

A. T. BALLENGER.

WIRE CONNECTOR.

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916,653.

Patented Mar. 30, 1909.

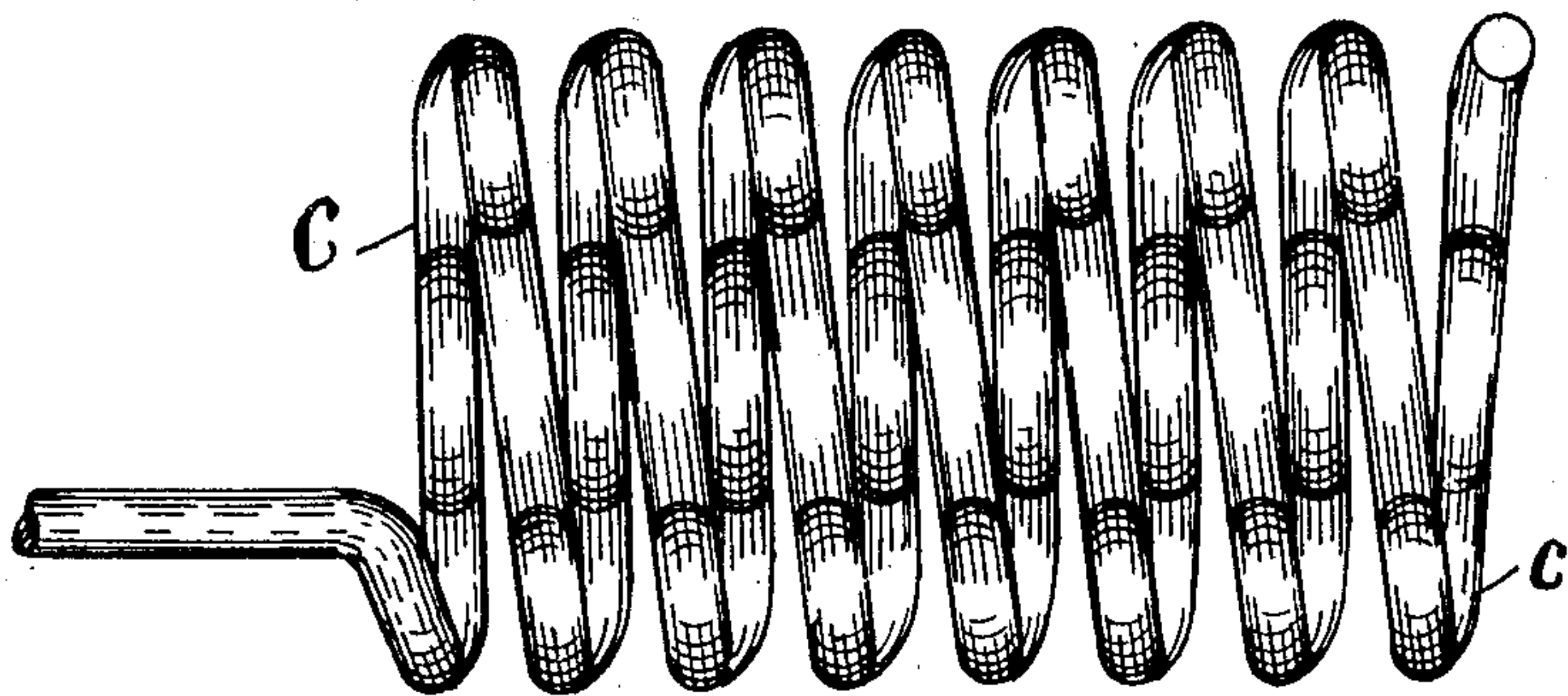


Fig. 1.

