

W. E. BURT.
FLOAT VALVE.
APPLICATION FILED JUNE 11, 1914.

1,210,596.

Patented Jan. 2, 1917.

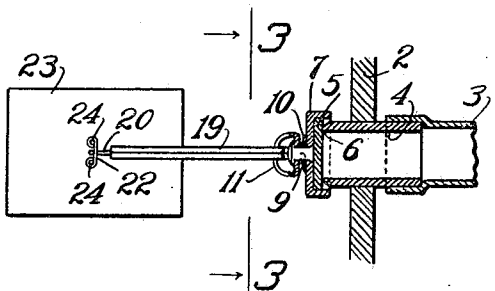
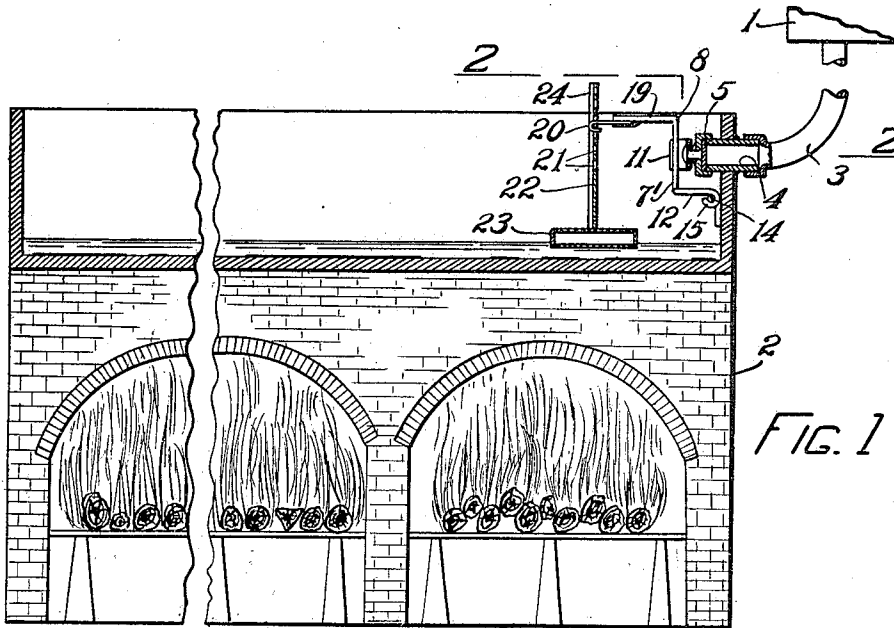


FIG. 2

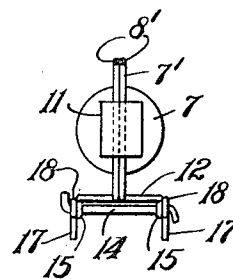


FIG. 3

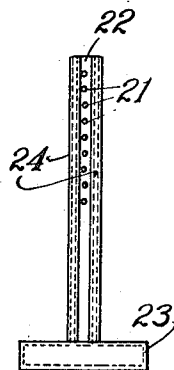


FIG. 4

WITNESSES

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FLOAT-VALVE.

1,210,596.

Specification of Letters Patent.

Patented Jan. 2, 1917.

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To all whom it may concern:

Be it known that I, WILLIAM E. BURT, a citizen of the United States, residing at Burlington, county of Chittenden, State of Vermont, have invented certain new and useful Improvements in Float-Valves, of which the following is a specification.

This invention relates to valves and particularly to a float valve.

