

No. 837,512.

PATENTED DEC. 4, 1906.

W. G. SEELEY.
ELECTRIC HOSE SIGNALING APPARATUS.
APPLICATION FILED NOV. 27, 1905.

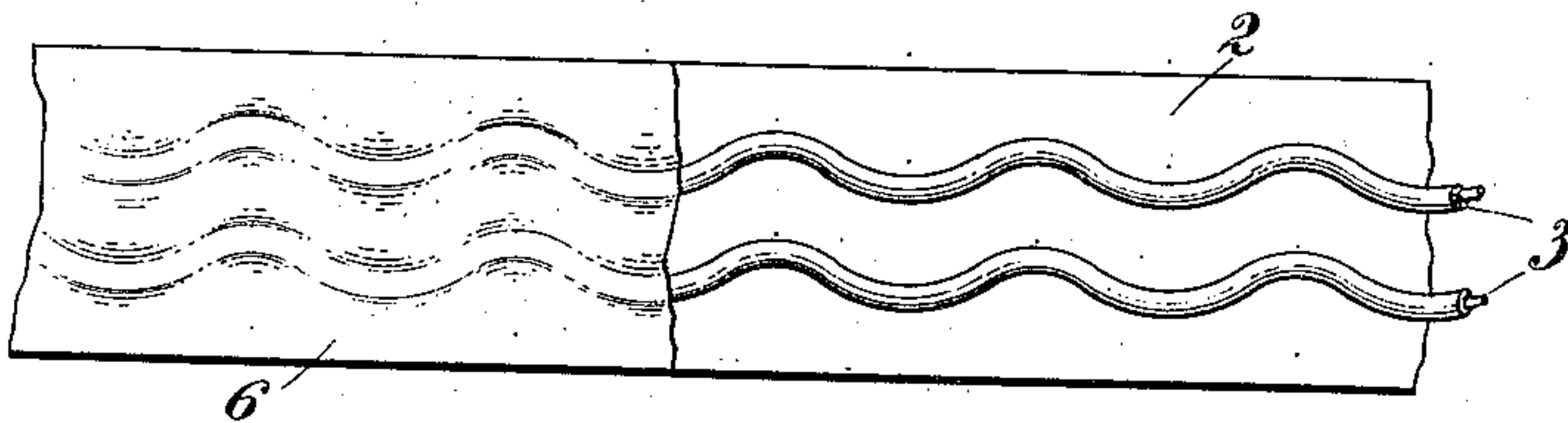


Fig. 1.

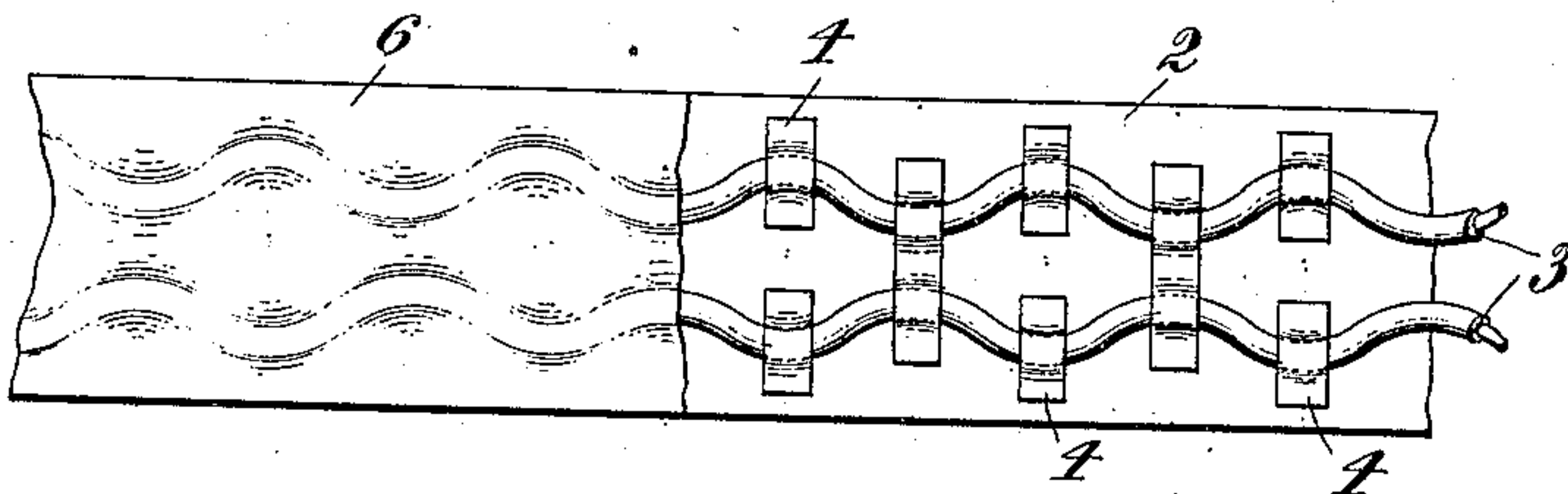


Fig. 2.