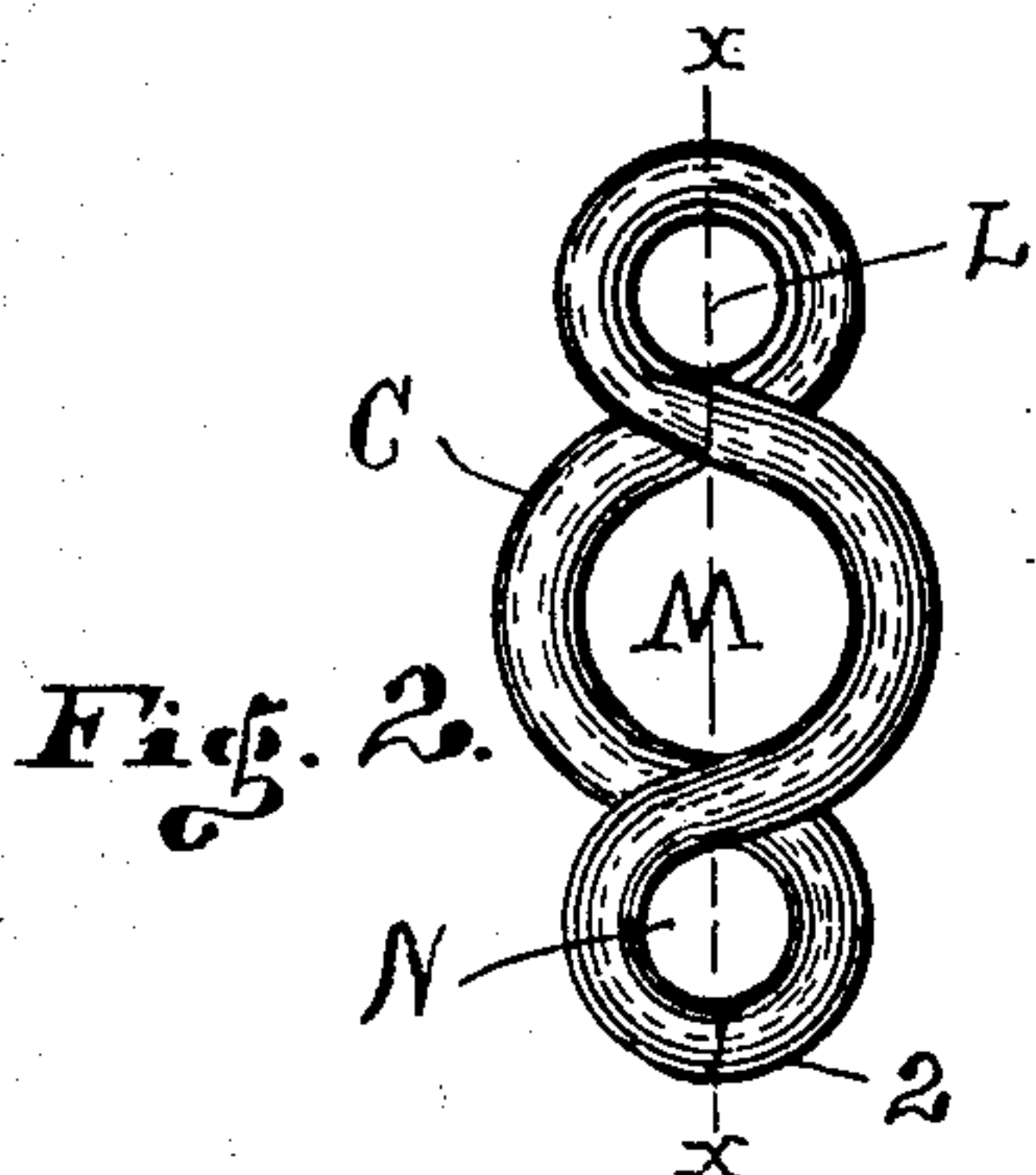


Fig. 2.