The valve of my present invention is especially designed for use in sugar camps. The usual method of rendering the syrup to secure the residual sugar involves boiling the syrup slowly in a suitable container or kettle over an extended period of time. The syrup is collected and poured into a tank from which it feeds to the kettle. It is highly important to maintain the surface level of the fluid content in the kettle constant so as to secure uniform boiling. The evaporation of the syrup due to the boiling is a matter which can only be approximated in basing calculations. Variations in the heat intensity, the atmospheric conditions and the run or quality of the syrup are all factors which make toward uncertainty in the boiling process. It is therefore necessary to regulate the feed of the sap to the kettle in direct proportion to the fluid content of the kettle. To the end therefore of proportioning the sap feed to the surface level of the kettle content, I have devised my present invention. In it I provide a float valve arranged in controlling relation to the inlet pipe from the sap tank, and adapted to be proportionately opened and closed by variations in the surface level of the kettle contents. Extreme variations in the surface level are taken care of by providing a relative adjustment between the stem of the float and the valve lever for the valve stem. This permits initial setting of the kettle for predetermined capacities so that as the content evaporates more sap is automatically let in to maintain the predetermined fluid level constant. The valve has a swiveled mounting so that it may seat against the mouth of the inlet pipe and be effective under varying conditions of boiling, as for example; where the contained fluid is under extreme agitation, due to violent boiling. Venting means are also provided for relieving the hollow float itself of any contained

air which may be present. These and various other features which will appear more fully hereinafter are secured by the use of the float valve of my present invention.

The construction and operation of my valve will be more fully disclosed in the specification which follows. In the drawings forming a part of that specification I have shown as an illustrative embodiment a form of valve which has been found satisfactory in use and well adapted to the requirements of manufacture.

Throughout specification and drawings like reference numerals are correspondingly applied, and in these drawings: Figure 1 is a view of my valve in applied position within a kettle or other boiling apparatus, Fig. 2 is a partial section on the indicated line 2—2 of Fig. 1. Fig. 3 is a view on the line 3—3 of Fig. 2, looking in the direction of the arrows, and Fig. 4 is a detail of the float detached.

I have indicated at 1, Fig. 1, a part of a containing tank into which the collected sap is poured. The tank 1 and the rendering kettle or other container 2, in which the boiling takes place, are put in direct controllable communication by a suitable pipe 3, connecting exteriorly of the kettle wall with a ground nipple 4 fixed in the kettle wall, adapted to receive a supply pipe 4¹.

The delivery of sap through the nipple 4 is controlled by a disk valve 5 adapted to find a seat against the beveled inner end 6 of the nipple and check the delivery whenever the fluid content of the kettle reaches the predetermined level for which it is set. The disk valve 5 is frictionally held within a cupped holder 7 swiveled to the vertical portion 7¹ of a valve lever 8 by a stud 9. The lever 8 serves to transmit the lift of a float 23 to the valve in response to variations in the fluid level. One face of the holder 7 is pressed out centrally to provide a boss 10 which bears against a suitable mounting 11 on the vertical portion 7¹ of the lever. The mount 11 is conveniently formed as a looped bearing fastened to the portion 7¹ in spaced relation thereto. The head of the stud 9 is inserted through a hole in the mount 11 and is burred over to effect a loose connection between the members 7 and 11.

The valve lever 8 which transmits the

movements of the float to the valve is conveniently formed by uniting two suitably bent rods 8¹ to each other for substantially their entire length. The vertical portion 7¹ of the lever at its lower end has its rods 8¹ bent away from each other in the form of a horizontally disposed yoke 12 terminating in spaced ends wrapped around a pintle 14 in the form of coils 15.

The pintle 14 is fixed to a wall of the kettle 2 in spaced relation thereto in any suitable manner. A convenient mode of attaching the pintle consists in soldering or otherwise securing to the container wall two or more pieces 17 having each one of their ends bent in the form of a coil 18 through which the pintle is inserted and clamped. The coils 18 in addition to fixing the pintle to the container serve to space the pintle a sufficient distance from the container wall to allow clearance for the coils 15 in the rocking motions of the valve lever.

The vertical portion 7¹ of the lever at its upper end has its united rods 8¹ bent at right angles to provide a horizontal portion 19 extending into the kettle above the indicated fluid level. The portion 19 has a hook 20 fastened to it at its inner terminus. The hook 20 is adapted for selective engagement in any of a vertically disposed series of holes 21 in the web portion of the stem 22 for the hollow float 23. This permits setting the valve at a predetermined limit which when exceeded permits the valve to become effective. The hook 20 and holes 21 also provide for considerable range of adjustment of the float relative to the valve, permitting the float to be used for varying fluid levels.

