

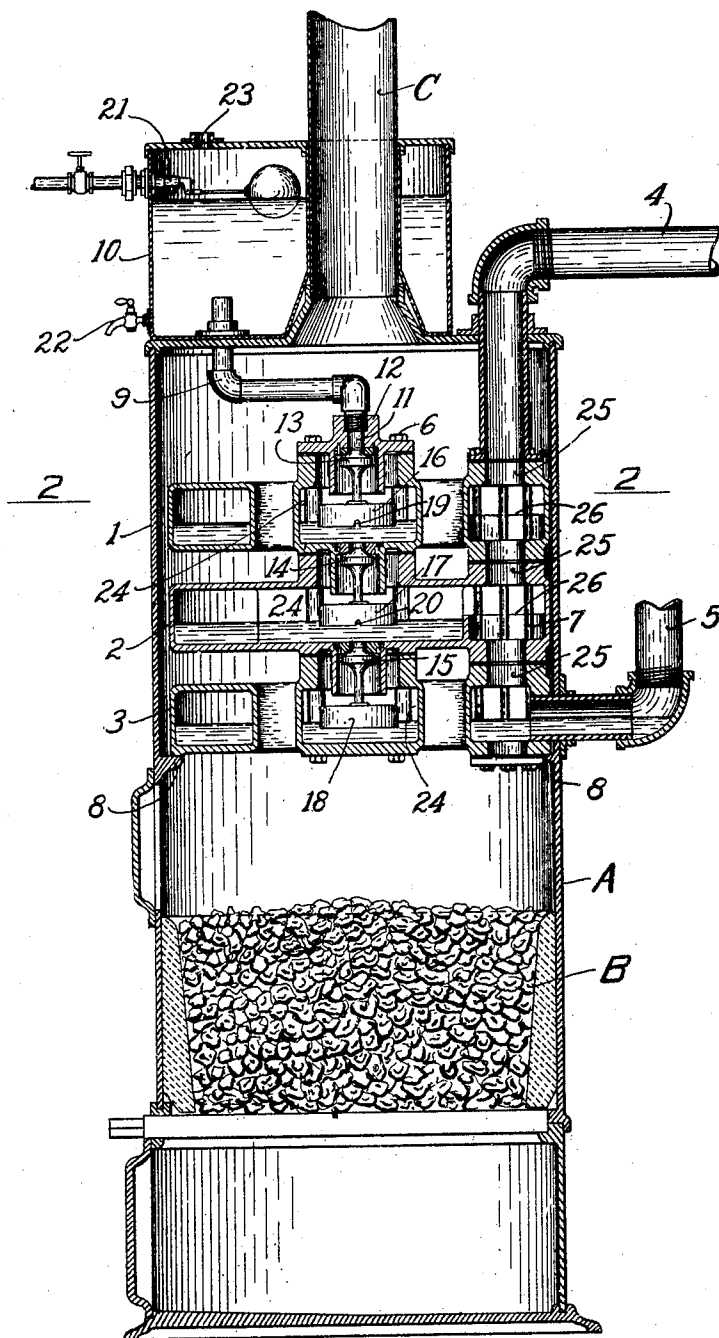
No. 796,372.

PATENTED AUG. 1, 1905.

J. H. TUTTLE.
VAPOR GENERATING DEVICE.

APPLICATION FILED JAN. 7, 1905.

2 SHEETS—SHEET 1.



WITNESSES
A. T. Palmer
Arthur P. Bryant

FIG. 1.

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BY *Alfred Andrae*
ATTY.

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2 SHEETS—SHEET 2.

