A. R. THOMPSON.

FILLING VALVE FOR SYRUPERS.

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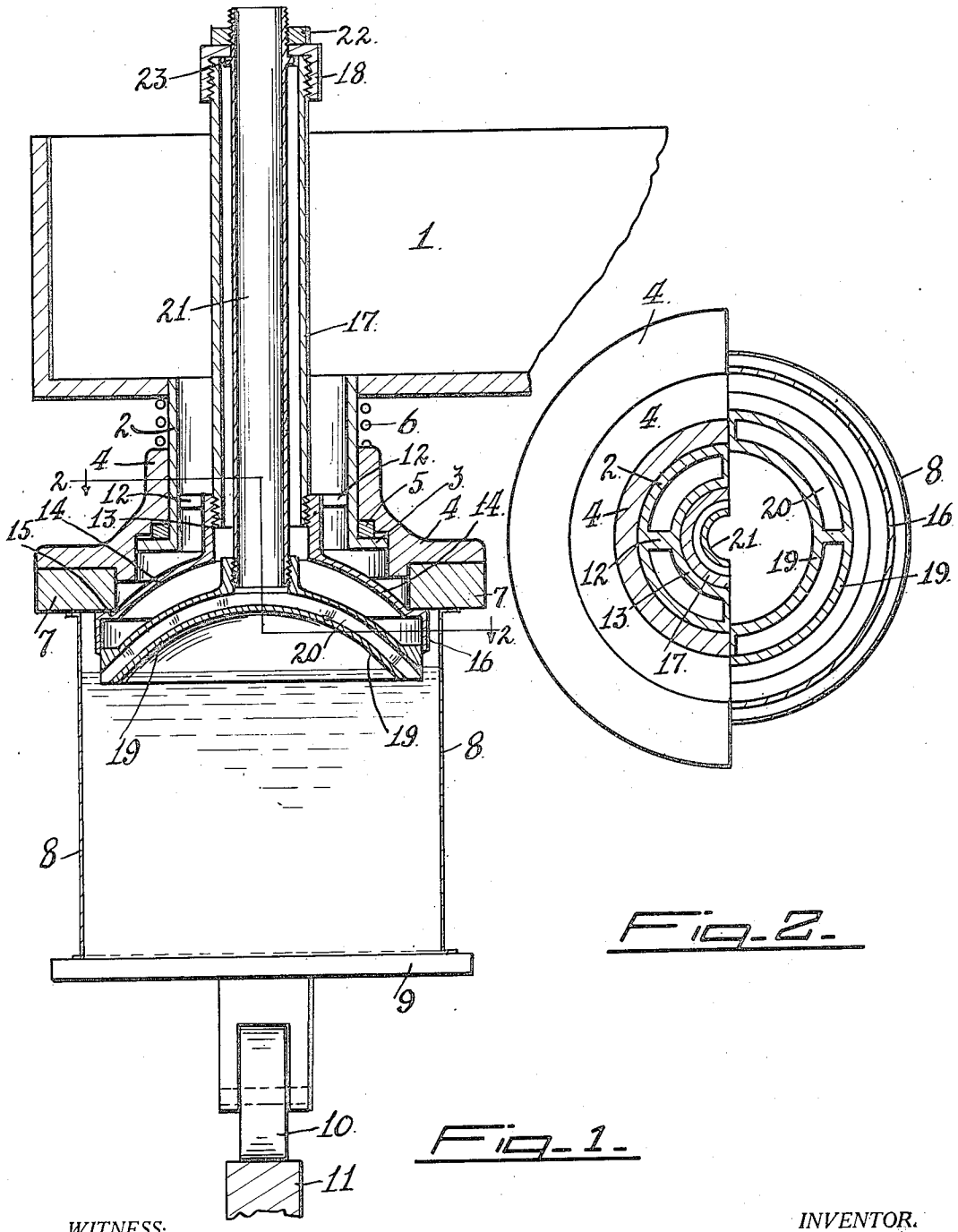


Fig. 1.

Fig. 2.

WITNESS:

Wm. F. Drew

INVENTOR.

Albert R. Thompson

BY

Booth & Booth.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALBERT R. THOMPSON, OF SAN JOSE, CALIFORNIA, ASSIGNOR TO ANDERSON-BARNGROVER MFG. CO., OF SAN JOSE, CALIFORNIA, A CORPORATION OF CALIFORNIA.

FILLING-VALVE FOR SYRUPERS.

1,288,749. Specification of Letters Patent. Patented Dec. 24, 1918.

