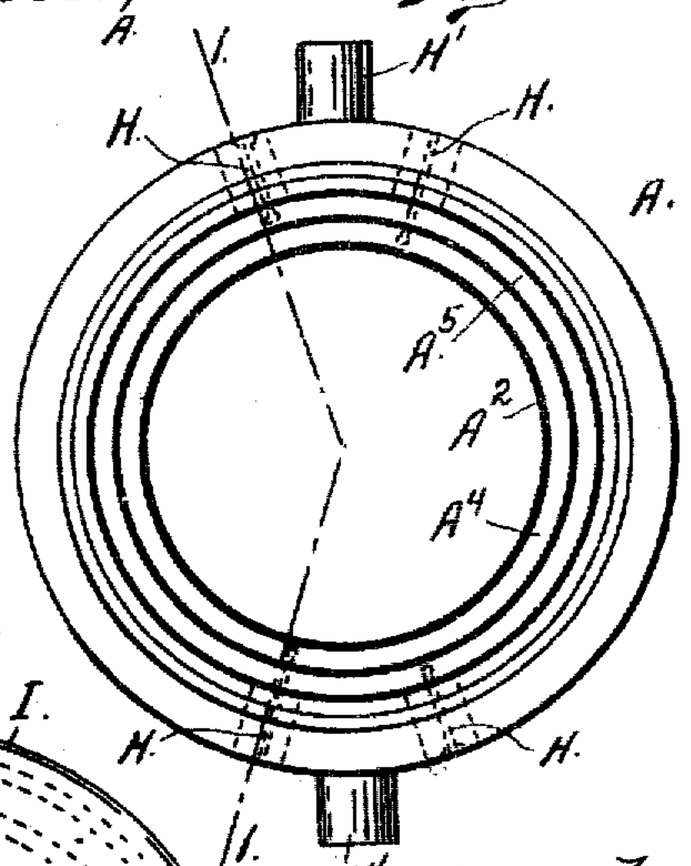

Fig. 3.

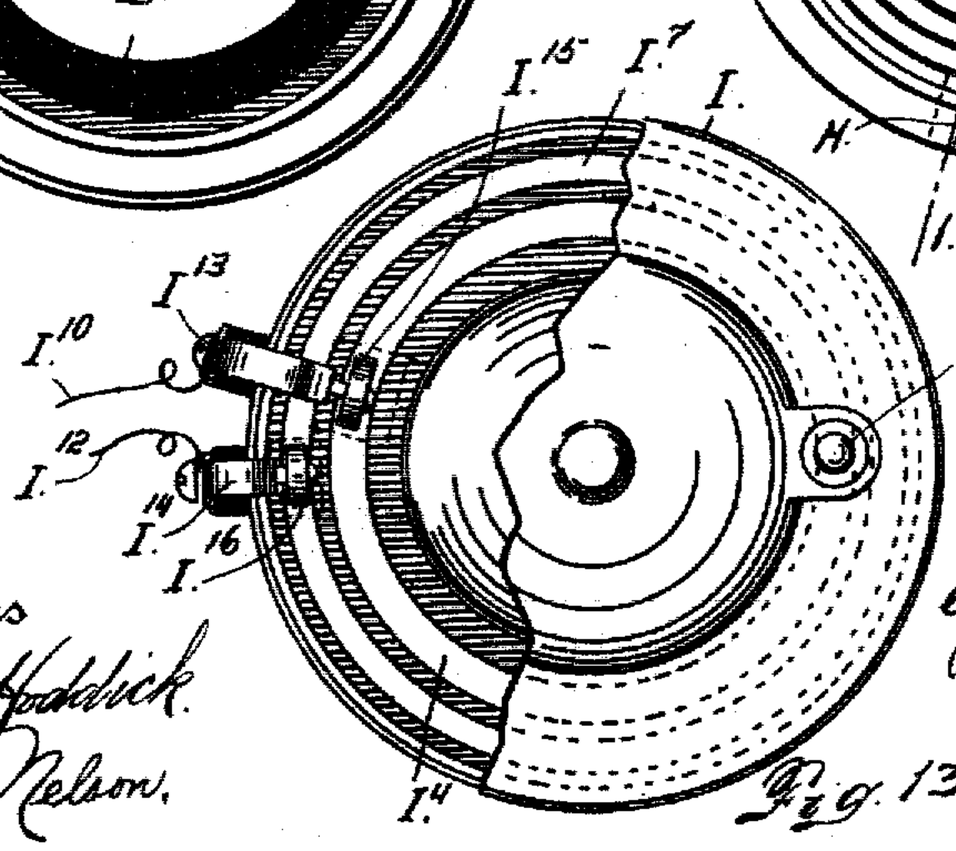

Fig. 13.

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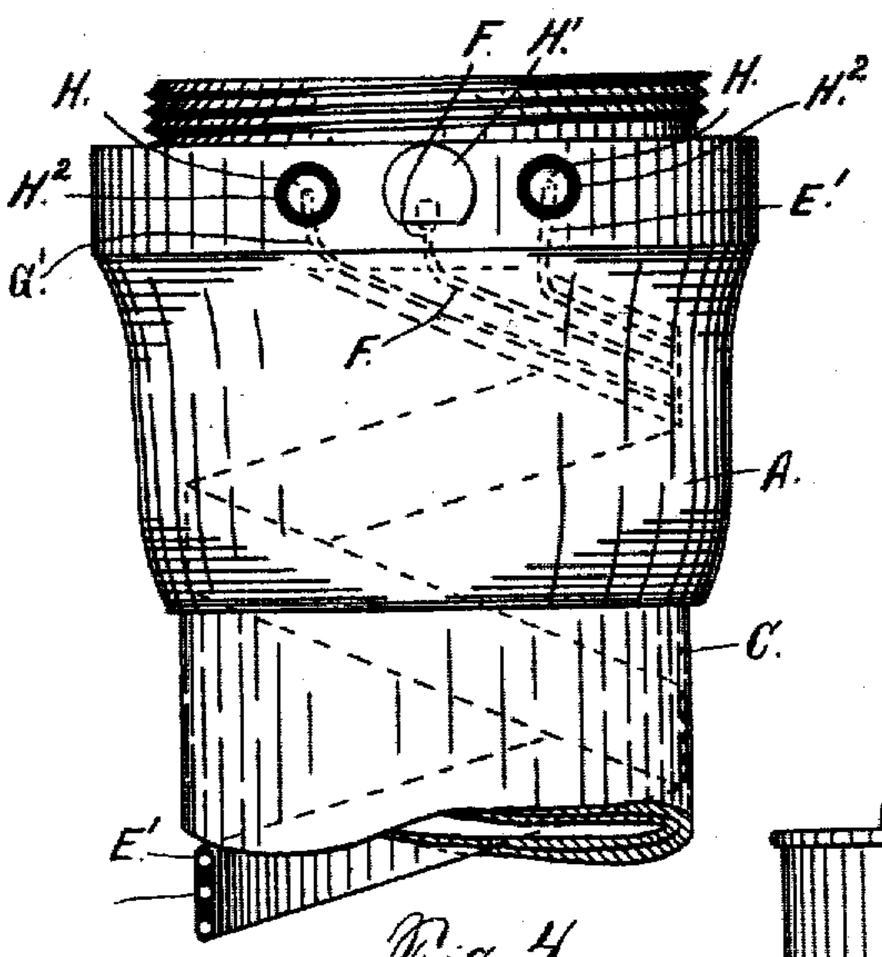


Fig. 4.

