(No Model.)

S. L. WIEGAND.

FLEXIBLE METALLIC TUBING.

No. 494,972. Patented Apr. 4, 1893.

Fig. 2.

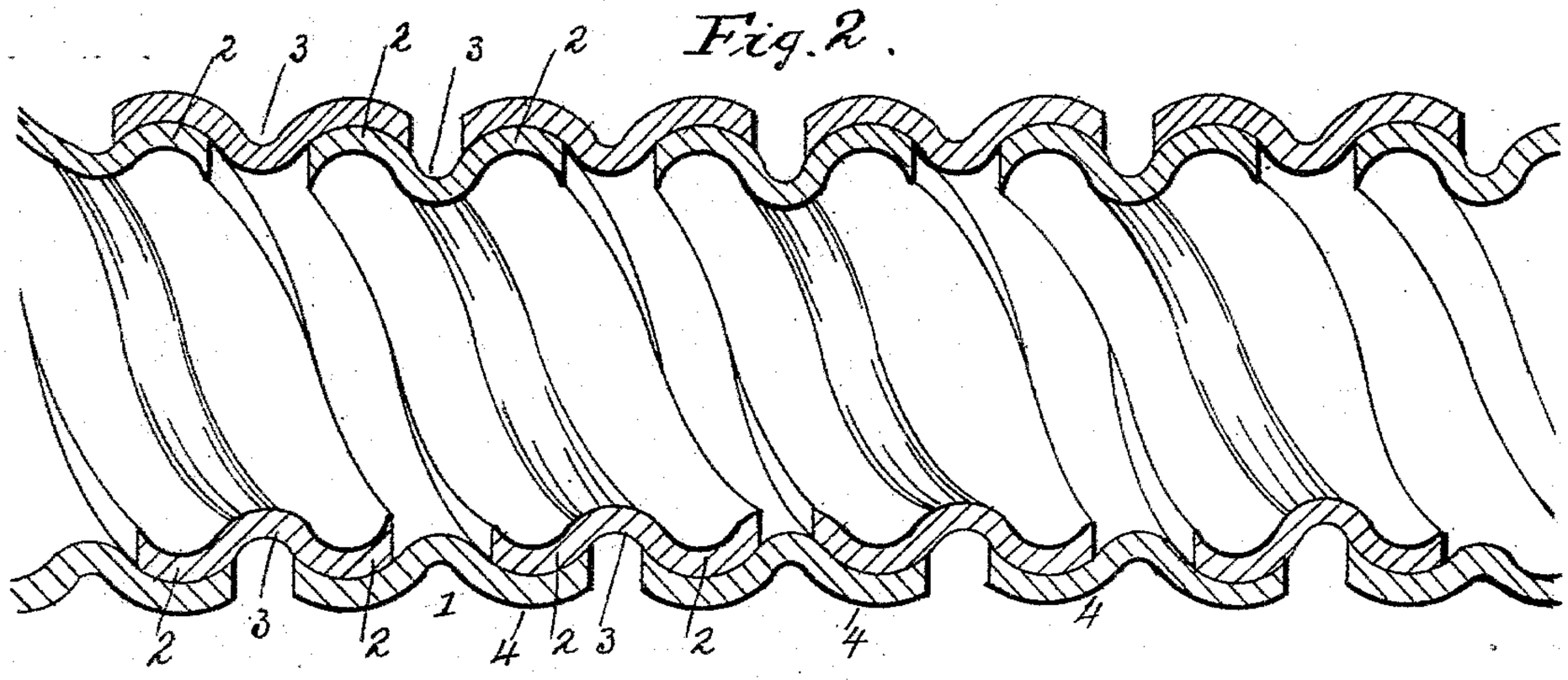

Fig. 1.

