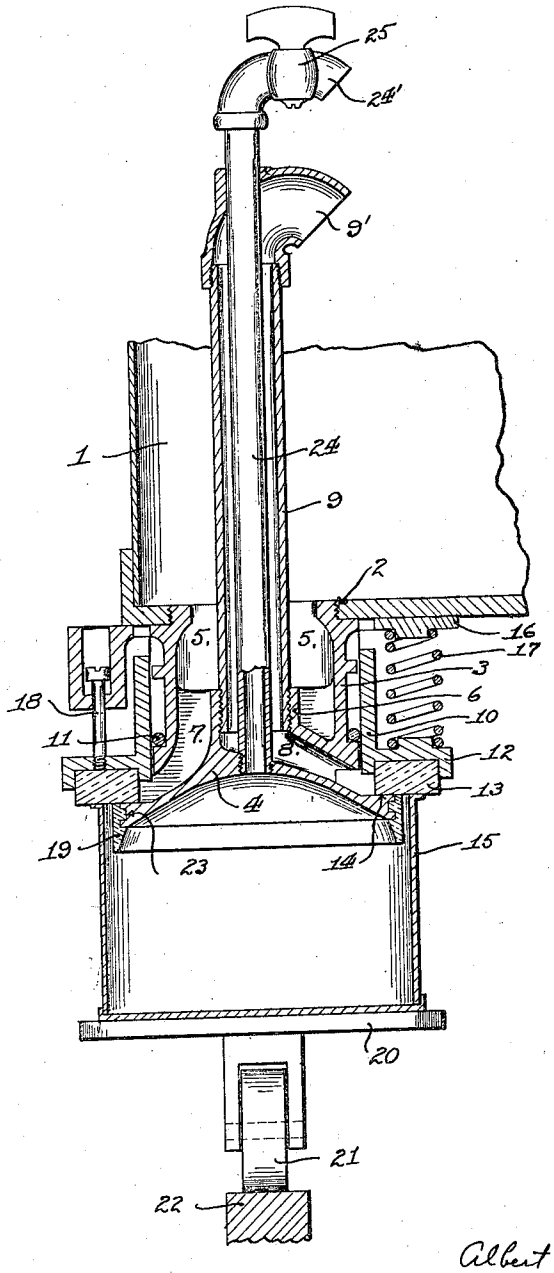
June 17, 1924. 1,498,333

A. R. THOMPSON

FILLING VALVE FOR SIRUPERS

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FILLING VALVE FOR SIRUPERS.

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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 Sirupers, of which the following is a specification.

My invention relates to that class of filling valves for syruping machines used in the canning art, comprising a valve structure with which is associated a displacement member positioned within the can and adapted to confine an underlying displacement air body as a means for automatically providing for supplying the requisite volume of syrup to the cans, preparatory to their introduction into the exhaust box.

This class or type of filling valves is fully disclosed and illustrated in and by my previous Patents No. 1,288,749, Dec. 24, 1918, No. 1,355,016, Oct. 5, 1920 and No. 1,394,453, Oct. 18, 1921, and although my present improvement is applicable to and may be associated with the structure of any of said previous devices, it is specifically adapted for the more highly developed valve of my Patent No. 1,355,016 above mentioned, in connection with which I shall herein illustrate and describe it, since in such connection my invention forms a single unitary structure capable of yielding all desirable advantages.

The object of my present improved can filling valve will be made clear by a brief review of certain necessities in the syruping of cans, due to the difference in the character of the fruit or other product to be supplied with syrup.

The advantage and effect of a displacement body entering the can to regulate the volume of syrup supplied are now well known. This is also true of the use of an inverted dish-shaped member with respect to its two-fold advantage of furnishing a confined displacement air-body, and providing also a space in which the fruit may rise slightly without injury.

In adapting valves of this type to the syrup capacity of the can, one of the factors is obviously the confined displacement air-body capacity of the inverted dish-shaped member since it forms a necessary element in the automatic control of the syrup volume. I have found that a predetermined air-body capacity while perfectly adapted for certain kinds and conditions of the fruit or other food product in the cans, is not as well applicable to other kinds and conditions of said product. Take, for example, halved peaches and sliced peaches, in illustration of a different condition of the product. The filling valve normally operating, as in my previous Patent #1,355,016 with its displacement air-body fully functioning and the valve properly predetermined to supply the proper volume of syrup to cans containing halved peaches will work perfectly, because regard has been had to the fact that the relatively large and firm peach halves leave interstitial spaces of a size and character which will permit the permeation of the syrup throughout the mass in the required volume, and during the available time period. But this same valve supplying cans containing sliced peaches, will not work as well because the slices being relatively smaller and thinner, press and cling close together and thus leave spaces which retard the permeation of the syrup, with the result that in the operative time period during which the can is apparently filled, a really insufficient volume of syrup is furnished, and this subsequently settling leaves the can imperfectly supplied.