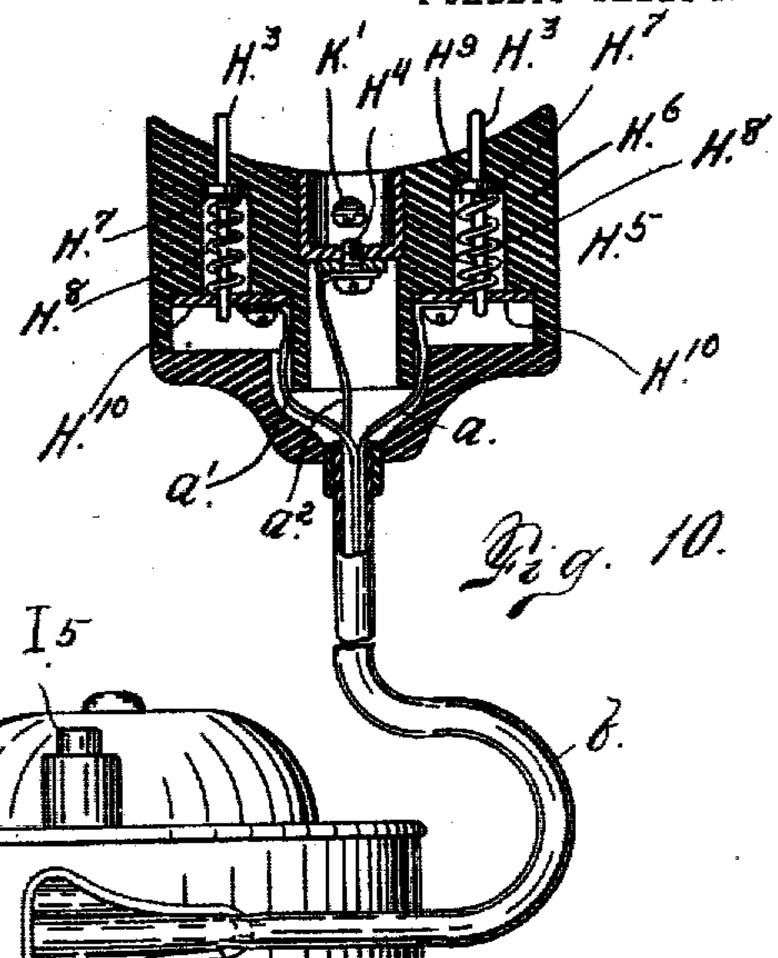


Fig. 10.

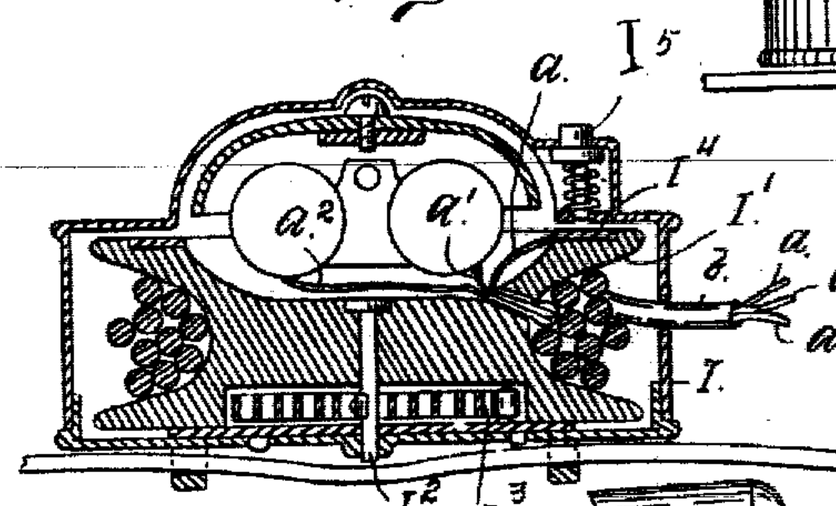
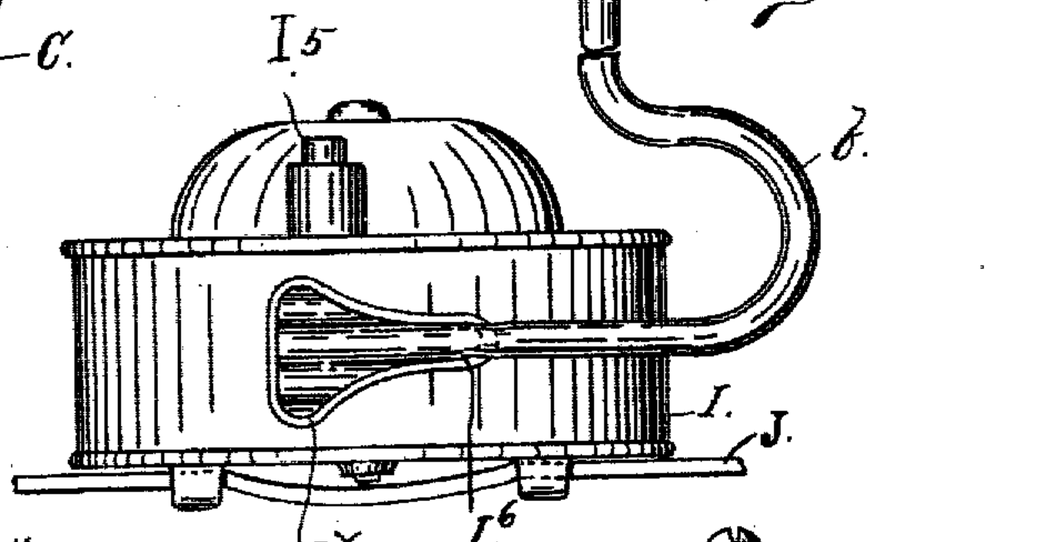


Fig. 11.



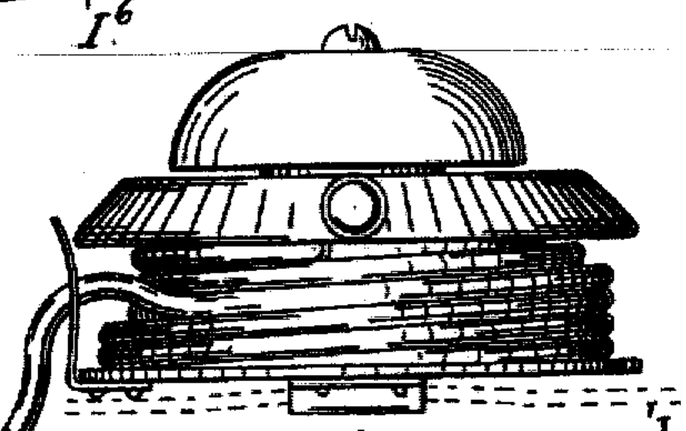


Fig. 14.

