

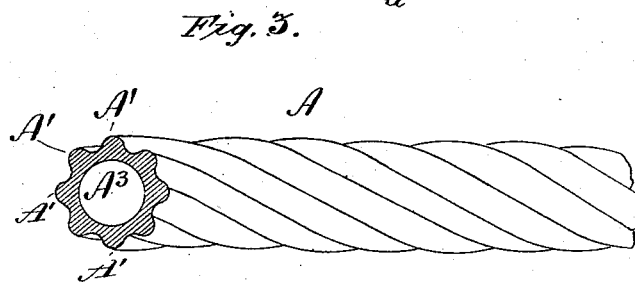
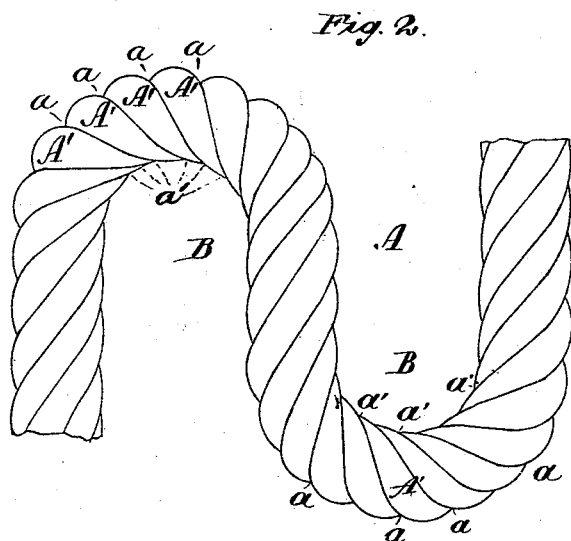
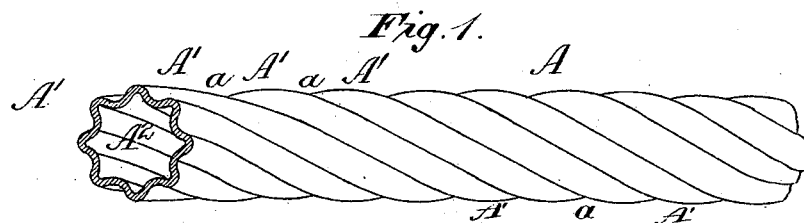
(No Model.)

E. HAAS.

LEAD PIPE.

No. 347,594.

Patented Aug. 17, 1886.



WITNESSES:
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Wm. S. Dunall

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UNITED STATES PATENT OFFICE.

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LEAD PIPE.

SPECIFICATION forming part of Letters Patent No. 347,594, dated August 17, 1886.

Application filed March 30, 1886. Serial No. 197,119. (No model.)

To all whom it may concern:

Be it known that I, EDWIN HAAS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Lead Pipes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to lead pipe and articles made therefrom, the object of the invention being to construct a lead pipe which will expand and contract without bursting when a liquid therein freezes and thaws, and which is capable of being bent into various shapes without crimping, kinking, or stretching, and compressing the same to a degree which causes weakening or breakage of the pipe and the invention consists in certain features of construction hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective of a section of lead pipe embodying my invention. Fig. 2 is a side elevation of the same bent to form an S-trap. Fig. 3 represents a modification.

Like letters refer to like parts in all the figures.

When ordinary lead pipe is bent or curved, as, for example, to form an S-trap, that portion of the pipe at the inner angle or side of the bend is compressed, and that portion at the outer side is stretched, so that the thickness of the pipes at these points is varied and the pipe weakened on the outer or longer side of the bend. Furthermore, it is more or less difficult to bend ordinary lead pipe, so much so that various devices have been provided for insertion within the pipe during the process of bending the same, such devices also being adapted to be removed after the pipe has been bent.

I have discovered that, by giving the outer surface of the pipe a corrugated conformation, when a pipe so constructed is bent, the open spaces between the corrugations are closed or partially closed on the inner side of the bend, while those on the outer side of the bend remain substantially the same, or the spaces are slightly enlarged, while the spaces at the intermediate points, between the inner and outer side of the bend, gradually vary in

their condition, so that while annular corrugations in a measure answer the object, still the preferable form of such corrugations is that of a screw-thread, scroll, or cable-like disposition.

Referring to the drawings, A represents a pipe constructed in accordance with my invention, whereby it is exteriorly in the form of corrugations A', which may embody the entire material of the pipe, so that its bore A² is interiorly corrugated, as shown in Fig. 1 or said bore may be plain or uncorrugated, as shown at A², Fig. 3.

Now it will be noticed by reference to Fig. 2 that at the inner side of a bend, as B, the spaces a' between the corrugations A' are diminished, while the spaces a at the outside of the bend are substantially the same as in the straight pipe, or, if anything, slightly enlarged.

The corrugations may be made either at the time of making the pipe or during a subsequent operation upon ordinary lead pipe, as I do not limit my invention to any particular means or method of making the corrugations.

Another great advantage secured by constructing a pipe after the manner above described is that the liquid therein freezing and thawing will not cause the same to burst, said pipe being capable of being expanded and contracted by reason of the corrugations extending around the same.

Having described my invention, its object, and operation, what I claim is—

1. As an article of manufacture, a corrugated lead pipe, substantially as and for the purpose set forth.

2. A lead pipe having corrugations extending spirally around the same, substantially as and for the purpose set forth.

3. A lead pipe having corrugations extending spirally around the same, both inside and outside, substantially as and for the purpose set forth.

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

EDWIN HAAS.

Witnesses:

J. R. MASSEY,
WM. V. MASSEY.