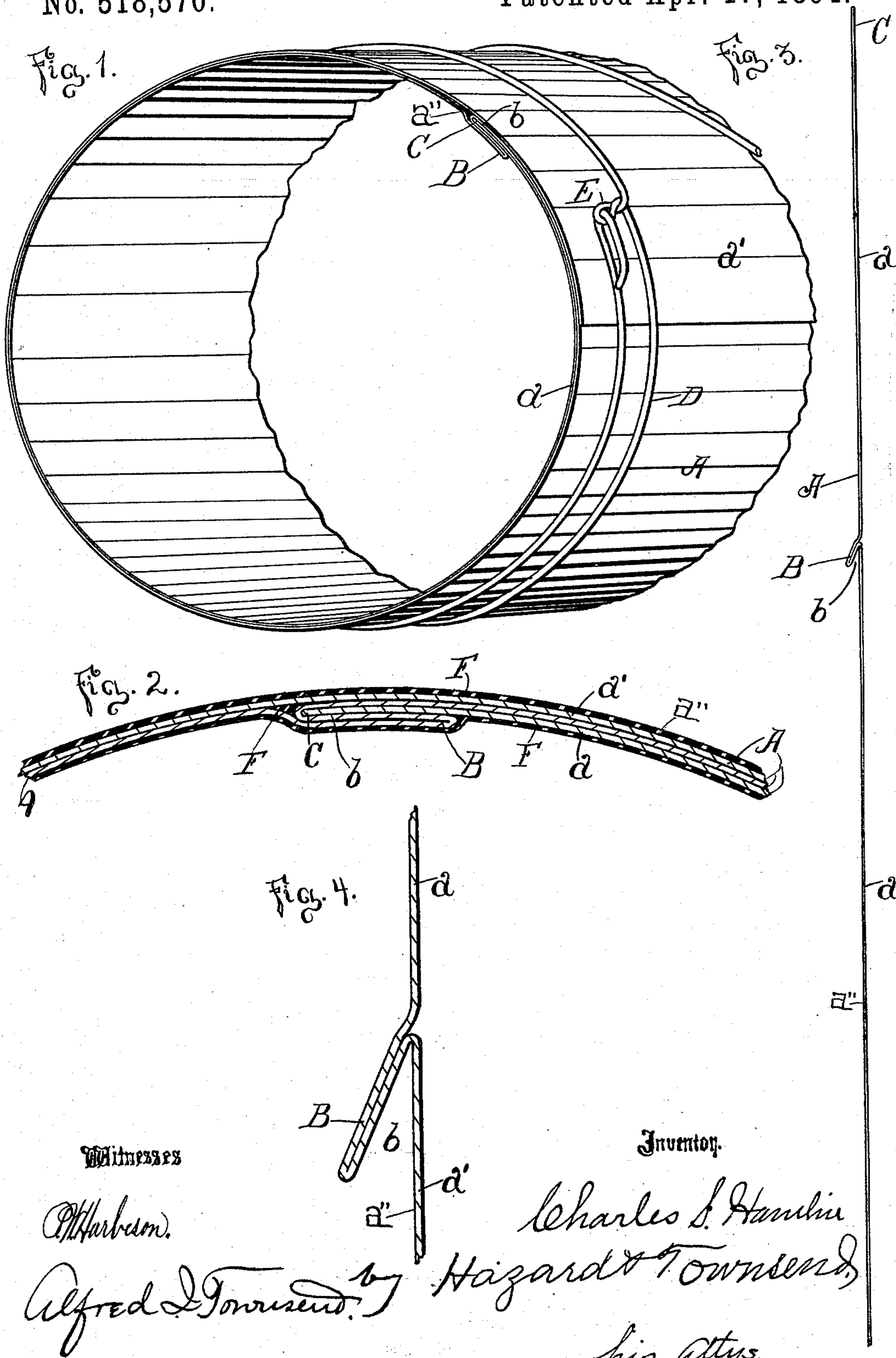


(No Model.)

C. S. HAMLIN.
SHEET METAL PIPE.

No. 518,570.

Patented Apr. 17, 1894.



UNITED STATES PATENT OFFICE.

CHARLES S. HAMLIN, OF LOS ANGELES, ASSIGNOR OF ONE-HALF TO ARTHUR C. HARPER, OF UNIVERSITY, CALIFORNIA.

SHEET-METAL PIPE.

SPECIFICATION forming part of Letters Patent No. 518,570, dated April 17, 1894.

Application filed December 15, 1893, Serial No. 493,736. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. HAMLIN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Sheet-Metal Pipes and Methods of Manufacturing the Same, of which the following is a specification.

The object of my invention is to produce an improved, cheap, strong and durable pipe made of a single thin sheet of metal and suitable for conveying water, oil, &c.

My invention relates to convolute sheet metal pipes. It relates more particularly to pipes of that character in which the sheet is fastened by bands wrapped around the outside of the pipe.

The accompanying drawings illustrate my invention.

