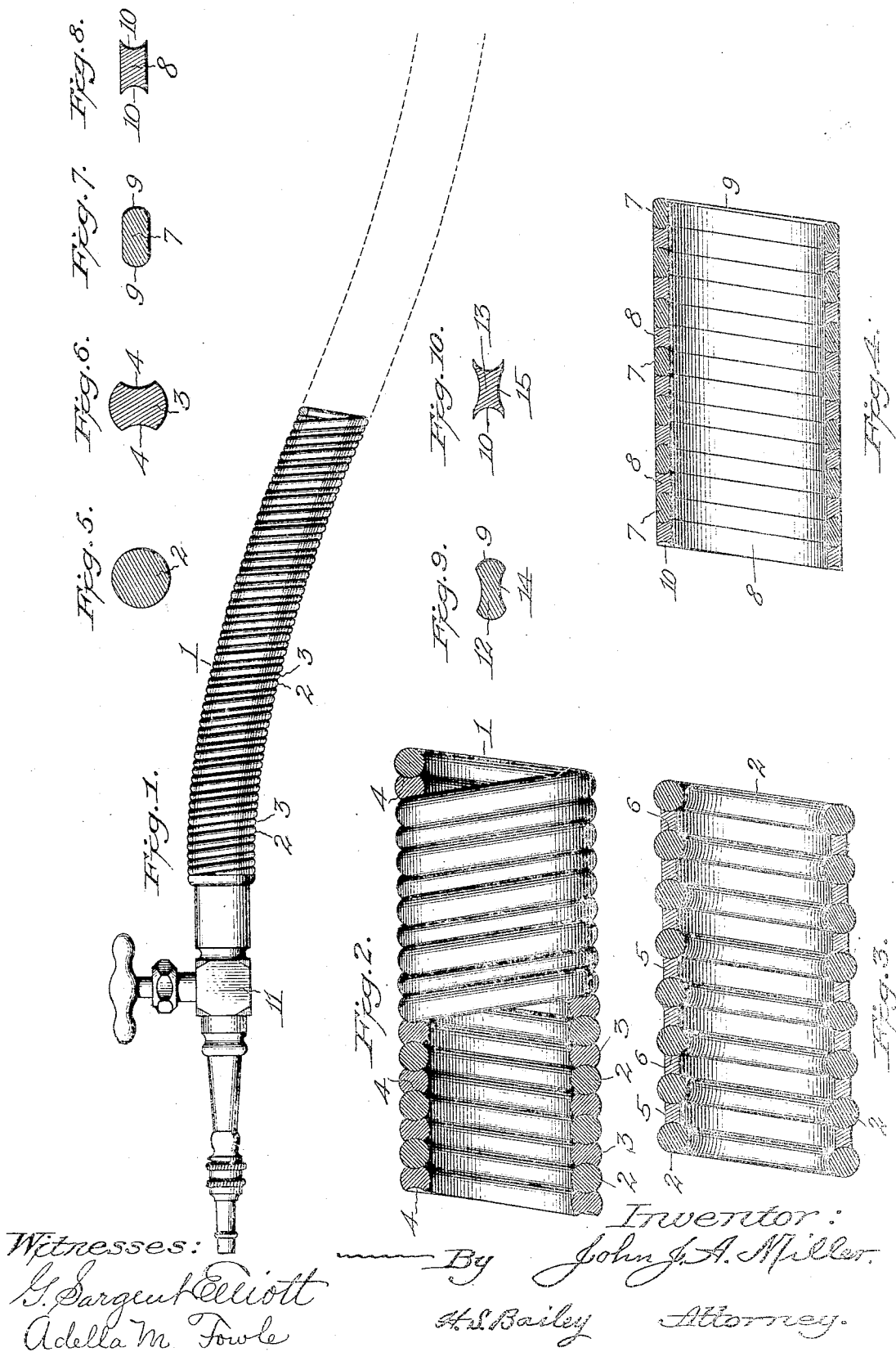


Patented Mar. 18, 1913.

1,056,110.



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JOHN J. A. MILLER, OF DENVER, COLORADO.

METALLIC HOSE.

1,056,110.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed July 21, 1911: Serial No. 639,722.