The stem 22 is formed as a relatively thin strip of material having its lateral edges turned in and back upon the web portion to provide a pair of spaced vent tubes 24 which connect the hollow float 23 with the atmosphere and serve to relieve the float of any contained air.

In use, the lever is attached so as to freely turn on its pintle and the hook 20 selectively engaged in any of the holes 21 in the stem 22 of the float according to the limit at which it is desired that the valve become effective. Variations in the surface level of the kettle content are transmitted by the float to the valve lever which rocks on its pintle to control the position of the valve relative to its seat 6. The valve being swiveled is free to find its seat under almost any condition of use.

While I have shown and described my float valve as applied to a rendering kettle it will of course be understood that I do not limit myself to this or any other use but reserve the right to employ it in any capacity where it will perform its intended functions.

Various modifications in the form and construction of my device may obviously be

resorted to within the limits of the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. In combination with an evaporating tank having a supply pipe leading into it, a valve adapted to cover the pipe end, a horizontally disposed arm pivoted to the tank wall below said pipe and extending vertically across the face of the valve and terminating in a horizontally disposed extension and a float adjustably connected to said horizontal end in supporting relation thereto.

2. A valve for an evaporating tank or the like, comprising a vertically disposed seat, an arm pivoted below said seat and extended horizontally, then vertically, then horizontally, and a float member disposed in supporting relation to said horizontal extension last mentioned.

3. In a device of the class described, a tank, an intake discharging therein, a valve for the end of said intake, an axially movable float, and a one piece supporting member having a portion pivoted below said delivery, a portion disposed opposite said delivery and carrying said valve, and a portion disposed above said delivery and engaging said float.

4. In a valve of the class described, a valve and a valve supporting member comprising a pair of suitably bent rods united with each other for substantially their entire length.

5. In a valve of the class described, a valve, a valve supporting member comprising a pair of suitably bent rods united with each other for substantially their entire length, said rods bent away from each other at one end to form a yoke, and a support to which said yoke is pivoted.

6. In a device of the class described a tank, a float, a supply pipe having substantially lateral discharge into said tank, a valve, a valve supporting device comprising a horizontally disposed portion pivoted at its terminus below said valve, a vertically disposed portion carrying said valve, and a horizontally disposed portion extending in opposite direction to said first named horizontal portion and having selective engagement with said float.

7. In a device of the class described, a fluid delivery, a valve controlling said delivery, a valve supporting member pivoted below said delivery, and a float disposed below said delivery and connected to said valve supporting member at a point above the delivery.

8. In a device of the class described, a fluid delivery, a valve supporting member, a valve operatively connected with said member and fully opening with the pressure head through said delivery, and a float dis-

posed below said delivery and connected to said valve supporting member at a point above the delivery.

9. In a device of the class described, a fluid delivery having a valve seat at its discharge end, a valve supporting member pivoted below said seat, a valve operatively connected with said member opposite the discharge end of said delivery and opening with the pressure head through said delivery, and a float connected to said valve supporting member at a point above the delivery.

10. In a valve, a seat, and a  shaped pivotal support for said seat.

11. In a valve, a seat, a  shaped support therefor pivoted below said seat, and a float disposed in supporting relation to a portion of said support.

12. In a device of the class described, a substantially lateral fluid delivery, a valve, a float, and a member pivoted below said delivery and having a valve supporting portion disposed opposite said delivery,

and a float engaging portion disposed above said delivery and supported by said float.

13. In a device of the class described, a receptacle, a fluid delivery entering said receptacle laterally, a horizontal member pivotally mounted below said delivery, and having a vertical portion disposed transversely of said delivery, and a valve carried by said vertical portion opposite said delivery, and opening laterally away from said delivery with the pressure head.

14. In a device of the class described, a fluid delivery, an axially movable valve therefor, a float and a valve carrying member pivoted below said delivery and having a portion disposed above said delivery and supported by said float.

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

WILLIAM E. BURT.

Witnesses:

ERNEST McFEETERS,
CARRIE E. WALDRON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."