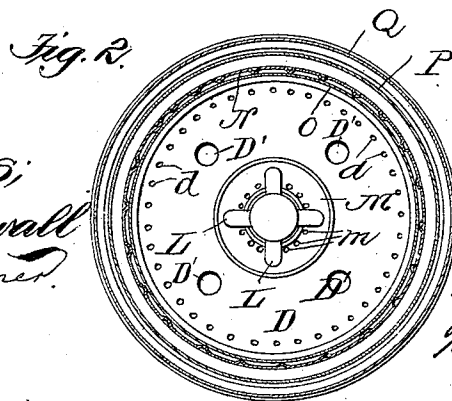
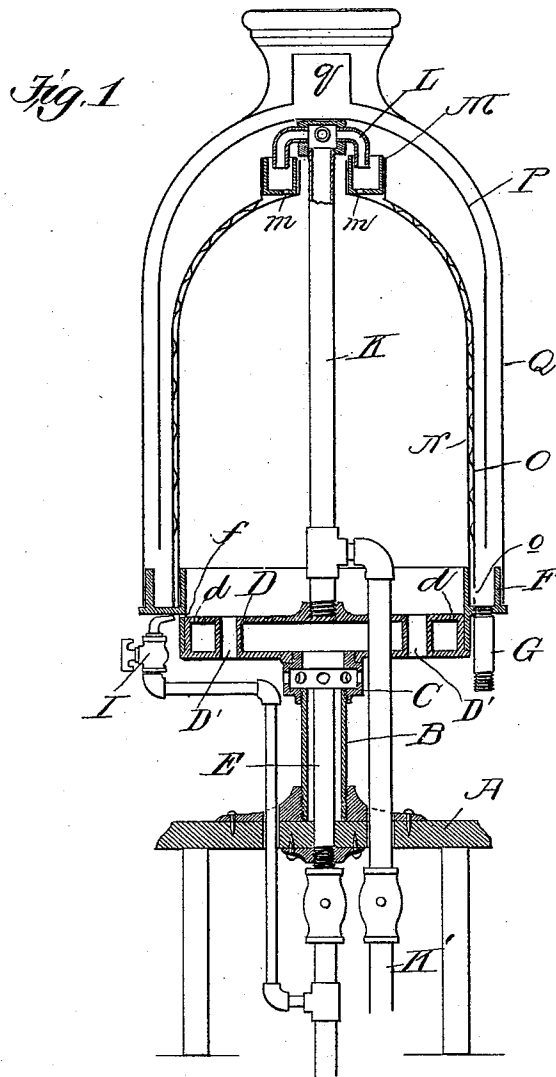


(No Model.)

W. SCHARNWEBER.
WATER HEATER.

No. 536,542.

Patented Mar. 26, 1895.



Witnesses;
F. Cornwall
Hugh H. Wagner

Inventor,
Wm. Scharnweber

by
Paul Bakewell
his atty.

UNITED STATES PATENT OFFICE.

WILLIAM SCHARNWEBER, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF
TO GEORGE BAKEWELL, OF QUINCY, ILLINOIS.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 536,542, dated March 26, 1895.

Application filed September 10, 1894. Serial No. 522,639. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHARNWEBER, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Water-Heaters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a vertical sectional view, taken through my improved heater; and Fig. 2 is a cross-sectional view.

This invention relates to a new and useful improvement in water-heaters, and is designed especially as an improvement in devices of the class described which are used for heating water for bath-tubs, &c.

The essential features of this invention reside in introducing the cold water up through a central stand-pipe, whence it is discharged into an annular receptacle, and, falling by gravity, passes between two thin sheets of metal placed closed together, after which the heated water is received into an annular cup located at the base of the heater, whence it is drawn off, and conducted to the bath-tub or other suitable receptacle.