To all whom it may concern:

Be it known that I, JOHN J. A. MILLER, a citizen of the United States of America, residing at the city and county of Denver and State of Colorado, have invented a new and useful Metallic Hose, of which the following is a specification.

This invention relates to metallic hose.

The object of the invention is to provide a conduit metallic hose. Further, to provide a flexible metallic hose composed of a pair of spirally wound wires, one of which is provided with substantially semi-circular grooves on opposite sides throughout its length, to receive the curved surface of the other wire, the wires being wound to fit tightly to each other and thus provide a hose which is both liquid tight and air tight. These objects are accomplished by the character of hose illustrated in the accompanying drawings, in which:

Figure 1, is a side view of a portion of a hose constructed in accordance with my invention, an ordinary nozzle being suitably secured in one end of the same. Fig. 2, is a view on an enlarged scale of a portion of a hose, showing the same partly in side view and partly in longitudinal section, the same being constructed of wire which is round in cross section. Fig. 3, is a longitudinal sectional view of a portion of hose, which is made up of one wire which is round in cross section, and one which is flat on opposite sides. Fig. 4, is a similar view showing a hose constructed of wires, both of which are flat on opposite sides. Figs. 5 and 6, are enlarged cross sections of round wire used in producing the style of hose shown in Figs. 1 and 2. Figs. 7 and 8, are enlarged cross sections of flat wire used in producing the style of hose shown in Fig. 4. And Figs. 9 and 10, are enlarged cross sections of flat wire, the opposite sides of which are grooved for the sake of lightness.

Similar letters of reference refer to similar parts throughout the several views.

Referring to the accompanying drawings, 1 indicates the preferred form of hose, which is formed of wires 2 and 3, the wire 2 being round in cross section, while the wire 3 is provided on opposite sides throughout its entire length with grooves or channels 4, of a curvature in cross section to fit the cross section curvature of the round wire 2, so that when the wires are closely wound, the coils of round wire will lie within the grooves of

the coils of the other wire, the coils of grooved wire alternating with those of the round wire, as will be understood.

In Fig. 3, a flat wire 5, having grooved edges 6, is used in connection with the round wire 2, while in Fig. 4, the hose is constructed entirely of flat wires 7 and 8, the wires 7 having rounded edges 9, while the wire 8 has grooved edges 10, adapted to receive the round edges of the wire 7. The wires may be wound in pairs, the coils being pressed together, as the winding proceeds, or one of the wires may first be wound, leaving spaces between its coils of such width as to require the springing of the second wire between the coils of the first, when the second wire is wound, thus insuring a pressure contact of the coils. The tendency of the coils to expand will also cause them to engage each other so as to form tight joints between them.

A nozzle 11, is secured in one end of the hose, in any suitable manner, while the other end of the hose is supplied with a coupler, 80 not shown.

The wires may be of any suitable metal or metal alloy, or one wire may be made of wire and the other of any suitable material in a wire form capable of being spirally wound and of retaining its spiral form, and the two strands of wire, where metal wire is used, may be composed of wires of the same or of different metals. Thus both may be steel or one of the strands may be steel wire while the other may be soft iron, brass or copper wire, or any other suitable material, and when wound as before described, the coils will press against each other, the round wire 2 fitting in the channels of the wire 3, closing the joints between the coils so as to form a flexible and water-tight structure.

Figs. 9 and 10 illustrate cross-sections of flat strands 12 and 13, which are channeled on their opposite sides, as shown at 14 and 15, to produce a lighter hose than can be made from either the round or flat wires.

A hose thus constructed is not only strong and durable, but can be easily and cheaply manufactured.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

In a flexible metal hose, the combination of two independent spirally wound round wires of the same diameter, and of the same spiral pitch, one of which has a spiral groove

2
in its opposite sides of the same spiral pitch
as the other wire, and which is adapted to
be coiled between the coils of the other round
wire and to partially surround its opposite
5 sides, said wires being so wound relative to
each other that the grooved wire is clamped
by a resilient clamping pressure between
the coils of the other round wire with suf-
ficient tension to render the joint between

the sides of said spirally wound round wires 10
air and water tight.

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

JOHN J. A. MILLER.

Witnesses:

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