

(No Model.)

2 Sheets—Sheet 1.

C. M. BOWMAN.
ELECTRIC CONDUCTOR FOR FIRE HOSE.

No. 290,844.

Patented Dec. 25, 1883.

Fig. 1.

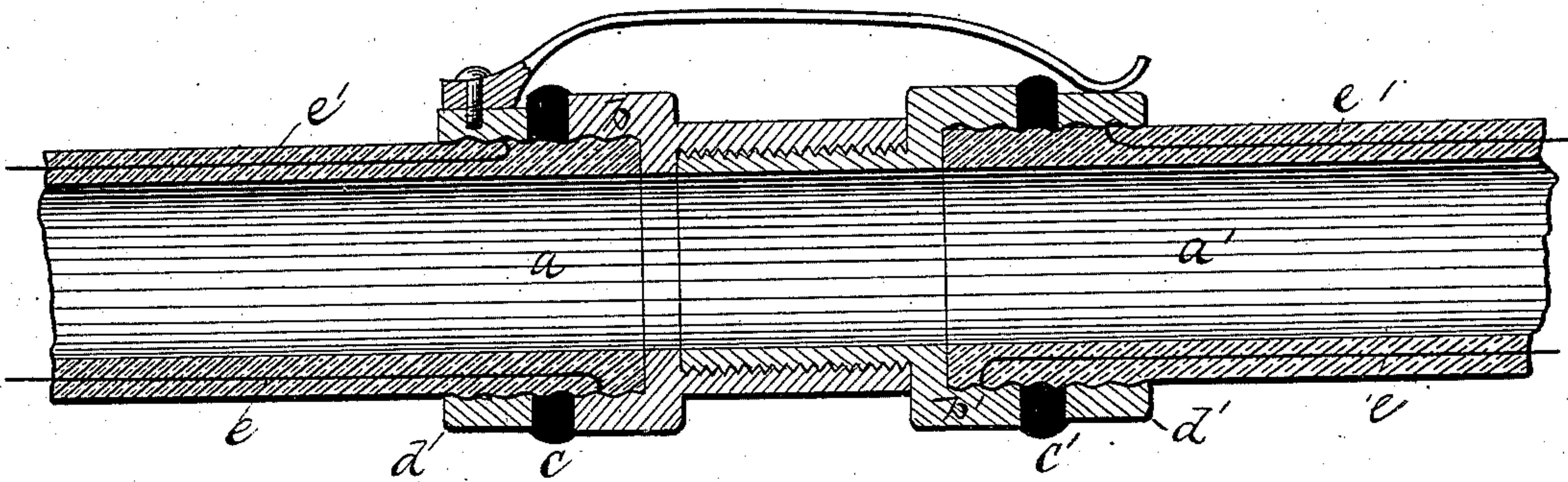


Fig. 2.

