No. 833,589. PATENTED OCT. 16, 1906.

R. E. DEANE.

URN.

APPLICATION FILED APR. 26, 1905.

Fig. 1

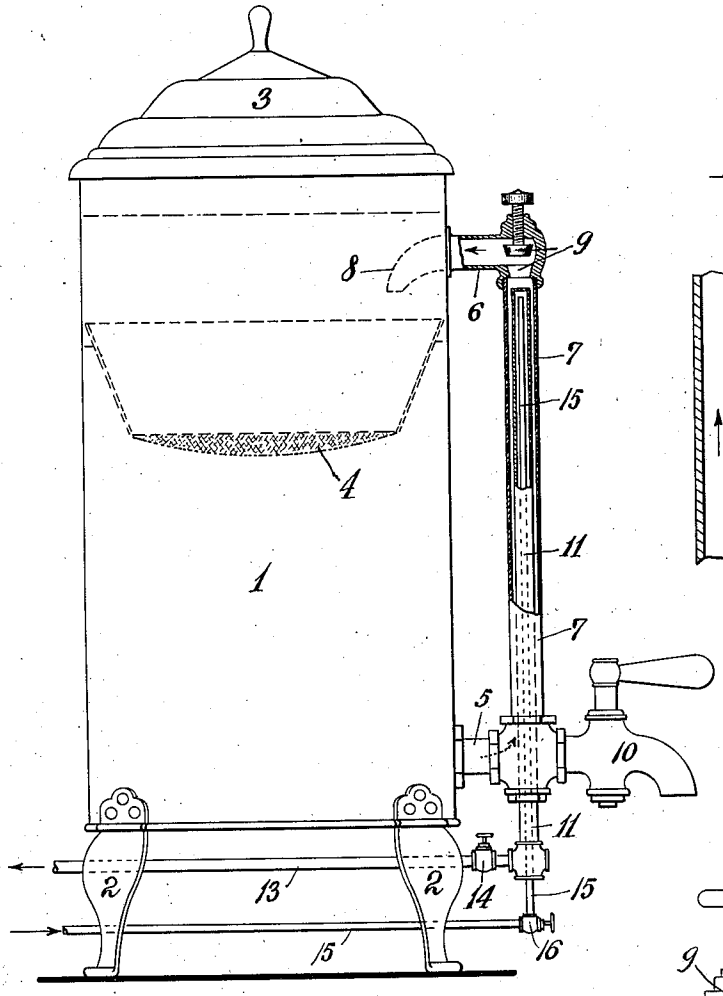


Fig. 2

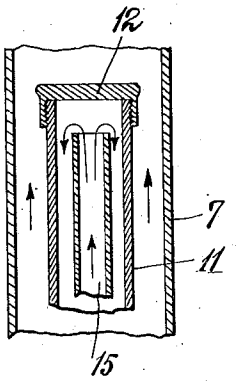
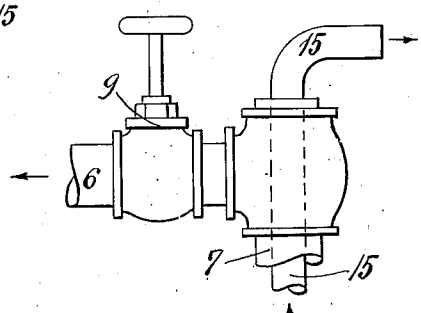


Fig. 3



Witnesses
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By his Attorney
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UNITED STATES PATENT OFFICE.

ROYAL E. DEANE, OF NEW YORK, N. Y.

URN.

No. 833,589. Specification of Letters Patent. Patented Oct. 16, 1906.

Application filed April 26, 1905. Serial No. 257,398.

To all whom it may concern:

Be it known that I, ROYAL E. DEANE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Urns, of which the following is a full, clear, and exact specification.

This invention relates to urns, and has particular reference to improvements in means for heating and circulating the fluids contained therein.

The urns now commonly used for holding hot water, coffee, tea, &c., are heated by a steam-jacket within the body of the tank and supplied with steam from the outside. An objection to this construction has been that a large quantity of steam is used, the capacity is reduced, and there is practically no circulation, so that in the case of a coffee or tea urn it is necessary to frequently draw off the liquid and pour it back in order to secure uniform composition and temperature. A hand-pump has also been used for this purpose, which has necessitated frequent attention, additional connections and fittings, and increased cost, besides injuring the appearance of the urn.

