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S. D. POLSEN ET AL

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DISPENSING APPARATUS

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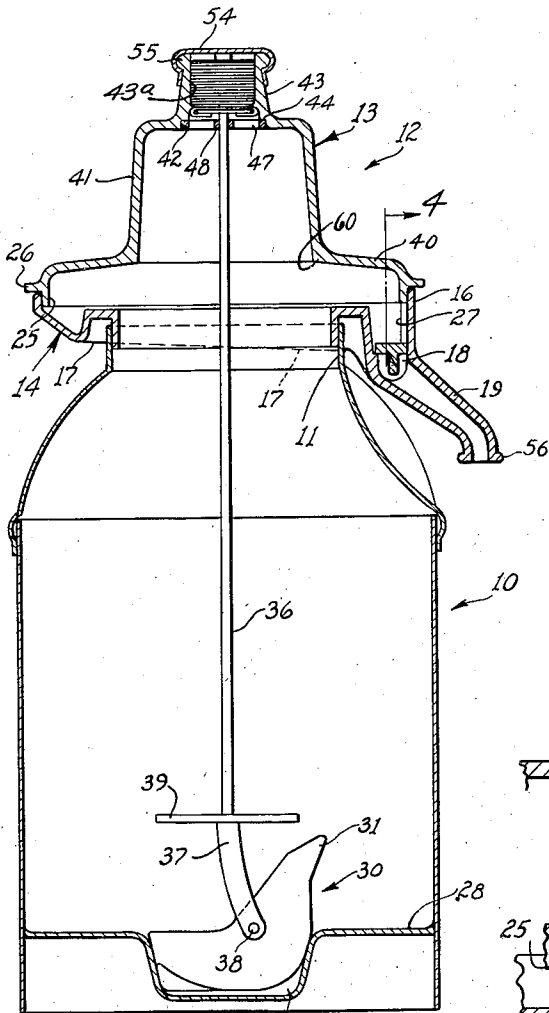