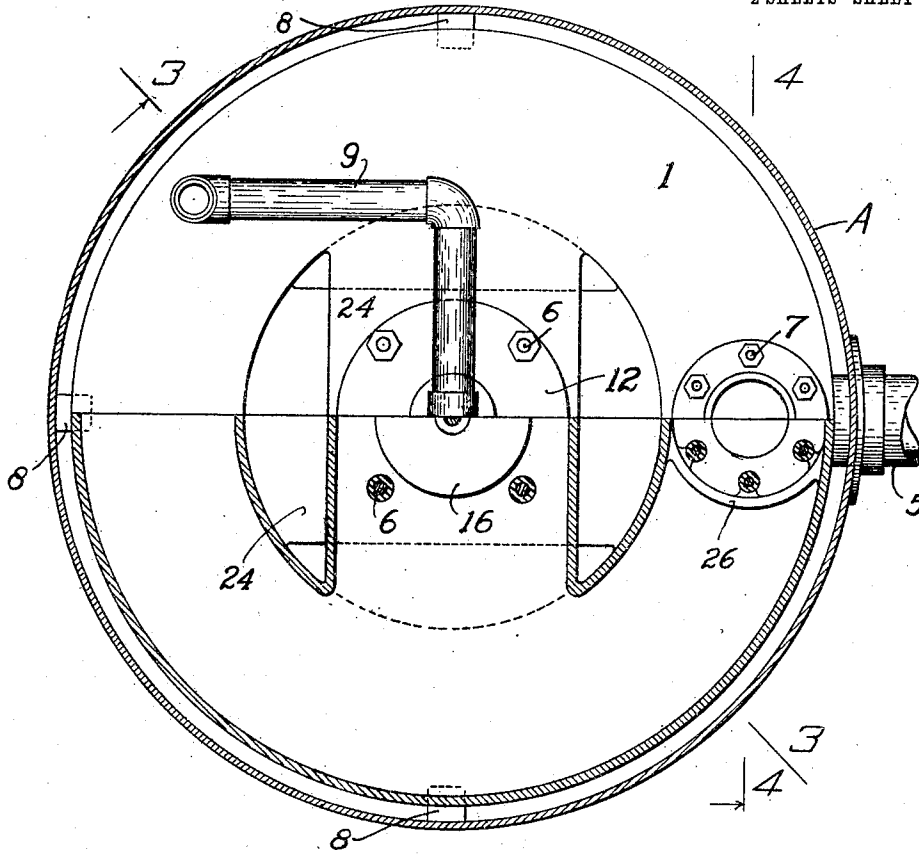


FIG. 2.

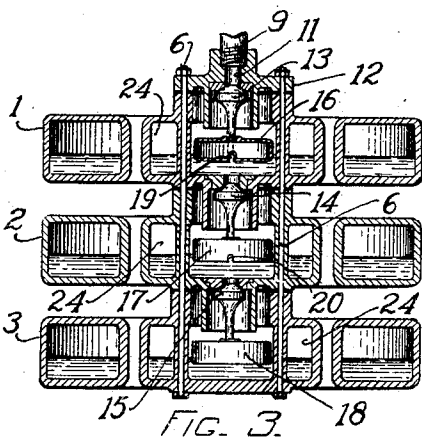


FIG. 3.

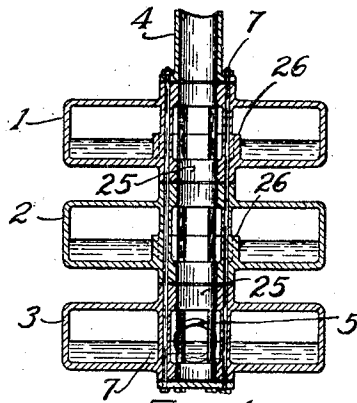


FIG. 4.

WITNESSES

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INVENTOR
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UNITED STATES PATENT OFFICE.

JOSEPH H. TUTTLE, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO CHARLES BUTCHER, OF CAMBRIDGE, MASSACHUSETTS.

VAPOR-GENERATING DEVICE.

No. 796,372.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed January 7, 1905. Serial No. 240,030.

To all whom it may concern:

Be it known that I, JOSEPH H. TUTTLE, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Vapor-Generating Devices, of which the following is a specification.

This invention relates to improvements in vapor-generating devices, as will hereinafter be more fully shown and described.

The object of my invention is to provide in a heating device a plurality of vaporizing-surfaces, thereby producing quicker action and effecting a saving in fuel.