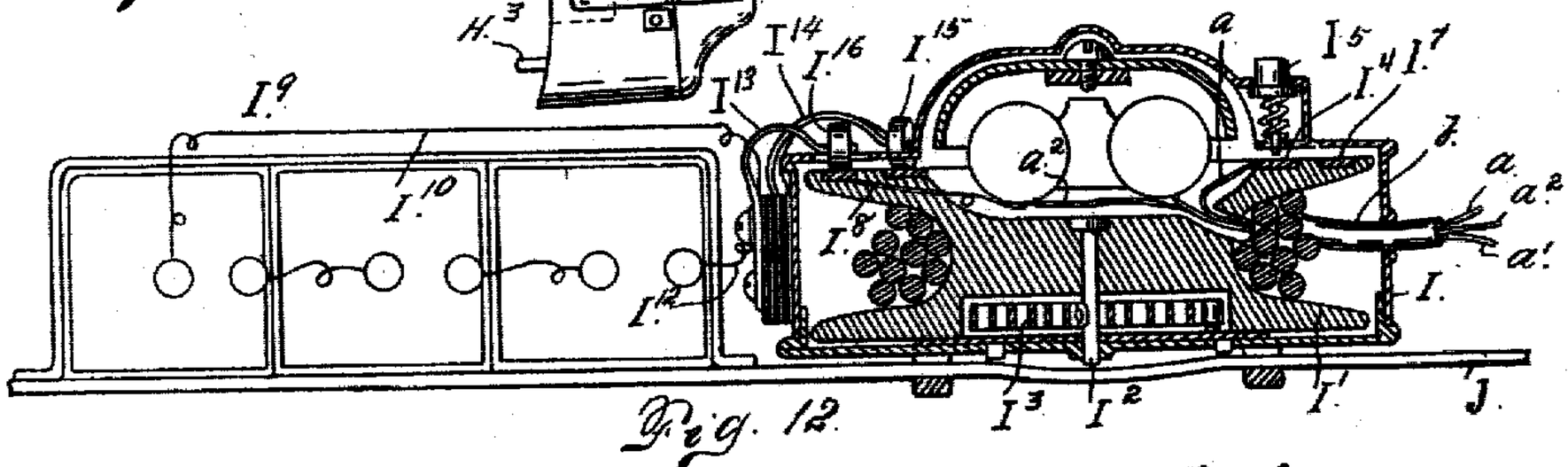


Fig. 12.

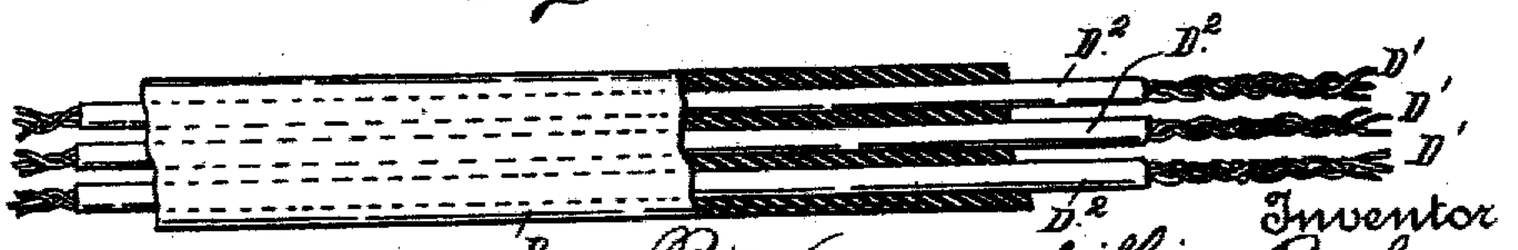


Fig. 6.

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ELECTRICAL HOSE SIGNALING APPARATUS.

APPLICATION FILED JUNE 14, 1904.

4 SHEETS—SHEET 3.

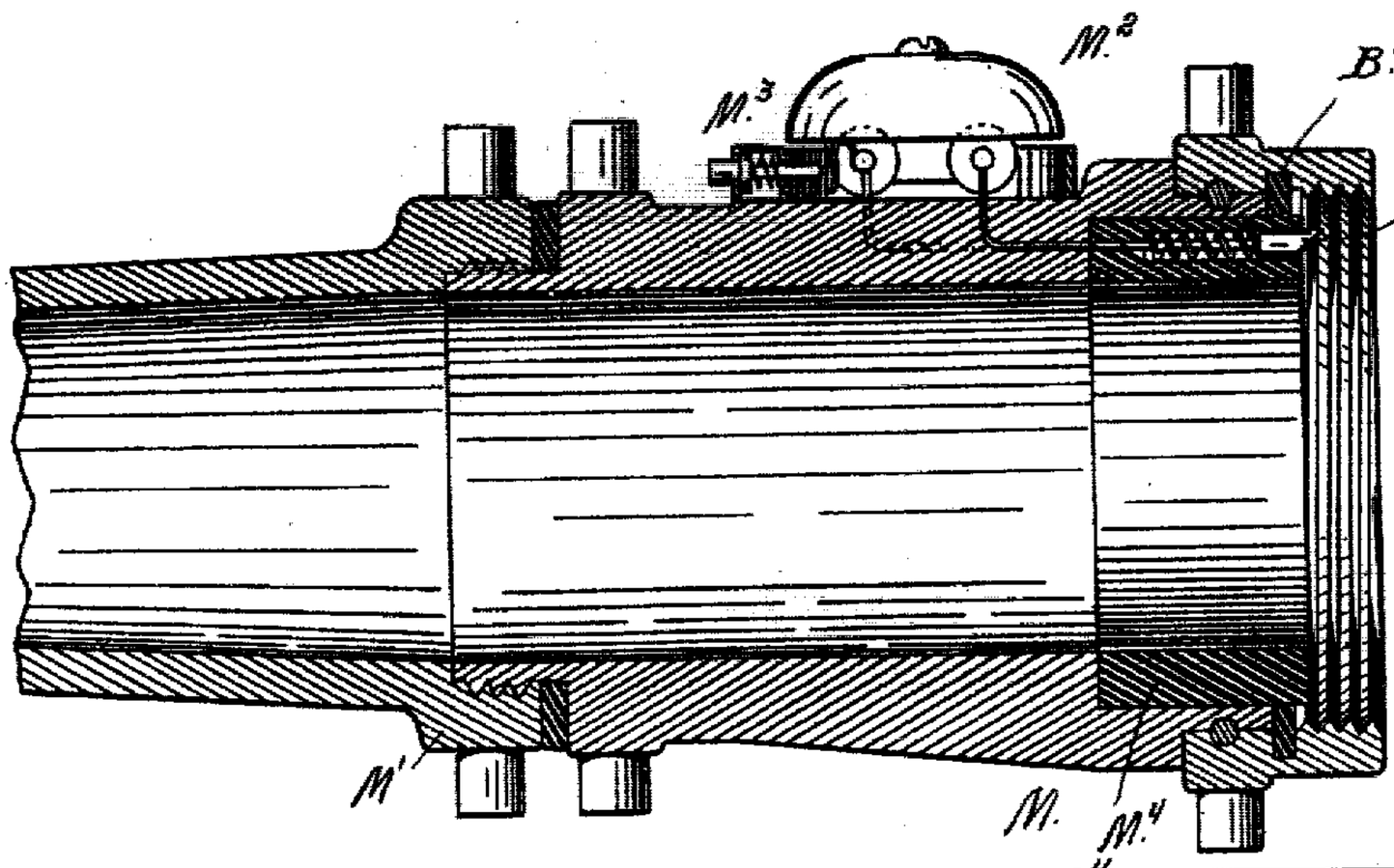
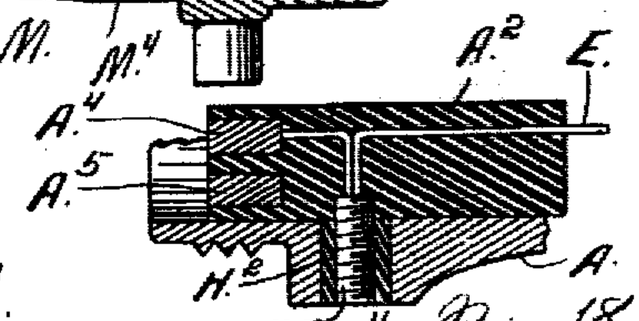


Fig. 7.