Application filed July 3, 1918. Serial No. 243,170.

To all whom it may concern:

Be it known that I, ALBERT R. THOMPSON, a citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Filling-Valves for Syrupers, of which the following is a specification.

My invention relates to the general class of syruping machines used in the canning art, and particularly to a filling-valve-structure, the object of which is to automatically provide for the requisite volume of the syrup in the cans, preparatory to their introduction into the exhaust-box.

A further object is to provide for the variation of this volume according to circumstances, and also to avoid undue pressure upon the relatively solid contents of the cans while being filled.

To these ends my invention consists in the novel filling-valve structure, which I shall hereinafter fully describe by reference to the accompanying drawings, in which I have deemed it sufficient to illustrate my invention in a single instance and in connection with only so much of the general features of a syruping machine as are necessary for an understanding of the filling-valve-structure, it being apparent that the details of the syruper *per se* have no bearing on the present case and may be of any suitable character.

In the drawings—

Figure 1 is a vertical sectional elevation of my device.

Fig. 2 is a horizontal section on the line 2—2 of Fig. 1.

1 is the syrup tank, having depending therefrom an outlet fitting 2 with a foot flange 3. Upon the outlet fitting 2 is slidably mounted the valve 4, with a gasket 5, and said valve is held normally down by a spring 6. The face of the valve is a rubber ring 7, against which the can 8 presses, with the effect, when the can is elevated, by suitable means, here shown for illustration as a table 9, having a foot roller 10 which travels on a cam-track 11, of pushing up said valve upon the outlet fitting 2 and against the spring 6.

The interior of the outlet fitting 2 has inwardly projecting spaced arms 12 which carry at their inner ends the stem 13 of the semi-globular or inverted dish-shape valve-seat 14, against the flat rim portion 15 of which the elastic face 7 of the valve 4 normally presses, thereby closing communication with the can-interior. The valve-seat 14 has a peripheral flange 16.

Screwed into the stem 13 of the valve seat 14 is an extension member 17 which passes upwardly through the tank 1, and carries on its top a screw cap 18.

19 is a member, the position of which within the can determines automatically the volume of syrup which may be supplied the can as predetermined. This member has a bell or inverted dish shape conforming to the valve seat 14, and comprises two connected plates separated by an exit air-space or duct 20, which opens out peripherally. Said member 19 lies below the valve-seat 14 and is fitted to the flange 16 thereof for guidance in vertical adjustment. It is carried by a hollow stem 21 communicating at its foot with the exit air-space 20, said stem passing upwardly through the valve-seat stem extension 17 and through the cap 18 thereof, and receives an adjusting nut 22 on its top, which top is open to the atmosphere. A stop collar or flange 23 on the stem 21 below the cap 18 coacts therewith in the adjusting movement.

The operation of the device is as follows:—Communication between the tank 1 and the can 8 is normally closed by the contact of the valve-seat rim 15 with the valve-face 7. But when the can is lifted and by contact with said face 7, lifts the valve 4, said valve face 7 leaves the valve seat rim 15 and communication between the tank and can is established.

Syrup now flows into the can, the air escaping through the space or duct 20, and hollow stem 21 to the outer air. When the syrup in the can reaches and covers the peripheral entrance to the air-space 20, there will still remain in the can, under the dish or bell of the member 19, a body of air which is confined therein and serves as a displacement in the can. Though the flow of syrup continues, it is slow, due to the necessity of the remaining air in the can outside of the member 19 having to pass through the syrup, so that in practice the syrup level only reaches the top of the can around the member 19 and the valve-seat flange 16, and to a corresponding level in the air-duct 20, before the communication between the tank 1 and the can is cut off by the lowering of

the latter. The air duct 20 being relatively of small capacity, but little back drip therefrom takes place when the can is lowered, and this small amount of drip, plus the relatively small volume of syrup reaching the top of the can around the flange 16 and member 19 is designedly less than the volume excluded by the confined air under the bell of the member 10, so that the can never receives an excess of syrup. Thus the position of the member 19 in the can determines the volume of the syrup supplied. This volume may be varied by the vertical adjustment of said member 19, which is effected by properly manipulating the cap 18 and the nut 22.

The concave or inverted dish-shape of the member in addition to its chief function of providing for a displacement air-body is of advantage in that it presents minimum obstruction in the can, and permits the relatively solid contents to rise above the liquid level without injury. The solid contents thus rising into the bell of the member 19 is provided for in the predetermined ratio of the capacity of the displacement air-body to the space outside, so that the volume of the displacing air is still sufficient to prevent an excess of syrup.