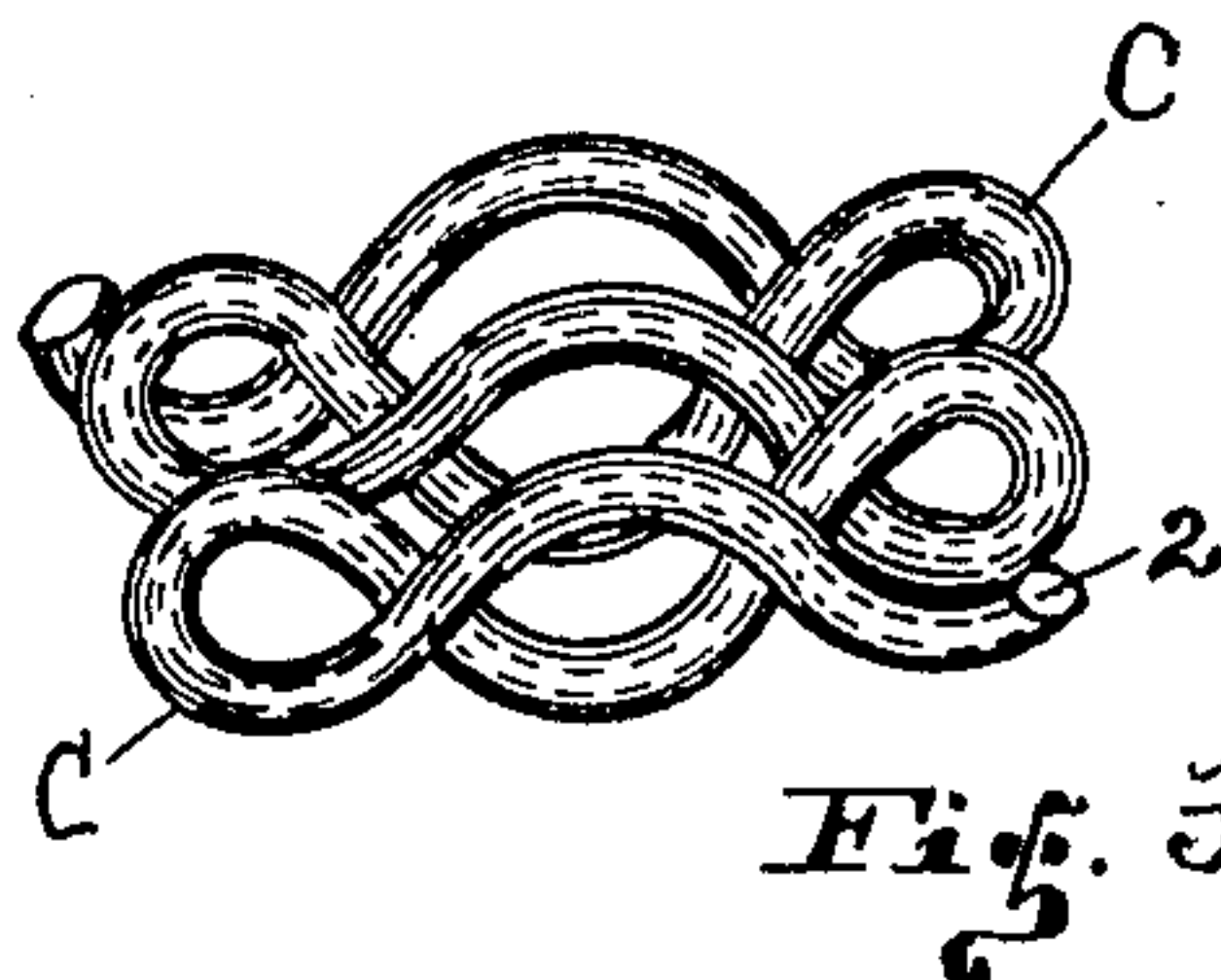


Fig. 3.