Figure 1 is a fragmental end view of the pipe before it is completed by being dipped in an asphaltum bath. Fig. 2 is an enlarged sectional view of a fragment of the pipe completed and shows the joint after the asphaltum bath. Fig. 3 is a cross section of the sheet folded ready to be passed through the rollers which form the sheet into a tube. Fig. 4 is an enlarged fragment illustrating the fold which forms the seat for the inner edge of the sheet.

My improved pipe is formed of a single sheet of metal A provided between its edges with a longitudinally arranged S shaped fold or lap B which forms a seat *b* for one of the edges C of the sheet, said sheet being rolled into convolute form with the edge C of one section *a* of the sheet inserted in the seat *b* formed by the lap, and the outer section *a'* of the sheet rolled about the inner section *a* and fastened by suitable means such as the wire wrapping D.

The method of manufacturing the pipe is as follows: I first form the fold B in the sheet at such a distance from one edge thereof as to allow the section of the sheet between the fold and such edge to form the size of pipe required when the sheet is rolled into a tube and the edge of such section is fully seated within the seat formed by the lap. The fold is allowed to project from the sheet at an angle of about fifteen degrees away from the

edge C, to be inserted: then the sheet is passed through the rolls by first inserting between the rolls, the edge C of the section *a* which is to form the inner portion of the pipe: as the sheet is run through the rolls care is had to fully seat the edge C of the inner section *a* of the sheet in the fold before the fold is allowed to pass between the rollers and then after the edge is seated the inner face *a''* of the outer section *a'* of the sheet is coated or painted with melted asphaltum or other preservative material and the fold is then run through the rollers and well pressed together thereby, and the rollers are then further rotated to draw the rest of the sheet through the rolls and thus to form the outer section *a'* to fit it tight upon the tube formed by the inner section *a*. After this the edge of the outer section is fastened by suitable means such as the wire wrapping D. The edge of the outer section is preferably extended over and beyond the lapped portion: that is to say, the outer section is wider than the inner section and completely encircles the inner section and laps upon itself.

The manner in which I apply the wire wrapping is as follows: When the tube has been formed as above outlined one end of the wire is inserted beneath the edge of the outer section and the rotation of the tube through the rolls causes the wire to be firmly wrapped and bound upon the tube and the wire is then carried spirally from one end of the tube to the other and then fastened by a couple of turns and a loop as indicated at E. The ends of the wire may be fastened in any well known way: such for instance, as the way detailed in Letters Patent granted to me October 31, 1893, No. 507,709. Illustration of the means for fastening the ends of the wire is deemed unnecessary in this application and the illustration of such means at E is incidental.

In the process of manufacture the force of the rolling process and the tension of the bands D upon the outside of the tube tend to reduce the diameter of the tube but the seat *b* holds the edge C of the section *a* firmly in position and allows the outer section *a'* to be forcibly pressed against the tube formed by the inner section, without reducing the size of the tube.

After the pipe has been formed in the rolls and the wire has been applied and fastened at the ends, the tube thus formed is immersed in a bath of melted asphaltum at about 300°
 5 temperature Fahrenheit and the asphaltum is allowed to permeate all of the joints and interstices and to coat the outside and inside of the tube. F indicates the coat of asphaltum.

By my improved method of forming the inner section *a* of the pipe from the sheet metal before it is coated with asphaltum, and afterward coating the inner face of the outer section of the pipe and then running the fold and the outer section through the rolls to
 15 thereby firmly compress such section upon the inner section, the two sheets or leaves are caused to firmly adhere to each other by reason of the interposed asphaltum coating. I thus avoid coating the rolls with asphaltum,
 20 and am thereby enabled to form the pipe with much greater speed and convenience than is possible where the rolls and the outside of the pipe are covered with the preservative material as has been customary heretofore. The
 25 wire wrapping can also be applied with greater facility before the pipe is coated than afterward, and the contact surfaces of the two sections are protected by the coat of asphaltum as effectually as it would be if the entire sheet
 30 were coated with asphaltum before being formed into pipe.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

35 1. The improved pipe set forth formed of a single sheet of metal comprising two sections

and provided between such sections with a longitudinally arranged **S** shaped fold or lap which forms a seat for the edge of one of the sections: said sheet being rolled into convolute
 40 form with the edge of one section of the sheet inserted in the seat formed by the lap, and the outer section of the sheet rolled about the inner section and fastened by suitable means.

2. The improved pipe set forth formed of
 45 the single sheet of metal comprising two sections and provided between such sections with a longitudinally arranged **S** shaped fold or lap which forms a seat for the edge of one of the sections: said sheet being rolled into convolute
 50 form with the edge of one section of the sheet inserted in the sheet formed by the lap, and the outer section of the sheet rolled about the inner section and extended over and beyond the lapped portion and fastened by suitable
 55 means.

3. The combination of a single sheet of metal provided between its edges with a longitudinally arranged **S** shaped fold or lap which forms the seat for one of the edges of the
 60 sheet: said sheet being rolled into convolute form with the edge of one section of the sheet inserted in the seat formed by the lap: and the outer section of the sheet rolled about the tube formed by the inner section, and suitable
 65 bands wrapped about the tube thus formed to fasten the same.

CHAS. S. HAMLIN.

Witnesses:

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