The objects of this invention are to utilize the steam for both heating and circulating the fluid, to dispense with the interior steam-jacket, and to reduce the number of outside fittings and attachments needed. These objects I attain by providing an exterior circulating-passage in which is placed a heater connected with a steam-supply in combination with suitable controlling-valves, whereby the fluid can be kept in circulation at any desired temperature without further attention. In some instances I propose to apply my improvements in combination with the ordinary water-level gage used on urns of this character, and in others I apply my improvements separately of the water-level gage.

The invention will be more fully described in connection with the accompanying drawings, in which—

Figure 1 is a view of an urn having my improvements applied thereto. Fig. 2 is a detail view, on an enlarged scale, of a part of the heater and circulating-pipe, and Fig. 3 is a view showing a modification.

1 represents an urn of well-known type, supported by legs 2 and having a cover 3. For coffee or tea the urn is provided with a removable bag or holder 4, in which the material is placed to be extracted. Attached to the lower part of the body of the urn is a pipe 5, and at the top is a similar pipe 6, joined to pipe 5 by the pipe 7, the whole forming a circulating-passage. The pipe 6 may be extended inwardly and downwardly, as at 8, to direct the flow. A valve 9 is placed in the upper end of the circulating-passage, and a faucet 10 is attached to the end of pipe 5. Mounted within the pipe 7 is a pipe 11, closed at its upper end by a cap, or otherwise, 12, and connected at its lower end with an exhaust-pipe 13, having a valve 14. Within pipe 11 is a supply-pipe 15, open at its upper end, so as to communicate with the exhaust, and 16 is a valve to control the steam-supply.

In Fig. 3 a modified form of heater is shown in which the steam passes through the pipe 7 at one end and out at the other, the parts otherwise being similar. The form shown in Fig. 1 brings all of the piping at the lower end of the tank, and is preferabe for this reason.

The operation is as follows: Assuming the water-level above pipe 6 and the valves 9, 16, and 14 open, the steam passes through tubes 15 and 11, heating the water in tube 7 and causing it to flow into the top of the tank, cooler water flowing into pipe 7 through pipe 5. This circulation continues as long as valves 9 and 16 are open, causing the fluid tea, coffee, &c., to have a uniform temperature and composition. By regulating the steam-supply a continuous circulation can be maintained without boiling the fluid, boiling being objectionable for coffee, &c. This is an important advantage of my invention, as heretofore it has not been practicable to prevent boiling and at the same time maintain the circulation. By closing the valve 9 the circulation is cut off; but the steam heats the water in pipe 7, vaporizes it and causes it to bubble slowly through pipe 5, thus keeping the contents hot without injury by boiling.

Another advantage of my invention is that the drawing-off faucet 10 is adjacent to the heater, which always keeps the fluid retained in the faucet itself as hot as the other portion, instead of allowing it to cool off, as in the devices now commonly used. If the level is below pipe 6, the liquid in pipe 7 is raised by the formation of bubbles of steam which mix with the fluid and carry it over through pipe 6, thus maintaining the circulation. This arrangement thus continually produces a circulation by drawing in the cooler fluid through pipe 5, which is forced over by the bubbles of

steam through pipes 6 and 8, or, if the valve is shut, through pipe 5. Where my invention is used in connection with the gage-glass the only change is that the tube 7 is of glass. Other specific constructions of heater than that described may be used in connection with my invention.

Modifications and changes may be made without departing from the scope of the invention, and I do not restrict myself to the precise construction I have shown and described.

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

1. The combination with a tank, of a circulating-pipe connected therewith at different levels, a heater connected with a source of steam and disposed to heat said circulating-pipe, and a valve located in said circulating-pipe so that when open circulation and heating of the fluid is permitted and when closed heating without circulation is permitted, substantially as described.

2. The combination with a tank, of a circulating-pipe connected therewith at different levels, a heater connected with a source of steam and disposed to heat said circulating-pipe, and a drawing-off faucet located at one end of said circulating-pipe and adjacent the heater, substantially as described.

3. The combination with a tank having a water-level indicator, of a heater within the indicator-tube for heating the water therein, substantially as described.

4. The combination with a tank, of a circulating-pipe connected therewith at different levels, a heater comprising an open supply-tube and a closed exhaust-tube, within said circulating-pipe, and controlling means, substantially as described.

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

ROYAL E. DEANE.

Witnesses:
JULIAN S. WOOSTER,
GEO. RAWLINS.