B. E. MEACHAM.

WATER HEATER.

APPLICATION FILED MAR. 9, 1911.

1,101,872. Patented June 30, 1914.

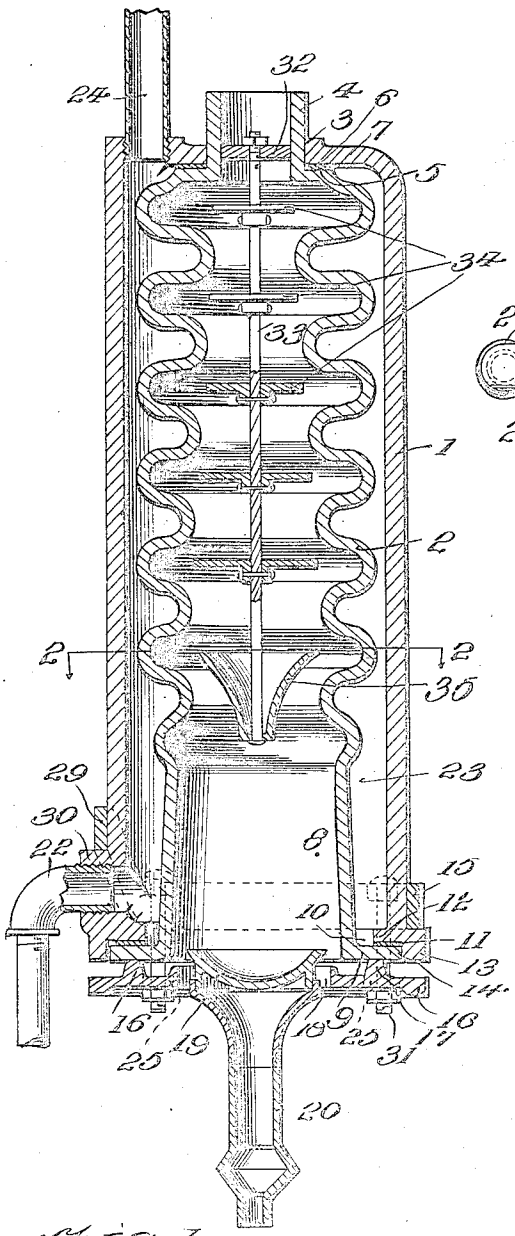
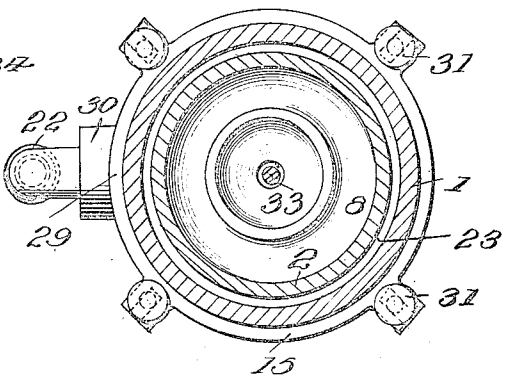


Fig. 1.

Fig. 2.



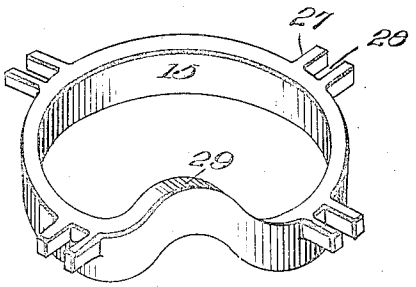


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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WATER-HEATER.

1,101,872. Specification of Letters Patent. Patented June 30, 1914.

Application filed March 9, 1911. Serial No. 613,345.

To all whom it may concern:

Be it known that I, BENJAMIN E. MEACHAM, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Water-Heaters, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in water heaters.

The object of my invention is to provide a heater in which the inner and outer shells are so connected together that they can be readily separated, so that the scale deposit from the water can be readily removed from the walls of the inner and outer shells or casings.

Another object of my invention is to provide a more simple, cheap and effective heater of this character having certain details of structure hereinafter set forth.

