



# UNITED STATES PATENT OFFICE.

THOMAS J. MCKINNON, OF SAN ANTONIO, TEXAS.

## WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 666,389, dated January 22, 1901.

Application filed October 8, 1900. Serial No. 32,337. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. MCKINNON, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented certain new and useful Improvements in Water-Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in water-heaters, my object being to provide a structure which is simple, cheap, and durable by which water can be rapidly heated and whose parts can be readily cleaned, it having been found that periodical cleaning is necessary with heaters used with hard water.

To these ends, and also to improve generally upon devices of the nature indicated, my invention consists in the various matters hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of the present heater, the door being open. Fig. 2 is a side elevation thereof, a portion of this view being in central vertical section. Fig. 3 is a rear elevation thereof. Fig. 4 is a horizontal sectional view on the line 4 4 of Fig. 1, some of the grate-bars being removed; and Fig. 5 is a vertical sectional view of the grate and ash-pan supporting member on the line 5 5 of Fig. 1.

Referring now more particularly to the drawings, A A' represent, respectively, the front and rear water-receiving sections, the front section A being an arched member having the inner wall  $a$ , the outer wall  $a'$ , the front wall  $a^2$ , connecting said inner and outer walls, and the bottom wall  $a^3$ , connecting the bottoms of the said inner, outer, and front walls. The said front wall  $a^2$  extends only across the space between the inner and outer walls, whereby an arched opening is left into the section, said opening being adapted to be closed by a suitable door B, hinged to the front wall upon one of the legs of the arch. The rear section A' is generally similar to said front section, having the inner, outer,

and bottom walls; but in this section the outer wall, to a height just below the smoke-hole  $a^8$ , extends rearwardly beyond the inner wall, and said outer wall and the upper longer portions of the inner wall are connected at their rear by a rear wall  $a^4$ , while the shorter portions of said inner wall are connected at their rear by an inner rear wall  $a^5$ , the said walls  $a^4$  and  $a^5$  extending entirely across the spaces between said outer and inner walls, respectively. A horizontal top wall  $a^{10}$  connects the top of the wall  $a^5$  with the wall  $a^4$ . A water-space is thus produced in the legs and across the arch of each of said sections and also at the rear of the lower portion of said rear section. In the rear wall  $a^4$  are provided suitable openings  $a^6$  and  $a^7$  for the attachment of the inlet and outlet pipes, respectively, and in said wall is also provided a smoke-hole  $a^8$  for the reception of a suitable pipe  $a^9$ . The said sections A and A' are detachably held together by means of rods C, extending longitudinally through the water-space and projecting through the front and rear walls, where they are provided with suitable nuts  $c$ . It will at once be apparent that the said sections can be cheaply and easily made and assembled and can be quickly and conveniently separated and that when separated the water-spaces can be readily cleaned. Manifestly should a larger heater be desired an additional section or sections having inner, outer, and bottom walls can be inserted between the front and rear sections above described.

The water-receiving sections rest upon a base member E, which has downwardly and upwardly inclined side walls  $e$ , front wall  $e'$ , and rear wall  $e^2$ , said side walls having at their tops outwardly-extending flanges  $e^3$ , upon the inner edges of which are upwardly-projecting ribs  $e^4$ , while the said rear wall extends upwardly to about the height of these ribs. The bottoms of the legs of the water-receiving sections rest upon the flanges  $e^3$ , the upwardly-extending portion of the rear wall of the base member abutting against the inner face of the inner rear wall  $a^5$  of the section A' and the ribs  $e^4$  abutting against the inner faces of the inner walls  $a$ . The sections A A' are thus properly positioned upon the base member and may be fastened thereto in any convenient manner.

Transverse bars  $e^5$ , attached to the inner faces of the front and rear walls of the base member or formed integrally therewith, serve to support grate-bars D, and the front wall  $e'$  being of less depth than the side and rear walls said side walls extend inwardly at their bottoms to produce supports or flanges  $e^6$  for flanges  $f$  upon the upper edges of the sides of an ash-pan F. A space sufficient to accommodate these flanges  $f$  is left between the said supports  $e^6$  and the lower edge of the front wall  $e'$ , while the rear wall  $e^2$  forms a stop for the ash-pan. The said front wall is provided with suitable draft-apertures  $e^7$ , controlled by a slide or gate  $e^8$ , mounted upon said front wall.

Suitable legs H are bolted to the side walls  $e$  and have their upper and inner faces abutting against the flanges  $e^3$  and the said walls, thus affording a firm support.