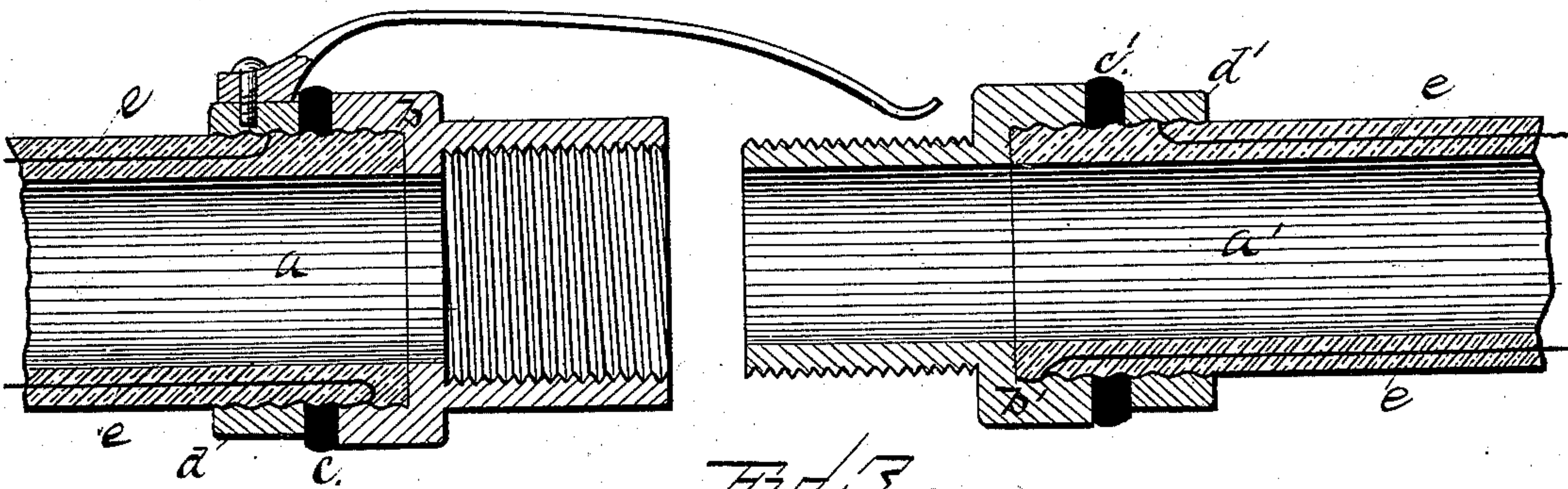
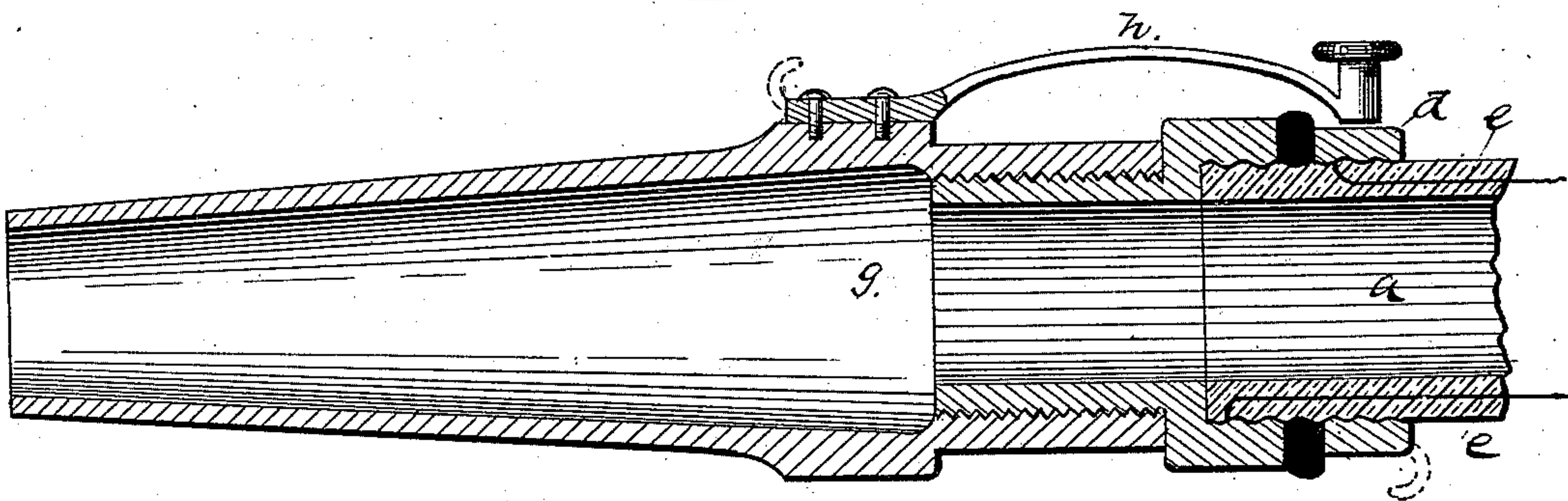


Fig. 3.



WITNESSES
Frank L. Ourand.
J. Heyburn.

INVENTOR
Chas. M. Bowman
by *A. G. Heyburn*
Attorney.

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Fig. 4.