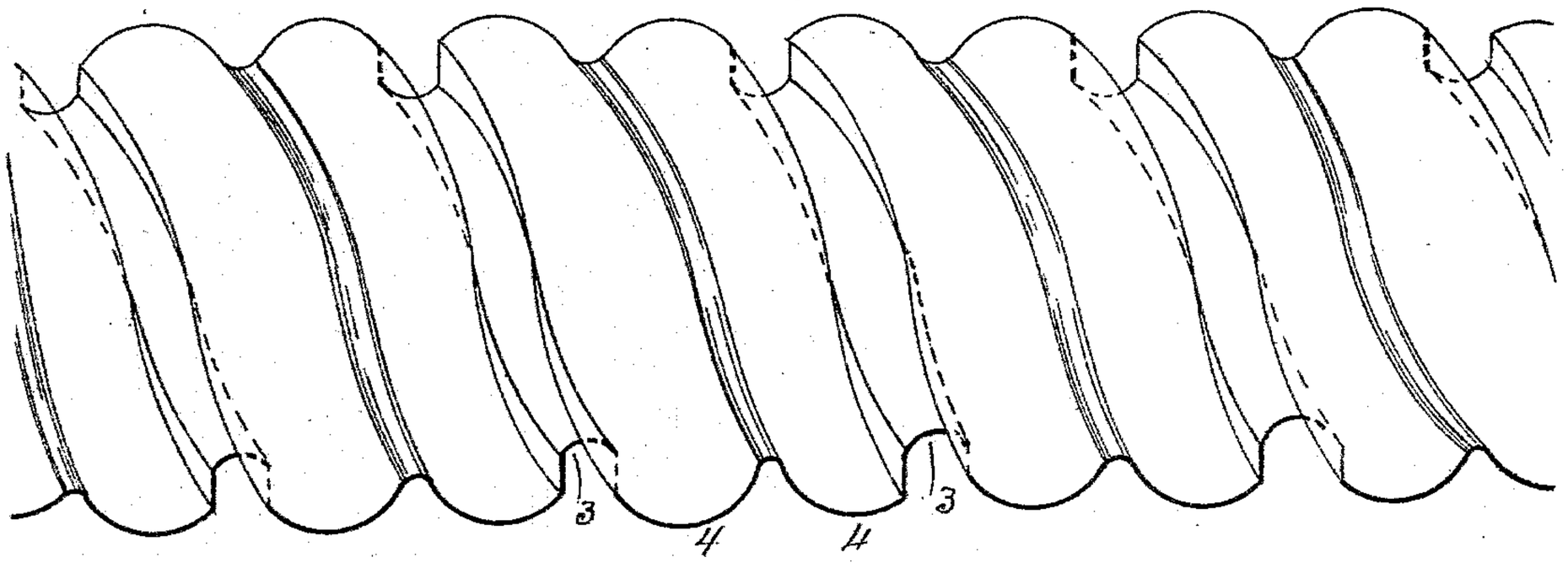

Fig. 3.

Fig. 4.

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FLEXIBLE METALLIC TUBING.

SPECIFICATION forming part of Letters Patent No. 494,972, dated April 4, 1893.

Application filed May 28, 1892. Serial No. 436,636. (No model.)

To all whom it may concern:

Be it known that I, S. LLOYD WIEGAND, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Flexible Tubes; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof as to enable others skilled in the art to make and use the said invention.

This invention relates to flexible tubing for conveying fluids and sounds, and has for its object the cheap production of such tubes of light weight and great strength and flexibility, and is especially applicable to the connections between vehicles in trains for heating lighting and sound communication.

The nature of this invention consists of a strip of metal having two parallel ridges of curved cross section wound helically with two ridges externally, and an interstice between the coils and a second strip of metal having two correspondingly shaped grooves wound over the first strip of metal so as to cover the interstices between the coils of the first strip and with the grooves of a second or outer strip fitting upon the ridges of the inner or first strip.

The construction and operation are hereinafter fully described and shown in the accompanying drawings, in which,

Figure 1 shows an external view of the tube; Fig. 2 a lengthwise section thereof; Fig. 3 a section of the inner plate, or strip before coiling, and, Fig. 4 a section of the outer plate, or strip before coiling.

1, is a strip of metal having two curved ridges, 2, 2 with an intervening groove 3; which strip 1 is wound helically with the ridges 2 outward, and with a space between the coils about equal to the width of the grooves 3.

4 is another strip of metal having grooves formed therein fitting upon the contiguous ridges 2 of two coils of the strip 1, which strip 4 is coiled around the strip 1 so as to cover the interstices between the coils of the strip 1, and is of such width as to leave an interstice between the coils of the strip 4, about equal to those between the coils of the strip 1. The depth of the groove 3 is such that when the grooved surfaces of the strip 4 slide upon the ridges 2 of the strip 1 they do not make contact with the metal in the groove 3, and thus avoid wearing the ridge 2 out of the form in which it is fitted into the groove of the strip 4, which would otherwise occur in the frequent flexure of the tube. When the tube is flexed the edges of the strip 4 find a clearance in the groove 3. When pressure is applied internally to the tube, the strip 1 is pressed tightly against the inner surface of the strip 4; when the tube is strained lengthwise either by internal pressure or by external force, the edges of the strip 4 press on the ridges of the strip 1 and prevent leakage besides resisting undue stretching of the tube in length.

Having described my invention, what I claim is—

1. A flexible tube consisting of a helically coiled strip of metal having two parallel convex ridges, and interstices between the coils, combined with a helically wound strip of metal having concave internal grooves fitting upon said ridges and covering the interstices between the coils of the ridged strip, substantially as set forth.

2. A flexible tube consisting of an inner strip of metal, having two parallel convex ridges and an intervening groove 3 of such smaller diameter than the said convex ridges as to avoid contact with the interior surfaces of a surrounding helical strip said strip being helically wound with an interstice between the coils, in combination with a surrounding helically wound strip of metal, having the concave grooves embracing the convex ridges of the inner strip of metal and covering the interstice between the coils substantially as set forth.

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