I claim:—

1. In a can filling-valve-structure for syrupers, the combination of an inverted dish-shaped member positioned within the can, adapted to confine an underlying displacement-air-body, said member having a peripheral air-exit-duct; and means for supplying syrup to the can.

2. In a can filling-valve-structure for syrupers, the combination of an inverted dish-shaped member positioned within the can, adapted to confine an underlying displacement-air-body, said member having a peripheral air-exit-duct; means for supplying syrup to the can; and means for adjusting said member to vary the volume of syrup supplied.

3. In a can filling-valve-structure for syrupers, the combination of an inverted dish-shaped member peripherally spaced within the can and adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct; and means for supplying the syrup to the can through the space surrounding said member.

4. In a can filling-valve-structure for syrupers, the combination of an inverted dish-shaped member peripherally spaced within the can and adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct; means for supplying the syrup to the can through the space surrounding said member; and means for adjusting said member to vary the volume of syrup supplied.

5. In a can filling-valve-structure for syrupers, the combination of a valve for controlling the communication between the syrup supply tank and the can and adapted to be opened under the pressure of the can; and an inverted dish-shaped member positioned within the open top of the can, adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct.

6. In a can filling-valve-structure for syrupers, the combination of a valve for controlling the communication between the syrup supply tank and the can and adapted to be opened under the pressure of the can; an inverted dish-shaped member positioned within the open top of the can, adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct, and means for adjusting said member to vary the volume of syrup supplied.

7. A filling-valve-structure for syrupers comprising an outlet fitting from the syrup supply tank adapted to communicate with an associated can to be filled; a valve-seat carried by said outlet fitting, in position to be freely embraced by the open top of said can; a slidably mounted valve carried by said outlet fitting and coacting with the valve seat to normally close the communication between said fitting and the can interior, said valve being positioned for the contact of the can top to lift the valve from its seat when the can is raised whereby said communication is opened; and an inverted dish-shaped member underlying the valve seat adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct.

8. A filling-valve-structure for syrupers comprising an outlet fitting from the syrup supply tank adapted to communicate with an associated can to be filled; a valve-seat carried by said outlet fitting, in position to be freely embraced by the open top of said can; a slidably mounted valve carried by said outlet fitting and coacting with the valve seat to normally close the communication between said fitting and the can interior, said valve being positioned for the contact of the can top to lift the valve from its seat when the can is raised whereby said communication is opened; an inverted dish-shaped member underlying the valve seat adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct, and means for vertically adjusting said member to vary the volume of syrup supplied.

9. A filling-valve-structure for syrupers comprising an outlet fitting depending from the syrup supply tank adapted to communicate with an associated can to be filled; a valve-seat depending from said outlet fitting and lying freely in the open top of the can;

a spring controlled valve slidably mounted upon said outlet fitting, the face of said valve overlying both said valve seat and the top edge of the can, whereby the communication of the tank with the can is normally closed and is opened by the upward pressure of the can; and an inverted dish-shaped member associated with and underlying the valve seat, adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct.

10. A filling-valve-structure for syrupers comprising an outlet fitting depending from the syrup supply tank adapted to communicate with an associated can to be filled; a valve-seat depending from said outlet fitting and lying freely in the open top of the can; a spring controlled valve slidably mounted upon said outlet fitting, the face of said valve overlying both said valve seat and the top edge of the can, whereby the communication of the tank with the can is normally closed and is opened by the upward pressure of the can; an inverted dish-shaped member associated with and underlying the valve seat, adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct and means for vertically adjusting said member to vary the volume of syrup supplied.

11. A filling-valve-structure for syrupers comprising an outlet fitting depending from the syrup supply tank adapted to communicate with an associated can to be filled; a valve-seat depending from said outlet fitting and lying freely in the open top of the can; a spring controlled valve slidably mounted upon said outlet fitting, the face of said valve overlying both said valve seat and the top edge of the can, whereby the communication of the tank with the can is normally closed and is opened by the upward pressure of the can; an inverted dish-shaped member associated with and underlying the valve seat, adapted to confine an underlying displacement air-body, said member having a peripheral air-exit-duct and means for vertically adjusting said member to vary the volume of syrup supplied, consisting of an extension of said valve seat passing upwardly through the tank, a screw cap on the top of said extension, an air-pipe communicating with the air-duct of the dish-shaped member and passing upwardly through said extension and a nut on top of said pipe above the cap.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT R. THOMPSON.

Witnesses:
H. BURRELL,
F. E. WEAVER.