Fig-1

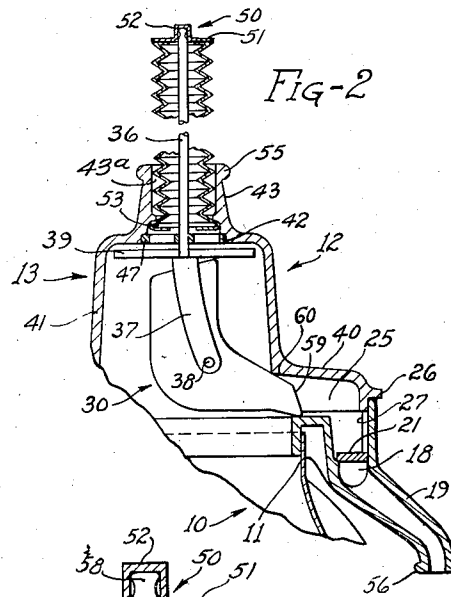


Fig-2

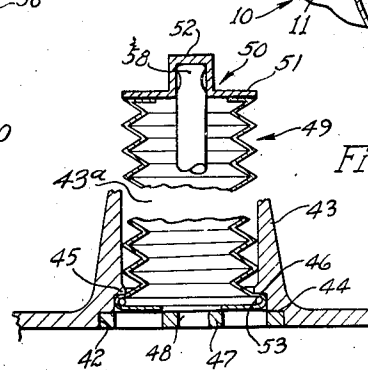


Fig-3

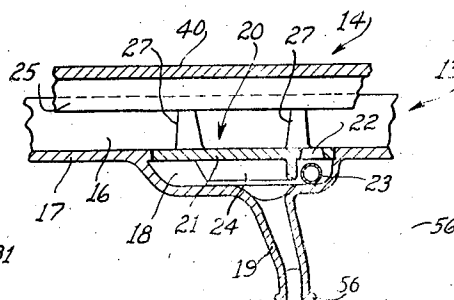


Fig-4

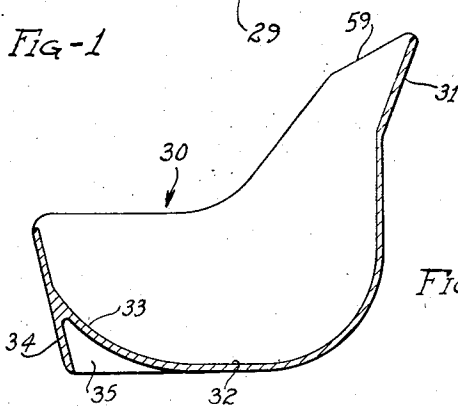


Fig-5

INVENTOR
SAMUEL D. POLSEN
BY SVEN H. NELSON
JOHN H. KURAHAN
ATTORNEY

UNITED STATES PATENT OFFICE

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DISPENSING APPARATUS

Samuel D. Polsen and Sven H. Nelson, Bridgeport, Conn., assignors of one-fourth to Blanche H. Polsen and one-fourth to Mildred P. Nelson, both of Bridgeport, Conn.

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18 Claims. (Cl. 221-97)

This invention relates to new and useful improvements in dispensing apparatus and has particular relation to a container and measuring device for a milk or the like dispensing machine.

The objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is a vertical central sectional view through the container of the invention;

Fig. 2 is a similar view of the upper portion of the container and showing the measuring device or dipper in discharging position;

Fig. 3 is an enlarged detail sectional view showing a sealing means employed;

Fig. 4 is a sectional view taken as along the line 4-4 of Fig. 1; and

Fig. 5 is an enlarged sectional view through the measuring device or dipper of the invention.

Referring in detail to the drawing the numeral 10 generally designates a container having an open upper end surrounded by a neck portion 11. On the upper end of the container is a head 12 generally designated 12 and including upper and lower separable portions or parts 13 and 14 respectively. Lower head part 14 comprises an annular depending flange 15 fitting within the neck portion 11 and further includes a trough 16 also annular and encircling the said flange.

The bottom wall 17 of the trough 16 inclines toward a well or depressed portion 18 from the bottom of which a discharge spout 19 extends to a convenient location. Any liquid placed in the trough will drain to the well 18 and from the latter through the spout 19. A guard device, generally designated 20, is associated with the well and spout and comprises a plate-like portion 21 fitted within the upper end of the well. Such portion 21 has a discharge opening 22 there-through for the passage of liquid from the trough into the well. Located within the well in association with the opening 22 is a floatable valve 23 shown as in the form of a hollow ball of light weight material.

On the lower side of the plate-like portion 21 of the guard device is an L-shaped flange 24 a part of which serves to retain the valve 23 in association with the opening 22. With this ar-

rangement it will be clear that on any attempt to pass liquid through the spout 19 into the trough 16 and thus into the container, the ball valve 23 will be floated onto its seat preventing the accomplishment of the intended purpose. In addition the L-shaped flange 24 prevents the insertion of any instrument through the spout into engagement with the ball valve should any attempt be made to hold it off its seat to permit of the passing of liquid into the container through the spout 19.

The upper part 13 of the head 12 functions as a covering or closure for the open upper end of the container and also as a cover for the trough 16. Thus part or closure 13 includes a flange 25 entering the open upper end of part 14 and further includes a radial flange 26 limiting movement of the said flange 25 into the part 14. Guard device 20 includes a pair of upstanding lugs 27 carried by its plate-like portion 21 and which are engaged by the lower edge of the flange 25 when the head is fully assembled. This arrangement prevents the guard portion 21 being forced out of place by the insertion of an instrument through the spout 19.

