J. TAYLOR.
Flexible Gas-Tubing.

No. 221,125. Patented Oct. 28, 1879.

Fig. 1.

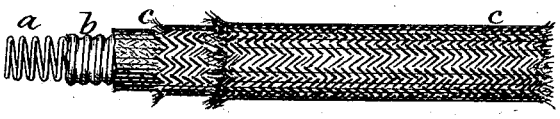


Fig. 2.

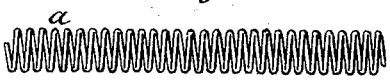
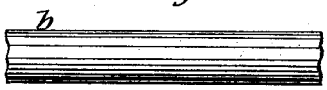


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES TAYLOR, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO EUGENE F. PHILLIPS, OF SAME PLACE.

IMPROVEMENT IN FLEXIBLE GAS-TUBING.

Specification forming part of Letters Patent No. **221,125**, dated October 28, 1879; application filed December 23, 1878.

To all whom it may concern:

Be it known that I, JAMES TAYLOR, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Flexible Gas-Tubing; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part thereof, is a clear, true, and complete description of my invention.

My improvements relate to such flexible gas-tubing as embodies a seamless tube of soft metal, preferably lead, and the object thereof is to secure greater flexibility and durability than has heretofore been attained in tubing of this class.

The use of thin lead in a layer and layers in connection with a compact coiled wire foundation and textile materials treated with gummy matter, rubber, &c., is fully set forth in English patent of Hebert, No. 9,070, A. D. 1841, and the tube therein shown and described was intended for use as flexible gas-tubing. The use of seamless lead tubing in the same connection is also shown and described in the United States Letters Patent of J. Butler of June 12, 1860, No. 28,647, without the coiled-wire foundation.

The tubes of Hebert and of Butler are deficient in flexibility, and that of the latter, being unsupported within the leaden tube, was liable to undue compression while in use.

For attaining the ends previously herein stated my invention consists in flexible gas-tubing having a central wire foundation in open coils, and a seamless tube of thin soft and ductile metal united to said wire coil, and corrugated to correspond with the convolutions of the wire foundation.

To more particularly describe my invention I will refer to the accompanying drawings, in which Figure 1 represents a short length of tubing embodying my invention. Fig. 2 represents a piece of the coiled wire. Fig. 3 represents a piece of thin metal tube prior to the insertion therein of the coiled wire.

The coiled wire *a*, instead of being compactly coiled, as heretofore, when used with lead, is coiled openly, so as to leave considerable space between the convolutions. The seamless leaden tube *b*, instead of being thick and heavy, as described in Butler's patent before referred to, is very thin and light, care being taken in its manufacture to avoid cuts or breaks therein. The coiled wire is carefully inserted into the tube, and the latter is then compressed, so as to corrugate it spirally between the convolutions of the wire. This spiral corrugation of the metal tube secures the desirable degree of flexibility, and the wire foundation being loosely or openly coiled affords proper resistance against undue compression of the tubing, and admits of greater flexibility than when compactly coiled. The additional jacketings *c* outside the metal tube may be largely varied as to material and mode of application, and any number thereof may be employed, as they constitute no part of my invention except as an exterior protecting medium for the metal tube, and for attaining a desirable exterior finish.

To provide for any accidental leakage of the metal tube the jacketings employed should be composed of, or in part of, or treated with, any of the well-known gas-tightening materials or compounds.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

Flexible gas-tubing containing a loosely-coiled wire foundation and a seamless metal tube corrugated to correspond with the convolutions of the coiled wire, substantially as described.

JAMES TAYLOR.

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