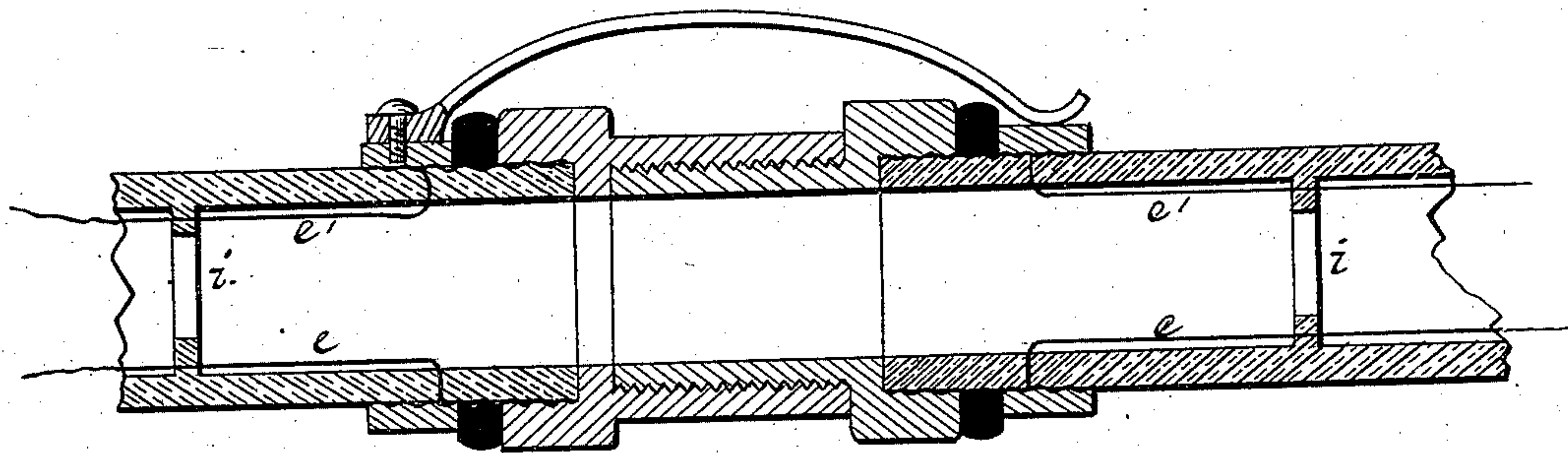
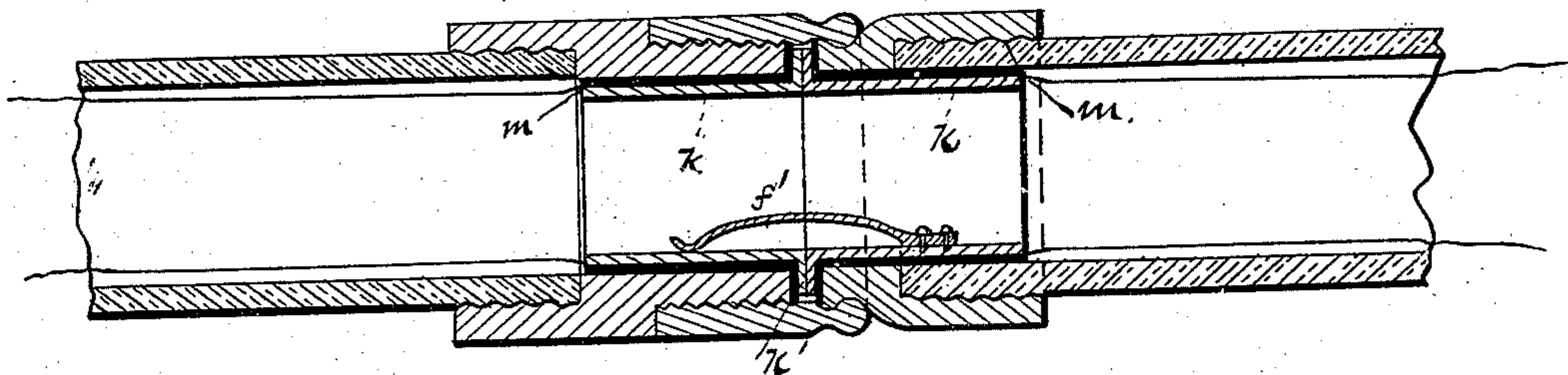


Fig. 5.



WITNESSES
Frank L. Ouraud
J. Heylman.

INVENTOR
Chas. M. Bowman
by A. G. Heylman.
Attorney

UNITED STATES PATENT OFFICE.

CHARLES M. BOWMAN, OF LEBANON, PENNSYLVANIA.

ELECTRIC CONDUCTOR FOR FIRE-HOSE.

SPECIFICATION forming part of Letters Patent No. 290,844, dated December 25, 1883.

Application filed July 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. BOWMAN, a citizen of the United States of America, residing at Lebanon, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Electric Conductors for Fire-Hose; and I 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.

My invention relates to improvements in fireman's signaling apparatus wherein an electrical current is used as the means of operating the signaling device; and the object is to provide a fireman's hose with an electrical conducting means and signaling device, whereby instantaneous communication by predetermined signals may be had between the pipe-man holding the nozzle and the engineer or plug-man at the other end of the hose.

My invention consists in certain novel constructions and combinations of devices for facilitating the connection of fire-hose sections and of electrical conductors with which they are provided, and in novel combination of devices for making and breaking the hose-circuit at the nozzle end of the hose for signaling purposes, as will be fully understood from the following particular description and accompanying drawings.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal sectional view, showing the conductors and the coupling with connecting-bridge. Fig. 2 is a similar view, showing the coupling separated. Fig. 3 is a view of a portion of a hose having an attached nozzle connected with one of the conductors and provided with means for closing the current to the other. Fig. 4 is a view showing the application of my improvements to an already-made hose, and Fig. 5 is a modification of the invention.