Bottom wall 28 of the container 10 is provided with a well or depression 29 into which a dipper 30 substantially fits as seen best in Fig. 1. This dipper (see Fig. 5) includes a spout-like pouring portion 31 which functions as a tripping portion. The bottom wall 32 of the dipper is rounded or curved as shown. However, toward its rear end such wall 32 curves upwardly rather sharply as at 33 and spaced from such portion 33 is a wall or flange 34, the described construction resulting in the formation of a pocket 35 in the under side of the dipper in spaced relation to the pouring portion thereof.

An operating means or rod 36 has secured to its lower end a ball-like or inverted U-shaped device 37 the free end portions of the arms of which are pivotally connected with the dipper at 38. Associated with such device 37 and the lower end of the rod or means 36 is an agitator 39 in the form of a disc. It is noted that the well 29 and the dipper 30 are of such relative sizes that the latter may substantially fill the former whereby through the use of the dipper, its rear wall being of a height equal to the height or depth of the well, substantially all of the contents of the container 10, down to the last small quantity, may be gotten into the dipper.

The top wall of the upper head part 13 includes a portion 40 and a centrally located raised member or portion 41 having an opening 42

through its upper end and about such opening and extending upwardly therefrom is a tubular extension 43 defining a socket 43a opening through the upper side of the closure or part 13. Opening 42 is cut back whereby a shoulder 44 is formed at the inner end of the extension 43 and the purpose of such shoulder will appear. A lip 45 in the inner end portion of the extension provides a second shoulder 46.

Located in the opening 42 is a spider 47 including a hub portion 48 through which the operating rod or means 36 passes. This spider is arranged against the shoulder 44 and has a tight fit. When the container is full and sealed the upper or outermost end portion of the operating rod is located within the said socket 43a of the extension 43. Disposed in said socket and over such portion of the rod is a seal 49. Such seal comprises a bellows-like structure of paper or like material open at its lower end but at its upper end closed by a cap 50. The cap 50 includes a flange 51 glued or otherwise secured to the seal body and an upstanding crown-like portion 52 receiving the upper end of the operating rod 36 as best shown in Fig. 3.

Within the inner or lower end of the seal 49 is arranged a split spring ring 53. When the container is filled after having been sterilized, the dipper and operating rod are located in the container and the two head portions are sealed together in any suitable manner and the head is sealed to the container as by any or the usual wire and lead seal device (not shown). The seal 49 is passed over the upper end portion of the rod 36 within the socket 43a of the extension 43 and the split spring ring 53 snaps into place against the shoulder 46 thus securing the seal in place. This locates the upper end of the rod 36 in the cap 50 of the seal 49.

Now a sealing device 54, in the form of a paper cap or the like, is passed over the upper end of the extension 43 to fully cover such end and the seal 49. For the purpose of accommodating the cap 54 the upper end of the extension 43 is provided externally with a bead 55. Similarly a cap (not shown) of the type used for closing bottles and including a flange to be forced over a bead is applied to the discharge end of the spout 19 the said end being provided externally with a bead 56 for the reception of such cap and over which the flange of the latter may be forced.

The container as shown in Fig. 1 has been sterilized, reassembled, filled and sealed and is ready for shipment. On reaching its destination the caps 54 and 57 (on the extension 43 and the spout 19) are removed and the container located in a suitable refrigerating apparatus and an operating mechanism attached to the upper end of the rod 36 which end, it will be noted, is reduced inwardly of its upper end as at 58, for the making of a suitable connection with an actuating mechanism. Such connection with an actuating mechanism is made without removing the cap 50.

On the mechanism (not shown) operating, the rod 36 and the dipper 30 are drawn upwardly. The bellows-like seal 49 expands as the rod is moved since the split ring 53 is anchoring the lower end of the seal. Thus the seal covers at all times all parts of the rod that may be drawn outwardly of the container and the head 12. From this it will be seen that dust and the like are prevented from entering the container through the opening 42 and in addition the means or rod 36 is at all times protected from

exposure, even when drawn upwardly to raise the dipper.

