April 17, 1951 S. KESTENBAUM 2,549,207

FLUID DISPENSING CONTAINER WITH AN OUTLET, A VALVED, SUPPORTING CASING FOR SAID CONTAINER, AND A CONDUIT FROM SAID OUTLET TO SAID VALVE

Filed June 26, 1945 5 Sheets-Sheet 1

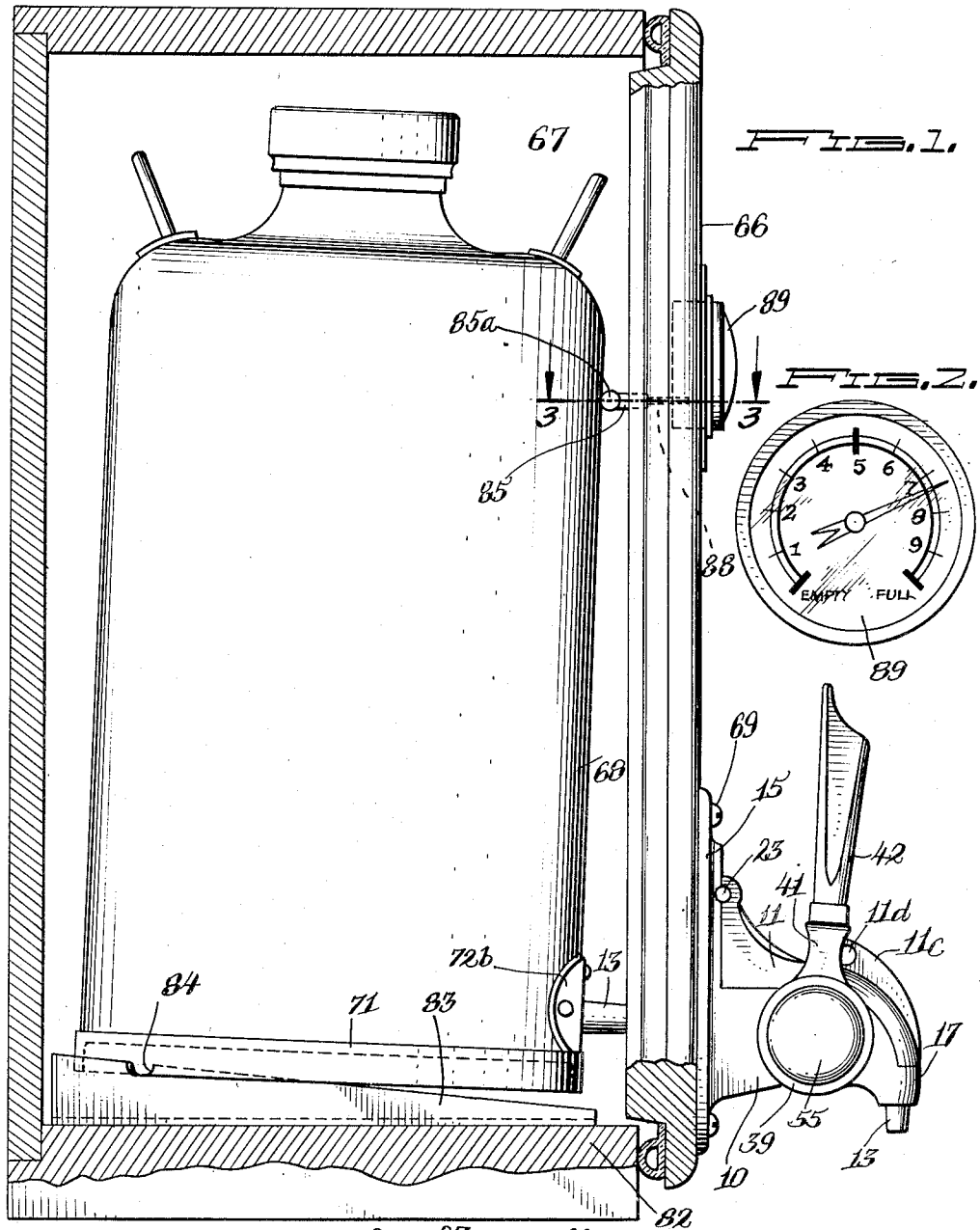

FIG. 1.

FIG. 2.

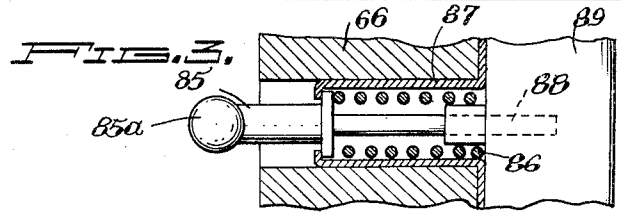

FIG. 3.

