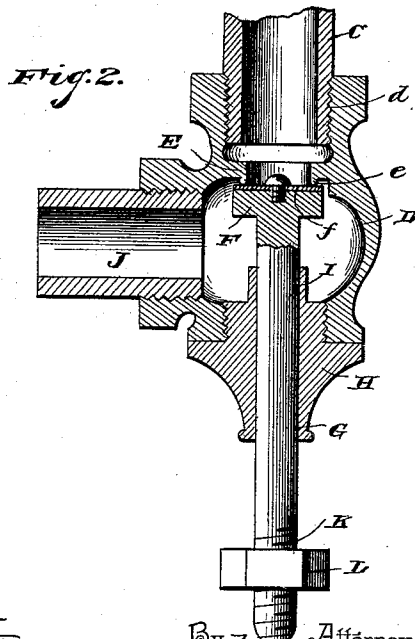
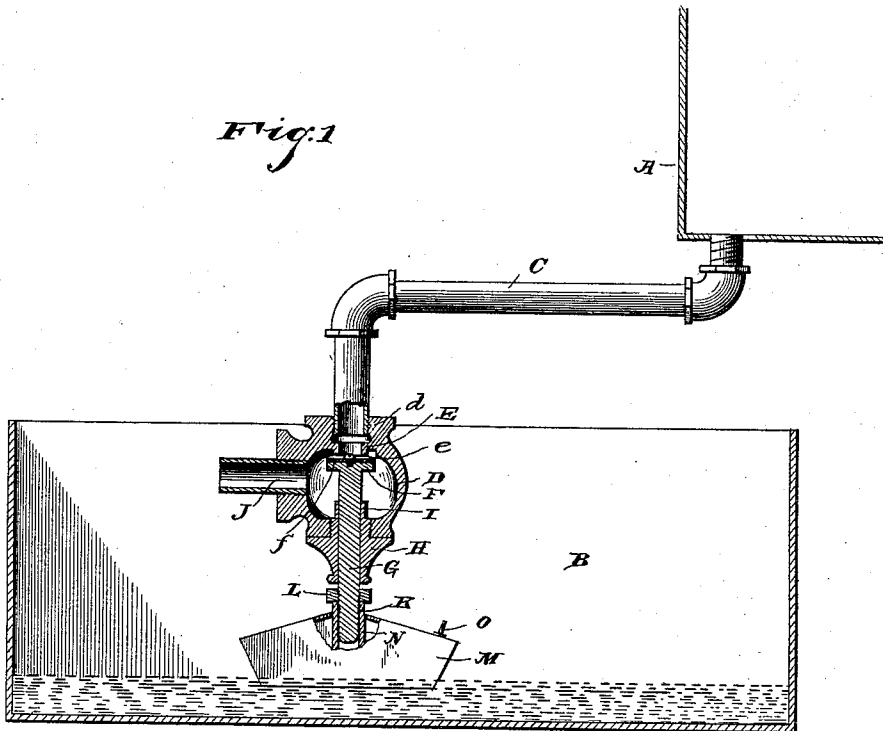


(No Model.)

M. J. RHODES.
FLOAT VALVE FOR EVAPORATING PANS.

No. 484,560.

Patented Oct. 18, 1892.



Witnesses

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MARCUS J. RHODES, OF DAYTON, NEW YORK.

FLOAT-VALVE FOR EVAPORATING-PANS.

SPECIFICATION forming part of Letters Patent No. 484,560, dated October 18, 1892.

Application filed December 9, 1891. Serial No. 414,512. (No model.)

To all whom it may concern:

Be it known that I, MARCUS J. RHODES, a citizen of the United States, residing at Dayton, in the county of Cattaraugus and State of New York, have invented a new and useful Improvement in Float-Valves, of which the following is a specification.

This invention relates to float-valves; and it has for its object to provide a valve of this character which is particularly designed for feeding sap into a pan or evaporator and one which will regularly and accurately feed the required amount of sap at the proper moment, the same being regulated according to the depth of liquid in the pan or evaporator, although said valve may be used equally as well for supplying tanks, troughs, and other receptacles which are required to be automatically filled.

To this end it is the main and primary object of this invention to provide a float-valve which is acted upon directly by the rise and fall of the liquid within the receptacle without the use of levers, which lessen the sensitiveness of the valve to a great extent, inasmuch as the rising and falling of the liquid will have to be materially perceptible in order to operate lever-actuated float-valves.

With these and many other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a vertical transverse sectional view of an evaporating pan or vessel having a float-valve feeder located therein and constructed in accordance with this invention. Fig. 2 is an enlarged sectional view of the valve proper.