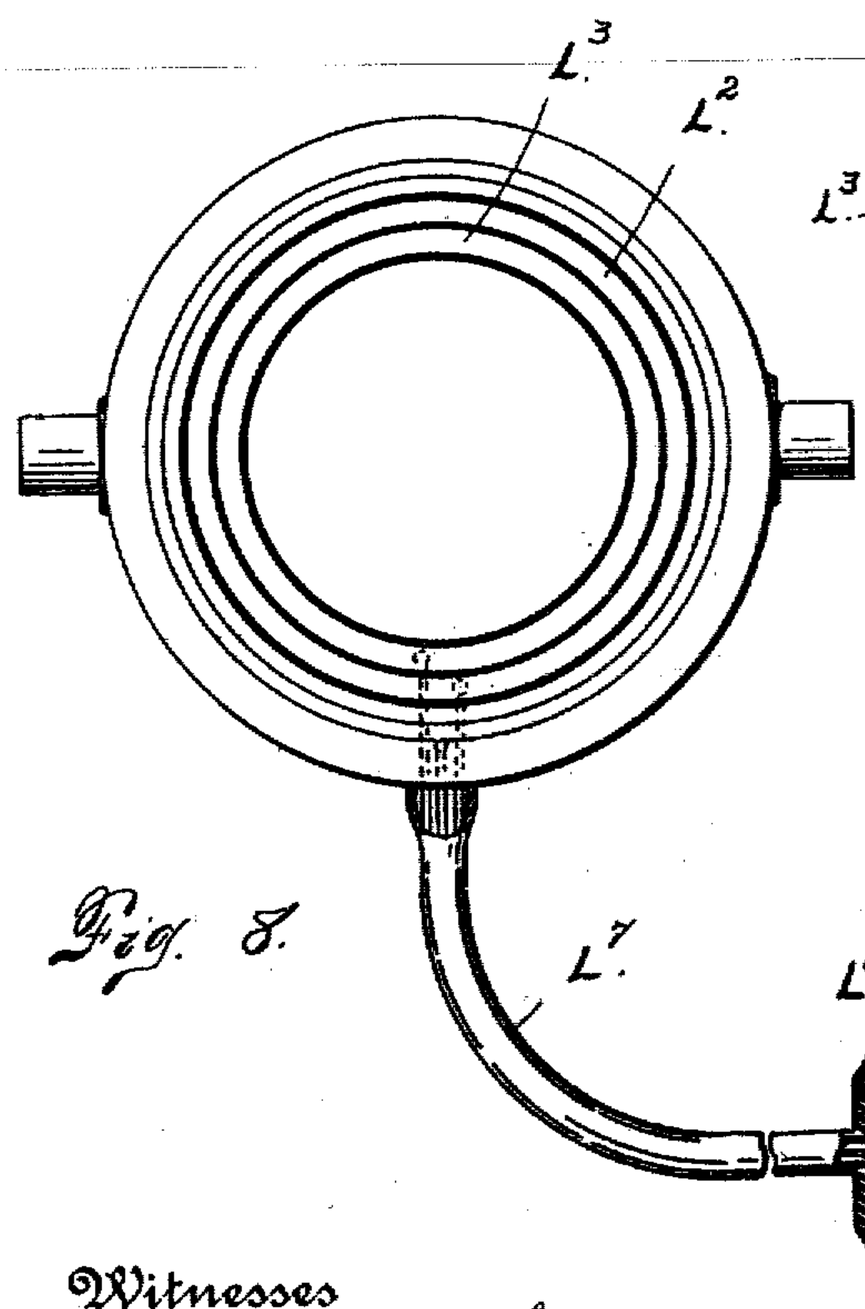


Fig. 8.

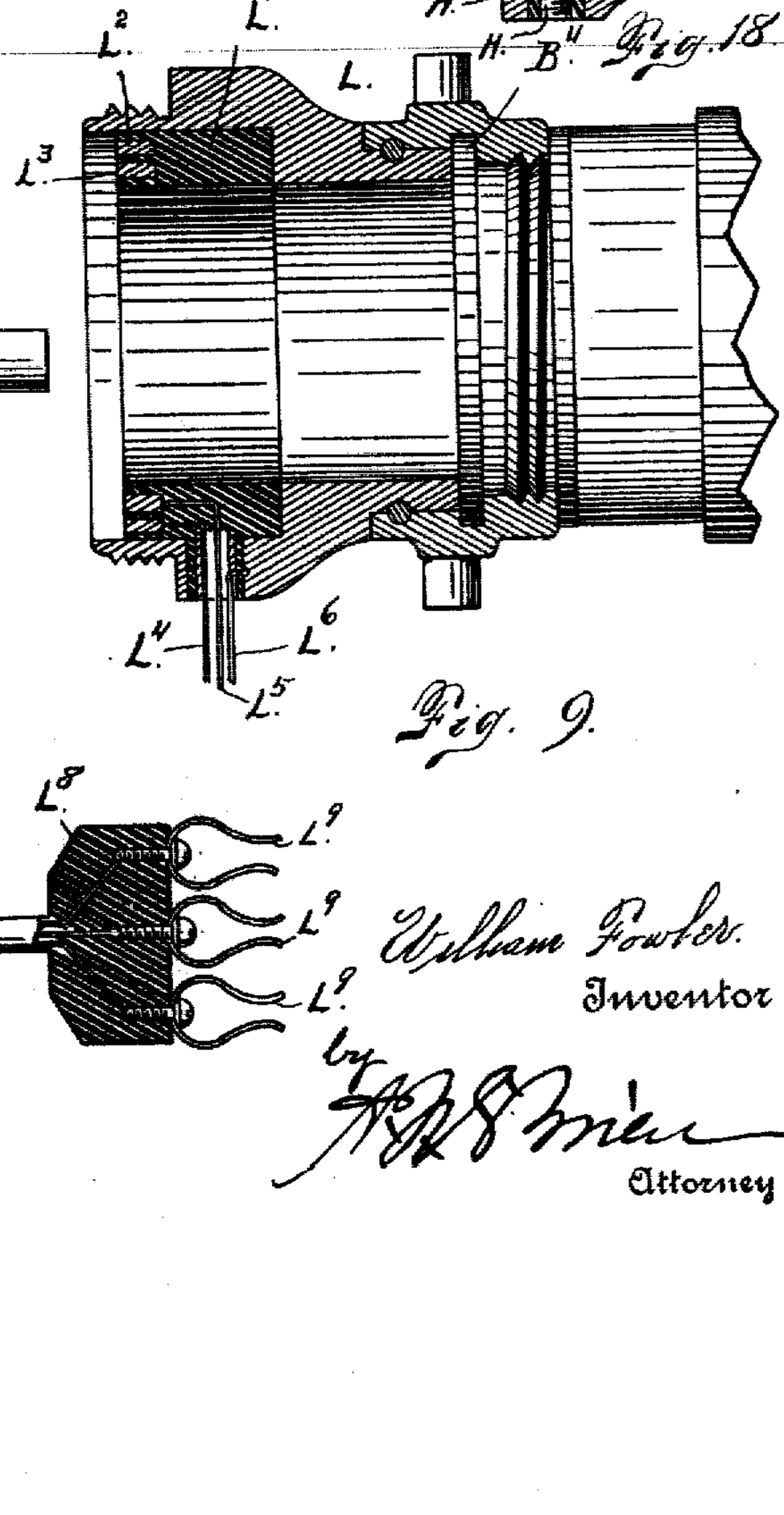


Fig. 9.