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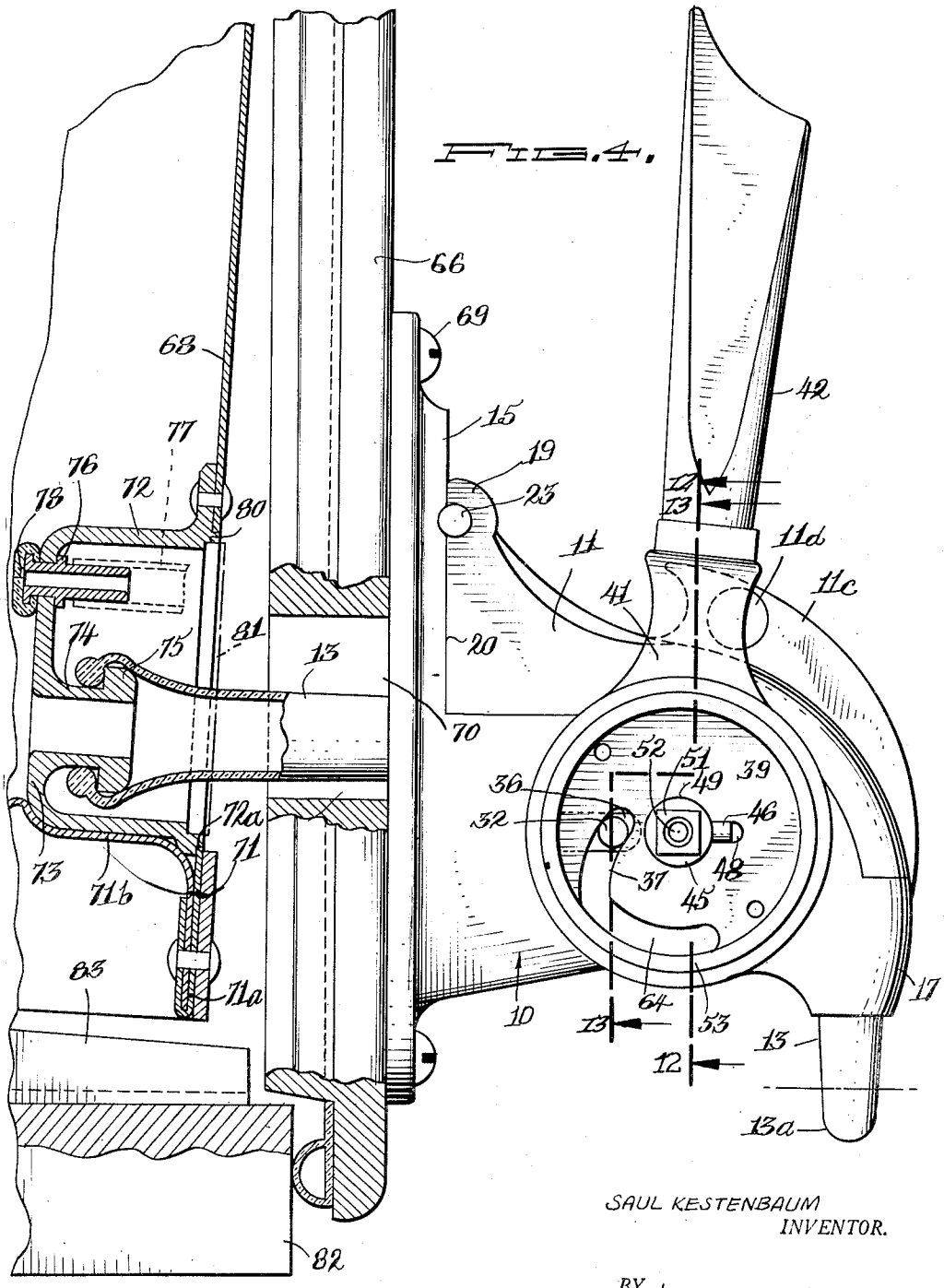
FLUID DISPENSING CONTAINER WITH AN OUTLET, A VALVED, SUPPORTING CASING FOR SAID CONTAINER, AND A CONDUIT FROM SAID OUTLET TO SAID VALVE

Filed June 26, 1945 5 Sheets-Sheet 2

FIG. 4.



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FLUID DISPENSING CONTAINER WITH AN OUTLET, A VALVED, SUPPORTING CASING FOR SAID CONTAINER, AND A CONDUIT FROM SAID OUTLET TO SAID VALVE