The present device is simple, convenient, and durable and rapidly heats the water.

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

1. In a water-heater, an arched water-receiving member comprising a front wall, inner and outer walls connected thereto and having a water-space between them, said inner wall having rear portions shorter than said outer wall, a rear wall connecting and extending across the space inclosed by said outer wall and also connecting the longer portion of said inner wall, an inner rear wall connecting and extending across the space inclosed by the shorter portions of the inner wall, and a wall connecting the end of said inner rear wall with said rear wall, whereby a water-space is produced between said rear walls; substantially as described.

2. In a water-heater, an arched water-receiving member comprising a front wall, inner and outer walls connected thereto and having a water-space between them, said front wall extending only across the space between said inner and outer walls, and a door adapted to close the opening bounded by the said inner wall, whereby the said arched member and said door produce a fire-box; substantially as described.

3. In a water-heater, an arched front section comprising a front wall, inner and outer walls connected thereto and having a water-space between them, said front wall extending only across the space between said inner and outer walls, a door hinged upon one of the legs of said front wall and adapted to close the opening bounded by said inner wall, a rear arched section having inner and outer walls adapted to register with the inner and outer walls of said front section, said inner wall of the said rear section having rear portions shorter than said outer wall, a rear wall connecting and extending across the space bounded by said outer wall and also connecting the longer portion of said inner wall, an inner rear wall connecting and extending

across the space bounded by the shorter portions of said inner wall, a top wall connecting the top of said inner rear wall with said rear wall, a smoke-opening in said rear wall between the inner wall and the said top wall, water inlet and outlet openings in said rear wall and leading to the water-spaces adjoining the same, and means for detachably holding said sections together; substantially as described.

4. In a device of the nature indicated, an upper member having side and rear walls adapted to form walls of a fire-box, in combination with a base member having side walls, and a rear wall, flanges extending laterally from said side walls, and ribs upon said flanges, said rear wall extending above the said side walls, whereby said rear wall and said ribs lie against the inner faces of the rear and side walls of the said upper member; substantially as described.

5. In a device of the nature indicated, an upper member having side and rear walls adapted to form walls of a fire-box, in combination with a base member having side walls, and a rear wall, flanges extending laterally from said side walls, and ribs upon said flanges, said rear wall extending above the said side walls, whereby said rear wall and the said ribs lie against the inner faces of the rear wall and side walls of the said upper member, and legs secured to said base member, said legs fitting in the angle between said side walls of said base member and the flanges thereof, and abutting against both of the same; substantially as described.

6. A base member for devices of the nature indicated, said member having side walls and a front wall of less depth than said side walls, and inwardly-extending flanges upon said side walls and below said front wall, said flanges being adapted to slidably support an ash-pan; substantially as described.

7. A base member for devices of the nature indicated, said member having side walls and a front wall of less depth than said side walls, said front wall having draft-apertures therein, a controlling-gate for said apertures mounted upon said front wall, and inwardly-extending flanges upon said side walls and below said front wall, said flanges being adapted to slidably support an ash-pan; substantially as described.

8. In a water-heater, an arched water-receiving member comprising a front wall, inner and outer walls connected to said front wall and having a water-space between them, said front wall extending only across the space between said inner and outer walls, means for closing the rear of said water-space, suitable water inlet and outlet openings being provided in the walls, a door supported upon one of the legs of said front wall and adapted to close the space bounded by said inner wall, said water-receiving member thus forming all but the bottom of a fire-box, a suitable smoke-opening being provided in its

5 wall, in combination with a base member hav-  
ing side and rear walls, and a front wall of  
less depth than said side and rear walls, said  
front wall being provided with draft-aper-  
tures, a controlling-gate for said apertures  
supported upon said front wall, outwardly-  
projecting flanges upon said side walls, the  
said rear wall extending above said side walls,  
ribs upon said flanges, said water-receiving  
10 section having its legs resting upon said  
flanges and said ribs and rear wall of said  
base member abutting against the inner face  
of the side and rear walls of said water-re-  
ceiving member, transverse bars across said

base member, grate-bars supported upon said 15  
transverse bars, legs supporting said base  
member, inwardly-extending flanges upon  
the side walls of said base member and extend-  
ing under the front wall thereof, and an ash-  
pan slidably supported upon said flanges; 20  
substantially as described.

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

THOMAS J. MCKINNON.

Witnesses:

W. D. ELROD,  
E. E. FONTSON.