

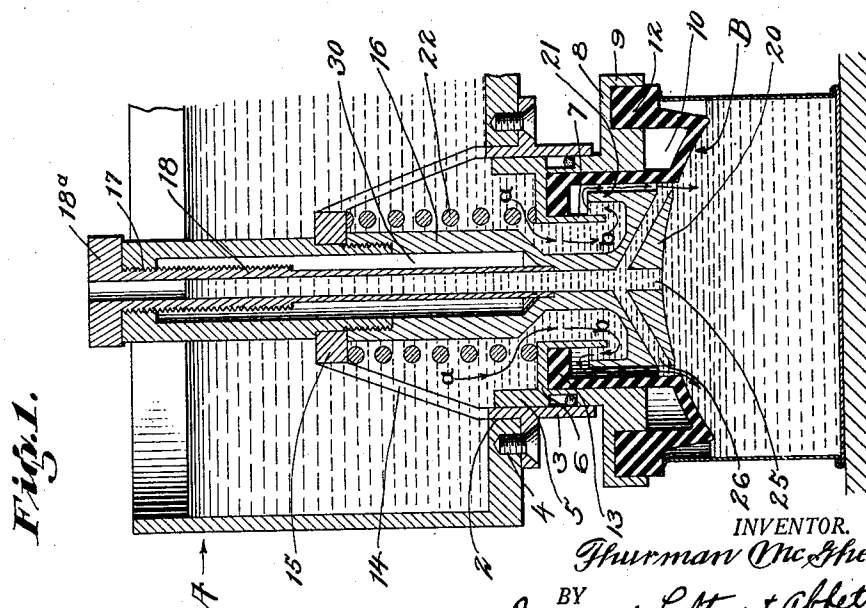
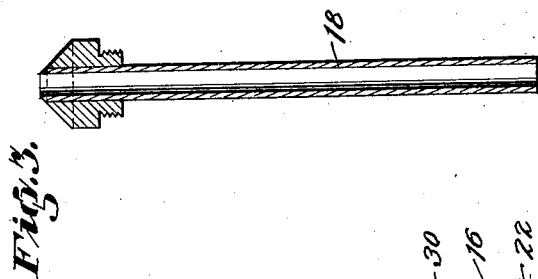
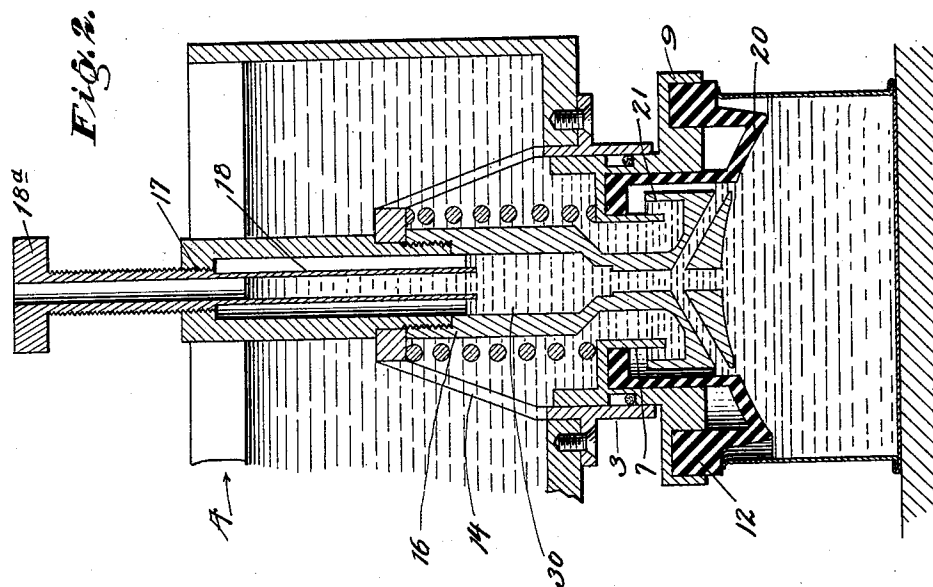
Sept. 20, 1932.