Filed June 26, 1945 5 Sheets-Sheet 3

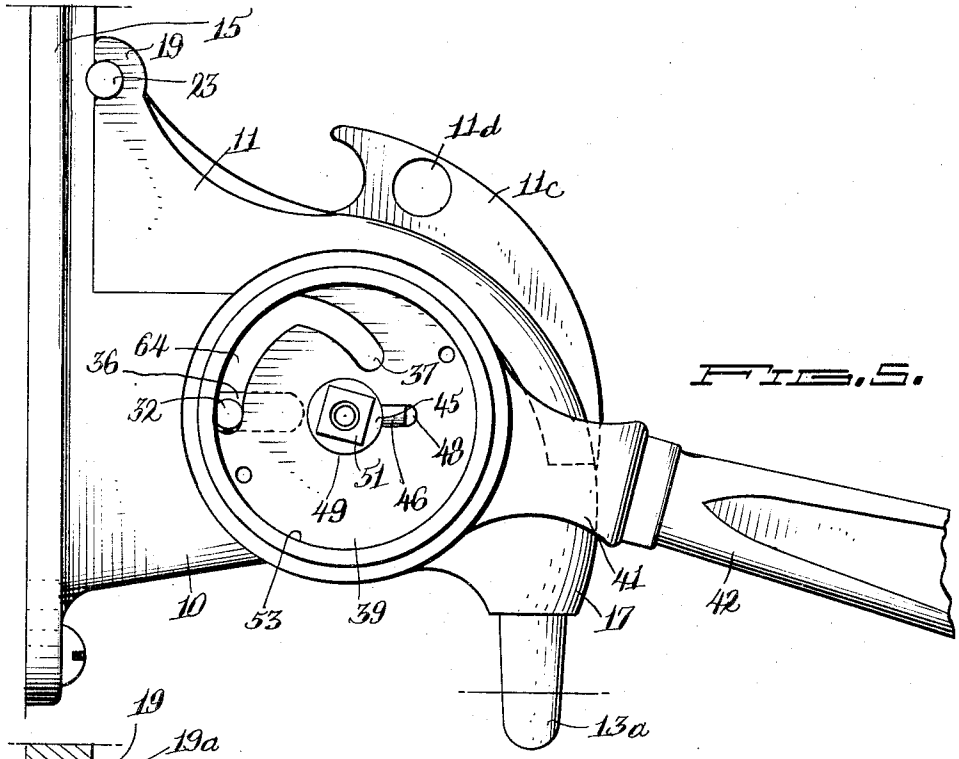

FIG. 5.

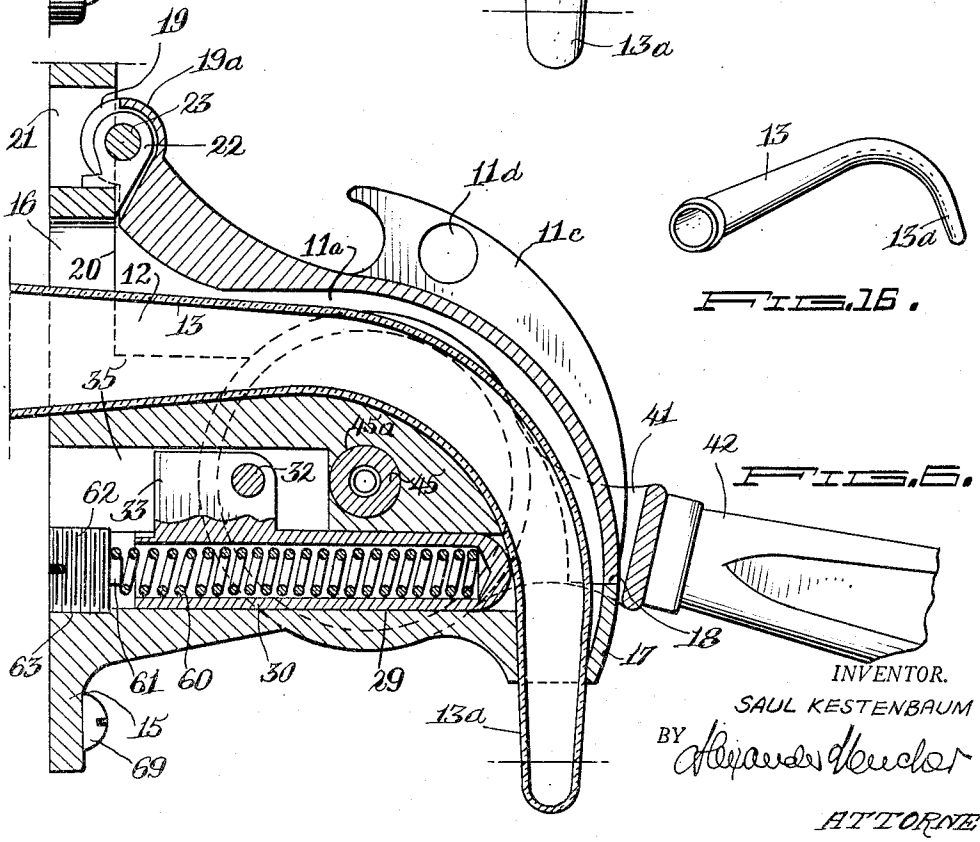

FIG. 16.

FIG. 6.

