

July 9, 1940.

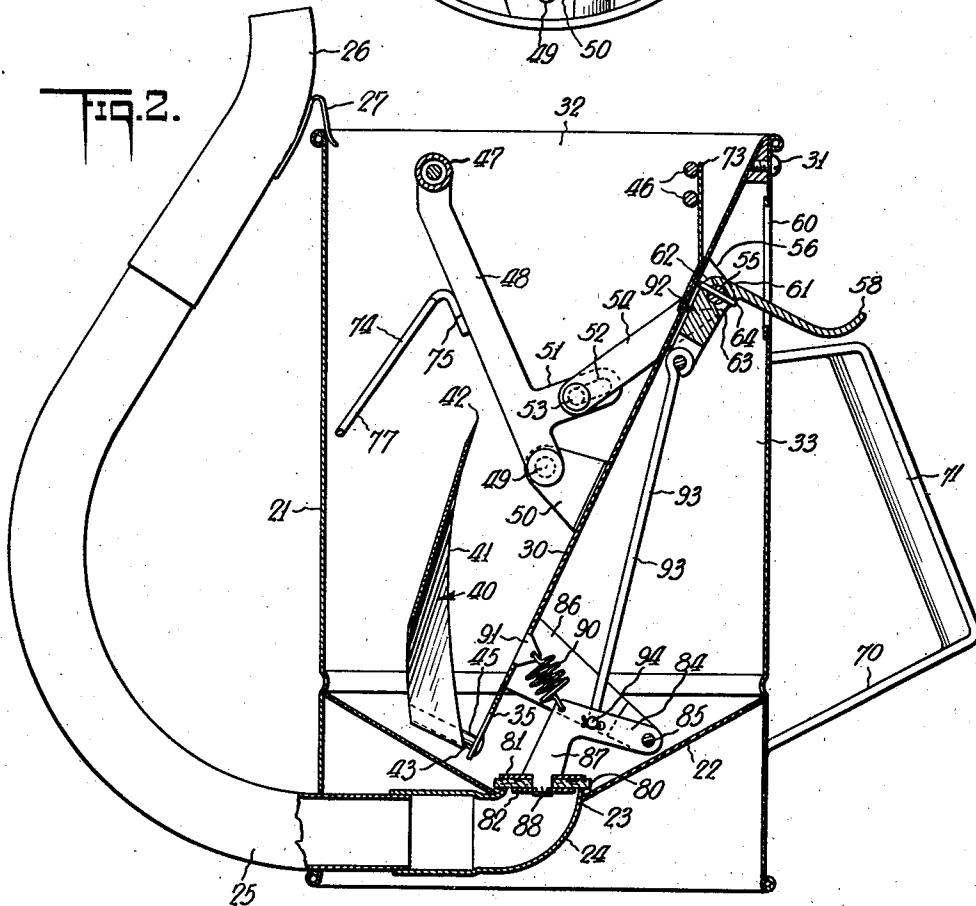
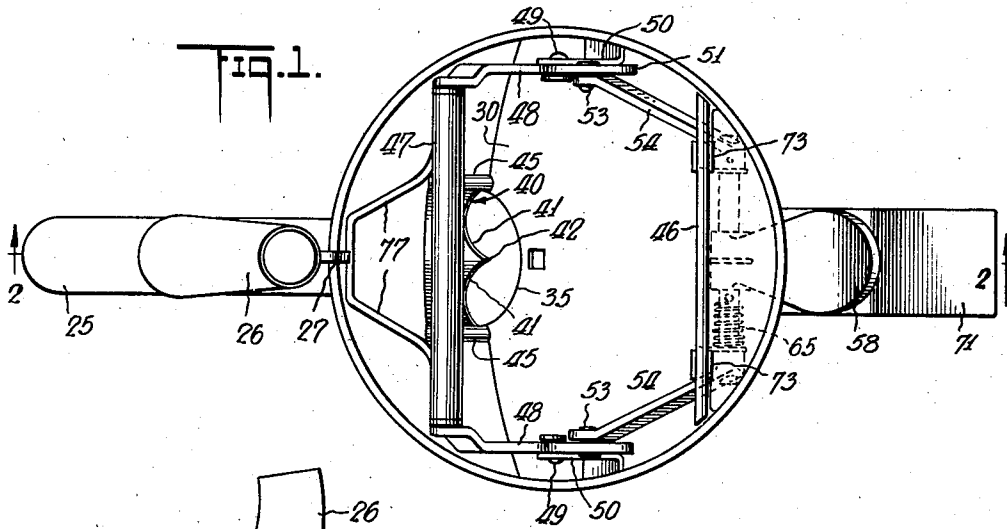
C. W. VOGT

2,206,986

DISPENSING DEVICE

Filed June 3, 1937

2 Sheets-Sheet 1



INVENTOR

Clarence W. Vogt

BY

Dean F. Ambrose & Harold

ATTORNEYS

July 9, 1940.