In the drawings which illustrate my device attached to an ordinary heater, such as is used in dwellings, Figure 1 is a vertical section of the heater. Fig. 2 is a plan section on line 2 2 of Fig. 1, showing half of the top unit uncut. Fig. 3 is a section of my device on line 3 3 of Fig. 2. Fig. 4 is a section of my device on line 4 4 of Fig. 2.

A is the shell, B the fire-pot, and C the stack of the heater.

1, 2, and 3 represent units or sections superposed one on the other and connected to a steam-supply pipe 4 and steam-return pipe 5 of an ordinary steam-distributing system. These sections are united by bolts 6 7 and are supported in the position shown by lugs 8 8 on shell A.

9 is the liquid-supply pipe from supply-tank 10 and delivers the liquid (in this case water) through an opening 11 in the crown-piece 12 to the top unit 1. Admission to the various units is automatically controlled by a series of valves 13, 14, and 15, connected, respectively, to floats 16, 17, and 18.

The operation is as follows: The units being empty, the floats 16, 17, and 18 will rest on the floors of their respective units, and the valve-ports will be opened. Filling tank 10 will cause the water to flow through pipe 9 and opening 11 into unit 1, thence through passage 19 in float 16 into unit 2, and thence through passage 20 in float 17 into unit 3. When sufficient water has accumulated in unit 3 to raise the float 18 enough to seat valve 15, the water will collect in unit 2 until valve 14 is seated by the float 20, and in like manner the water will then accumulate in unit 1 until float 19 seats valve 13. The flow of water then ceases automatically until such time as evaporation in any of the units causes a lowering

of the water-surface in that unit when through the consequent unseating of its valve an extra supply of water will be automatically furnished by the unit directly above, which in turn will similarly draw an equal amount from the unit above it, and this action will be repeated through each superposed unit, the top unit supplying itself from tank 10, as will be readily understood from an inspection of Fig. 1. Tank 10 is provided with an automatic filling device 21 and is preferably mounted on the heater in such manner as to utilize the waste heat for preheating the water, thus serving the double purpose of effecting an extra saving of fuel and supplying warm water for extraneous uses, which can be drawn off through cock 22. 23 is an opening in tank 10 for maintaining atmospheric pressure therein. I prefer to construct these units of an annular form with connecting-passages 24 so arranged as to alternate in the different units for the purpose of obstructing the upward passage of the heat as much as is possible without seriously affecting the draft. In order to connect the steam areas of each unit with the common steam-passage 25 and at the same time to prevent the escape of the water from any of the units into that one directly beneath it, I provide every unit except the bottom one with an annular shield 26 around steam-passage 25, which shield extends slightly above the water-surface in its unit, as is shown in Fig. 4.

When it is desired to use my device for distilling purposes, return-pipe 5 is omitted.

It is understood that I do not limit myself to the form of liquid-supply here shown, as it is quite evident that each unit could be provided with its own supply-tank.

What I claim is—

1. A plurality of liquid-containing units, a vapor-conducting pipe communicating with said units, means for supplying liquid to the units, float-controlled valves in the respective units for controlling the supply of liquid thereto and for maintaining a predetermined level of the said liquid therein.

2. A plurality of liquid-containing units in communication with one another, a vapor-conducting system connected to the units, float-valves in the respective units controlled by the liquid-levels therein for regulating the supply thereto, and means for supplying liquid successively to the units.

3. A plurality of annular liquid-containing units having alternating smoke-passages and each in communication with the other, means for supplying liquid to the units, means for expelling the vapor from the latter, and float-valves in the respective units actuated by the liquid-levels in the same for controlling the communications.

4. A plurality of liquid-containing units having alternating smoke-passages and in communication with each other, float-valves in the respective units for said communications and controlled by predetermined liquid-levels in said units, means for supplying liquid to the units, and a vapor-conducting system connected to the latter.

5. In a heating device, the combination of a fire-pot, an inclosing shell, a plurality of superposed units having ports forming communication with each other, said units having alternating smoke-passages, means for connecting the units with a vapor-conducting system, means for supplying liquid to the units, and float-valves in the respective units for automatically controlling said ports therein by the gravitation of the liquid in the same.

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

JOSEPH H. TUTTLE.

Witnesses:

ALBAN ANDRÉN,
A. T. PALMER.