As the rod 36 approaches the limit of its upward movement the pouring or tripping portion 31 of the dipper engages the inner surface or corner portion 60 of the head 12. It is noted that the part or edges 59 of the dipper is at an angle and therefore as it engages the surface 60 and the upward movement of the dipper continues the said portion 59 will by the mentioned engagement cause the dipper to tilt or rock about its pivotal mounting 38 and when the rod 36 reaches the limit of its upward movement the dipper will be positioned as in Fig. 2 wherein it will be apparent that the contents of the dipper have been or are being discharged into the trough 16.

When the dipper is empty the rod 36 is lowered or moved or permitted to move in the opposite direction to lower the dipper into the contents of the container. As the dipper moves from the surface 60 it will tend to right itself by swinging about the pivotal mounting 38 and thus as it hits the contents of the container its bottom wall 32 will engage first. The effect of the pocket 35 then is to cause the dipper to rock on the pivotal mounting to have the dipper descend in the liquid with the pouring spout-like portion 31 of the dipper as the leading part of the dipper.

The mechanism for operating the dipper forms the subject matter of a separate invention but its action is such that the dipper makes several up and down movements for each time it discharges into the trough 16. When the container has been sitting for some time and the dipper has not been operated, the contents of the container being milk, all cream will collect in the upper portion of the container and the contents of the dipper will be practically water. Now if the dipper is raised and discharged the customer will receive what amounts to skimmed milk.

The same is true if the dipper is only raised and lowered in the contents of the container without tilting the dipper in any way. However, with the present arrangement when the dipper in its downward movement hits the contents of the container the dipper is rocked about the pivots 38 to a tilted position and in such position descends in the contents of the container. Therefore the matter accumulated in the dipper during the time it is stationary at the bottom of the container will be washed from the dipper since the latter is descending with its pouring portion 31 foremost, it being understood that the upper side of the dipper is open. During this same operation the agitator disc 39 acts as a dasher helping to mix the milk and cream for each dispensing operation.

Having thus set forth the nature of our invention, what we claim is:

1. In a device of the class described, a container having an upper open end, a head including separable upper and lower members, a flange on said lower member and fitting within said open end of the container, a horizontally disposed annular trough supported by said flange, a discharge spout leading from said trough, said trough having its bottom wall inclined toward said spout, and said upper member of the head comprising a covering for said open end of the container and for said trough and spaced above the latter.

2. In a dispensing apparatus, a container having an open upper end, a head on and closing

said end, a horizontally disposed annular trough in said head, a discharge spout leading from said trough, said trough having its bottom wall inclined toward said spout, a dipper in said container, an actuating means pivotally connected with said dipper and extending through said head, said dipper including a tripping portion, and said head including an annular portion located above said trough to be engaged by said tripping portion of the dipper to cause the latter on actuation thereof by said means to tilt and discharge into said trough.

3. In a dispensing apparatus, a container having an open upper end, a head including upper and lower separable parts, a flange within said lower part and fitting into said open end of the container, a trough about said flange and including a depressed portion constituting a well, said trough having its bottom wall inclined toward said well, a discharge spout leading from said well, said upper part of the head forming a covering for said trough, a guard device over said well and having a discharge opening to the well, a baffle on the underside of said device between said opening and the spout, a floatable valve located at the spout side of said discharge opening to close the latter on any attempt to insert liquid through the spout, and said baffle protecting said valve from tampering by means inserted through the spout.

4. In a dispensing apparatus, a container having an open upper end, a head on said end, a trough in said head, a discharge opening from said trough, a guard device associated with said discharge opening and having an opening laterally of said discharge opening, a floatable valve located to close the opening in the guard device on any attempt to insert liquid into said trough through said discharge opening, and flanges on said guard device in positions to interfere with the insertion of an instrument through the discharge opening into engagement with said valve.