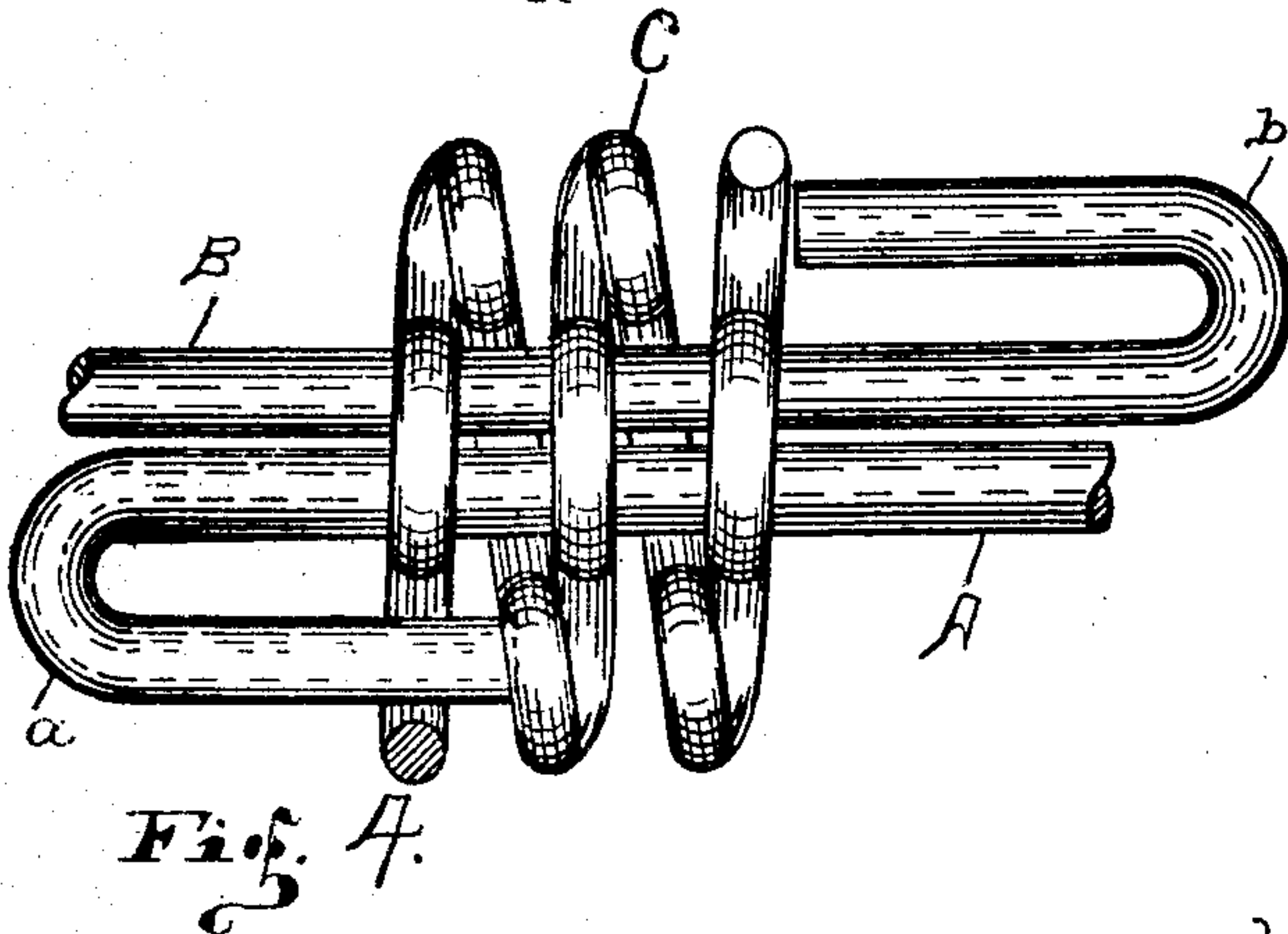


Fig. 4.

