A. R. WALKER.

Apparatus for Heating Water.

No. 203,392. Patented May 7, 1878.

FIG. II.

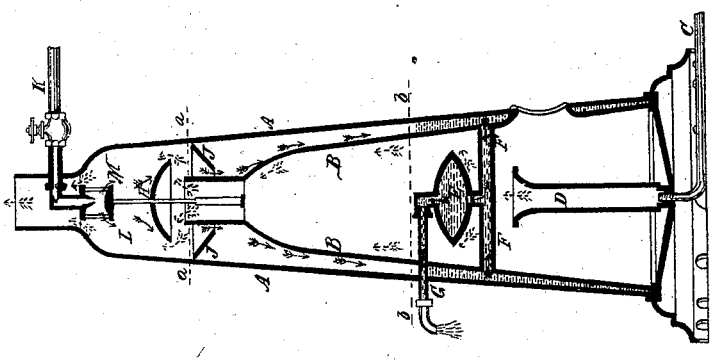


FIG. V.

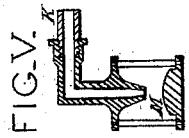


FIG. IV.

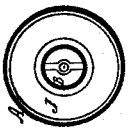


FIG. III.

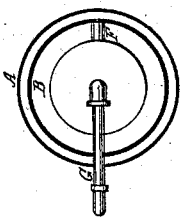
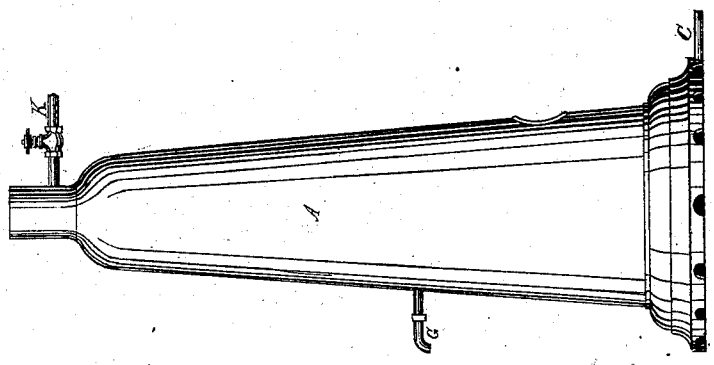


FIG. I.



WITNESSES.

Nannie D. Stallings.

Robert R. Leake

INVENTOR.

A. R. WALKER

BY H. W. Bradley & Co

HIS ATT'YS.

UNITED STATES PATENT OFFICE.

ALEXANDER R. WALKER, OF MELBOURNE, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN McFADYEN, OF HOTHAM, IN THE BRITISH COLONY OF VICTORIA.

IMPROVEMENT IN APPARATUS FOR HEATING WATER.

Specification forming part of Letters Patent No. **203,392**, dated May 7, 1878; application filed September 4, 1877.

To all whom it may concern:

Be it known that I, ALEXANDER RUSSELL WALKER, of No. 40 Latrobe street west, in the city of Melbourne and Colony of Victoria, engineer, have invented an Improved Apparatus for Heating Water, which invention is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention has been designed for the purpose of reducing the cost of heating water by a gas or oil flame, and is not intended to be used as a substitute for ordinary boilers where a coal or coke fire is available.

My improved apparatus for heating water by a gas-flame is clearly shown in my drawings, hereto annexed, although it is to be distinctly understood that oil may be used instead of gas.

Referring to these drawings, Figure 1 shows an elevation of my apparatus; Fig. 2, a vertical section thereof; Fig. 3, a horizontal section on the line *b b* in Fig. 2; Fig. 4, a horizontal section on the line *a a* in Fig. 2; and Fig. 5, a cross-section of supply-inlet.

The black arrows denote the course of the water, and the dotted arrows that of the gas and heated air.

The apparatus is all of metal, the outer casing, A, being made of galvanized iron, and the inner one, B, of copper. C is the gas-supply pipe; D, a Bunsen burner; E, a copper basin, connected at its base to the annular water-space between the inner and outer casing by pipes F, and having a discharge-pipe, G, for the heated water. For the purpose of preventing the entrance of the water into the inner casing I provide it with a copper cap or cover, H, supported as shown; and for the purpose of interrupting the descent of the water I attach to the outer casing an inclined copper plate, J.

K is the water-supply pipe, having tapering nozzle, as shown, to increase the force of the supply into chamber L, down which it falls on a hemisphere or convex surface, M, supported by two wires connected to lugs on casting of nozzle. The fall of the water on this hemisphere or convex surface produces a satisfactory shower, without the danger of choking which attaches to a perforated plate. Descending in this part of the apparatus, it abstracts some of the heat from the escaping heated air, and then falls on cap H and plate J, trickling down the outer side of the inner casing B into the annular space between it and the outer casing, and passing through pipes F into basin E, and thence through discharge-pipe G into a bath or other receiver.

The supply of water and of gas must be so regulated as to give a continuous discharge of water heated to the required degree.

I prefer to make the parts in the relative proportions shown in my drawings.

I do not confine myself to the use of any particular kind of metal in the construction of my apparatus, as it is more a question of price than suitability as to the kind of metal used. Neither do I confine myself to the use of a hemisphere for producing the shower, although I believe it to be the best; but

I claim—

1. In combination with the discharge-pipe for the products of combustion, the overhanging shield H for receiving and discharging the water-current, and the inclined annular plate J for interrupting the current and directing it upon the discharge-pipe for the products of combustion, substantially as described.

2. The apparatus described, consisting essentially of the outer casing A, the inner casing B, the gas-supply pipe C D, the basin E, having the discharge-pipe G, the water-supply pipe K, and the diaphragm M, all combined and arranged substantially as described.

A. R. WALKER.

Witnesses:
EDWD. WATERS,
W. S. BAYSTON.