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April 17, 1951 S. KESTENBAUM 2,549,207

FLUID DISPENSING CONTAINER WITH AN OUTLET, A VALVED, SUPPORTING CASING FOR SAID CONTAINER, AND A CONDUIT FROM SAID OUTLET TO SAID VALVE

Filed June 26, 1945 5 Sheets-Sheet 4

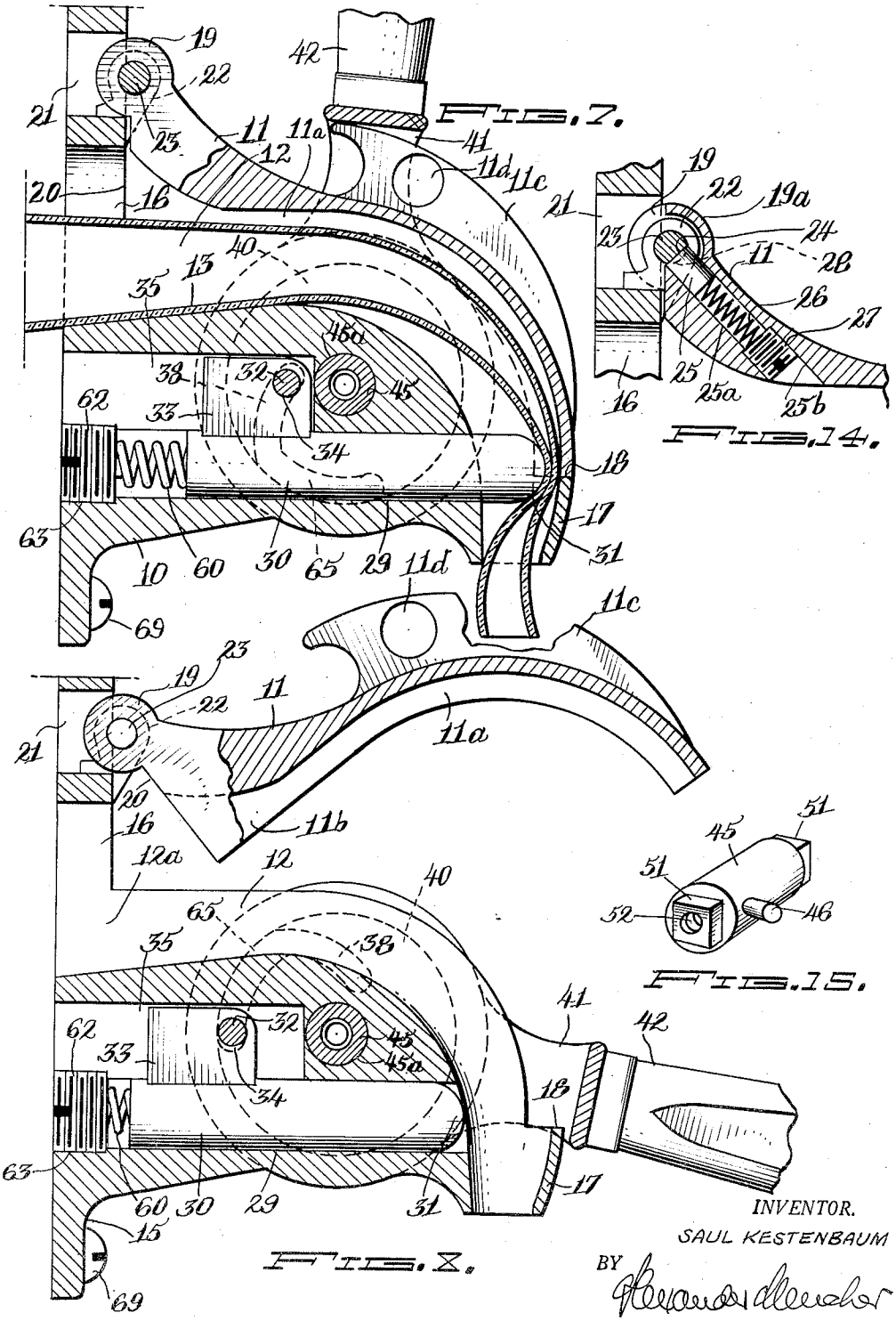

FIG. 7.

FIG. 14.

FIG. 15.

FIG. 8.

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FLUID DISPENSING CONTAINER WITH AN OUTLET, A VALVED, SUPPORTING CASING FOR SAID CONTAINER, AND A CONDUIT FROM SAID OUTLET TO SAID VALVE

Filed June 26, 1945 5 Sheets-Sheet 5

FIG. 9.