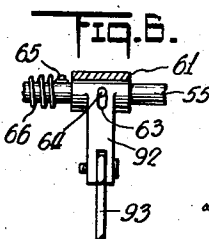
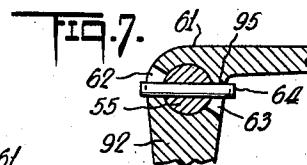
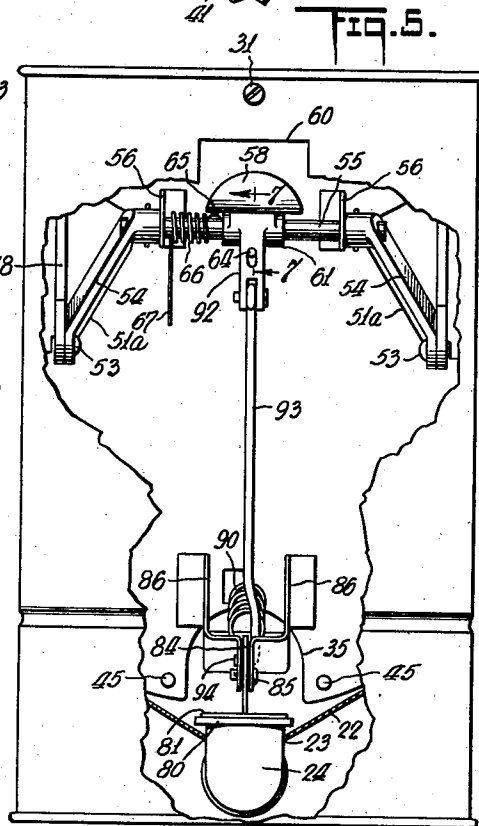
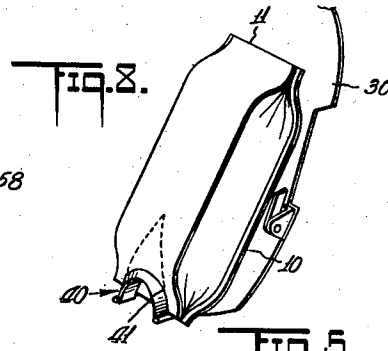
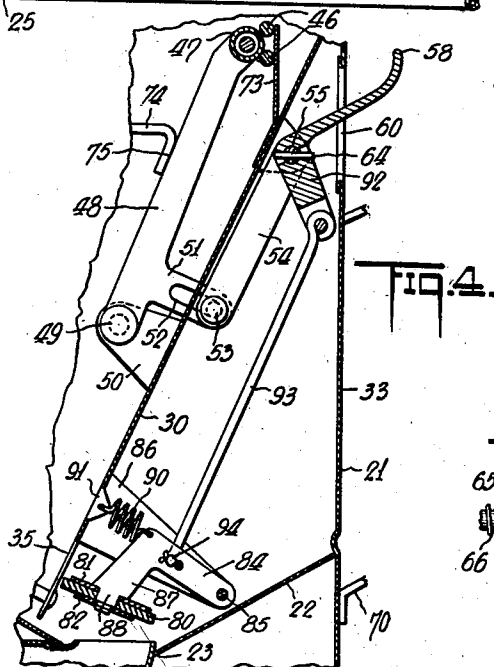
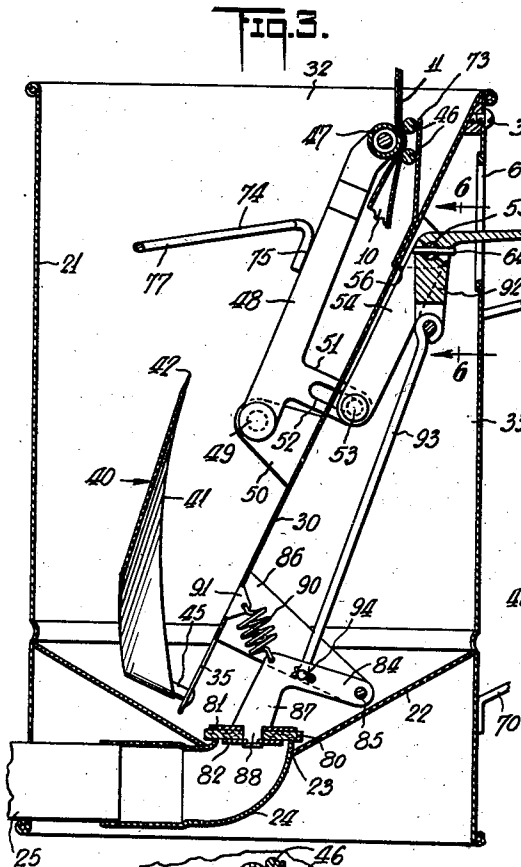
C. W. VOGT

