

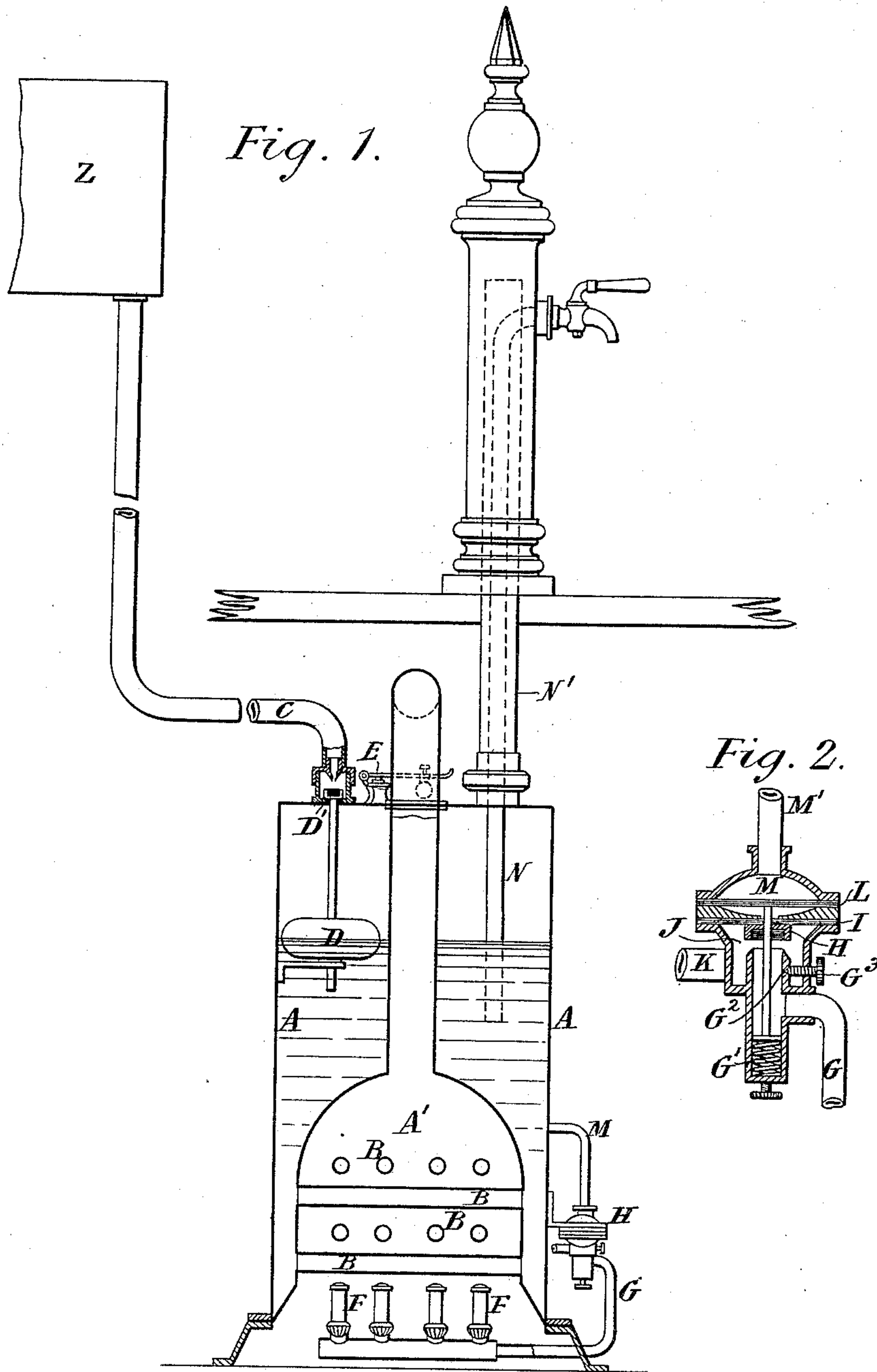
(No Model.)

C. JONES.

APPARATUS FOR MAINTAINING A SUPPLY OF BOILING WATER OR
STEAM, OR BOTH.

No. 409,360.

Patented Aug. 20, 1889.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES JONES, OF WOODFORD, ASSIGNOR TO JAMES CHILDS, OF LONDON,
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APPARATUS FOR MAINTAINING A SUPPLY OF BOILING WATER OR STEAM, OR BOTH.

SPECIFICATION forming part of Letters Patent No. 409,360, dated August 20, 1889.

Application filed April 22, 1889. Serial No. 308,085. (No model.) Patented in England October 21, 1884, No. 13,952.

To all whom it may concern:

Be it known that I, CHARLES JONES, builder, a subject of the Queen of Great Britain, lately residing at 24 Eastcheap, in the city of London, but now residing at Maude Villa, Chelmsford Road East, Woodford, England, have invented certain new and useful Improvements in Apparatus for Maintaining a Supply of Boiling Water or Steam, or of Both, (for which I have received Letters Patent in Great Britain, No. 13,952, dated October 21, 1884,) of which the following is a specification.