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1,877,927

FILLING VALVE FOR SIRUPERS

Filed June 14, 1926



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FILLING VALVE FOR SIRUPERS

Application filed June 14, 1926. Serial No. 115,776.

This invention relates to a filling valve for sirupers, and particularly to that type which employs a displacement member, or the like to determine the volume of sirup delivered to the cans.

5 In adapting a valve of this character to siruping machines, it has been found that a displacement member of pre-determined capacity will work to perfection with certain varieties of fruits, for instance: With halved peaches, pears and the like, because the relatively large spaces formed between the fruit permits ready permeation of the sirup through the mass.

15 The same valve, when applied to other fruits, such as cherries, raspberries, sliced fruits, etc., will not work as well as the relatively smaller fruits pack closer, thus retarding permeation, with the result that the proper amount of sirup is not supplied. To overcome this difficulty, interchangeable and adjustable displacement members and other devices have been employed, and while they work satisfactorily, the main objection is
20 the time required to make the change.

In the canning industry, time is the important factor. Several varieties of fruit are often run through a siruping machine during a day's run, and changes or adjustments, which require time, are therefore, seldom
30 bothered with, with the result that the cans are not properly filled.

The object of the present invention is to generally improve and simplify the construction and operation of valves of this character, and particularly to provide a valve which may operate on all varieties of fruit without changing or adjusting the displacement member, or otherwise.

40 The invention, briefly stated, consists in providing an adjustable spill-back device, whereby a final sirup level in the can may be obtained, regardless of the character or size of the fruit handled, and further to provide a spill-back device which may be quickly and readily adjusted, so that changes may be made during the day's run without any appreciable loss of time.

50 The invention is shown by way of illustration

in the accompanying drawing, in which—

Figure 1 is a central, vertical section through the valve.

Figure 2 is a similar section, showing the
55 venting tube in raised position.

Figure 3 shows a modified form of venting tube.

The spill-back devices forming the subject matter of the present application, may
60 be applied to a number of types of filling valves, for instance: The type already referred to, which employs a displacement member and it may also be applied to other types, for instance: The type shown in my
65 co-pending application, entitled, "Filling valve," filed May 19, 1923, Serial Number 626,110, which employs a venting member to determine the final liquid level in the can.

In the present instance, I have shown the
70 spill-back device applied to the type of filling valve illustrated in another co-pending application, entitled, Filling valve, filed December 15, 1924, Serial Number 755,856, and as the valve structure disclosed in that application is substantially identical with the present application, a brief description of the valve structure is thought sufficient.

Referring to Figure 1, A indicates a tank adapted to contain sirup. Formed in the
80 bottom of the tank is a circular opening, 2, in which is inserted a cylinder-shaped casing, 3, the casing being secured to the bottom of the tank by means of screws or bolts, such as is indicated at 4. Slidably mounted in the
85 casing, 3, is a cylinder-shaped sleeve valve, 5. Formed on the upper end thereof, and on the interior surface is an annular flange, 6, and a second annular flange, 7; formed on the lower
90 end of the sleeve is a large exterior flange, 8, and formed therein is a groove 9 for the reception of a displacement member, generally indicated at B.

The displacement member is preferably
95 constructed of rubber, or a like resilient material. It is cored out as indicated at 10, and it is extended to form annular gaskets, or valve seat members, such as is shown at 12 and 13. The gasket portion, 12, being in-
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sertible in an annular groove, 9, and the gasket portion, 13, is insertible in the annular groove formed by the flanges, 6 and 7. The casing, 3, which extends upwardly into the tank, A, consists of a spider-like structure, having arms, 14, which terminate in a head-member, 15. This head-member forms a support for a tubular, central member, 16, the upper end of which is internally threaded as at 17, to receive an adjustable venting tube, 18. The lower end of the tubular member terminates in a head, 20, which carries an upwardly projecting annular valve seat 21. A spring, 22, is interposed between the head-member, 15, and the annular flange, 6, and this spring serves the function of depressing the sleeve valve, 5, so that the gasket, 13, will engage the valve seat member, 21, and thereby close the flow of sirup from the tank to the can.

