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WATER URN FOR BATTERY COFFEE URNS.

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To all whom it may concern:

Be it known that I, THOMAS J. TOPPER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Water Urns for Battery Coffee Urns, of which the following is a specification.

This invention relates to improvements in coffee urns of the battery type, wherein two or more urns are operatively associated with a water urn, and has particular reference to improvements in the construction, arrangement and mode of operation of a water urn.

The primary object of the invention is to provide a water urn which will be relatively simple and inexpensive as to construction and will eliminate certain objections and difficulties attending the use of urns of the ordinary construction. In the majority of urns the safety or blow off valve is located exteriorly of the urn and when the urn is filled beyond its capacity and discharges thru the valve or blows off the steam generated therein, it frequently happens that persons standing nearby are scalded or articles of furniture or the like, are damaged by the water and steam. In my invention the safety valve is located within the urn, or in other words, is enclosed so as to avoid the above mentioned difficulties and objections.

Another object of the invention is to provide an improved, simple, and effective safety or blow off valve which will operate to permit air to be drawn into the urn so as to prevent collapsing or bursting of the urn due to the formation of a vacuum therein when water is drawn off and which will also provide for the escape of steam in such manner as to prevent scattering or blowing off of the steam around the outside of the urn.

A further object is to generally improve water urns of the character described so as to increase their effectiveness and efficiency and to provide for the supplying to coffee urns, of adequate hot water in an inexpensive and reliable manner.

The invention possesses other advantages and features some of which, for the foregoing will be set forth at length in the following description where I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming a part of the present specification. In said drawings I have shown one form of the construction of my invention, but it is to be understood that I do not limit myself to such form since the invention as expressed in the claims may be embodied in a plurality of forms.

Referring to the drawings:

Figure 1 is a vertical sectional view of the water urns of this invention, showing the connection on the side thereof, adapted for attachment with coffee urns of the battery urns, not shown.

Figure 2 is an enlarged vertical sectional view of the safety valve showing it attached to the upper part of the boiler, a part of which latter is shown in section.

Figure 3 is a side elevation of the valve of the invention removed from its casing.

Figure 4 is a top plan view of the said valve.

Referring to the embodiment of the invention shown in the accompanying drawings, 1 designates an urn which consists of a cylindrical wall 2, a bottom wall 3, a top wall 4 and the lid or cover 5. The walls 2, 3 and 4 provide a boiler 6 into which water from a suitable source of supply, not shown, is fed by the pipe 7, a valve 8 being provided in the pipe 7 to regulate the supply of water. Mounted beneath the wall 5, which wall is set upwardly from the lower edge of the wall 2 so as to provide a burner chamber 9, is a suitable gas burner 10 disposed so that the flames therefrom will flare outwardly upon the under side of the wall 3. Extending upwardly thru the boiler 6 with the ends thereof of projected thru the walls 3 and 4 are heating tubes 11 thru which heat from the burner 10 passes and escapes into the space confined within the cover or lid 5, the heat being transferred to the water in the boiler thru walls of the tubes 11. Legs 12 are attached to the wall 3 and provide for supporting the urn upon a table or stand, not shown. Extending outwardly from opposite sides of the boiler 6 thru the wall 2 are suitable connections 13 and 14 which provide for connection of the boiler with the coffee urns, not shown.

The upper wall is provided centrally with a screw threaded opening 15 in which a flanged screw cap 16 is removably mounted. The cap 16 is provided centrally with a screw threaded opening 17 extending thru a boss 18 on the upper side thereof. An externally screw threaded tube or pipe 19 is turned in said opening 17 and extends a short distance above the cap. Turned upon the upper end of the pipe 19 is a cylindrical valve...
casing 20 having a reduced internally screw threaded extension 21 for reception of pipe 19. The upper end of the casing is externally screw threaded as at 22 and a flanged cap 23 is turned upon said upper end 22. The cap 23 is provided with a tubular externally screw threaded extension 24 upon which one internally screw threaded end of an inverted U-shaped or goose neck pipe 24 is mounted.

This disposes the other end of the pipe 25 so that it opens downwardly to one side of the valve whereby the steam discharged from the boiler will be directed downwardly towards the cap 16. A small outlet opening 26 is provided in the upper side of the pipe 25 so that some of the steam will be directed upwardly. The upper wall of the cover 5 tapers upwardly into a flared mouth or spout 27 the opening thru which is directly in line with the opening 26 whereby some of the steam will pass upwardly thru said spout 27 and into the atmosphere.

Mounted for vertical movement within the valve casing 20 is a frusto-conical valve 28 provided with longitudinal grooves 29 in its outer face. The lower end of the valve is reduced as at 30 and engages upon the annular seat 31 which is provided by reducing the lower end of the valve casing.

