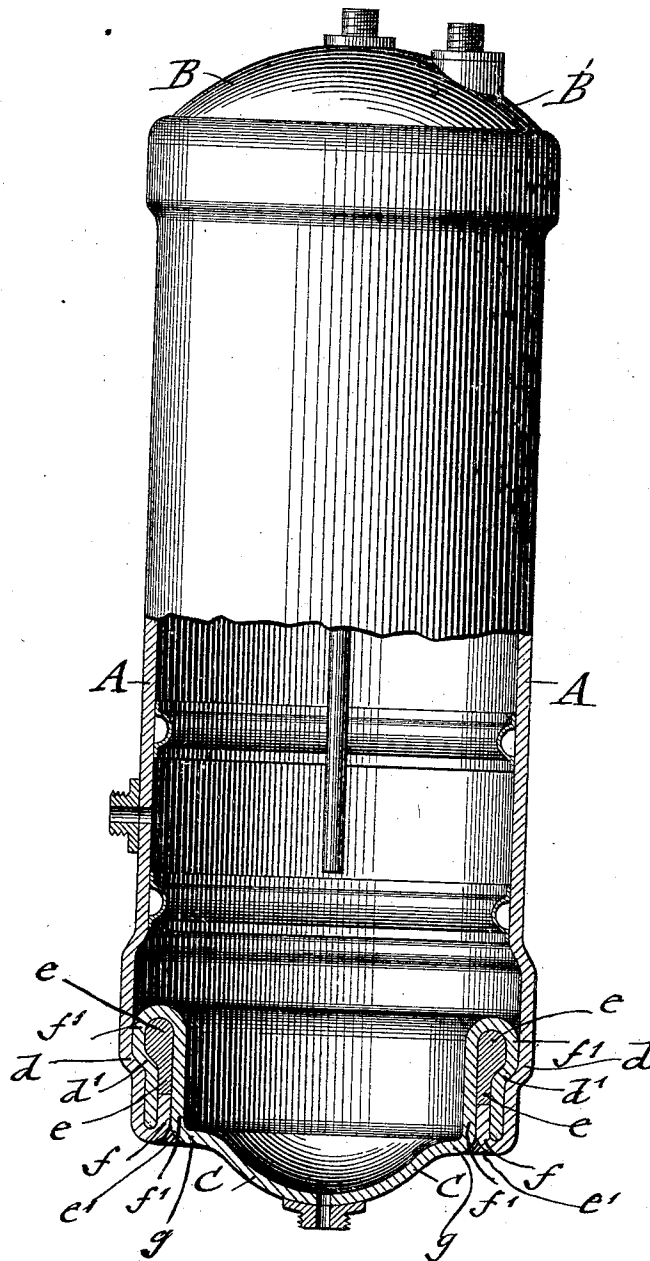


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RANGE BOILER.
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946,299.

Patented Jan. 11, 1910.



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UNITED STATES PATENT OFFICE.

VALENTIN WILHELMI, OF PATERSON, NEW JERSEY.

RANGE-BOILER.

946,299.

Specification of Letters Patent.

Patented Jan. 11, 1910.

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To all whom it may concern:

Be it known that I, VALENTIN WILHELMI, a citizen of the United States of America, residing in Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Range-Boilers, of which the following is a specification.

This invention relates to certain improvements in range-boilers whereby the cost of the same is considerably reduced, without impairing the strength, tightness and efficiency of the same.

The object of this invention is to so improve the connection of the lower end of the shell of a range-boiler with the bottom-head that the large and expensive exterior reinforcing ring used heretofore is dispensed with, and a joint obtained which can be made at considerably reduced cost as compared to the constructions heretofore made; and for this purpose the invention consists of a range-boiler in which the lower end of the shell and the bottom-head are secured by an interlocking joint formed of a flange bent up at the lower edge of the shell and an upwardly and downwardly bent flange at the upper edge of the bottom-head, the shell and downwardly-bent flange of the bottom-head being provided with annular shoulders, while the enlarged space or cavity at the inside of the upwardly and downwardly-bent flange of the bottom-head and above the edge of the bent-up flange of the shell is filled with a solder ring which acts in the nature of a wedge for connecting the parts and preventing the blowing out of the bottom-head.

The accompanying drawing represents a side-elevation of my improved range-boiler, partly in section through the lower part of the same.