Referring to Fig. 1, the letters *a a'* indicate two sections of hose provided with metallic couplings *b b'*, of the usual construction and applied in the usual manner. Behind these couplings are arranged insulating-rings *c c'*, which serve to insulate from the couplings the metallic collars or bands *d d'*. Each section

of hose has embedded within it two electrical conducting-wires, *e e'*, the former of which has its ends connected with the metallic couplings *b b'*, while the latter is connected at its ends to the metallic collars or bands *d d'*.

To the metallic collar *d* of one of the hose-sections a spring-bridge, *f*, has one end firmly secured, the main portion of said bridge being extended beyond the end section and shaped in such manner that its free end will rest in elastic contact with the corresponding collar, *d'*, of the connected hose-section. It will now be perceived that the conducting-wires *e* of two connected hose-sections are placed in electrical connection through the metallic couplings *b b'*, while the wires *e'* are electrically connected through the collars *d d'* and bridge *f*, so that however many hose-sections may be connected in the manner shown there will be maintained through the entire line of hose two lines of conductors, which may be used for conveying currents in the well-known manner when complete metallic currents are employed. Such a current is intended to be connected at one end of the line of hose with a suitable battery or other source of electricity and an electric signal, and the other end of the line of hose is to be provided with a suitable circuit closer and breaker for the purpose of sending signals over the line.

In Fig. 3, the letter *g* indicates a metallic nozzle coupled to a line of hose in the usual manner, and provided with a circuit-closing key, *h*, which bridges the coupling devices, and is arranged to be pressed into contact with the collar *d*, for the purpose of closing the circuit when desired. It will be readily seen that when the key is brought in contact with the said collar the circuit is closed—say from the conductor *e'*—through the coupling *b*, nozzle *g*, key *h*, and collar *d* to conductor *e*.

In the figures hereinbefore shown and described it is contemplated that the conducting-wires are embedded in the hose at the time of its manufacture, supposing said hose to be made of rubber or other molded non-conducting material; but I do not confine myself to such an arrangement of the conductors, as they may be arranged and inclosed in the interior cavity of the hose, and suitably supported.

ported and braced therein to prevent them from becoming ruptured or entangled. To this end I have shown in Fig. 4 of the drawings the wires *e* and *e'* inclosed within the cavity of the hose, and supported by suitable bracing-rings, *i*, the ends of the wires being connected to the couplings and metallic collars in the same manner as shown in Fig. 1, as hereinbefore described. It will be of course understood that the conductors *e* and *e'* must be properly insulated.

In Fig. 5 is shown a modification of the couplings, in which the connections are made entirely on the inside and through the hose-couplings directly, so as to avoid the use of the projecting connecting-bridge on the outside. In the modification metallic collars *k* are arranged inside of the metallic couplings, but separated therefrom by interposed insulating-shields *m*. The collars *k* project and are provided with flanges a little beyond the insulating-shields, as shown at *k'*, so that when two sections of hose are coupled together, as shown in Fig. 5, these flanges *k'* abut together. One line of the conductors *e* is connected with the metallic coupling of the hose, and the other, *e'*, is completed through the inside collars, *k*.

In order to insure a good electrical connection between the collars *k k*, one of said collars is provided with a metallic spring-finger, *f'*, the free end of which projects sufficiently beyond the flanges of the collar to come in contact with the interior surface of the adjacent collar at a point intermediate of its length. This spring-finger may be dispensed with; but its use is preferable, as it may happen that in the hurry of coupling up the hose they may not be screwed so snugly into position as is required to bring the ends of the collars *k k* in contact.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the hose-sections, each provided with two conductors for an electric circuit and metallic section-couplings connected with one of said conductors, of separate electrodes connected with the other conductors and insulated from the section-couplings, and metallic bridge-springs arranged to electrically connect the said separate electrodes of coupled hose-sections, substantially as described.

2. The combination, with two hose-sections, of the circuit-conductors arranged thereon, the metallic hose-couplings connected with one conductor of each section, the metallic rings or bands *d d'*, connected with the other conductors and insulated from the hose-couplings, and the metallic bridge-spring connected to one of said bands or rings and arranged to bridge the same and make contact with the other band or ring, substantially as described.

3. The combination, with the metallic nozzle and the connected hose-section having the metal coupling connected to one circuit-conductor and the separate metal band connected to the other circuit-conductor, and insulated from the hose-coupling, of the bridge-spring connected to the nozzle and adapted to make contact with the separate metallic band of a connected hose-section, but normally out of contact therewith, substantially as described.

4. The combination, with a hose-section and metallic couplings, of the metallic bands behind the couplings, the interposed insulating-rings, and the two circuit-conductors connected to the couplings and insulated bands respectively, substantially as described.

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

C. M. BOWMAN.

Witnesses:

BASSLER BOYER,
GEO. SMITH,