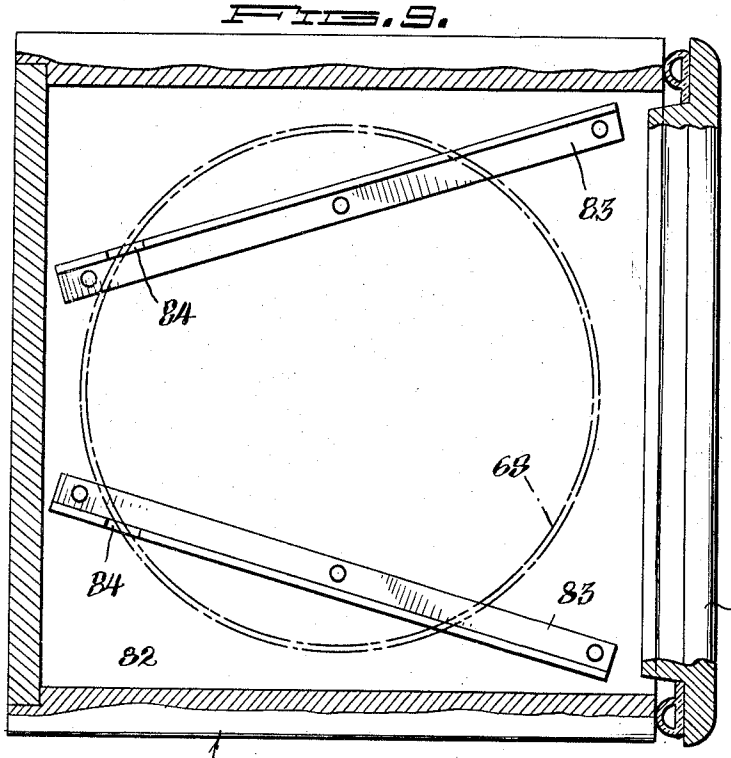


FIG. 10.

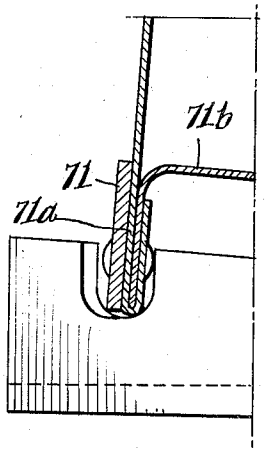


FIG. 11.

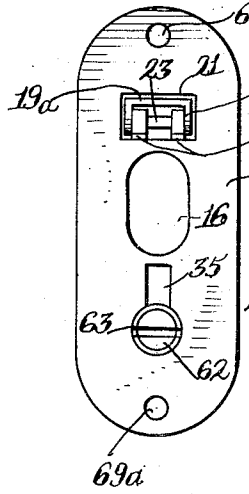


FIG. 12.

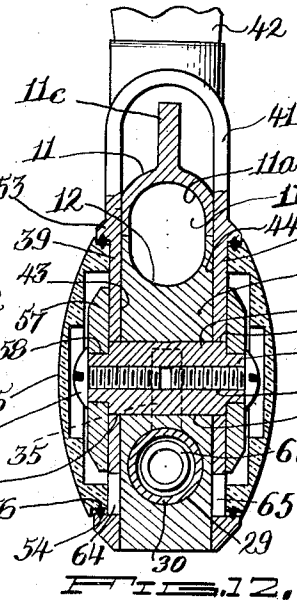
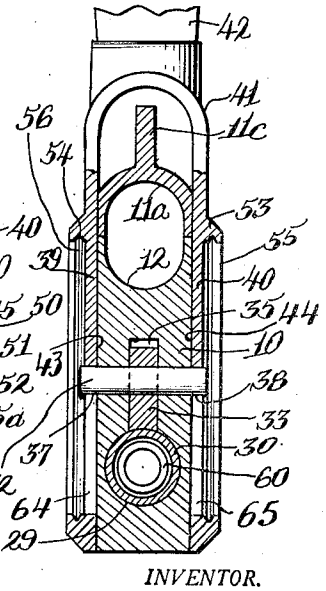


FIG. 13.



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Patented Apr. 17, 1951

2,549,207

UNITED STATES PATENT OFFICE

2,549,207

FLUID DISPENSING CONTAINER WITH AN OUTLET, A VALVED, SUPPORTING CASING FOR SAID CONTAINER, AND A CONDUIT FROM SAID OUTLET TO SAID VALVE

Saul Kestenbaum, New York, N. Y.

Application June 26, 1945, Serial No. 601,635

4 Claims. (Cl. 222—185)

1

This invention relates generally to a fluid dispenser but more specifically to a dispenser for milk, cream or other edible liquids wherein the delivery tube from the container is flexible and removable therefrom.

The main object of the invention resides in the provision of a fluid dispenser wherein the fluid container has a delivery nozzle at the lower part, the said nozzle being detachably engageable with a flexible delivery tube closed at the outer end, the said tube being adapted to be removably mounted in and operatively connected to a discharge valve associated with a housing at the places of distribution of the fluid contents.

Thus, when the fluid container is at a dairy or at a place of manufacture for filling purposes it is first suitably cleaned with the delivery nozzle open. Thereafter, a flexible delivery tube closed at one end is engaged with the said nozzle preparatory to the filling operation. At the place of distribution the container is inserted in a housing provided with a discharge valve, the flexible tube being adapted to be mounted on and operatively connected to the valve, the closed end of the tube thereafter being severed to serve as a discharge port while the valve serves as a control for said port. When the fluid contents of the container has been exhausted at the place of distribution, the delivery tube is removed from the valve and is carried by the container after the said container has been withdrawn from the housing for return to the dairy or filling station. It is to be observed that the invention contemplates the use of a fresh and new delivery tube for each filling of the container thereby eliminating the necessity for cleaning of the delivery tube and the valve operative thereon.