In the accompanying drawings—

Figure 1 is a vertical sectional view of a water heater embodying my invention. Fig. 2 is a transverse horizontal sectional view taken on the line 2—2, Fig. 1. Fig. 3 is a perspective view of the clamping ring.

Referring now to the drawing, 1 represents the outer casing of my improved heater in which is removably located the inner shell or casing 2 spaced some distance from the outer casing to form a space to hold the proper body of water. The inner casing 2, as shown, is corrugated horizontally or transverse thereof to form a larger heating surface and thus increasing the heating capacity of the heater without increasing the size thereof, resulting in the saving of fuel.

The inner shell or casing 2, as is well understood, forms the central smoke flue and has its upper end drawn inwardly as indicated at 3, and provided with the contracted smoke discharge pipe 4, which is in communication with a chimney or the outside atmosphere in any desired manner. The inwardly drawn portion 3, of the inner shell, is provided with the flat horizontal seat 5, upon which a suitable packing 6 is placed, and the upper end of the outer shell or casing 1 is drawn inwardly at 7, and rests upon said packing whereby a tight joint is formed to prevent the leakage of water from between the outer and inner shell or casing.

The lower end of the inner shell is made without the corrugations, as indicated at 8, which gradually flares outwardly to bring the lower end closer to the outer shell. The extreme lower end of the smooth portion 8 of the inner shell 2 is formed with a circumferential laterally extending flange 9, formed with a smooth upper face 10, forming a support for the packing 11. The lower end of the outer casing is provided with an inwardly extending flange 12, which rests upon the packing 11. The casing 1 is also provided with an outwardly and downwardly extending flange 13. The vertical inner wall 14 of said flange bears tightly against the outer edge of the flange 9 of the inner shell or casing.

The flange 13 forms a horizontal flat face 14, upon which the clamping ring 15 rests. The supporting ring or base 16 is of an annular form having a series of upwardly extending lugs 17 on its upper face, and upon which the flange 9 is supported, the base or ring being supported by feet or in any other desired manner. The lugs 17, as will be seen, space the flange 9 from the base 16, and thus form air passages between the same for feeding air to the burner.

The ring or base 16 is, as shown, provided with the central opening 18, in which is located the burner 19, supplied with fuel through the pipe 20. The burner, as shown, is of a diameter less than that of the opening and thus an annular air passage 21 for supplying additional air to the burner is provided.

The outer casing at its lower end is provided with a water supply pipe 22, which supplies the space 23, between the outer and inner casing with water, and the upper end is provided with a discharge pipe 24.

The outer edge of the base 16 is provided with the outwardly extending ears 25, having openings. Resting upon the upper flat face 14 of the flange 13, is the clamping ring 15, provided with the outwardly extending lugs 27 having slots 28. The said ring is provided with an upwardly bowed portion 29, which is adapted to pass upwardly over the pipe connection 30 with the casing.

Bolts 31 pass upwardly through the openings 26 in the base 16, and through the slots 28 in the lugs 27, whereby the ring is drawn tightly down upon the flange 13 and clamps the lower end of the outer casing upon the flange 9 of the inner casing and shell and by

means of the packing 11 a tight joint is formed. The tightening of the bolts 31 also draws the inwardly extending end 7 of the outer casing or shell 1 down upon the packing carried by the inwardly drawn portion 3, of the inner casing or shell 2, and thus a tight connection is made at the upper end by means of the packing.

From the foregoing description it will be understood that by loosening the bolts 31 or nuts carried thereby moving the same out of the slots 28 in the lugs 27, the inner shell or casing 2 can be removed so that any deposit from the water can be readily removed from the casing. The removal of the inner sections allows the heater to be cleaned without disturbing the water connections with the tank.