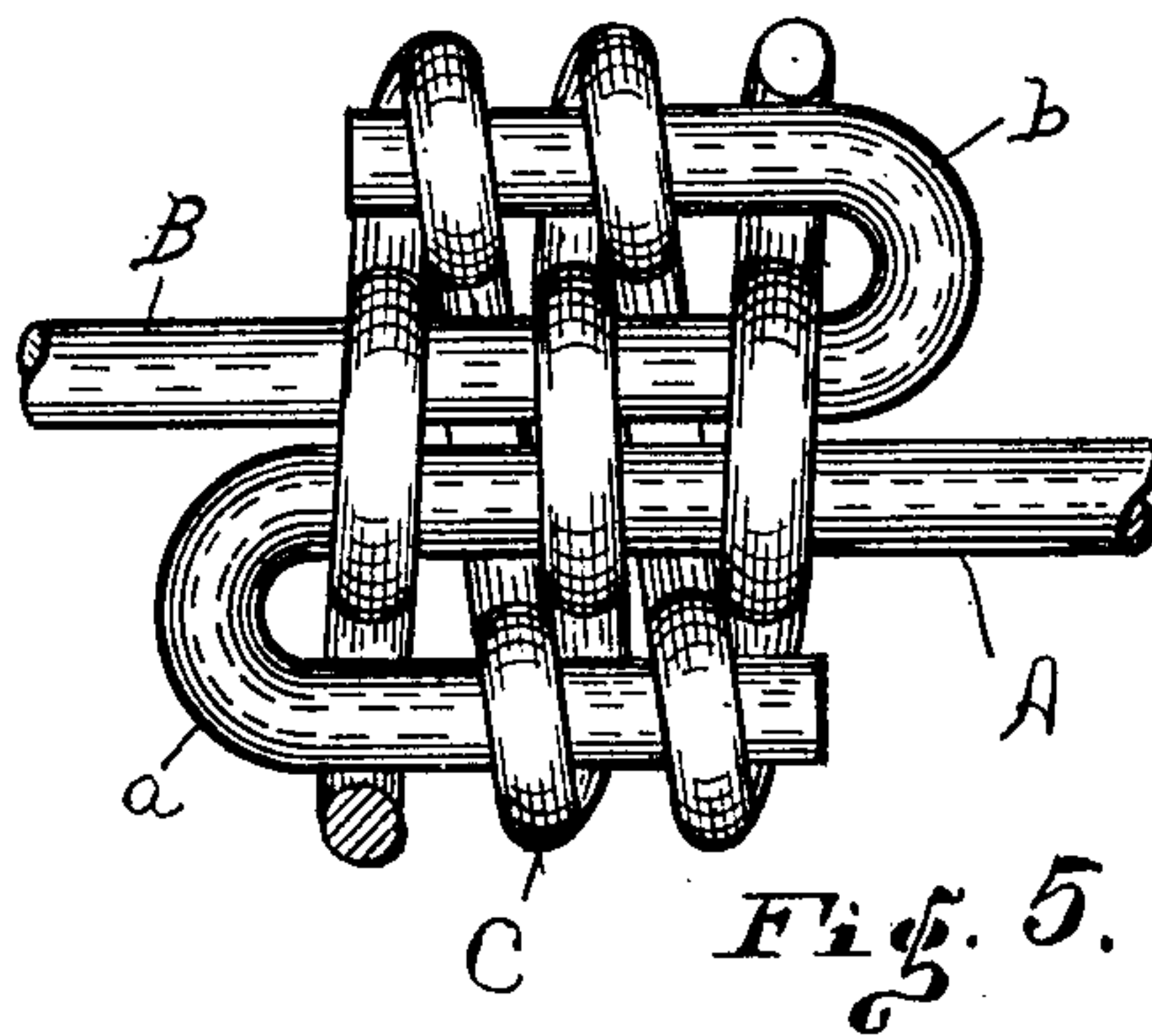


Fig. 5.