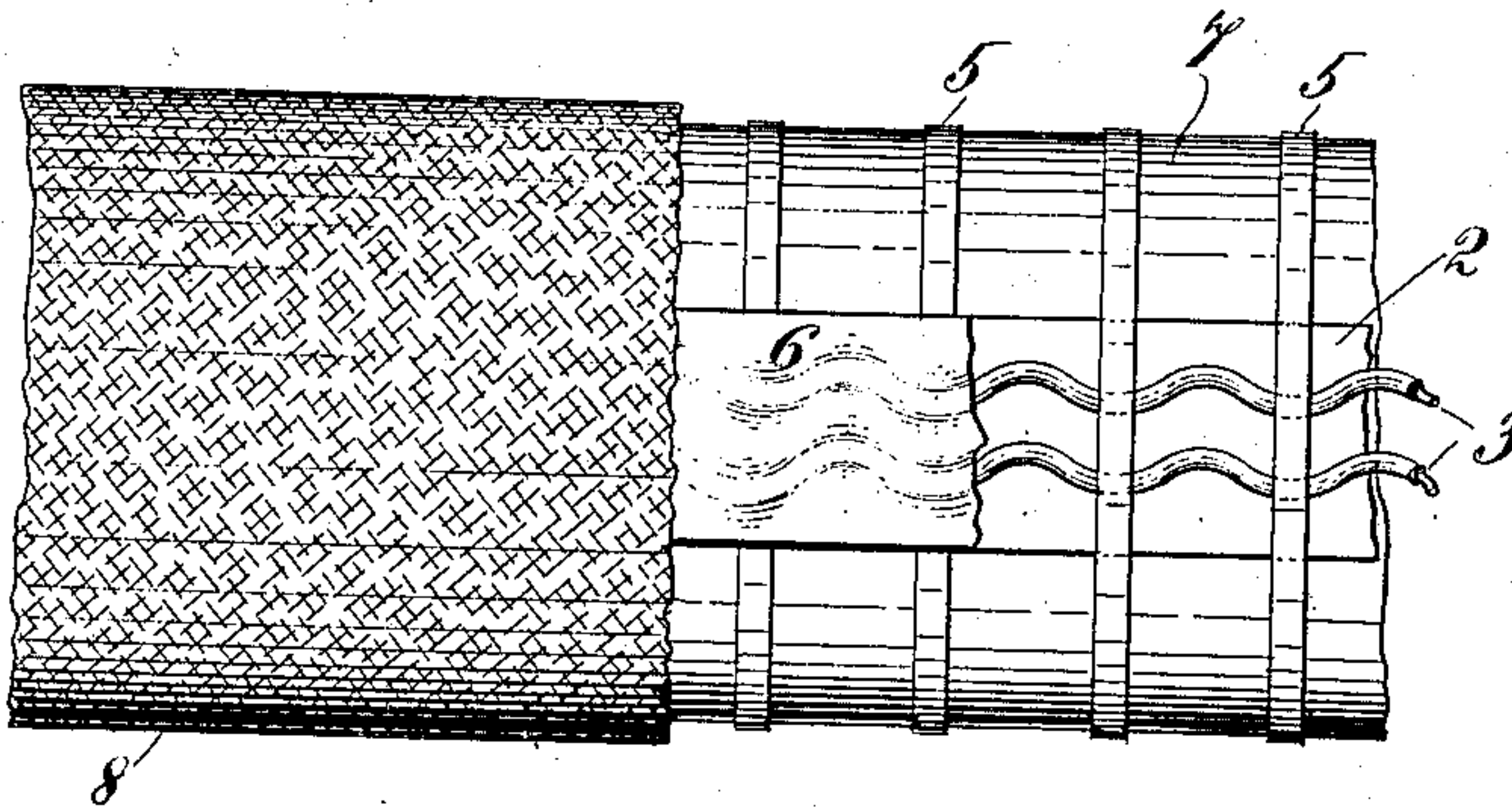


Fig. 3.