Referring to the accompanying drawings, A designates a tank or vat holding the sap to be regularly supplied to the adjacent evaporating-pan B, of the usual construction and operated in the usual manner, and said tank or vat may be an ordinary supplying-reservoir to be used for other purposes, which will be readily apparent, and connected with the lower end of which is the supply-pipe C, in the present instance extending over the evaporating-pan and having secured to the end thereof and depending within said pan the

float-valve casing D. The valve-casing D is provided with the upper screw-threaded neck or receiving-opening *d*, within which the end of the supply-pipe C, is secured, and thus supports said valve-casing, which is further provided directly below the opening *d* with the flanged valve-seat E, having an inwardly extending and projecting annular ring *e*, forming a raised seat, against which the valve-disk F is forced by the rising and falling of the liquid within the receptacle B. The valve-disk F is carried upon the upper end of the elongated stem G and is provided upon its upper face with the rubber cushion *f*, which is adapted to be seated upon the projecting ring valve-seat, and thus form a tight and perfect joint. The valve-stem G works through the bonnet H, secured in the lower end of the valve-casing directly beneath the inlet-opening thereof, and the same is provided with the integral and upwardly-extending stop-sleeve I, embracing said stem and projecting within the valve-casing, so that when the valve-stem is not being operated upon, the said sleeve forms a stop, against which the under side of the valve-disk rests, and thus limits the motion thereof, while at the same time allowing a full flow of the liquid from the inlet-opening through the threaded outlet-opening J in the side of the valve-casing and adapted to receive a discharge-pipe out of which the sap or other liquid flows at stated intervals. The extreme lower end of the valve-stem G below the bonnet is exteriorly threaded at K for some distance to receive the regulating and actuating tappet-nut L, adjustably engaging said threads. The said lower end of the valve-stem is adapted to work within the float M, located in the bottom of the receptacle and adapted to actuate the valve according to the raising and lowering of the liquid within the pan, as will be apparent. The said float comprises a hollow vessel inclosed on all sides and provided with a central guide-tube N, secured to the top and bottom, and which, while receiving the lower end of the valve-stem so that said float may work directly thereover and have the upper end of the tube strike against the nut L to regulate the depth of the liquid, while said tube at the same time forms a brace or stud-support between said top and bottom of the

float and keeps the top from springing down, and, inasmuch as considerable pressure is created within the float on account of the heated air therein, the same is provided with
 5 a vent-tube O, located in the top of the float to insure the same against bursting.

It is thought that the construction and operation of the improved float-valve will be readily apparent. Having adjusted the nut
 10 upon the lower end of the valve-stem according to the amount of liquid desired to always be within the pan, it will be noted that as the float rises and falls according to the fluctuations of the liquid the upper end of
 15 the central tube therein will strike the nut and throw the cushion valve-disk up against the seat and shut off the supply and leaving said nut, or, as it falls, will allow the liquid to flow within the pan, which operation will
 20 be entirely automatic and can be accurately regulated.

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

25 1. In a float-valve, the combination of the valve having a stem projecting beneath the valve-casing and provided with an adjustable tappet and a hollow float working under the lower end of said valve-stem and adapted to
 30 engage said tappet, substantially as set forth.

2. In a float-valve, the combination of a reciprocating valve having a threaded stem projecting below the valve-casing, a tappet-nut adjustably engaging the threaded stem,
 35 and a hollow float having a central tube secured therein and engaging beneath said nut, and a vent-tube, substantially as set forth.

3. In a float-valve, the combination of a re-

ciprocating valve having a threaded stem projecting below the valve-casing, a tappet- 40 nut adjustably engaging the threaded stem, and a hollow float or vessel having a central tube secured vertically therein and receiving the lower end of the valve-stem and engaging beneath the tappet-nut thereon, and a 45 vent-tube, substantially as set forth.

4. In a float-valve, the valve-casing having an inwardly-projecting flange-ring valve-seat located directly below the upper inlet-open- 50 ing, a valve-stem working through the lower end of said casing, a valve-disk upon the inner end of said stem and provided with a cushioned face adapted to bear against said seat, and a float connected with the lower end of said valve-stem, substantially as set forth. 55

5. In a float-valve, the combination of the valve-casing having an inwardly-projecting flanged ring-valve seat located directly beneath the upper inlet-opening, a removable bonnet secured in the lower end of said cas- 60 ing and having an inwardly-extending stop-sleeve, a valve-stem working through and projecting beneath said bonnet, a valve-disk upon the inner end of said stem and provid- 65 ed with a cushioned face adapted to bear against said seat and limited in movement by said stop-sleeve, and a float connected to the lower end of said valve-stem, substan- tially as set forth.

In testimony that I claim the foregoing as 70 my own I have hereto affixed my signature in the presence of two witnesses.

MARCUS J. RHODES.

Witnesses:

A. M. DeLONG,

JOHN C. WILBER.