5. In a dispensing apparatus, a container having an open upper end, a head closing the open end of the container and including upper and lower separable parts, a trough in said head, said trough including a depressed portion forming a well, a discharge spout leading from said well, a guard device including a plate-like portion fitting in the upper end of said well and having an opening laterally of said spout for movement of liquid from the trough into the well, a floatable valve in the well and adapted to close the opening in said plate-like portion of the guard device on any attempt to insert liquid into the trough through said spout, said upper part of the head forming a covering for the open end of the container and for the trough, and said upper head part and said guard device including engaging portions whereby the plate-like portion of the guard device is held against movement on the insertion of an instrument through the spout.

6. In a dispensing apparatus, a container having an open end, a head including separable parts, a flange on one of said parts and entering the open end of the container, an annular trough supported by and located radially of and in slightly spaced relation to said flange, a discharge spout leading from the bottom of said trough, said trough arranged at an angle and inclining toward said spout, and said upper part of the head comprising a covering for said open end of the container and for the upper open side of said trough.

7. In a dispensing apparatus, a container hav-

ing an open upper end, a head on said end, a trough in said head, a discharge opening from said trough, a dipper within said container, an operating rod, means pivotally connecting said rod with the dipper, said rod passing through said head for actuation from the exterior of the container for raising and lowering said dipper in the container to discharge the contents of the latter into said trough, a seal secured at its lower end to said head and enclosing the outer end of said operating rod, and said seal comprising an extensible bellows-like means whereby as said rod is raised and lowered to raise and lower the dipper all portions of the rod drawn to the outer side of the container and head are kept enclosed by said seal.

8. In a dispensing apparatus, a container having an open upper end, a head on said end, a trough in said head, a discharge opening from said trough, a dipper within said container, an operating rod, means pivotally connecting said rod with the dipper, said rod passing through said head for actuation from the exterior of the container for raising and lowering said dipper in the container to discharge the contents of the latter into the trough, a tubular extension at the outer side of said head, said rod when the dipper is in its lowermost position disposed with its upper end in said extension, an extensible seal about said rod portion in said extension and having its lower end anchored in said extension and of a bellows construction to maintain the rod enclosed on any upward movement thereof, said extension having an outer head about its upper end, and a cap clamped over said head and closing the upper end of said extension for transportation of the container.

9. In a dispensing apparatus, a container having an open upper end, a head on said end, a trough in said head, a discharge opening from said trough, a dipper within said container, an operating rod, means pivotally connecting said rod with said dipper, said rod passing through said head for actuation from the exterior of the container for raising and lowering said dipper in the container to discharge the contents of the latter into the trough, a tubular extension at the outer side of said head, said rod when the dipper is in its lowermost position disposed with its upper end in said extension, an extensible seal about said rod portion in said extension and having its lower end anchored in said extension and of a bellows construction to maintain the rod enclosed on any upward movement thereof.

10. In a dispensing apparatus, a container having an open upper end, a head on said end, a trough in said head, a discharge opening from said trough, a dipper within said container, an operating rod, means pivotally connecting said rod with the dipper, said rod passing through said head for actuation from the exterior thereof for raising and lowering said dipper in the container to discharge the contents of the latter into said trough, a tubular extension at the outer side of said head, said rod when the dipper is in its lowermost position disposed with its upper end in said extension, an inner annular shoulder at the inner end of said extension, a bellows-type seal within said extension about the rod, a split spring ring in the inner end of said seal and engaging said shoulder and anchoring the lower end of the seal, and said seal adapted to be expanded and contracted to maintain said rod enclosed as and when the latter is raised and lowered to raise and lower the dipper in the container.

11. In a seal of the character described, an expansible bellows-like body open at one end, means in and maintaining such end of the body expanded for anchoring the same, and a cap closing the upper end of said body and having an outwardly disposed crown-like portion.