I may cite as another example indicating the same problem with regard to different kinds of fruit, the syruping of pears, cherries and other relatively firm fruit, and the syruping of relatively soft berries, such as red raspberries. The former products by their relatively large separating spaces permit the free permeation of the syrup, while the latter product does not.

In the canning art economy of time and labor is an insistent factor, and it often happens that while running on one kind or condition of fruit, it is advisable to quickly change to another fruit of different kind or condition. Therefore, if the same siruper with its filling valves can be quickly adjusted to either kind or condition, time and labor are both saved in contrast with the alternative of operating with a different machine. To thus economize is the object of my invention, and this I attain by the expedient of throwing into and out of function by simple means incorporated in the valve, the confined displacement air-body feature of the inserted displacement member, according to the na-

ture and condition of food product being run; that is, to say, with regard to the examples given above, for halved peaches, or pears, or cherries, said feature is thrown into function, while for sliced peaches or raspberries, it is thrown out of function, with the result that in both cases the requisite syrup volume is supplied to properly fill the cans to the ultimate necessary level.

The nature of my invention and wherein it consists, I shall now fully describe by reference to the accompanying drawings in which—

The figure is a vertical section of my syrup filling valve, showing it in its preferred form.

As previously stated this preferred form, being the most highly developed and, in fact, the one which, in practice, has proven itself fully adapted for the purposes in view, is that which embodies the general structure of the valve of Patent No. 1,355,016, and I shall necessarily herein repeat said structure with the addition however of the change which alters it in such wise as to comprise my present improved valve.

1 is the syrup tank, into the bottom of which is screwed at 2, the outlet fitting 3, formed with a circumferentially projecting base 4, having an inverted dish or bell-shape. The fitting 3 has interior radial webs 5 joining a tubular extension 6 rising from the base, and said base, throughout the larger portion of its upper surface is separated from the body of the fitting by a filling or supply space 7. In the remaining portion of said base is formed an air-exit duct 8, leading from the peripheral region of the base into the tubular extension 6, in which said extension is fitted the air-vent pipe 9, which rises within the tank 1 and terminates in a downwardly bent top 9′ above the level of the syrup in said tank. 10 is a valve-sleeve fitted to and adapted for vertical movement on the body portion of the outlet fitting 3, a tight joint between the two being supplied by an intervening rolling gasket 11. The valve sleeve 10 has a base flange 12, which carries a gasket-valve 13 wide enough to seat itself upon the peripheral valve-seat region 14 of the base-member 4 of the outlet fitting and also upon the upper edge of a can 15 to be filled with syrup.

16 is a ring bearing up under the tank 1, and 17 indicates one of three circumferentially spaced springs between the ring 16 and the flange 12 of the valve-sleeve 10, said springs normally holding the valve sleeve down with its gasket valve 13 seated upon the valve-seat 14, thereby closing communication of the exterior with the filling space 7 and also closing the air exit-duct 8.

18 indicates one of three equidistant limiting and assembling bolts slidably headed in the ring 16 and tapped into the flange 12.

20 is a table, with a foot-roller 21 traveling on a cam track 22. This table illustrates the means for supporting the can 15 and for elevating it to its association with the valve.

The structure thus far described is the valve of my previous Patent 1,355,016, and its operation may be briefly described as follows.

Assume the base 4 of the valve structure to have entered the can. The syrup from the tank fills the outlet fitting 3 and the supply space 7, but is stopped at the mouth of said space by the spring pressure contact of the valve 13 with the valve-seat 14 of the base 4. Also the air-exit-duct 8 in said base is closed by this same contact. Now when the can 15 is lifted, it will by contact with the gasket valve 13 form a close joint for itself, and at the same time will raise said valve from its seat, the valve-sleeve 10 yielding upwardly. Communication is thus simultaneously established between the tank 1 and the interior of the can 15 through the supply space 7 and the space surrounding the base 4, and between the interior of the can and the outer air, through the air-exit-duct 8 and pipe 9.