Referring to the drawing, A represents the cylindrical shell or body, B the top or upper head, and C the lower or bottom-head of my improved range-boiler. The shell and heads are preferably made of copper. The connection of the shell with the upper head is clearly shown, described and claimed in Letters Patent No. 865,841, granted to me on September 10, 1907. The bottom-head C is connected with the shell A by means of an interlocking joint which is formed by an inwardly and upwardly-bent flange f at the lower end of the shell and an upwardly, outwardly and downwardly-bent flange f^1 at

the upper circumference of the bottom-head C. These flanges f , f^1 are placed in interlocking position with each other. The lower end of the shell and the outer downwardly-bent portion of the flange f^1 are provided with annular shoulders d , d^1 which are located adjacent to each other and somewhat above the edge of the upwardly-bent flange f at the lower end of the shell A. The flange f is worked inwardly into the space between the exterior portion of the downwardly-bent flange f^1 and the upwardly-bent inner portion of the same, as shown in the drawing. Before closing up the adjacent parts of the interlocking joint the boiler is inverted and solder run into the space or cavity formed at the interior of the upper portion of the flange f^1 of the bottom-head so as to entirely fill the space above the edge of the flange f and above the shoulder d^1 of the exterior portion of the flange f^1 with a solid filling or ring e of solder. This is accomplished by heating step-by-step the interlocking joint all around with a blow-pipe, so that the liquid solder fills up the entire space and closes thereby any untight portion of the joint. As the inner surfaces of the shell and flanges are coated with a layer of zinc, the intimate connection of the shell with the exterior portion of the flange f^1 is obtained. The bottom-head C forms with the flange f^1 a shoulder g at its outer circumference which shoulder serves for permitting the pressing together of the parts, as it forms a sufficient resistance for this purpose. The filling e of solder, being larger at its upper than at its lower portion, acts in the nature of a wedge on the shoulders d^1 , d of the exterior portion of the flange f^1 and shell A, and holds thereby the bottom-head securely in position, so that it cannot get untight or blow out in case of high pressure in the boiler. A filling e^1 of solder is finally run into the angular space formed between the shoulder g and the adjacent bent portion of the flange f . The joint between the shell and bottom-head possesses thereby great strength and resistance to pressure, and forms a tight and reliable joint by means of the interlocking flanges, the shoulders in the lower end of the shell and in the outer downwardly-bent portion of the flange of the bottom-head and the wedge-shaped filling of solder in the cavity formed in the upper portion of the flange of the bottom-head.

The advantages of my improved connec-

tion for the shell and bottom-head of range-boilers are that it can be made at a considerably less expense than the joints heretofore used, second, that the connection of the bottom-head and shell at the lower part of the boiler has nearly the same appearance as the connection of the top-head and shell at the upper part of the boiler; and, third, that the connection between the bottom-head and shell is capable of resisting in a very effective manner higher pressures at the interior of the range-boiler so as to prevent leakage and blowing out of the bottom-head.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a range-boiler, the combination of a cylindrical shell having an inwardly and upwardly-turned annular flange at its lower edge and an inwardly and upwardly disposed annular shoulder near said flange and a bottom-head having a body-portion, an upwardly extending inner annular flange formed integral with the body-portion and forming a shoulder at the line of meeting therewith and engaging the inner face of the flange of the shell, an outwardly and downwardly-turned outer annular flange forming an integral continuation of the inner annular flange and being bent to form an outwardly and downwardly-disposed shoulder conforming to and engaging the shell and the shoulder thereof and extending into the space between the shell and the flange thereof, whereby is formed between the inner and outer flanges an annular cavity of wedge-shaped cross-section, and a solid filling of solder in said cavity.

2. In a range-boiler, the combination of a cylindrical shell having an inwardly and upwardly-turned annular flange at its lower edge and an inwardly and upwardly-disposed annular shoulder near said flange and a bottom-head having a body-portion, an upwardly extending inner annular flange formed integral with the body-portion and forming a shoulder at the line of meeting therewith and engaging the inner face of the flange of the shell, an outwardly and downwardly-turned outer annular flange forming an integral continuation of the inner annular flange and being bent to form an outwardly and downwardly-disposed shoulder

conforming to and engaging the shell and the shoulder thereof and extending into the space between the shell and the flange thereof, whereby is formed between the inner and outer flanges an annular cavity of wedge-shaped cross-section, and a filling of solder between the shoulder of the bottom-head and the adjacent part of the flange of the shell.

3. In a range-boiler, the combination of a cylindrical shell having an inwardly and upwardly-turned flange at its lower edge and an inwardly and upwardly-disposed annular shoulder near said flange, and a bottom-head having a body-portion, an upwardly-extending inner annular flange forming a shoulder at its line of meeting with the body-portion and engaging the inner face of the flange of the shell and extending outwardly and downwardly against said shell into the space between the shell and the flange of the shell, said outer annular flange being bent to form a shoulder conforming to the shoulder of said shell, whereby an annular cavity of wedge-shaped cross-section is formed, and a solid filling of solder in said cavity.

4. In a range-boiler, the combination of a cylindrical shell having an inwardly and upwardly turned flange at its lower edge and an inwardly and upwardly disposed annular shoulder near said flange, and a bottom-head having a body-portion, an upwardly-extending inner annular flange forming a shoulder at its line of meeting with the body-portion and engaging the inner face of the flange of the shell and extending outwardly and downwardly against said shell into the space between the shell and the flange of the shell, said outer annular flange being bent to form a shoulder conforming to the shoulder of said shell, whereby an annular cavity of wedge-shaped cross-section is formed, and a filling of solder between the shoulder of the bottom-head and the adjacent part of the flange of the shell.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

VALENTIN WILHELMI.

Witnesses:

PAUL GOEPEL,
FANNIE FISK.