Another feature of the invention resides in the construction of the burner forming a supporting base for the heater, which burner generally supports the shells and water-pipes, and, finally, other minor details of invention reside in the peculiar construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings, A indicates a stand or base, upon which is mounted an upright pipe B. Secured to the top of this upright pipe B, is a coupling C, which is perforated at its sides to admit air to intermingle with the gas emitted from pipe E extending up into pipe B. Attached to the coupling C, is a burner D, into which said coupling opens, said burner consisting of a hollow body into which the air and gas are received from coupling C, and which burner is perforated, as at *d*, in its upper face and near the outer periphery of the burner. The burner D is also provided with openings D' which extend therethrough, per-

mitting air from the exterior to enter the combustion chamber to support combustion. Mounted upon the burner, preferably by resting upon a projecting annular flange, is an annular cup-shaped receptacle F, which receives the heated water and from which leads a pipe G to the bath-tub or other receptacle for the heated water. The depending flange of this receptacle F is formed with an opening *f*, opening into the combustion chamber of the heater just above the burner, and arranged so as to inject a tongue of flame through said opening *f* is a pilot-light I, which is connected or lead from the gas-pipe E. Formed on the top of the burner F, is a lug in the form of a blind-boss, which receives an upright water-pipe K. Leading into this water-pipe by suitable couplings, is a water supply pipe K', which supplies the heater with water to be heated from some suitable source of supply. Arranged on the upper end of the pipe K, is a distributing coupling from which lead elbow-pipes L, discharging into an annular cup M, which cup M is formed with perforations *m* in its bottom through which the water may pass between two sheets N and O, which sheets support the cup M, said sheets being supported by the cup F. These sheets N and O, as will be noticed, are arranged very close to each other, and, in order to preserve parity between them, small indentations are formed in one of the sheets—preferably the outer, which indentations also serve to diffuse the water in a thin sheet over a large area. The outer sheet is also formed with openings *o* around its bottom, which permits the water to pass into cup F.

Supported on the distributing coupling at the top of water-pipe K, is a flue-sheet P, which is in the form of a curtain-wall and terminates above cup F.

Q indicates the outer inclosing shell, which is supported by a flange on cup F, said shell or casing Q having an outlet draft-opening *q* at its top.

In the above I have described a very simple construction of a water-heater which is easily assembled and the parts of which are easily made and fitted together without requiring the nicety of adjustment which is generally necessary in devices of this charac-

ter. It will, also, be noted that a large combustion chamber is formed by the sheet N and that combustion takes place above the burner near its edges, so that sheet N is subjected to an intense heat, while the water-pipe K is only heated by the reflected heat. The products of combustion pass upwardly through the annular cup M, around the elbow-pipes L, over the cup M, down between the curtain-wall P and shell O, beneath the curtain-wall and up therebetween and the casing Q, whence it passes out through the opening *q*. The water from pipe K' enters pipe K, and, being heated, passes up to the distributing coupling, out through the elbow-pipes L, into cup M through the openings *m*, between the shells N and O, where it is spread out in a thin sheet by the indentations in shell O, out through the openings O into cup F, then through pipe G into the receptacle.

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

1. In a water-heater, the combination with a suitable burner, of an annular cup F mounted thereupon, an outlet pipe for the heated water which leads from said cup, shells N and O which are supported by the cup, a cup M, which is supported by the shells, which cup is perforated so as to open into the space between the shells, an inlet-pipe K which is sup-

ported by the burner, a distributing chamber on the upper end of the inlet pipe, and elbow-pipes L, which discharge into cup M, substantially as described.

2. In a water-heater, the combination with a suitable burner, of two shells N and O which are supported thereby, one of which shells is formed with indentations, an inlet-pipe which discharges into the space between the shells, a cup F for receiving the water from between the shells, a curtain-wall P which is supported by the inlet-pipe, and an outer inclosing shell or casing Q which is formed with an outlet draft-opening at its top, substantially as described.

3. In a water-heater, the combination with a suitable burner, of an outer inclosing shell, a curtain-wall which extends nearly to the bottom of said shell, an inlet-pipe which supports the curtain-wall, two shells N and O between which the water is discharged from the inlet-pipe, and a cup F which supports the shells N and O and which receives the water therefrom, substantially as described.

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this 31st day of August, 1894.

WILLIAM SCHARNWEBER.

Witnesses:

F. R. CORNWALL,
HUGH K. WAGNER.