A further object of the invention resides in the provision of a fluid dispenser wherein the fluid container is provided with balancing means cooperating with a gauge on the door of the container housing to indicate to the distributor the fluid volume of the container.

A further object of the invention resides in the provision of a fluid dispenser wherein the container or fluid storage tank is provided with a delivery nozzle within a recess on a wall of the container, the said nozzle having a stopper in the form of a flexible delivery tube provided with a severable closure at the outer end and being adapted to cooperate with a discharge valve, the said severable closure serving as a discharge port for the fluid contents of the container upon severance after assembly with the valve.

2

These objects and other incidental ends and advantages of the invention will hereinafter appear in the progress of the disclosure and as pointed out in the appended claims.

Accompanying this specification are drawings showing a preferred form of the invention wherein:

Figure 1 is a vertical sectional view partly in elevation of the fluid dispenser showing a discharge valve in cut-off position with respect to the discharge port.

Figure 2 is a front view in elevation of a meter face of the gauge mechanism for the fluid contents in the container.

Figure 3 is a sectional view along the plane 3—3 of Figure 1 partly in elevation showing a spring-urged plunger means cooperating with the gauge and actuatable by the fluid container.

Figure 4 is a fragmentary view in elevation partly in section showing the relationship between the flexible delivery tube, the fluid container, the housing for the container and the discharge valve operative upon the tube, the said tube being closed at the outer end.

Figure 5 is a front view in elevation of the discharge valve associated with the flexible delivery tube closed at the outer end, the valve being shown in open position relative to the tube.

Figure 6 is a sectional view of Figure 5 taken along a central vertical plane.

Figure 7 is a sectional view similar to Figure 6 showing the discharge valve in closed position relative to the delivery tube, the delivery tube being severed at the outer end.

Figure 8 is a sectional view partly in elevation of the structure of Figure 6 showing the flexible delivery tube of Figure 6 removed and the upper pivoted wall in raised position.

Figure 9 is a sectional view of the housing for the fluid container showing the bottom wall in plan provided with balancing supporting means for the fluid container.

Figure 10 is a fragmentary view in elevation partly in section showing the fulcruming of the fluid container on the supporting means therefor.

Figure 11 is a plan view of the rear face of the discharge valve mechanism.

Figure 12 is a sectional view of the assembly shown in Figure 4 along the plane 12—12 thereof with Bakelite caps 55 applied thereto.

Figure 13 is a sectional view of the assembly shown in Figure 4 along the plane 13—13 thereof.

Figure 14 is a fragmentary sectional view showing the spring-urged pivoting means of the wall on the discharge valve.

Figure 15 is a view in perspective of the central bearing axis for the valve control disk members of the valve mechanism.

Figure 16 is a view in perspective of the flexible delivery tube having a severable closed end.

In accordance with the invention and the preferred form shown, a discharge valve or faucet secured to a wall 66 of housing 67 is comprised of a valve carrying casing generally indicated by numeral 10 and a conduit for the detachable mounting of a flexible delivery tube, said conduit being comprised of a pivoted bracket generally indicated by numeral 11, the bracket having a curved wall to form a groove portion 11*a* to cooperate and register with a groove 12 along the upper and curved side edge of casing 10.

A tapered flexible delivery tube 13, attached at one end to container 68 and shown in Figures 4, 5, 6 and 16 closed at the smaller end as at 13*a* during filling and transportation of the milk container as will hereinafter appear, is introduced in the discharge valve by raising bracket 11 about a pivot 23 mounted on an attaching valve bracket 15 (Figure 8). Disposed in bracket 15 is a central and elongated slot 16 adjacent the inner end of the conduit as above described. The grooved portion 11*a* of the pivoted bracket 11 and the groove 12 adjacent the inner ends are flared to register with the slot 16 as at 11*b* and 12*a* respectively (Figure 8) so that the inner end of flexible tube 13 may be manipulated for positioning along groove 12 when bracket 11 is raised, the outer end of groove 12 extending beyond grooved portion 11*a* and being vertically disposed and terminating in a tubular section 17. Upper edge 18 of the tubular section 17 supports the lower edge of grooved portion 11*a*, the outer end 13*a* of the flexible tube passing through 17. After the tube 13 is thus introduced pivoted bracket 11 is closed and the end 13*a* is severed below tubular section 17 as indicated by reference lines in Figures 4, 5 and 6 and as shown in severed position in Figure 1. The pivoted wall portion 11 has a flared portion 11*b*, a web portion 11*c* having an indent 11*d*.

