L. S. WHITE.

Lap-Joint for Boilers and other Vessels.

No. 213,480. Patented Mar. 18, 1879.

Fig. 1.

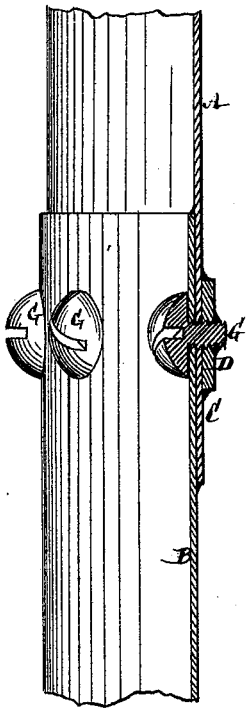


Fig. 2.

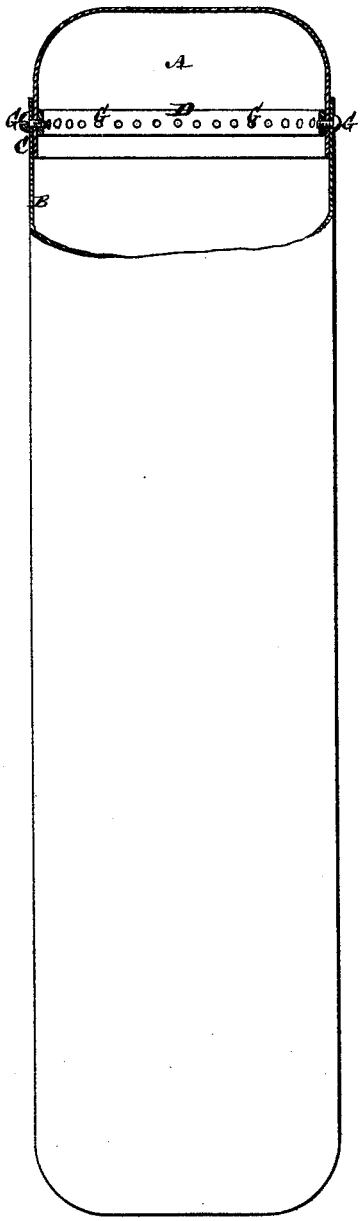
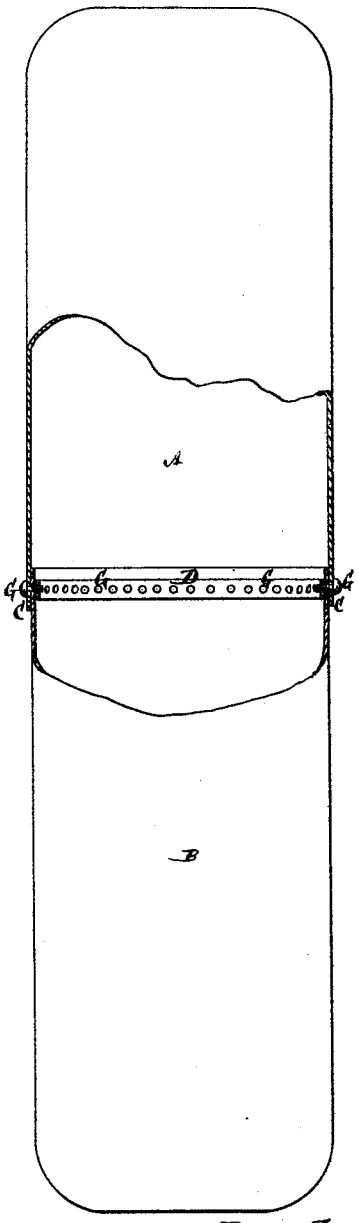


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

LE ROY S. WHITE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO BROWN & BROTHERS, OF SAME PLACE.

IMPROVEMENT IN LAP-JOINTS FOR BOILERS AND OTHER VESSELS.

Specification forming part of Letters Patent No. **213,480**, dated March 18, 1879; application filed January 30, 1879.