Fig. 18

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by
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No. 811,836. PATENTED FEB. 6, 1906.

W. FOWLER.

ELECTRICAL HOSE SIGNALING APPARATUS.

APPLICATION FILED JUNE 14, 1904.

4 SHEETS—SHEET 4.

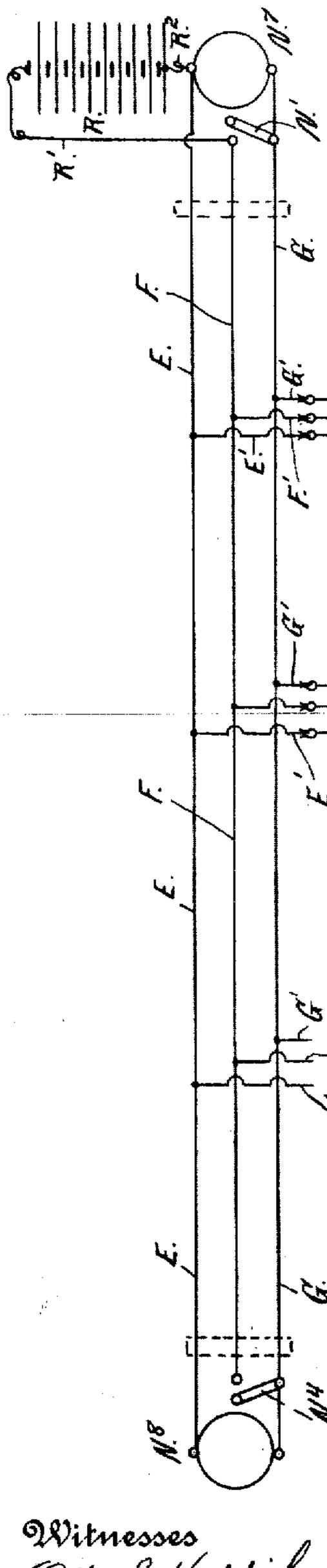

Fig. 15.

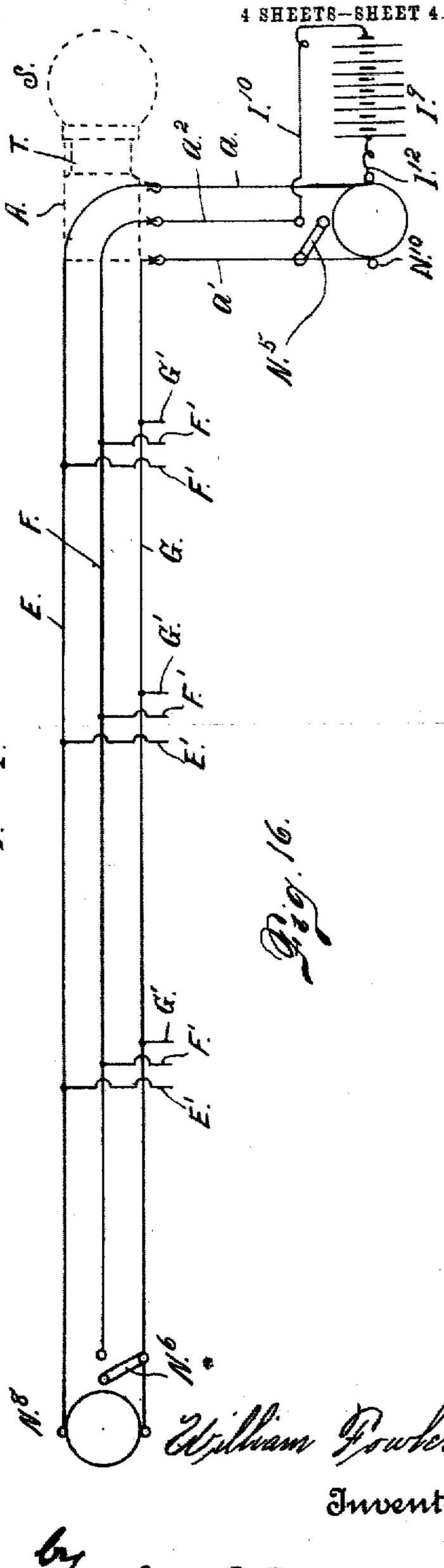

Fig. 16.

Witnesses
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Dena Nelson.

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UNITED STATES PATENT OFFICE.

WILLIAM FOWLER, OF COLORADO SPRINGS, COLORADO.

ELECTRICAL HOSE SIGNALING APPARATUS.

No. 811,836. Specification of Letters Patent. Patented Feb. 6, 1906.

Application filed June 14, 1904. Serial No. 212,585.

To all whom it may concern:

Be it known that I, WILLIAM FOWLER, a citizen of the United States, 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 electrical hose signaling apparatus or devices connected with fire-hose, whereby signals may be sent by the person in charge of the engine or at the hydrant to the person at the nozzle end of the line or from any intermediate point between the extremities of the line to either or both ends of the line, as circumstances may require.

My present invention belongs to the class of devices set forth in the United States Letters Patent issued to me as follows: No. 470,752, March 15, 1892; No. 486,807, November 22, 1892; No. 539,017, May 7, 1895; No. 539,300, May 7, 1895, and No. 651,326, June 5, 1900; and it consists of the features, arrangements, and combinations hereinafter 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 a section taken through the coupling of a fire-hose equipped with my improvements. This coupling is located intermediate the extremities of the line. Fig. 2 is a face view of the female member of the coupling. Fig. 3 is a corresponding view of the other or male member of the coupling. Fig. 4 is an elevation of the male coupling member, the hose being broken away beyond the coupling member. Fig. 5 is a section taken through the insulating-ring of the female coupling, illustrating one of the spring-held contact-pins. Fig. 6 is a fragmentary detail view illustrating an insulating-tape carrying three electrical conductors of special construction. This tape is located between two thicknesses of the hose, is wound spirally therearound, and is concealed within the hose. Fig. 7 is a section taken through the nozzle and the adjacent female coupling member. Fig. 8 is a face view of the coupling located at the engine and its connections. Fig. 9 is a section taken through the same. Fig. 10 is an elevation showing a special construction of portable bell connected with an electrical key or device whereby the portable bell may be placed in circuit at any coupling along the line. Fig. 11 is a section taken through the same. Fig. 12 is a section taken through a bell connected with a portable battery. Fig. 13 is a top view of the bell construction shown in Fig. 12, its top part being partly broken away. Fig. 14 is a view of a special construction of bell shown in connection with the electrical key. Figs. 15 and 16 are diagrammatic views illustrating the circuit. Fig. 17 is a fragmentary diagrammatic view illustrating the connections of the three conductors with the contact-rings and pins of the coupling member. Fig. 18 is a fragmentary detail view of the male coupling member, showing the manner of fastening the insulating-ring.