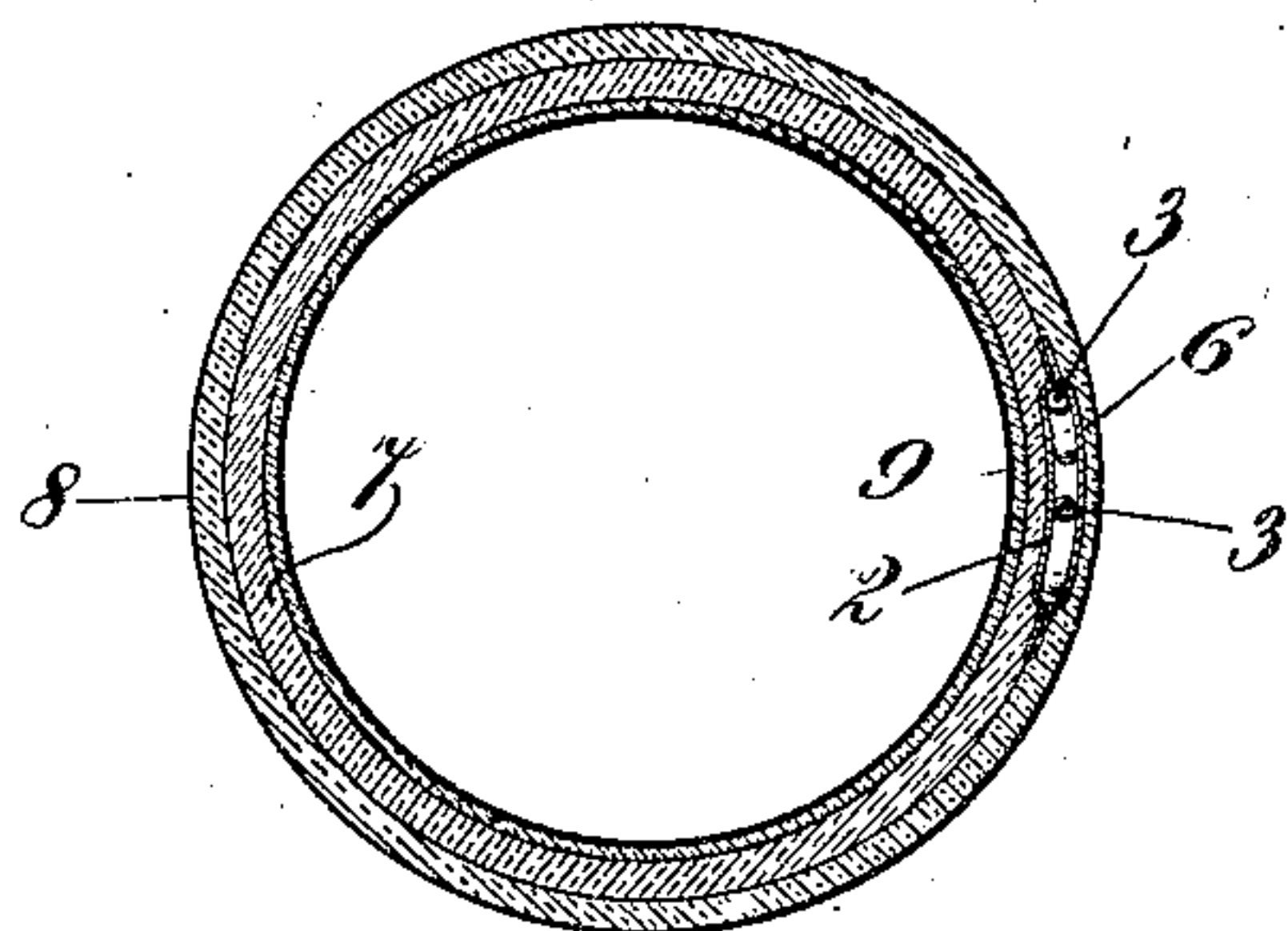


Fig. 4.

WITNESSES:

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ELECTRIC HOSE SIGNALING APPARATUS.

No. 837,512.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed November 27, 1905. Serial No. 289,189.

To all whom it may concern:

Be it known that I, WILLIAM G. SEELEY, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Electric Hose Signaling Apparatus, of which the following is a specification.

My invention relates to the provision of hydraulic hose with electrical conductors or line-wires by means of which signals may be transmitted along a line of hose, such arrangements being usually applied to fire-hose for the purpose of establishing communication between the man at the hose-nozzle and the engineer or other attendant at the supply end of the hose. It is well known that such hose elongates somewhat when filled with water under the service-pressure, and it has accordingly been the custom to crimp the line-wires carried by the hose in order to prevent the elongation or bending of the hose from breaking the wires or severing them from their terminal connections. It has been found, however, that the repeated bendings to which the wires are thus subjected are apt to be localized to such an extent that portions of the wires are straightened after a certain time and the wires themselves are broken.