2,206,986

DISPENSING DEVICE

Filed June 3, 1937

2 Sheets-Sheet 2



INVENTOR
Clarence W. Vogt
BY
Dean Fambach & Hirsch
ATTORNEYS

UNITED STATES PATENT OFFICE

2,206,986

DISPENSING DEVICE

Clarence W. Vogt, Westport, Conn., assignor to
Owens-Illinois Glass Company, Toledo, Ohio, a
corporation of Ohio

Application June 3, 1937, Serial No. 146,179

17 Claims. (Cl. 221-23)

The main object of the present invention is to provide a device for quickly emptying and stripping a flexible walled container of its entire liquid contents. The form shown includes a dispensing receptacle or funnel, having a member within a lower portion thereof for puncturing the container, and a pressure member at the upper end of the receptacle operable to strip the liquid from the punctured container as the latter is withdrawn. Such a device may be used to deliver lubrication to a receiver such as the crank case of an automobile, and is intended to effect the rapid emptying of the container of its entire oil contents, including that which would otherwise adhere to the inner walls of said container or which would be slow in reaching the outlet of said container.

Another object is to provide a device whereby a flexible walled container may be quickly emptied and stripped of its entire liquid contents by a simple manipulation.

A further object is to provide means for rendering the puncturing member inaccessible for container puncturing operation while the device is not in use, whereby accidental hand contact with said puncturing member is prevented.

Another object is to provide means for controlling the outflow of the liquid from the receptacle after the container therein has been punctured and while it is being stripped.

Another object is to provide new and improved means for supporting the container in the receptacle during puncturing and stripping operation so that said operation may be carried out in an effective and efficient manner.

As a feature of the present invention there is provided at the outlet of the receptacle a valve, controlled from an operating member, which also controls the movement of the pressure member into or out of stripping position.

As another feature this operating member is in the form of a finger piece, which when moved in one direction moves the pressure member of the stripping mechanism in position to receive a container in the receptacle, and when moved in the opposite direction effects the controlled opening of the valve without affecting the pressure member.

As a further feature means is provided whereby the valve is snapped into fully opened locked position when the finger piece is moved beyond a predetermined operative position, so that in this locked position the receptacle will continue to discharge without the necessity of applying manual pressure on said finger piece.

As another feature the receptacle is divided by a diagonally extending plate, which divides said receptacle into a container receiving chamber and a chamber for housing the valve operating mechanism, and which also supports the container in said first mentioned chamber during puncturing and stripping operations.

Various other objects, features and advantages of the invention will be made apparent from the following particular description, and from an inspection of the accompanying drawings. In these drawings:

Fig. 1 shows a top plan view of one embodiment of the present invention with the valve in closed position and the pressure member of the stripping mechanism in position to permit the dropping of the flexible walled container in the receptacle.

Fig. 2 is a section taken on the line 2-2 of Fig. 1,

Fig. 3 is a section similar to Fig. 2, but showing the pressure member in stripping position, and the valve in closed position,

Fig. 4 is a fragmentary vertical section, showing the pressure member in stripping position, and the valve locked in fully opened position,

Fig. 5 is a rear view of the funnel with parts broken away to show the interior thereof in the position corresponding to that shown in Fig. 3,

Fig. 6 is a detail section taken on the line 6-6 of Fig. 3,

Fig. 7 is an enlarged detail section taken on line 7-7 of Fig. 5, and

Fig. 8 is a perspective view of a type of flexible walled container that may be used in conjunction with the present invention, said container being shown in connection with the puncturing member.

In Fig. 8 is shown a form of flexible walled oil container 10, which may be used in conjunction with the present invention, but it is to be understood that any other type of flexible walled container may be used for the purpose of the present invention. In the form shown this container 10 is made from thin flexible impervious thermoplastic sheet material such as that sold under the name "Pliofilm," and is hermetically sealed longitudinally at the edges and transversely at the top and bottom.

The container 10 has a capacity which is greater than the amount of oil stored therein, so as to compensate for the change in volume of oil due to changes in the temperature thereof. The air from the head space above the oil level is exhausted so that the opposite walls of the up-

per portion of the container will come together, as shown in Fig. 8, to form a comparatively long flap 11.