When the lower end of the valve engages the seat valve is closed and steam is prevented from escaping thru the pipe 19. The valve is provided centrally with a circular bore 32 opening upon the upper side of the valve, said bore being screw threaded. A flanged plug 33 is screwed into the upper end of said bore so as to close the same. The inner end of the bore is provided with a conical seat 34 for a small ball valve 35.

Extending from the bottom of the conical seat and downwardly into the valve is a passage 36 which communicates with a passage 37 that extends outwardly thru one side of the valve and opens into one of the grooves 29. Extending from the center of the lower end of the valve up to the bore 32 is an inclined port or passage 38 which communicates with the bore 32 at a point above the lower end of said bore so that steam passing therethru and into the valve will have a tendency to force the ball valve into engagement with its seat and prevent escape of said steam out thru said passages 36 and 37.

In operation, water is fed into the boiler 6 thru pipe 7 until a suitable amount of water is contained therein, and the burner 10 is lighted. The heat from the burner will pass upwardly thru the pipes 11 and in this way together with direct application of heat thru the bottom wall 3, the water is heated. When the water comes to a boil steam will rise upwardly thru the opening 17 and pipe 19 and passage 38 into the bore 32. Pressure of steam in the bore will maintain the ball valve 35 closed and prevent the escape of steam thru the passages 36 and 37. When the pressure of the steam in the boiler reaches a certain point it will lift the valve bodily and the steam will escape around the valve, passing between the valve and wall of the casing therefor, thru the grooves 29. Steam having thus passed the valve will pass thru the goose neck pipe 25 and will be directed downwardly towards the cap 16 and upper wall 4 within the space confined by the cover 5. When the pressure is reduced to a safety factor the valve will seat and close by its own weight. In this connection it is noted that the wall 4 is inwardly offset with relation to the upper edge of the wall 2. The upper edge of the wall 2 is provided with a laterally extending flange 39, which is adapted to receive a similar flange 40 formed from the lower edge of the lid 5. This provides a tight seal and prevents escape of steam at this point. Some of the steam will escape thru the small opening 26 and pass out thru the spout or outlet 27. Only a small portion of the steam passes thru the opening 26 and when steam is seen to be issuing from the spout 27 the urn is ready for operation and thus the escape of steam serves as a signal. Since the steam is directed downwardly toward the upper wall 4 and the hot air passes upwardly from said wall 4, the steam is dried and evaporated, so that practically all of the heat of the steam is confined to the interior of the urn.

The urn of this invention may be quickly assembled or disassembled and this is likewise true of the valve. One of the most essential features of the invention is the location of the valve within the lid and the arrangement thereof whereby practically little or no steam or water will be scattered or blown out of or around the side of the urn, also the provision for the intake of atmospheric air upon the drawing off of water from the boiler.

I claim:
1. A water urn comprising a boiler, a valve casing communicating with the boiler and being open at both ends, a goose neck pipe open at both ends, secured at one end to the upper end of said casing and having a small outlet opening in its upper wall, a valve seat at the lower end of said casing, a valve vertically movable in and spaced circumferentially from said casing and normally engaging upon said seat, said valve having a passage extending therethru opening at one end at the lower end of the valve and at its other end upon the side of the valve, an upwardly opening check valve mounted within the valve so as to close the passage when the pressure of the steam in the boiler reaches a predetermined point whereby said pressure will lift the valve bodily from its seat, said check valve being.
arranged to unseat when water is drawn from said boiler.

2. A water urn comprising a boiler, a valve casing communicating with the boiler and being open at its upper and lower ends and provided with a valve seat at its lower end, a valve normally engaging said seat and being spaced circumferentially from the walls of the casing, said valve having a bore extending from the upper end thereof a short distance into the valve and being provided with a passage extending first downwardly from the lower end of the bore then outwardly thru the side of the valve, a ball valve normally closing the upper end of said passage, said valve having another passage thereon extending upwardly from the lower end thereof to a point above the lower end of the bore and a plug removably fitted in and closing the end of said bore at the upper end thereof.

3. A water urn comprising a boiler, a valve casing communicating with the boiler and being open at its upper and lower ends and provided with a valve seat at its lower end, a valve normally engaging said seat and being spaced circumferentially from the walls of the casing, said valve having a bore extending from the upper end thereof a short distance into the valve and being provided with a passage extending first downwardly from the lower end of the bore then outwardly thru the side of the valve, a ball valve normally closing the upper end of said passage, said valve having another passage thereon extending upwardly from the lower end thereof, said first named valve being provided with grooves extending longitudinally upon the outer side thereof.

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