In an apparatus of this class three or more bells may be employed, one being located at the engine, another at the nozzle, and one or more at intermediate points. The intermediately-located bell is supposed to be carried by the person who wishes to signal the person in charge of either end of the line—that is to say, the person located at the engine or the one at the nozzle. The line of hose is equipped at any coupling with devices which make it practicable for the person carrying a bell with which is connected an electrical key to attach the key to the coupling, and thus place the bell carried by him in circuit. Each bell is provided with a circuit-closer of ordinary construction, as a push-button. When the connections are properly made, if any push-botton is pressed the three bells will all be operated or sounded simultaneously. A portable battery may be connected with the portable bell, so that if there is a break in the circuit between the portable bell and the battery which it is assumed is located at the engine the portable battery will make it practicable to communicate with the person at the nozzle end of the line; but if the engine-battery is in working order the two batteries will work in harmony, as the portable battery is connected in parallel with the primary or main battery.

My present improvements comprise, among others, the following features: A gasket located in the female member of the coupling outside of the insulating-ring and coöperat-

ing with the male member of the coupling which projects beyond the insulating-ring of the male coupling to engagement with the gasket of the female member, whereby a water-tight joint is formed. By virtue of this feature the gasket is located outside of the contact-pins, whereby it does not interfere in any manner with the said pins, neither is it compressed into the waterway, which would result in contracting the said waterway; a special construction of contact-pin, a coil-spring connected with the pin being directly connected with one of the electrical conductors of the line; special bell constructions in which spring-held rotary spools are employed for winding up or paying out the cable carrying the three branch conductors connected with the electrical key; a bell provided with a spool upon which the cable carrying these conductors may be wound by hand, if desired, and a special construction of tape carrying three conductors which are insulated from each other making it practicable to extend the conductors around the line of hose in a spiral path. I have also shown a special construction of conductor—namely, a conductor composed of a number of strands loosely woven. A conductor of this character is readily extensible, and therefore not liable to strain or breakage.

Having outlined my improved construction and the function it is intended to perform, I will proceed to describe the same in detail. In referring to the drawings the same reference characters indicate the same parts in all the views. Referring first more especially to Figs. 1, 2, 3, and 4, let A designate the male coupling of the hose, and B the female coupling. To the female coupling is applied the revoluble ring B′, provided with the usual lugs B^2 to facilitate its rotary movement. The flexible hose-sections C are connected with the metallic members A and B of the coupling in the usual manner and abut against interiorly-projecting collars A′ and B^3, respectively. The male coupling member is provided with a bushing A^2, composed of insulating material, as hard rubber. This ring engages the collar A′ at one extremity, while its other extremity is located a short distance from the outer extremity A^3 of the male coupling part, which extremity engages a soft-rubber gasket B^4, whose outer edge engages a circumferential groove formed in the revoluble ring B′ of the female part of the coupling, while its inner edge bears against the stationary part B^5 of the female coupling. It will thus be seen that this gasket is engaged by the two opposing metallic faces of the coupling members, whereby the coupling is made water-tight. Two metallic contact-rings A^4 and A^5 are set into the exposed face of the insulating-bushing A^2, the faces of the rings being flush with the face of the bushing and exposed to cause them to be engaged by metallic contact-pins B^6 and B^7, which are set into and protrude from the adjacent face of an insulating-bushing B^8, carried by the female coupling member. The two pins B^6 and B^7 are substantially of the same construction, and they are given different reference characters only for convenience of description. The extremities of these pins are oppositely beveled, whereby while the bodies of the pins are located in the same circle their free extremities engage the outer and inner contact-rings A^5 and A^4, respectively. It will be understood from an inspection of the drawings that the two rings A^4 and A^5 are concentric with each other, the ring A^4 being located within and smaller than the ring A^5, the two rings being insulated from each other. The construction and arrangement of these pins will be understood by reference to Fig. 5. It will be assumed that the pin B^6 is illustrated in Fig. 5, though as far as the drawing is concerned it would be impossible to tell which ring was intended, unless we assume that the section is so taken that the ring is viewed in the direction of the arrow in Fig. 2. Each pin is flattened on one side, as shown at 1, and passes through an opening in a metal plate 2, the opening being shaped to fit the pin, whereby the latter is prevented from turning in the plate. The bevel of the pin is indicated by the numeral 3. The insulating-ring is provided with a recess 4 for each contact-pin. Each pin has a reduced stem 5, which is surrounded by a coil-spring 6, one extremity of which is soldered to the body of the pin, while the other extremity is directly connected with one of the three electrical conductors of the line of hose. Each plate 2 is secured to the face of the insulating-ring by suitable fastening-screws 7. The various parts referred to by numerals in Fig. 5, where the pin B^6 is referred to, will be employed to designate the corresponding features of and used in connection with the pin B^7. Each pin B^6 and B^7 has a shoulder where its body part merges into its stem, which shoulder engages one extremity of the coil-spring, which coil-spring extremity is soldered to the body of the pin, as before stated.

Let D designate an insulating-tape, which is wound spirally around the hose-sections intermediate the two layers of which the hose is composed. This tape D carries the three main conductors of the line, these conductors being designated E, F, and G, respectively. The extremity of the conductor E adjacent the male member of the coupling is connected with the inner contact-ring A^4, while the corresponding extremity of the conductor G is connected with the outer contact-ring A^5. The conductor F is connected with the body of the male coupling member A, as shown at F′. The extremities of the conductors E and G, adjacent the female member of the coupling, are respectively connected with the con-

tact-pins B^6 and B^7. These pins engage the inner and outer contact-rings A^4 and A^5, as heretofore explained. Branch conductors E′ and F′ lead from the main conductors E and F outwardly through openings formed in the male coupling member for the purpose and terminate in exposed contacts H, located on opposite sides of the central projection H′ of the male coupling. The branch conductors E′ and F′, as well as the contacts H at their outer extremities, are insulated from the male member of the coupling, as shown at H^2. (See Figs. 1 and 4.) The two contacts H and the projection H′ are arranged to register with two contacts H^3 and with a contact H^4, forming a part of what I will term an "electrical" key H^5, the body portion H^6 of which is composed of insulating material. The two contacts H^3 consist of pins which protrude from the face of the body H^6 of the key, the said face being curved to conform to the curve of the coupling member. These pins are movably mounted in the body H^6 of the key and are provided with fast washers H^7, which engage coil-springs H^8, which surround the reduced parts of the pins, the said springs being located in enlarged recesses H^9 formed in the body H^6. These springs act to hold the face extremities of the pins H^3 in close electrical engagement with the two contacts H. The contact H^4, which is located intermediate the pins H^3, consists of a metal thimble adapted to receive the projection H′ of the male coupling in close engagement, whereby a perfect electrical contact is formed. The inner extremities of the pins H^3 pass through contact-plates H^{10}, (see Fig. 10,) and to these plates are attached the inner terminals of branch conductors *a* and *a′*, which are insulated from each other and passed through an insulating-sheath *b*, which is connected at one extremity with the body H^6 of the insulating-key, while its other extremity is wound around a spool, forming a part of a portable bell, while a third branch conductor a^2 is connected with the contact H^4 of the key and passes through the sheath *b* with the two conductors *a* and *a′*, and the three branch conductors are connected with the parts of the bell in a manner that will now be explained, referring first to Figs. 10 and 11. In these views I designates the casing of the bell and I′ a spool or pulley mounted to rotate therein on a spindle I^2. This pulley is connected with a spring I^3, whereby the cable B may be automatically wound thereon. This construction makes it possible to regulate the length of the cable *b* between the electrical key and the bell as may be desired. One end of the spring I^3 is connected with the spindle I^2, while its other extremity is made fast to the spool, and the operation of the latter will be readily understood. The spool I′ is provided on one side with a contact-ring I^4, and a spring-actuated push-button I^5, mounted on the frame of the bell, is adapted to engage said ring regardless of the position of the spool when the button is pressed. The branch conductor *a* may be said to lead to the contact-ring I^4 after entering the bell-casing. Attention is called to the fact that the bell mechanism is mounted on and rotates with the spool I′ within the casing. The two branch conductors *a′* and a^2 are connected with the bell mechanism in the usual manner. The construction shown in Fig. 14 is substantially the same as that shown in Figs. 10 and 11 except that the spool upon which the cable *b* is wound is stationary instead of revoluble and spring-actuated. In the construction shown in Figs. 10 and 11 the bell-casing is provided with an opening $I^\times$, which is reduced at one side, as shown at I^6, to such a size that when the cable *b* is pulled into the reduced part of the opening it will be wedged therein and held against movement which would otherwise occur in response to the tension of the spring-actuated spool.