Syrup now flows into the can, the air escaping through the duct and pipe. When the syrup in the can reaches and covers the inlet to the air-exit-duct 8, there will still remain in the can under the dish or bell of the base 4, a body of air which serves as a cushion displacement in the can. The position of the displacement base 4 in the can thus determines the volume of syrup supplied, and this volume may be varied by means for varying the extent of the penetration of said base into the can. Heretofore, this variation has been accomplished by an adjustable extension of the base, as in said Patent #1,355,016, or by the later improvement of the circumferentially grooved base 4, indicated at 23, to which is removably fitted an elastic cushion ring 19 of varying cross sectional widths, as in my third Patent No. 1,394,453 above mentioned. From this point on my present valve differs by the incorporation in the structure of a second air vent tube or pipe 24 which lies within and is spaced from the first air tube 9. This second air tube 24 opens below directly into the concavity of the inverted dish-shaped member 4, and passes upwardly through the pipe 9 and is provided at its top, above said pipe with a down curve 24′, in which is fitted a pet cock 25.

It will now be seen that when the pet cock 25 is closed the second air-tube 24 is functionless and the valve structure operates as hereinbefore described, the air-cushion formed and confined within the con-

cavity of the dish-shaped member functioning perfectly to regulate the syrup supply as predetermined for cans containing the relatively freer permeable food product, such, for example, as halved peaches. But if now, it be desired to run cans containing a less permeable food-product, say, for example, sliced peaches, all that need be done is to open the pet cock 25, thereby throwing the air tube 24 into function and destroying the confined displacement air-body; or in other words, rendering the concavity of the displacement member 4 functionless except for its availability as an extra space to allow the food product to rise a little. Since therefore, there is now no displacement air body the can will be filled to a greater height though with the same volume of syrup as before, this apparent excess ultimately settling as the syrup has time to permeate the food product mass.

I claim:

1. A can filling-valve for sirupers comprising a member positioned within the can, adapted to confine a displacement air-body; means for venting the air from the can during the syrup supply without venting the confined displacement air body; and separate means controllable at will, to vent or to confine said displacement air-body.

2. A can filling-valve for sirupers comprising a member positioned within the can, adapted to confine a displacement air-body, said member having a peripheral air-exit duct adapted to vent the air from the can during the syrup supply without venting the confined displacement air-body; and separate means, controllable at will, to vent or to confine said displacement air-body.

3. A can filling-valve for sirupers comprising a member positioned within the can, adapted to confine a displacement air-body, said member having a peripheral air-exit duct adapted to vent the air from the can during the syrup supply without venting the confined displacement air-body; and said member having also a second air-exit duct communicating with the displacement air-body; and means for opening and closing said second duct to vent or to confine said displacement air-body.

4. A can filling-valve for sirupers comprising an inverted dish-shaped member positioned within the can, adapted to confine an underlying displacement air-body, said member having a peripheral air-exit and a vent pipe extending upwardly therefrom to the exterior air; a second vent pipe opening at its lower end into the concavity of the dish-shaped member, and passing through the first vent pipe to the exterior air; and means for opening and closing said second vent pipe.

5. A can filling-valve for sirupers comprising an inverted dish-shaped member peripherally spaced within the can and adapted to confine an underlying displacement air-body, said member having an air-exit duct adapted to vent the air from the can during the syrup supply without venting the confined air body; means for supplying the syrup to the can through the space surrounding said member; means for opening and closing said space and said air-exit duct simultaneously; and a controllable separate air exit duct for venting or for confining at will said displacement air-body.

6. A can filling-valve structure for sirupers comprising an outlet fitting from a syrup supply tank adapted to communicate with an associated can to be filled, said fitting having an inverted dish-shaped base peripherally spaced within a can to be filled and adapted to confine an underlying displacement air-body, said base having a valve seat and an air-exit-duct leading from said valve seat; an air exit pipe fitted to said base and communicating with the air-exit duct, said pipe leading up through the fitting and into the syrup tank, to a point above the level of the syrup therein; a slidably mounted valve sleeve carried by said outlet fitting and having a valve member coacting with the valve seat of the base, to normally close both the communication between said fitting and the can exterior, and between the can interior and the air-exit duct, and to open both under the contact pressure of the can top; a second air exit pipe opening at its lower end into the concavity of the dish-shaped base and passing up through the first named air exit pipe; and means on the upper end of said second air-exit pipe to close and open it.

In testimony whereof I have signed my name to this specification.

ALBERT R. THOMPSON.