12. In a dispensing apparatus, a container having an open upper end, a head on and closing said end, a trough in said head, a discharge spout leading from said trough, a dipper in said container, an actuating means pivotally connected with said dipper in position to suspend the same in balanced liquid carrying condition and extending through said head, said dipper including a tripping portion, said head including a portion located to be engaged by said tripping portion of the dipper to cause the latter on actuation by said means to tilt and discharge into said trough, and said dipper in its underside in spaced relation to said pivotal connection having a pocket whereby as the dipper is dropped into a liquid bottom first the liquid acting on the bottom of the dipper will tilt it about said pivotal connection to an unbalanced pouring position whereby as the dipper descends in the liquid any contents of the dipper will be changed.

13. In a dispensing apparatus, a container having an outlet opening at its upper end, a closure on the container above said outlet, a dipper within the container, an operating means connected with the dipper and passing out through the closure for actuation from the exterior of the container for raising and lowering the dipper in the container to discharge the contents of the latter through said outlet, a seal secured at its lower end to said closure and enclosing the outer end of said operating means, and said seal comprising an extensible bellows-like means whereby as the means is raised and lowered to raise and lower the dipper all portions of the means drawn to the outer side of the container and closure are kept enclosed by said seal.

14. In a dispensing apparatus, a container having an open upper end, a closure on said end, a dipper in said container, an operating means connected with the dipper and passing through said closure for actuation from the exterior of the container for raising and lowering the dipper to discharge the contents of the container through the upper end thereof, said closure having a socket opening through the outer side thereof, said means when the dipper is in its lowermost position disposed with its upper end in said socket, an extensible bellows-like seal about said means portion in said extension and having its lower end anchored whereby to maintain the means enclosed on any upward movement thereof, an outer bead about the upper end of said socket, and a cap clamped over said bead and closing the upper end of said extension for transportation of the container.

15. In a dispensing apparatus, a container having an open upper end, a closure on said end, a dipper in said container, an operating means connected with the dipper and passing through said closure for actuation from the exterior of

the container for raising and lowering the dipper to discharge the contents of the container through the upper end thereof, said closure having a socket opening through the outer side thereof, said means when the dipper is in its lowermost position disposed with its upper end in said socket and an extensible seal about said means portion in said socket and having its lower end anchored whereby to maintain the means enclosed on any upward movement thereof.

16. In a dispensing apparatus, a container having an open upper end, a closure on said end, a dipper in said container, an operating means connected with the dipper and passing through said closure for actuation from the exterior of the container for raising and lowering the dipper to discharge the contents of the container through the upper end thereof, said closure having a socket opening through the outer side thereof, said means when the dipper is in its lowermost position disposed with its upper end in said socket, an inner annular shoulder at the inner end of said socket, an extensible seal within said socket about the means, means in the inner end of said seal and engaging said shoulder and anchoring the inner end of said seal, and said seal adapted to be expanded and contracted to maintain said operating means enclosed as and when the latter is actuated to raise and lower the dipper in the container.

17. In a dispensing apparatus, a container and a closure for the upper end of said container, an outlet from the upper portion of the container and including a spout, a dipper in the container, an actuating means connected with the dipper and passing out through said closure, said means adapted to be raised and lowered to raise and lower the dipper to discharge the contents of the container through said outlet, said closure having a socket opening through the upper end thereof and receiving the outer end portion of said means when the dipper is in its lowermost position in the container, and an outer bead about the outer end portion of each of said spout and socket for the reception of sealing caps for use when transporting the container.

18. In a dispensing apparatus, a container having an open upper end, a head on said end and comprising separable upper and lower parts, a trough in the lower part of said head, a discharge opening from said trough, a guard device in said head and associated with said discharge opening and having an opening laterally of said discharge opening, a floatable valve located to close the opening in the guard device on any attempt to insert liquid into said trough through said discharge opening, a baffle means on said guard device to interfere with the insertion of an instrument through the discharge opening into engagement with said valve, and said guard device comprising a body separate from the parts of said head and removably held in place only by being clamped between the parts of the head.

SAMUEL D. POLSEN.
SVEN H. NELSON.