To all whom it may concern:

Be it known that I, LE ROY S. WHITE, of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Lap-Joints for Boilers and other Vessels, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention consists in the combination, with a lap-joint of a boiler or other vessel, of an internally-arranged re-enforcing ring or annular strip, and screws arranged to pass through the lap-joint, and to screw into or through the re-enforcing band or strip, said screws and portions which form the lap-joint preferably being sweated together after the joint has been made and united by the screws, thus combining sweating with screwing in the sealing or closing of the joint.

The invention is more particularly designed to be applied to kitchen-boilers, and may be used either for uniting one or both of the heads with the shell or body of the boiler, or for uniting lap-jointed sections of said shell or body. Said invention will here accordingly be more particularly described as applied to a kitchen-boiler, and, by way of illustration, to such a boiler made of copper or other suitable ductile metal, without any longitudinal seam or joint, and in which the shell or body and one of its heads are formed by drawing or spinning, or in which the shell or body and its heads are formed of two drawn or spun cups united by a transverse lap-joint.

Figure 1 represents a sectional view of two plates of the boiler or other vessel having the invention applied; Fig. 2, a partly-sectional longitudinal view of a kitchen-boiler having the invention applied to uniting one of the heads with the shell or body of the boiler; and Fig. 3, a partly-sectional longitudinal view of the boiler with the invention applied to uniting two cup portions of which the shell or body and heads of the boiler are composed.

A and B in Fig. 1 represent two copper or other suitable metal plates used in the construction of the boiler or other vessel, and arranged to fit one over the other, so that they form a lap-joint, C. Arranged on that side of said joint which is on the inside of the vessel is a re-enforcing ring or annular strip, D, which not only serves to strengthen the joint, but also to secure it by means of screws G, arranged to pass through the lap-joint from the outside of the vessel, and to screw into or through said re-enforcing-plate.

To make the joint still more secure and close against leakage, the meeting surfaces of the plates at the joint C, as also the meeting surface of the re-enforcing ring or annular strip D with the interior surface of the plate A, should be suitably cleaned and prepared to unite said surfaces by what is known as "sweating," in soldering operations, and so that the solder will also fill up vacant spaces around or about the threaded portions of the screws, and where the heads of the screws come in contact with the plate B after the joint has been made and the screws fitted to their places, thus uniting the screws also with the other portions of the joint, and uniting the lap-joint both by sweating and screwing. The joint can be readily opened, when necessary to take the boiler apart, by simply applying heat to the soldered portions and then removing the screws.

In Fig. 2 of the drawings, the head A of a kitchen-boiler (or it might be both heads thereof) is shown as united with the shell or body B of the boiler by a lap-joint, C, formed as hereinbefore described when referring to Fig. 1, D being the internally-arranged re-enforcing band, and G the screws, entered from the outside and passing through the lap-joint, and screwing into or through the re-enforcing ring.

Fig. 3 shows a joint made in like manner, but as applied to uniting two cup portions, A B, of which the shell and heads of the boiler are composed, the lap-joint and its re-enforcing plate being midway of the boiler, or thereabout.

A boiler having a lap-joint constructed in accordance with this invention is stronger and more secure than when made by uniting the parts by soldering or by soldering, sweating, and riveting.

The screw-holes having been formed in the

two parts of the boiler which are to lap, and also in the re-enforcing ring, at equal distances apart, to join the whole together, I place the ring within the inside section of the boiler, with screw-holes coinciding, and sweat the adjacent surfaces together. I then place the open end of the outside section over that of the inside section, with screw-holes coinciding, and insert the screws from the outside, sweating the lapping surfaces together and the screws in their places in the ordinary manner.

I claim—

1. The combination, with a lap-joint of a boiler or other vessel, of an internally-arranged re-enforcing ring or annular strip, and screws arranged to pass through the lap-joint, and to screw into or through the re-enforcing ring or annular strip, substantially as specified.

2. A lap-joint for boilers and other vessels, composed of overlapping plates or portions, an internally-arranged re-enforcing ring or annular strip, and screws uniting said plates and ring or annular strip, the lap or lapping portions, the said ring, and the said screws being all united by sweating together, essentially as herein described.

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Witnesses:
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