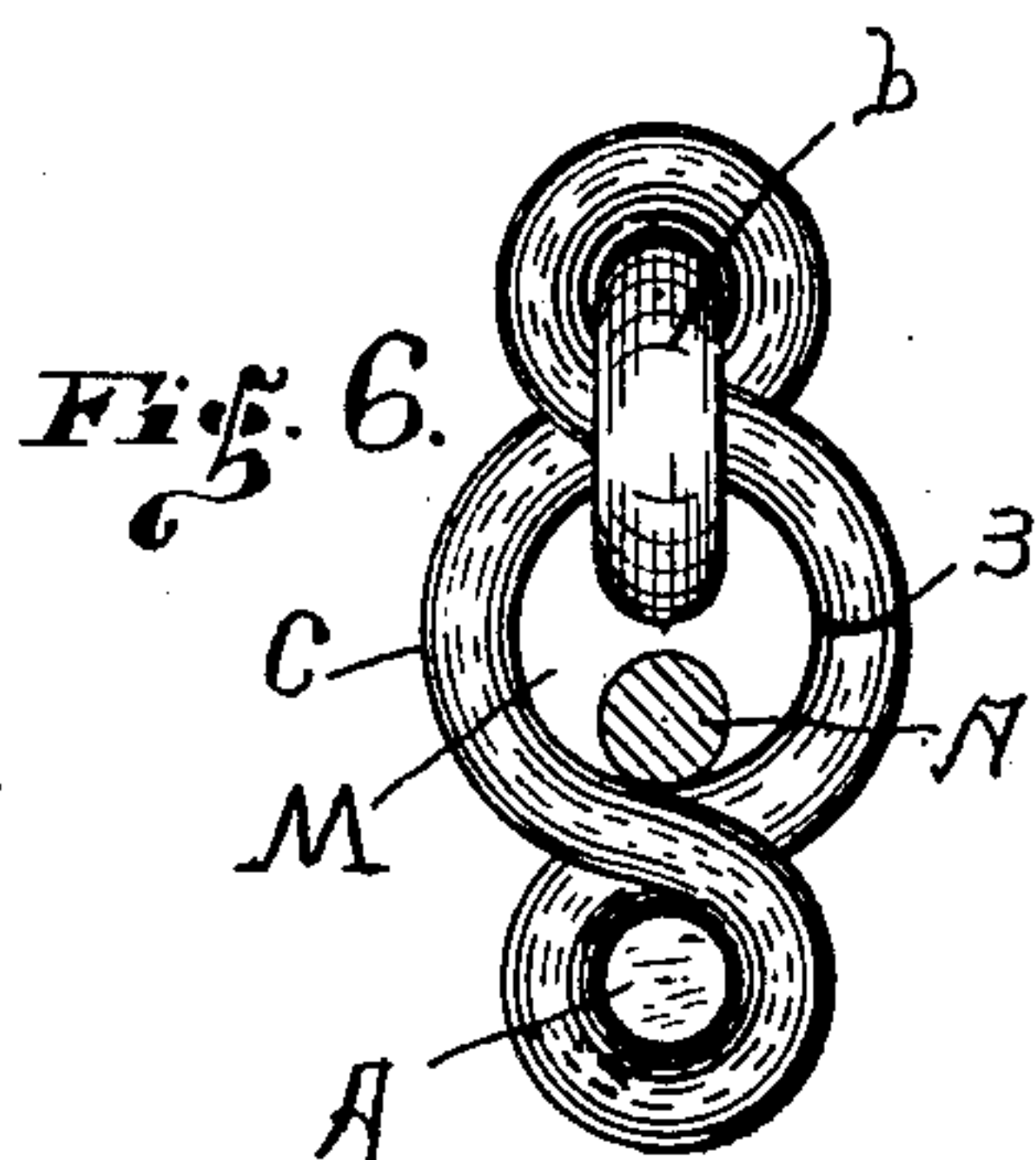


Fig. 6.

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# UNITED STATES PATENT OFFICE.

ARTHUR T. BALLENGER, OF WAYNE COUNTY, INDIANA.

## WIRE-CONNECTOR.

No. 916,653.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed November 23, 1908. Serial No. 464,157.

*To all whom it may concern:*

Be it known that I, ARTHUR T. BALLENGER, a citizen of the United States, residing in Wayne county, in the State of Indiana, have invented certain new and useful improvements in Wire-Connectors; and I hereby declare the following to be a full, clear, and accurate description of the same, being such as will enable others skilled in the art to which my invention relates to make and use the same with absolute exactitude.

This invention relates to a connector or coupler formed wholly of wire, so conformed as to provide means for splicing or connecting two portions of wire, such as the line-wires in fencing, telegraph, and telephone wires, or the like.

The object of my present invention, broadly speaking, is to provide a connector, splicer, or coupling, which will be simple in construction, positive in action, strong and durable in operation, and which can be manufactured and sold at a comparatively low price.

More specifically stated my object is to provide a connector formed of a single length of wire bent to provide means for securing the overlapping end portions of two wire sections rigidly with relation to each other.

A further object is to provide a new article of manufacture, a connector for wire sections, so conformed that they may be manufactured in multiple from a single length of wire, and after being formed the individual couplers may be cut off from the body so formed and in lengths such as to meet various conditions.

Other particular objects and specific advantages of my invention will suggest themselves to the reader in the course of the following detail description, when same is compared with the appended drawings.

One manner for carrying out my invention in a practical manner, and that which in practice I have found to be the most satisfactory, is shown in the accompanying drawings, in which—

Figure 1 is a side elevation showing a plurality of my couplers together as formed from a single length of wire, ready to be cut off into desired lengths to form individual couplers. Fig. 2 is an end view of one of my couplers. Fig. 3 is a perspective view of one of my couplers. Fig. 4 is a side elevation of one of my couplers, showing the two wires to

be coupled ready for the last movement to complete their connection. Fig. 5 is the same as Fig. 4, except that the two line wires are shown as brought to their final coupled positions. And Fig. 6 is an end view of the parts in the position shown in Fig. 5.