Pivoted wall 11 is secured to bracket 15 above slot 16 by means of a pair of spaced disks 19 joined by a curved extension 19*a* terminating off a vertical wall 20 of bracket 11. Disks 19 and extension 19*a* extend into a transverse slot 21, the inner walls of said disks 19 being in bearing contact with protruding spaced knuckles 22 of bracket 15 extending across slot 21 (Figure 11). The pintle or pin 23 for pivoted bracket 11 penetrates the said disks 19 and knuckles 22, the pin exposed between knuckles 22 having a plane surface 24 forming an obtuse angle with the plane of attaching bracket 15 (Figure 14). A spring urged pin 25 is mounted within an opening 25*a* in the solid wall portion of pivoted bracket 11 as by a spring 26 and nut 27, said pin having concave end 28 and being engageable with the pintle 23 for resistance to pivotal movement of bracket 11. The said resistance is minimized when the concave end 28 is about to and engages the plane surface 24 of pintle 23 and this takes place when the pivoted bracket 11 is forced by grasping web 11*c* at depression 11*d* in lowered position for closure of bracket 11 whereupon gravity and the lessening of friction by pin 25 on plane surface 24 causes pivoted bracket 11 to snap into closed position.

The valve carrying casing 10 is provided with a longitudinal bore 29 extending from and through bracket 15 and terminating in and communicating with tubular section 17 (Figures 6, 7 and 8). A hollow valve member 30 is slidably reciprocable in the bore 29, the operative end 31 being rounded and closed and adapted to enter tubular section 17 and constrict flexible tube 13 therein against the inner walls for restricting flow of fluid therethrough.

Valve member 30, in order to constrict and relieve constriction of flexible tube 13, is actuated by engagement of a transverse valve pin 32 mounted in a transverse opening 34 on lug 33 carried by valve 30, said lug 33 having a passageway 35 in the valve casing 10. Pin 32 is free to reciprocate with the movement of lug 33 in a transverse and elongated slot 36 in casing 10, and is actuated by engagement of the projecting pin ends with a pair of curved and spaced cam slots 37 and 38 situated in a pair of spaced and parallel disk members 39 and 40 of a frame 41 provided with an operating handle 42 (Figures 4, 5, 6, 12 and 13).

The inner walls of disks 39 and 40 are flat and bear against the flat and partly circular front and rear walls 43 and 44 of casing 10, the disk members 39 and 40 of the frame 41 being mounted for rotatable movement on an axis 45 penetrating a transverse opening 45*a* centrally of walls 43 and 44 of casing 10, the axis 45 being prevented from rotation by the use of a projecting pin 46 which is engageable with a corresponding notch (not shown) in the front wall 43 of casing 10. There is also an opening 48 registering with the notch in one of the disks such as disk 39 (Figure 4) adjacent one of the aligned central openings 49 and 50 to receive the central axis 45, the said opening 48 permitting introduction of pin 46 on axis 45 through the disk 39 for engagement of pin 46 with the notch in front wall 43. (Figures 4, 5).

Central axis 45 on each end is provided with a nut projection 51 and an internally threaded bore 52. Each of the disks 39 and 40 on the outer face has a mounting bead 53 and a groove 54 to receive a Bakelite cap 55 and a wire spring 56 for resilient attachment of said cap to each disk. Each cap 55 is adapted to conceal a cover disk plate 57 having a central square opening 58 to engage nut 51, the cap being secured by a threaded bolt 59 engaging the threaded bore 52 (Figures 12, 13).

Valve member 30 is hollow to receive a coil spring 60, which engages the closed curved end 31 of valve member 30 at one end and at the opposite end abuts the inner end of a threaded head 62 engageable with a threaded inner end portion 63 of valve bore 29, the spring at said end surrounding a pin 61 extending from head 62 (Figure 6).

The opposite cam slots 37 and 38 in disks 39 and 40 communicate with concentric slots 64 and 65. Thus, when handle 42 is in a vertical position (Figure 7) the valve end head 31 constricts the flexible tube 13 against the wall of tubular section 17 in which position the faucet or valve is closed and at which time the terminals of valve pin 32 are in forced position by spring 60 at the outer ends of cam slots 37 and 38 and at the outer end of slot 36. To open (Figure 6) handle 42 is drawn outwardly and the valve member 30 is forced inwardly against spring 60 by displacement of valve pin 32 along slot 36 by the action of cam slots 37 and 38. The limiting inward position of pin 32 in slot 36 is maintained by concentric slots 64 and 65, the ends of the latter concentric slots serving as stops for the downward movement of handle 42. In this position of the

valve, tube 13 is unrestricted for flow. To close or restrict flow through tube 13, handle 42 is raised until the terminals of the valve pin 32 enter the inner ends of cam slots 37 and 38 whereupon the force of spring 60 causes outer travel of valve pin 32 along cam slots 37 and 38 bringing handle 42 to closed vertical position with a snap.