The flue 4 of the inner casing is provided with a cross-bar 32 to which is secured a downwardly extending bolt or rod 33, and said bolt has the baffle plates 34 secured thereon. The said baffle plates, as shown, are arranged opposite the outwardly extending corrugations, so that as the heat or products of combustion strike the baffle plates the same is caused to travel outwardly into the corrugations and thus increase the passage from the burner to the flue 4, and materially increasing the heating capacity of the heater. The lower end of said bolt or rod is provided with the inverted bell-shaped baffle 35, the lower end of which is just above the portion 8 without the corrugations.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A water heater comprising an inner casing, an outer casing resting upon the inner casing at its upper and lower ends and spaced therefrom, a base having upwardly extending lugs on its inner face and upon which the inner casing rests, a clamping ring engaging the outer casing and bolts passing through the base and the clamping ring and clamping the two casings together at their upper and lower ends.

2. A water heater, comprising a supporting ring having upwardly extending lugs on its inner face, a burner supported by the ring within the opening and spaced therefrom, a corrugated inner casing having a laterally extending annular flange at its lower end resting upon the lugs of the ring to form a space between the same, an outer casing having an inwardly turned upper end resting upon a horizontal face of the inner casing, an inwardly extending flange carried by the lower end of the outer casing and resting upon the upper face of the flange carried by the inner casing, an outwardly extending flange carried by the outer face of the outer casing, a ring surrounding the outer casing above the flange, bifurcated ears carried by said ring, ears carried by the supporting ring and having openings therein, bolts passing through bifurcated eyes of the ring and the openings in the eyes of the supporting rings for clamping the upper and lower ends of the casings together, a water-supply for the lower end of the space between the two casings, and a water discharge for the upper end of said space.

3. A water heater comprising an outer casing, an inner casing spaced from the outer casing and having a flange engaging the lower end of the outer casing, a packing between said flange and the lower end of the outer casing, bolts for clamping said flange to the outer casing, the upper end of the inner casing drawn inwardly and forming a shoulder and having an upwardly extending neck, a packing on said shoulder, and the upper end of the outer casing drawn inwardly and engaging the upper face of the packing whereby a tight joint is formed between the upper ends of the casings by the said clamping bolts.

4. A water heater comprising a supporting ring having upwardly extending lugs on its upper face, a burner supported by the ring within the opening and spaced therefrom, and the inner casing having a laterally extending flange at its lower end and resting upon the lugs of the ring, the upper end of the inner casing having a contracted portion forming a shoulder, an outer casing having an inwardly turned upper end resting upon the shoulder of the inner casing, an inwardly extending flange carried by the lower end of the outer casing and resting upon the outwardly extending flange of the inner casing and a clamping ring surrounding the outer casing and bolts passing through the clamping ring and the supporting ring for clamping the two casings together at their upper and lower ends.

5. A water heater comprising an inner casing having a contracted upper end forming a shoulder, the lower end of said casing having an outwardly extending flange, an outer casing having an inwardly turned upper end resting upon the shoulder formed by the contracted end of the inner section, the lower end of the outer casing having an inwardly extending flange resting upon the flange at the lower end of the inner casing, said outer casing having an upwardly extending flange at its lower end, a supporting ring having lugs upon which the outwardly extending flange of the inner section rests, a clamping ring surrounding the outer casing and resting upon the outwardly extending flange carried by the lower end and clamping bolts passing through the rings and clamping the inner and outer sections together by their upper and lower ends.

6. A water heater, comprising an inner casing, having a contracted upper end forming a shoulder, a laterally extending flange

carried by the lower end of said casing, an outer casing surrounding the inner casing and spaced therefrom and having an inwardly turned upper end resting upon the shoulder formed by the contracted portion of the inner casing, an inwardly extending flange carried by the lower end of the outer casing and resting upon the outwardly extending flange in the inner casing, an outwardly extending flange carried by the lower end of the outer casing and resting against the outer vertical wall of the flange carried by the lower end of the inner casing, and means engaging said outwardly extending flange for clamping the inner and outer castings together at their upper and lower ends.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

BENJAMIN E. MEACHAM.

Witnesses:

LUELLA ROTH,

GEO. L. GLITSCH.