This invention has for its object improvements in apparatus for maintaining a supply of boiling water or steam, or of both. For many purposes it is desirable to maintain a supply of boiling water which can be drawn off whenever required, at a boiling temperature, from a cock or tap at a distance from the boiler in which the water is boiled. In other cases it is desirable to maintain a continuous supply of steam for heating purposes, or to maintain a supply both of boiling water and steam. To effect these objects, I employ a steam-boiler heated by the combustion of gas issuing from gas-burners, and I control the supply of gas to the burners by the pressure within the boiler, so that when the pressure within the boiler has risen to the maximum required the supply of gas is, for the most part, cut off, and so that when the pressure again falls more gas is allowed to pass to the burners. The pipe for conveying boiling water to a distance I make to dip down from the upper part of the boiler to a point below the water-level. The pipe outside the boiler I lead away in any upward direction and surround by a pipe of larger dimensions, to which steam from the steam-space of the boiler can always enter freely, so that water contained in the inner water-tube is always maintained at or about the boiling-point. On the pipe a cock or cocks may be placed to allow of boiling water being drawn off from it. In this way any water drawn off from the pipe must always be boiling, because the pipe will always be surrounded by steam at a higher temperature than boiling water, or if not, then the pressure in the boiler would fall and no water could be drawn off from the pipe.

The water-supply to the boiler I effect by a supply-pipe from a cistern at an elevation sufficient to give a pressure of water greater than the pressure within the boiler, and control the admission by a valve acted on by a float.

In cases where a continuous supply of steam is required—as, for example, for heating purposes—I lead off a steam-pipe from the upper part of the boiler to wherever it may be required to use the steam.

Figure 1 of the drawings is a vertical section of the apparatus, and Fig. 2 a section of the valve for supplying gas to the boiler.

A is the boiler, with an arched inner chamber A' at the bottom and chimney rising up therefrom, and with tubes B passing across the chamber.

C is a water-supply pipe coming from a cistern Z at an elevation sufficient to give a pressure of water greater than the pressure within the boiler.

D is a float carrying a valve D', by which the orifice at the end of the water-supply pipe can be closed when the boiler is sufficiently filled with water.

E is a safety-valve loaded to maintain a light pressure in the boiler—say a pressure of from two to four pounds to the inch.

F F are gas-burners below the bottom of the boiler. These burners are preferably adapted, as shown, for burning a mixture of gas and air.

G is a gas-pipe leading from these burners to the valve H. By this valve the supply of gas to the burners is controlled, so that whenever a certain amount of boiling water is drawn off and fresh water is supplied to the boiler to replace it a full supply of gas is allowed to pass to the burners, so as quickly to raise the water in the boiler to a boiling temperature, and then when the pressure has again been raised to the pressure required—say two to four pounds to the inch—the supply of gas to the burners is for the most part cut off and only sufficient allowed to pass to them to maintain the boiler at this pressure.

The valve is carried on the under side of a flexible disk I, which closes over the top of a chamber J, to which gas is admitted through

a gas-supply pipe K. The valve is held away from the end of the pipe G by the action of a spring G', so that unless the valve is pressed downward a full supply of gas passes to the
5 burners. The stem of the valve rises up through the flexible disk I and rests against the under side of a second flexible disk L. This disk is fixed across a chamber M, the top of which is by a pipe M' connected to the
10 interior of the boiler. When the pressure on the top of the disk L is sufficient to overcome the action of the spring G', the valve H closes and no gas passes by it to the burners. Sufficient gas for maintaining a small flame at
15 each burner then passes into the pipe G through the small opening G², the passage through which can be regulated by a screw-valve G³.

N is a pipe by which boiling water can be
20 drawn off from the boiler. It dips down into the water in the boiler, and, passing out from the top of the boiler, rises upward and is furnished with a tap at its upper end.

N' is a pipe surrounding the portion of the
25 pipe N which is above the boiler. Its lower end is open to the steam-space at the top of the boiler. The pipe N is therefore always surrounded by steam from the boiler, and the water in it is maintained at a boiling tem-

perature close up to the point where it is to
be drawn off.

What I claim is—

1. The combination, substantially as here-
inbefore set forth, of the boiler, a heater be-
low the boiler, the automatic regulator for
35 controlling the heat, the water-supply cistern at a higher level than the boiler, a pipe connecting the boiler with the cistern, a float-valve controlling the supply of water to the
boiler from the cistern, a supply-pipe extend-
40 ing from the boiler and provided with a draw-off cock, and a steam-jacket for said pipe.

2. The combination, substantially as here-
inbefore set forth, of the closed gas-heated
boiler, means for automatically regulating the
45 heat, the pipe N, extending into the boiler and having a draw-off cock at its upper end, and a pipe of larger diameter than the pipe N surrounding said pipe and connected with the
boiler to form a steam-jacket for the pipe to
50 keep the water in the pipe at a high temperature.

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Witnesses:

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