It might here be stated that the cans to be filled with sirup are first filled with fruit. They are then delivered to the siruping machine, which usually carries six or more valves of the type shown in Figure 1. The cans are automatically fed into a siruping machine, and are placed in alignment with the filling valves. Plungers, not here illustrated, engage the lower ends of the cans, when they have been placed in alignment with the valves, and these plungers raise the cans vertically into engagement with the gaskets, 12, so that the upper ends of the cans are sealed, and they then raise the sleeve valves a sufficient distance to clear the gaskets, 13, with relation to the valve seat members, 21. The sirup from the tank then flows inwardly between the arms, 14, to the casing. The sirup, thus entering, passes downwardly in the direction of the arrow, *a*; then flows upwardly and downwardly between the flanges, 7 and 21, as indicated by arrow, *b*, and as such, finally enters the can. The sirup, thus entering fills the can completely. The air displaced, during the filling operation, escapes through a main venting passage, 25, formed in the head-member, 20, and it also escapes through venting passages, communicating therewith, as indicated by 26.

When the can is completely filled, the sirup raises upward in the venting passage, 25, and tube 18, until it reaches the level of sirup in the tank. At this time, the plunger, which supports the can, is lowered; the sleeve valve, 5, is also lowered due to the pressure of the spring, 22, and the gasket, 13, will then engage the valve seat member, 21, and shut off a further supply of sirup to the can. A further downward movement frees the can with relation to the sealing gasket, 12, and it is then removed from the siruping machine. The moment the can is lowered with relation to the sealing gasket, 12, air is admitted and the liquid contained in the venting passage is thus free to fall

downward, or drain back into the can, thus adding an additional quantity of sirup. This additional supply of sirup is necessary, when handling certain varieties of fruit, as permeation of the sirup during the filling period is not always complete. The additional supply provided takes care of this feature. It is, however, important that the additional supply be adjusted for different varieties of fruit, for instance: Sliced peaches may require a greater additional supply of sirup than cherries or raspberries, and means have accordingly been provided, which permits an adjustment of the additional supply. The means employed is the venting tube, 18. The upper end of the tube is provided with a nut which may be rotated to raise or lower the venting tube in the thread connection, shown at 17. When the venting tube assumes the lowermost position, shown in Figure 1, the quantity of additional liquid delivered to the can is the smallest; if a greater quantity is desired, the tube is raised and the quantity of spill-back, or additional liquid is increased. It will be noted that the tubular member, 16, has an enlarged chamber, 30, formed therein. This chamber materially increases the quantity of spill-back liquid supply, for instance: If the venting tube is raised to the position shown in Figure 2, it will be noted that the spill-back liquid raises in the chamber 30, a slight distance above the end of the venting tube, but no further, as air is trapped above the liquid, and prevents it from raising any further. The liquid will raise in the venting tube proper, but the total quantity added is the amount, which is collected in the chamber 30.

This may be increased, or decreased by raising or lowering the venting tube, and practically any quantity of liquid may thus be supplied. The only adjustment that is required is the nut, 18^a, at the upper end of the venting tube. This is placed in an accessible position, and may be quickly turned to adjust the quantity of spill-back liquid, without any material loss of time, on the part of the operator.

The displacement head, B, is designed to determine the final liquid level, when fruits, such as halved peaches, apricots, pears, or a like are being run through the siruper, but when small fruits are passing through the machine, it is only necessary to adjust the venting tube, 18, and the final liquid level can then be determined, by the quantity of spill-back sirup supplied by the spill-back attachment.

The spill-back attachment is equally applicable, whether a displacement member or a venting tube is employed to determine the final liquid level.