In the construction shown in Fig. 12 a portable battery is connected with the portable bell, the bell and battery being mounted on a belt J, a portion of which only is shown in the drawing. The bell shown in Figs. 10 and 11 is also supposed to be connected with the belt J, which may be worn by the user. In the construction shown in Fig. 12 the pulley I′ rotates on the spindle I^2 and the cable *b* is wound thereon, the spool being actuated by a spring I^3. The branch conductors *a*, *a′*, and a^2 are connected with the bell mechanism substantially the same as in Fig. 11. The spool I′ is provided with a contact-ring I^4 the same as in Fig. 11, and the branch conductor *a* leads to this ring after entering the bell-casing I. The branch conductors *a′* and a^2 lead to the bell mechanism in the usual manner. The spool I′ is provided with an additional contact-ring I^7, and this contact-ring is connected with the bell mechanism by a conductor I^8. The poles of the portable battery I^9 are connected with the rings I^4 and I^7 by means of conductors I^{10} and I^{12}, which lead to contacts I^{13} and I^{14}, mounted on the bell-casing and insulated therefrom. Upon these contacts are mounted rollers I^{15} and I^{16}, which directly engage the rings I^4 and I^7. The mechanism shown in Fig. 12 is so arranged and constructed that when the push-button I^5 is pressed the battery I^9 will be in the bell-circuit as well as the regular stationary battery connected with the line and located at the engine or other suitable point. The portable bell, as well as the two bells located at the terminals of the line of hose, will be operated when the push-button of any bell of the three is pushed, providing that the regular stationary battery is properly connected and in working order; but if the stationary battery should be out of order or disconnected

the portable battery enables the person carrying it to signal the person at either end of the line of hose even though the stationary battery is out of order.

The electrical key is provided with a locking-pawl K, mounted thereon exteriorly and provided with a catch K′, which extends inwardly through the body of the key and enters the socket of the thimble H⁴. The lug H′ is provided with a recess adapted to receive this catch, whereby when the electrical key is applied to the coupling it is automatically held in place, since the pawl K is spring-actuated. In Figs. 8 and 9 the manner of connecting the battery at the engine with the engine extremity of the hose is illustrated. The female coupling member L, connected with the engine, (not shown,) is provided with an insulating-ring L′, in which are set outer and inner contact-rings L² and L³, respectively. These rings, together with the body of the coupling, are connected with the three main conductors E, F, and G in the same manner as heretofore described. From these two rings lead branch conductors L⁴ and L⁵, while from the body of the coupling member L leads a branch conductor L⁶. These three conductors pass through a cable L⁷, which is connected with an insulating-key L⁸, provided with spring-contacts L⁹. Each one of these spring-contacts is connected with one of the branch conductors L⁴, L⁵, and L⁶, and they may be connected with the battery or source of current mounted on the engine in any suitable manner. The engine source of current is not shown, except in the diagrammatic views, Figs. 15 and 16, which will be hereinafter described. It will be understood that the conductors L⁴, L⁵, and L⁶ are insulated from each other and that the conductors L⁴ and L⁵ are insulated from the coupling member L.

In Fig. 7 a coupling member M is shown located at the nozzle end of the line and with which the nozzle M′ is connected. Upon this member M is mounted a bell M², provided with a push-button M³. The bell is connected with contact-pins mounted in an insulating-ring M⁴. The contact-pins, (one only being shown in Fig. 7,) are arranged substantially the same as shown in Fig. 1 and heretofore described. The contact-pin shown in Fig. 7 will be designated B⁶. The coupling member M could be connected with the member L at the engine, (the member L being shown in Fig. 9,) and the contact-pins would engage the rings L² and L³. In other words, it is supposed that the member L, as shown in Fig. 9, is mounted on the engine and that one of the female coupling members B at the end of the line of hose is connected with the member L, and the contact-pins B⁶ and B⁷, carried by the female member, engage the rings L² and L³. In this event it will be understood that the source of current with which the conductors L⁴, L⁵, and L⁶ are connected supplies the main conductors of the hose-line with electricity.

Fig. 15 is a diagrammatic view illustrating the circuit where a line of hose is connected with the engine. In this case the source of current at the engine is designated R and the bell or signaling device N⁷. The three conductors mounted on the line of hose are designated E, F, and G the same as in the other views. The contacts G′ and E′ are also designated the same in this view as in the other views. The bell at the nozzle end of the line is designated N⁸. The portable bell is designated N⁹, and a portable bell N¹⁰ is connected with the portable battery I⁹. The circuit-closers N′, N², N³, and N⁴ correspond to the push-buttons in the other views. The circuit-closer N′ is connected with the bell at the engine, the circuit-closer N⁴ with the bell at the nozzle, the circuit-closer N² with one of the portable bells, and the circuit-closer N³ with the other portable bell. Now if the circuit-closer N′ is closed all of the bells will be simultaneously operated as follows: The current may be said to pass from one pole of the battery R through the conductor R′, the circuit-closer N′, through the bell N⁷, and thence through the conductor R² to the other pole of the battery, thus ringing the bell N⁷. Again, the current may be supposed to pass through R′ N′ G G′ *a*, through bell N⁹, conductor *a*′, E′, E, and R² to the other pole of the battery R, thus ringing the bell N⁹. The path of the current in operating the bell N¹⁰ is as follows: through the conductor R′, circuit-closer N′, conductors G G′ *a*, bell N¹⁰, conductor *a*′, E′, E, and R². The path of the current in operating the bell N⁸ is as follows: From one pole of the battery R it passes through the conductor R′, circuit-closer N′, conductor G, bell N⁸, conductor E, and conductor R², completing the circuit and ringing the bell N⁸. I have thus traced the circuit of the current necessary in operating all of the bells shown in Fig. 15 when the circuit-closer N′ is closed. Attention is called to the fact that the current may be traced through all of the bells when any other of the circuit-closers is closed, leaving all of the others open. When the circuit-closer N³ is closed, the battery I⁹ will also be in the circuit, the only effect being to reinforce the current, the two batteries R and I⁹ in this event operating in harmony.

The special advantage of a construction such as that just described and illustrated in Fig. 15 is that it enables a person at any point between the engine and the nozzle to signal the person at the nozzle, even though the line is broken between the person having the portable battery and bell and the engine, or in case the signaling device at the engine is out of order or for any reason will not operate the person carrying the combined battery

and bell construction may connect the device with the line of hose at any desired point and communicate with the person at the nozzle. It must therefore be understood that the combined portable battery and bell construction is designed more especially for use when the signaling mechanism at the engine is out of order. In other words, the person carrying this portable construction may be sure that he signals the person at the nozzle, even if the signaling mechanism at the engine is out of order, while if the signaling mechanism at the engine is working the portable battery will do no harm, since the circuit is closed for such a short time that the danger of running down one battery in case the two batteries are of different voltage need not be taken into consideration. In any event the advantage resulting from the use of a bell and portable battery is so great in case the signaling mechanism happens to be out of order at either end of the line that it far outweighs the possible difficulty of running down the battery of less voltage. In any event the portable battery construction must be considered as especially intended for use in emergencies.