The faucet above described is adapted to be secured at bracket 15 to the lower end of a front door 66 of tank or housing 67 for a milk or fluid container 68 as by screws 69 (Figures 1, 4, 9) penetrating openings 69*a* in bracket 15. The said front door 66 has an opening 70 for passageway of the flexible tube 13. The container 8 has a lower flange 71 riveted to the lower end of the upwardly turned side wall 71*a*. A raised bottom wall 71*b* is adapted to be secured therein as shown in Figure 10. Adjacent flange 71 of container 68 and at opening 72*a* is a recess or housing 72, the rear wall 73 thereof communicating with the container 68 by a nipple section 74 projecting into recess 72 and having a bead 75 for engagement of the inner end of flexible tube 13. If desired, the rear wall 73 of housing 72 may also be provided with a pressure connection 76 for attachment at its outer end within the recess 72 with a pressure hose line 77, the inner end of connection 76 having a slit valve 78. The purpose of introducing pressure into container 68 is to have forced flow instead of gravity flow of the fluid contents from the container.

Before filling container 68, tube 13 closed at one end as at 13*a* is secured to bead 75. Thereafter, the container is filled and tube 13 is rolled or curled within the recess 72, the mouth of the recess having a circular groove 80 for insertion of a removable seal 81. As shown, the mouth of the recess may have a reinforcement member 72*b* therearound.

The container 68 upon being received at the place for dispensing the contents is inserted through the front door 66 of the housing 67 and supported on a floor 82 having a pair of tilting brackets 83 with sockets 84 at the rear thereof so that the flange 71 of the container may fulcrum thereon for balancing against a volume gauge secured to the door. Thus, near the upper end of door 66 is a gauge having a plunger 85 adapted to support the upper and tilted part of the container 68. The plunger projects from the inner side of door 66 and is adapted to abut at the end portion 85*a* the forwardly tilted end of container 68, the plunger being spring urged as by a coiled spring 86 in a housing 87 (Figure 3). The outer end 88 of plunger 85 is connected to a conventional pressure meter calibrated for volume and indicated generally by numeral 89 the said meter being secured to the outer side of door 66.

Upon receipt of container 68 from the filling station the storekeeper or operator introduces the container into the tank or housing 67 through door 66 for support on sockets 84 in the tilting brackets 83 in a position whereby recess 72 faces door 66 opposite opening 70 therein when the door is in closed position. Thereupon seal 81 is removed from the mouth of recess 72 and flexible tube 13 is extended outwardly. At this time the faucet or valve on door 66 is manipulated so that the operating handle 42 is in down position and the wall 11 is in uppermost position. Thereafter door 66 is closed and tube 13 is withdrawn through the door opening 70 and the bracket slot 16 and set along groove 12 for insertion through tubular section 17. Thereupon wall 11 is brought down to closed position or as best shown in Figure 6. Thereafter handle 42 is brought up to its vertical position to cause restriction in tube 13 and the closed end 13*a* of the tube projecting from tubular section 17 is cut off resulting in an assembly as shown in Figure 7.

When the contents of the container 68 are exhausted tubular handle 42 is brought into downward position and wall A is raised so that tube 13 may pass out of the valve mechanism upon the opening of the housing door 66, the said tube 13 remaining on container 68 and being carried thereby upon the removal of the container from the housing 67.

It is understood that minor changes and variations in the location, material, combination and operation of the parts may all be resorted to without departing from the spirit of the invention and the scope of the appended claims.

I claim:

1. A fluid dispenser including a container for fluid storage, a flexible delivery tube on one end removably engaged with said container for fluid flow therefrom, a housing for said container having a removable wall for introduction and removal of the container in and from the housing, the tube being adapted to be inserted through an opening in the said wall, a discharge valve housing secured to said wall, a passage in said discharge valve housing for insertion of the delivery tube, a pivoted bracket adapted to serve substantially as the upper wall of the said valve housing passage to facilitate introduction and removal of the said delivery tube and a valve member adapted to penetrate the valve housing passage to selectively constrict and release said delivery tube intermediate the ends thereof for control of the fluid flow therethrough.

2. A fluid dispenser including a container for fluid storage, a flexible delivery tube on one end removably engageable with said container for fluid flow therefrom, a housing for said container having a removable wall for introduction and removal of the container in and from the housing, the tube being adapted to be inserted through an opening in the said wall, a discharge valve housing secured to said wall, a passage in said discharge valve housing for insertion of the delivery tube, a movable wall in said passage to facilitate introduction and removal of the delivery tube, and a valve member adapted to penetrate the valve housing passage to selectively constrict and release said tube for control of fluid flow therethrough.

3. In a discharge valve for a fluid dispenser having a container and a housing for said container for fluid storage in said housing, a discharge valve housing secured to the said housing for said container, a passage in said valve housing, a flexible delivery tube secured at one end to the container and adapted to be inserted in said valve housing at the other end, a movable wall member in said valve housing to facilitate introduction and removal of the delivery tube therein, and a valve member adapted to penetrate the valve housing passage to selectively constrict and release said tube for control of fluid flow therethrough.

4. In a discharge valve for fluid dispenser having a container for fluid storage and a flexible delivery tube on one end removably engageable with said container, a housing for said container through which said tube penetrates, a discharge valve housing secured to said housing for said container, a passage in the valve housing having a movable wall to insert therethrough and re-

move therefrom the said delivery tube and means in the valve housing and operative on the flexible delivery tube for constriction and release thereof.

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