Similar indices designate like parts throughout the several views of the one sheet of drawings.

The simplicity of construction and operation of my invention is such that it may be readily comprehended from the accompanying drawings, therefore it is only necessary for me to describe the same as briefly as I may.

Referring now to the drawings in detail: the letters A and B denote the end portions of two wires to be connected together.

The letter C denotes the wire from which my connectors are formed, which I prefer shall be of a gage smaller than the wires A and B, which latter I denominate the "line wires", for convenience of description.

The wire C is to be bent in the form shown in Fig. 1, that is to say,—it is formed into an elongated body of convolutions, said body being of indeterminable length, which body will be substantially barrel-shape in cross section, as indicated in Fig. 2. The convolutions of the wire forming three distinct apertures, L, M and N, which are located parallel with each other and with the general extension or length of the body shown in Fig. 1. The arrangement of said apertures, L, M and N, with relation to each other, is such that a line, as the line  $x-x$ , for instance, in Fig. 2, passing centrally across the diameters of all of said apertures will divide each aperture into two equal parts.

The central aperture, M, should be of approximately twice the diameter as are the apertures L and N, which latter are substantially equal to each other. The three loops, forming said three apertures are formed by two oppositely disposed and overlapping compound curves formed of the single wire C, the curves on each side being oppositely disposed to the companion curves on the opposite side. In forming the devices it is apparent that the completion of one complete convolution is the commencement of the next thereto, and so on *a priori*.

After a length of the body shown in Fig. 1 has been formed the individual connectors may be formed therefrom by severing them



from the main body, that is,—by cutting the wire either at the point 2, as indicated in Figs. 2 and 3, or at the point 3, as indicated in Fig. 6, or they may be severed at any other point which may be desired.

In practice the oppositely directed overlapping ends of the two wires, A and B, are projected through the central aperture, M, from opposite sides, after which the end portion of each wire is bent back, on an easy curve, with its end portion directed parallel with its longer portion, as shown in Figs. 4 and 5, forming the respective short portions *a* and *b*, which latter portions are formed in alinement with the respective apertures N and L. Now by drawing the two wires A and B back opposite to the direction in which they were inserted it is apparent that the portions *a* and *b* will enter in the respective apertures N and L, thereby positioning the several parts as is shown in Fig. 5, and thereby completing the connecting of the wires A and B.

It is apparent that the wires A and B may be disconnected by the reversal of the last stated operation; and that when great strain is brought to bear on the wires A and B, after they are coupled as shown, there will be no danger of the wires slipping through the coupler, but the coupler may become distorted and the several parts may assume the appearance of a knot, which will be unobjectionable in practice.

Having now fully shown and described my invention what I claim and desire to secure by Letters Patent of the United States, is—

1. A wire connector formed to provide a plurality of compound convolutions formed wholly of wire.

2. A wire connector made up of a wire formed in a plurality of compound convolutions formed integral with each other, each complete convolution being substantially barrel-shape.

3. A connector, formed wholly of wire, having means for retaining two line-wires in contact with each other, and means for separately holding the reverse end portion of each line-wire.

4. A wire connector made up of compound convolutions formed from a single length of wire and comprising a plurality of said convolutions formed identical with each other and arranged in parallelism.

5. A wire connector formed of wire and constructed to provide a plurality of compound convolutions, the several spaces inclosed by each set of convolutions being located substantially parallel with each other.

6. A wire connector formed of a single length of wire whose convolutions describe a plurality of distinct circular spaces separated from each other but formed on same plane and in alinement with each other.

7. A coupler characterized by a single length of wire bent to form a plurality of loops arranged on same plane and so positioned that a line drawn therethrough will divide each of the loops into two equal portions, and a plurality of each of said loops arranged in alinement with each other and at right angles to said line.

8. In combination with two oppositely directed line wires each having its end portion curved back parallel therewith and oppositely disposed with relation to each other, a coupler formed of wire providing a central aperture through which said line-wires may pass and also a separate aperture for each of said curved back portions of the line wires.

In testimony whereof I have hereunto subscribed my name to this specification in the presence of two subscribing witnesses.

ARTHUR T. BALLENGER.

Witnesses:

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R. E. RANDLE.