In Fig. 16 the circuit is illustrated where the line of hose is ocnnected with a hydrant S by using a reducer T. Attention is called to the fact that the couplings necessary in my improved construction are considerably larger than common couplings, owing to the necessity of making room for the insulating rings. The extremity of the line of hose to be connected with a hydrant I therefore equip with a reducing coupling member T of standard size, so that a line of hose equipped with my improved signaling mechanism may be connected with any hydrant. The dotted lines in this view indicate the male coupling A, with which the portable bell N^{10} and battery I^9 are connected by means of the branch conductors a, a', and a^2 through the instrumentality of an electrical key of the construction shown in Figs. 10 and 14. It is assumed that the person icoated at the hydrant is provided with a portable bell and portable battery, and by connecting the same with the male coupling at the hydrant he is in position to signal, as will be readily understood. The portable battery in this case takes the place of the battery R at the engine in the arrangement shown in Fig. 15. In this case if the circuit-closer N^5 is closed the current may be said to pass from one pole of the battery I^9 through a conductor I^{10}, through the circuit-closer N^5, through the bell N^{10}, and through the conductor I^{12} to the other pole of the battery, completing the circuit and ringing the bell N^{10}. At the same time the current may be said to pass through the conductor I^{10}, the circuit-closer N^5, the conductor a', the conductor G, the bell N^8, the conductor E, the conductor a, and the conductor I^{12} to the battery, completing the circuit, thus ringing the bell N^8 as well as the bell N^{10}. Now if the circuit-closer N^5 is open and the closer N^6 closed the path of the current can be traced from the battery I^9 through both bells the same as before. It will also be understood that if a portable bell were connected by means of an electrical key at any one of the points where the three reference characters E', G', and F' are located in this view this bell would be operated by the closing of any one of the push-buttons or circuit-closers, together with all of the other bells connected with the line of hose.

Attention is called to the fact that each male coupling A is provided with branch conductors connected with the contact-rings A^4 and A^5 on opposite sides of the member, (see Fig. 3,) so that an electrical key of the character shown in Figs. 10 and 14 may be connected with either side of the coupling member. By virtue of this construction and arrangement the user of the electrical key and portable bell will always find an opportunity to attach his key, since both places where the key can be attached cannot possibly be concealed at the same time.

In Fig. 6 the insulating-tape D is shown to carry three electrical conductors D', each of which is composed of a number of loosely-woven strands, whereby each conductor is extensible or adapted to yield longitudinally. Each of these conductors is individually insulated, as shown at D^2, and they are again insulated from surrounding objects by the tape D, by which the three conductors are completely concealed. This tape is adapted to be spirally wound around the line of hose and embedded therein, as heretofore described, and clearly illustrated in Fig. 1 of the drawings.

The insulating-ring A^2 of the male coupling member is held in place by the contacts H, which are threaded into the coupling and enter the insulating-ring, (see Fig. 18,) in which this feature is clearly illustrated, though only one of the contacts H is shown in this view. These contacts H are four in number and consist of hollow screws, with which the conductors E' and G' are connected.

Having thus described my invention, what I claim is—

1. In electrical hose-signaling apparatus, the combination of coupling members equipped with insulating-rings, two contact-rings located in the insulating-ring of one member, two contact-pins located in the insulating-ring of the other member and adapted to engage the rings of the first-named member, three conductors mounted on the line of hose, two of them being connected with the pins of one coupling member, and two of them with the rings of the other coupling member, while the third conductor is connected with the body of each coupling member, a revoluble ring carried by one of the coupling members,

said ring having an annular recess therein and a gasket in said recess, said gasket being located outside of the insulating-ring of the member which carries the revoluble ring and being engaged by the end of said member and the coöperating member having a part projecting beyond its insulating-ring to engage with the gasket whereby a water-tight joint is formed, substantially as described.

2. In apparatus of the class described, a hose-coupling consisting of two coöperating coupling members equipped with insulating-rings and contact devices for completing a signaling-circuit through the coupling, a ring having an annular recess therein carried by one member and a gasket carried in said recess and having a portion located outside of the insulating-ring of one coupling member and engaged by both coupling members for the purpose of making a water-tight joint, the gasket being located beyond and separated from the waterway of the coupling.

3. The combination of a line of hose carrying three electrical conductors, contacts mounted on one member of the coupling of the hose and exteriorly exposed, the said contacts being connected with two of the conductors of the line and insulated from the coupling member, the third conductor of the line being connected with the body of the coupling member, the said coupling member having a projection located between the insulated contacts, an electrical key provided with spring-actuated contacts adapted to engage the insulated contacts of the coupling member, the said key having a third contact shaped to receive the projection of the coupling member which projection is provided with a recess, means mounted on the key whereby the latter is made to interlock with the projection of the coupling member comprising a spring-actuated pawl adapted to enter the recess of the said projection, branch conductors leading from the several contacts of the electrical key, and a portable bell or signal device with which the branch conductors are suitably connected.

4. The combination with a line of hose provided with three electrical conductors leading to one of the coupling members, exposed contacts mounted on one of the coupling members to which two of the conductors of the line lead, the third conductor leading to the body of the coupling member, the latter having a projection provided with a recess an electrical key having three contacts insulated from each other and adapted to form electrical connection on the coupling member with the three conductors of the line, one of the contacts consisting of a thimble adapted to receive the projection of one of the coupling members, the key being provided with a spring-actuated pawl adapted to engage the recess of the coupling-member projection, three branch conductors leading from the contacts of the electrical key, a portable bell to which the three branch conductors lead, a revoluble spool upon which the bell mechanism is mounted, a casing in which the spool is located, the conductors being adapted to wind on the spool which is spring-actuated for the purpose, a portable battery, two insulated contact-rings mounted on the spool and connected with the respective poles of the battery, and suitable connections whereby as the push-button or circuit-closer of the bell is closed, the bell mechanism is in circuit with the battery.

5. The combination with a line of hose provided with three electrical conductors leading to one of the coupling members, two of the said conductors being insulated from the coupling member, while the other conductor is connected with the said member, the latter having a projection provided with a recess; an electrical key adapted to be connected with the coupling member and having three contacts insulated from each other and adapted to form a suitable electrical connection on the coupling member with the three conductors of the line, one of the conductors forming a socket adapted to receive the projection of one coupling member the key having a spring-actuated pawl adapted to engage the recess of the coupling-member projection, three branch conductors connected with the contacts of the key, a bell or signal device with which the three branch conductors are suitably connected, and a spool mounted on the bell-casing and upon which the three conductors of the electrical key may be wound for the purpose set forth.

6. An apparatus of the class described, the combination with a hose and a coupling member connected therewith, of an insulating-ring with which the coupling member is provided, threaded contacts inserted in the coupling member and entering the insulating-ring to hold the latter in place, the said contacts being exposed at the outer surface of the member and being insulated from the metal part of the latter, and conductors connected with the said contacts, substantially as described.

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

WILLIAM FOWLER.

Witnesses:

TRISTEN R. HEBBERD,

A. B. COURTNEY.