It should, therefore, be understood that the invention is not limited to valves em-

playing displacement members only, as other types of valves may also be employed.

In Figures 1 and 2, an adjustable venting tube is shown.

5 In Figure 3, a modified form of venting tube, is illustrated, that is, a machine can be equipped with a number of sets of venting tubes, these tubes being of different lengths, for instance: Pears, peaches and the like, 10 may require one length of tube, and sliced peaches and the like, may require another length of tube, and cherries, blackberries and the like may require another length tube, and so on; accordingly, when changing from 15 one variety of fruit to another, it is only necessary for the operator to remove one set of venting tubes, and insert another set.

Having thus described my invention, what I claim and desire to secure by Letters Patent 20 is—

1. A can filling valve for sirupers comprising a movable displacement member adapted to enter a can to determine a liquid level therein, a complementary head member forming a discharge opening through which liquid flows into the can and having a pas- 25 sage for receiving sirup during the filling operation and for returning sirup into the can after the completion of the filling operation, and means for varying the capacity 30 of the passage.

2. A can filling valve for sirupers comprising a movable displacement member adapted to enter a can to determine a liquid level therein, a stationary and complemen- 35 tary head member forming a discharge opening through which liquid flows into the can and having a passage for receiving sirup during the filling operation and for returning sirup into the can after the completion of the 40 filling operation, and means for varying the capacity of the passage.

3. The combination with a can closing and filling valve for sirupers having a passage 45 adapted to communicate with a can in filling position, of a venting tube projecting into the passage and communicating therewith, said venting tube forming a seal for the pas- 50 sage to prevent communication of the passage with the atmosphere when the can is in filling position and being always open to the atmosphere at one end and to the can at the other end.

4. The combination with a can closing and filling valve for sirupers having a passage 55 adapted to communicate with a can in filling position, of a venting tube projecting into the passage and communicating therewith, said venting tube forming a seal for 60 the passage to prevent communication of the passage with the atmosphere when the can is in filling position and being always open to the atmosphere at one end and to the can 65 at the other end, and means for varying the

effective length of tube in said passage to vary the capacity of the passage.

5. The combination with a can closing and filling valve for sirupers having a passage adapted to communicate with a can in filling 70 position, of a venting tube projecting into the passage and communicating therewith, said venting tube forming a seal for the passage to prevent communication of the passage with the atmosphere when the can is 75 in filling position and being always open to the atmosphere at one end and to the can at the other end, and means for adjusting the venting tube to vary its length in said passage and thereby vary the capacity of said 80 passage.

6. A can filling valve for sirupers comprising a member forming a combination can closing and filling member, a complementary head member cooperating therewith and 85 forming a discharge opening through which liquid flows into the can, said cooperating head having a hollow stem to provide a passage adapted to communicate with a can in filling position, and a venting tube project- 90 ing into the passage and communicating therewith, said venting tube forming a seal for the passage to prevent communication of the passage with the atmosphere when the can is in filling position. 95

7. A can filling valve for sirupers comprising a member forming a combination can closing and filling member, a complemen- 100 tary head member cooperating therewith and forming a discharge opening through which liquid flows into the can, said cooperating head having a hollow stem to provide a pas- 105 sage adapted to communicate with a can in filling position, a venting tube projecting into the passage and communicating therewith, said venting tube forming a seal for the passage to prevent communication of 110 the passage with the atmosphere when the can is in filling position, and means for varying the effective length of tube in said passage to vary the capacity of the passage.

8. A can filling valve for sirupers comprising a member forming a combination can closing and filling member, a complementary head member cooperating therewith and 115 forming a discharge opening thru which liquid may flow into the can, one of said members having a hollow stem to provide a passage adapted to communicate with a can in filling position, and a venting tube project- 120 ing into the passage and communicating therewith, said venting tube forming a seal for the passage to prevent communication of the passage with the atmosphere when the can is in filling position. 125

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