My invention is accordingly designed to provide a simple and inexpensive arrangement whereby this localizing of the bending of the wires may be avoided and the elongations and contractions of the wires distributed with substantial uniformity throughout their lengths, so that the shape and arrangement originally given to the wires may be preserved throughout the life of the hose, and to this end I attach the crimped or sinuous line-wires to the substance of the hose at a multitude of points along the length of the latter and between two of the plies or jackets thereof in such manner that these points of attachment are capable of separating and approaching one another as the hose elongates and contracts. By preference each or both of the line-wires is secured to a longitudinally-extensible strip of suitable material, which strip or strips with the attached wire or wires are then placed between any two of the plies, layers, or jackets of the hose, the result being that when the hose elongates or contracts the longitudinally-extensible strip yields with the adjacent plies and is thereby stretched with substantial uni-

formity throughout its length or permitted to contract by its own elasticity, as the case may be, and by reason of the positive attachment of the wires to the strip their elongation also is distributed throughout their length, and they are thus prevented from becoming kinked, straightened, or displaced to any material extent, as well as from being broken by the localizing and continued repetition of the bending actions to which they are subjected.

In some cases I cover the wires after they have been attached to the extensible strip above referred to with a second longitudinally-extensible strip which serves to protect the insulation of the wires by preventing them from rubbing against the substance of the hose.

In the accompanying drawings, Figure 1 is a plan view of a portion of a longitudinally-extensible strip with attached line-wires, illustrating one embodiment of my invention. Fig. 2 is a similar view illustrating a modification. Fig. 3 is a plan view illustrating another modification; and Fig. 4 is a cross-section through a double-jacket hose, showing the line-wires in place between the two jackets.

Referring to the drawings, 2 represents a strip of longitudinally-extensible and elastic material, preferably sheet-rubber, and 3 3 represent a pair of insulated line-wires crimped in the usual manner and attached to one face of this strip. This securing of the wires to the strip may be accomplished in any suitable manner, as by means of rubber-cement, as in Fig. 1, or by means of a multiplicity of tacking-strips 4, located at short distances apart and each extending across one or both of the wires 3 and secured at its ends to the strip 2 by cement or otherwise, as in Fig. 2. The strips 4 and the cement may be used in conjunction, if desired.

In the modification shown in Fig. 3 the tacking-strips are replaced by a series of longer strips or bands 5, preferably made of rubber, each of which extends entirely around the inner jacket of the hose and overlies the wires 3, being preferably cemented to the subjacent parts.

6 represents a protecting-strip which is also longitudinally extensible and elastic and is preferably made of the same material as the strip 2, which strip 6 is laid over the exposed wires and secured thereto or to the strip 2. The strip 6 is not essential; but in

case it is employed I prefer to make it of the same width as the strip 2 and to cement said strips together at their adjacent edges.

5 The line-wires 3, with their attached strip or strips, are located in the completed hose between two of the plies or jackets of the latter, as shown in Fig. 4, in which 7 and 8 represent, respectively, the inner and outer jackets of a double-jacket hose, between which
10 jackets the line-wires run lengthwise of the hose, and 9 represents the rubber lining of the inner jacket. The strip 2 is preferably cemented to the inner jacket 7; but this is not essential, since if said strip be merely laid
15 between the inner and outer jackets it will be frictionally engaged and held thereby with sufficient firmness to cause it to elongate and contact with the hose.

20 Instead of securing both wires 3 to the same strip 2 separate strips may obviously be employed for the two wires. In this case bare or uninsulated wires may be used, and they may also be used even though they are both attached to the same strip 2, provided
25 they are secured at such a distance apart that there will be no chance of their coming in contact with one another. I prefer to employ separately-insulated wires in all cases, however. In some instances uncrimped
30 line-wires have heretofore been wrapped spirally around the hose, between the jackets thereof, and a similar arrangement may be

adopted for the strip or strips 2 with the line-wires attached, if desired.

I claim as my invention—

1. The combination with a length of hose 35 of a longitudinally-extensible and elastic strip interposed between two of the jackets of the hose and one or more sinuous electrical conductors or line-wires attached to one of the faces of said strip, substantially as and for the purpose set forth. 40

2. The combination with a length of hose 45 of a longitudinally-extensible and elastic strip interposed between two of the jackets of the hose, one or more sinuous electrical conductors or line-wires attached to one of the faces of said strip, and a supplementary longitudinally-extensible strip covering said wire or wires. 50

3. The combination with a length of hose 55 of a pair of sinuous electrical conductors or line-wires interposed between two of the jackets of the hose, and a multiplicity of attaching-strips, each extending across one or both of said wires and serving to secure the latter in a predetermined position.

In testimony whereof I have hereunto subscribed my name this 24th day of November, 1905.

WILLIAM G. SEELEY.

Witnesses:

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JOSEPH T. BRENNAN.