

(No Model.)

G. BOOTH.
RANGE BOILER.

No. 516,073.

Patented Mar. 6, 1894.

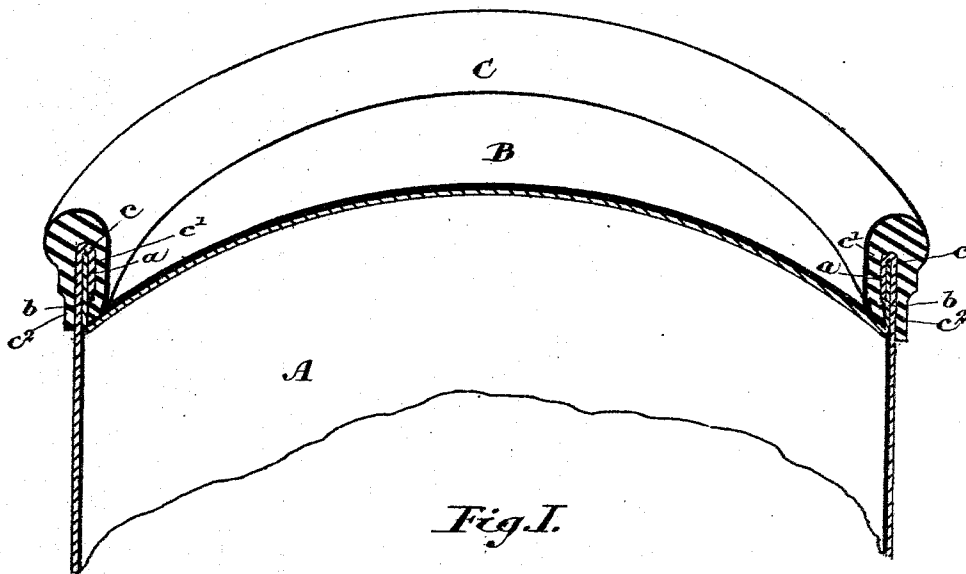


Fig. 1.

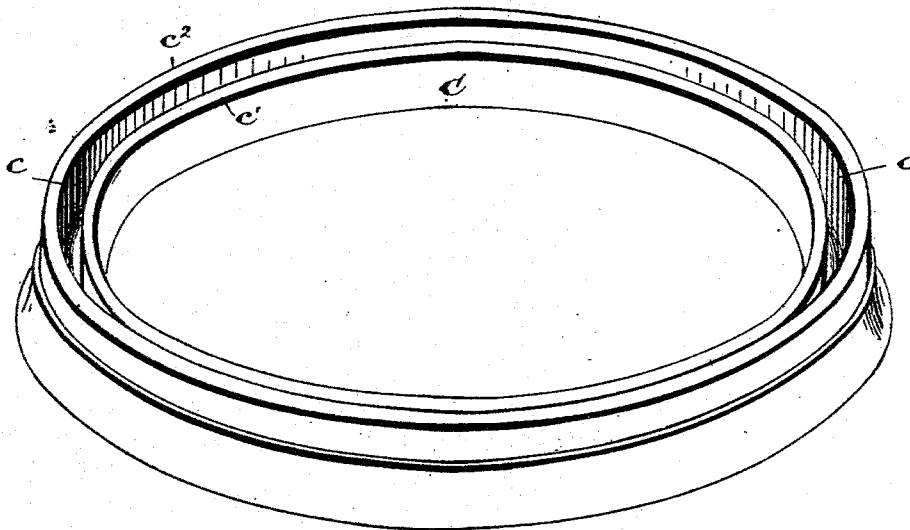


Fig. 2.

Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE BOOTH, OF TORONTO, CANADA.

RANGE-BOILER.

SPECIFICATION forming part of Letters Patent No. 516,073, dated March 6, 1894.

Application filed July 31, 1893. Serial No. 481,919. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BOOTH, manufacturer, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Range-Boilers, of which the following is a specification.

My invention relates to improvements in range boilers and the object of the invention is to provide a means whereby the heads of a copper boiler may be made, at a minimum cost, of sufficient strength to withstand the water pressure incident to range boilers and it consists essentially of a malleable iron strengthening ring provided with an annular groove which is fitted on and over the projecting joined edges of the head and cylinder, the ring then being tightly squeezed or pressed so as to bring the sides of the groove against the sides of the projecting edge as hereinafter more particularly explained.

Figure 1, is a sectional perspective view of a boiler constructed in accordance with my invention. Fig. 2, is a detail of the strengthening ring.

In the drawings like letters of reference indicate corresponding parts in each figure.

Heretofore much difficulty has been experienced in producing a copper boiler for range purposes of sufficient strength to withstand the direct pressure from the ordinary water works at a price to enable it to come into general use. It is admitted that a copper boiler when made sufficiently strong is the best to serve the purpose of a range boiler but it being necessary to make the boiler of light copper in order to make it cheap enough to come within the reach of persons of ordinary means it frequently happens that the cylinder and heads being made of such light metal are not capable of withstanding ordinary water pressure although the joint may be perfectly tight and suitable for cistern pressure. It is with a view of so constructing the boiler that it may be suitable for the pressure from the water works mains or pipes that my invention is chiefly designed.

A, is the cylindrical portion of the boiler and, B, the head. The head, B, has a turned up vertical edge, *b*, all around it over which is fitted or pressed the turned down edge, *a*, of the cylindrical portion, A. These edges are soldered together. This is form of boiler now commonly used. Over the projecting

vertical combined soldered edges formed as above I place the ring, C, of malleable iron. The combined vertical upwardly projecting edge extends upwardly into the annular groove, *c*, of the strengthening ring, C. The inner portion, *c'*, of the ring, C, is brought down against the head close to the edge while the outer portion, *c''*, extends slightly below the level of the head. The portions, *c'*, and, *c''*, are now swaged, pressed or otherwise squeezed against the two sides of the projecting edge thereby tightening the joint between the head and cylindrical portion of the boiler so that the resisting power of the boiler is so increased as to render it suitable for the heaviest pressure. It will be seen that without the rings the copper in both the cylindrical portion and the heads requires to be double the weight of that used when the strengthening rings are employed. It will therefore be seen that by the use of such rings that the cost of the boiler is very materially decreased. When the boiler is made of light copper the strain on the heads forcing them away from the cylindrical portion disfigures the boiler and causes a leakage. By the use of my rings before described such leakage is entirely prevented.

I am enabled to use malleable iron for my ring for strengthening the joint as it will be seen that such ring is entirely separated from contact with the water in the boiler and therefore there will be no liability of the ring rusting and a leakage being caused or the water in the boiler affected by the rust.

By the use of malleable iron rings such as described the joint is very cheaply made, secure and much more rigid.

What I claim as my invention is—

A range boiler having a cylindrical portion A with a turned over flange *a* forming a recess, a head B having an upwardly turned flange fitting into said recess, and a ring of malleable iron of approximately U shape fitting over the united flanges of the cylinder and head, the inner lower edge of the ring fitting the space beneath the end of the flange of the cylinder thus locking the parts in place, substantially as described.

GEORGE BOOTH.

Witnesses:

B. BOYD,
H. T. S. YOUNG.