(No Model.)

W. S. SHIPE.

CYLINDRICAL BOILER.

No. 453,946. Patented June 9, 1891.

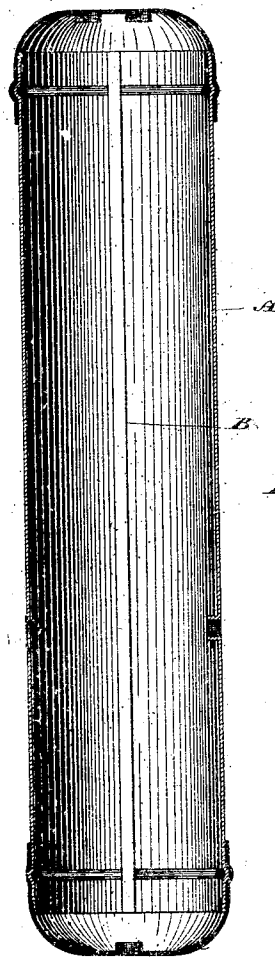


Fig. 1

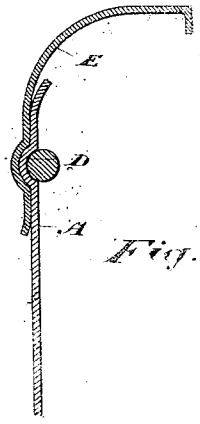


Fig. 2



Fig. 2.

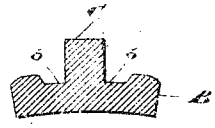


Fig. 3

Witnesses

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UNITED STATES PATENT OFFICE.

WALTER S. SHIPE, OF TORONTO, CANADA.

CYLINDRICAL BOILER.

SPECIFICATION forming part of Letters Patent No. 453,946, dated June 9, 1891.

Application filed October 23, 1890. Serial No. 369,047. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCOTT SHIPE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented a certain new and useful Improvement in Cylindrical Boilers, of which the following is a specification.

The object of the invention is to produce a cylindrical boiler which shall have a smooth exterior surface capable of being polished; and it consists in the construction, arrangement, and combinations of parts hereinafter more particularly described, and then definitely claimed.

Figure 1 is a sectional elevation of my improved boiler. Fig. 2 is an enlarged cross-section showing a plan of the longitudinal joint. Fig. 3 is an enlarged cross-section of the strip used in forming the longitudinal joint.

Referring now to the details of construction, A represents the metal sheet forming the cylinder. The edges *a* of the longitudinal joint of the cylinder (see Fig. 2) are bent inwardly, as indicated, to fit the recess *b*, made in the strip B, as shown in Fig. 3. This strip, as it will be seen on reference to this figure, has a rib C, which projects between the edges *a*, and is riveted or compressed down, as shown in Fig. 2, so as to overlap the edges *a* and fill the depression formed by the bending of the edges *a*, and in this way make a practically invisible joint, which will at the same time be very strong.

It will be observed that by the construction described a perfectly-smooth longitudinal joint is formed flush with the exterior of the boiler, which would allow of the joint being finished in such a manner as to be quite invisible, especially when the boiler is polished and then galvanized.

I am aware of the United States Patent No. 157,492, granted for a method of seaming joints in water-pipes, in which the seam is formed by inserting the outwardly-curved edges of the sheet in grooves in a strip of metal and then bending the edges of the strip down over said outwardly-curved edges, leaving a projecting ridge, which effectually prevents "finishing" of the outer surface of the pipe thus formed in any manner commercially practicable. Besides this, as the flanges of the strip are simply bent down over the curved edges of the sheet metal the strip is weakened at this point by the bend, and thus the joint will readily open under great pressure. In my construction, on the contrary, the sheet metal is bent inward, or toward the center of the boiler, and the bent edges are set in grooves formed in the heaviest part of the strip, forming a channel in which the solid rib is swaged or spread laterally under a powerful pressure, which not only makes the outside of the joint substantially or quite flush with the sheet, but compresses the metal in much less space than when in its original form, and has been found by actual experiment to be capable of bearing great strain. This is a great advantage, for these boilers have to bear an immense pressure in some situations, and a mere bending of the flange over the curved edge is not sufficient to stand the strain even if the flanges were not weakened by said bending, as must undoubtedly be the case. Besides this I have a further advantage in setting on the head, which could not be put on water-tight in a way that would be commercially practicable when there is an outside or projecting rib.

What I claim as my invention is—

1. A joint for sheet-metal vessels or other purposes, consisting of the edges of the sheet metal which are to be united and of a uniting strip of solid metal, the edges of the sheet metal being bent inward and the strip having grooves to receive them and being provided with a rib riveted or forced into the space between the said edges and composed of sufficient metal to substantially fill the said space, as set forth.

2. A sheet-metal plate bent in the form of a cylinder, having its longitudinal edges bent inwardly on a compound angle, in combination with a metal strip having a solid rib with grooves on each side to receive the inwardly-set edges of the plate, said rib being flattened out and filling the space between the angles of the sheet-metal plate, leaving the outside of the cylinder substantially smooth, substantially as and for the purpose set forth.

Toronto, September 23, 1890.

WALTER S. SHIPE.

In presence of—

CHARLES C. BALDWIN,

A. DAWSON.