In the specific embodiment of the invention shown in Figs. 1 to 7, there is provided a dispensing receptacle or funnel, which is so designed as to receive the container 10, and which comprises a cylindrical shell 21, having a conical bottom 22 soldered or otherwise secured thereto near the lower end thereof and provided with a central valve controlled discharge opening 23. Passing through this valve opening 23, and affixed to the bottom wall 22 is one end of an elbow 24, the other end of which is secured to one end of a flexible hose 25 passing through an opening on one side of the shell 21. The outer end of this hose 25 is provided with a discharge nozzle 26, to which may be secured a clip 27, adapted to be hooked over the upper edge of the shell 21 so that said hose may be supported close to the body in non-dripping position when not in use as shown in Fig. 2.

Extending diagonally within the shell 21 is a partition plate 30 which is detachably secured to one side of the upper end of said shell by a screw 31, and which passes laterally beyond the valve opening 23 at its lower end to divide the interior of said shell into a container receiving chamber 32, and a chamber 33 for housing the valve operating mechanism and a portion of the stripper operating mechanism to be described. This diagonal plate 30 serves not only as a partition for the receptacle, but also as a frame or support for the stripper and valve operating mechanisms, and as a support for the oil container 10 during puncturing and stripping operations.

The lower end of the plate 30 is spaced from the bottom wall 22, and is provided with a comparatively large central opening 35 affording free communication between the container receiving chamber 32 and the chamber 33.

The puncturing member includes a knife 40, disposed within the lower portion of the container receiving chamber 32, and constructed to form a knockout flap in the bottom of the oil container 10 defining a drain opening of substantial area through which the contents of said container may be readily discharged. For that purpose the knife is substantially U-shaped in cross section, and is adapted to form a correspondingly shaped slit in the bottom of the container. In the specific form the knife is somewhat semi-cylindrical, and is provided with a pair of cutting edges 41, converging towards a sharp piercing point 42. The lower ends 43 of the cutting edges 41 are disposed closely adjacent to the plate 30 so as to cut a drain opening in the container 10 extending to the extreme bottom of said container.

The knife 40 is advantageously supported on the plate 30 by a pair of spaced rods 45, rigidly connected to the lower ends of spaced sections of the lower portion of said knife, and also rigidly secured to the lower portion of the plate 30.

The stripping device comprises a pair of vertically spaced platen members in a form of cylindrical metal rods 46, presenting platen surfaces for cooperation with a pressure member 47 shown in the form of a cylindrical tube. This pressure member 47 is normally urged into pressure applying position with respect to the platen rods 46 as shown in Figs. 3 and 4, and is angularly movable into inoperative position shown in Figs. 1 and 2, to permit the container 10 to be inserted between said pressure member 47 and said platen

rods 46. For that purpose, the pressure member 47 is secured at its opposite ends to the upper ends of a pair of similar lever arms 48 extending closely adjacent the walls of the shell 21, and pivoted at their lower ends 49 to a pair of angular brackets 50, secured to the plate 30 adjacent to opposite edges of the latter.

In order to angularly move the lever arms 48 about their pivotal supports, each of said arms has a substantially right angle extension 51, adapted to pass through an elongated notch 51a at the edge of the plate 30, and having a slot 52 through which passes a floating pivot pin 53 connected to one end of a lever arm 54. The two lever arms converge and are fixed to a rock shaft 55 which is disposed in the chamber 33, and suitably journaled in a pair of brackets 56 carried by the partition plate 30.

The rock shaft 55 is actuated by an operating mechanism in the form of a finger piece 58, extending through a slot 60 on one side of the shell 21, and having a hub 61, which loosely embraces the rock shaft 55 and which is adapted to rotate said shaft by its engagement of a pin 64 affixed diametrically to said shaft and passing loosely through a pair of diametrically opposed slots 62 and 63 on said hub.

In order to normally maintain the pressure member 47 in the pressure applying position shown in Fig. 3, there is provided a torsion spring 66, encircling the rock shaft 55, and having one end anchored to the rock shaft by any suitable means, as for instance, the cotter pin 65, and having the other end 67 extending downwardly as shown in Fig. 5 and engaging the plate 30, so that said rock shaft is urged in a counter-clockwise direction, as shown in Fig. 3. Under the action of this torsion spring 66, the stripping device will be normally locked in the position shown in Fig. 3 so that the movement of the pressure member 47 away from the platen rods 46 can only be effected by the downward actuation of the finger piece 58.

The depression of the finger piece 58 into the position shown in Fig. 2 causes the clockwise rotation of the rock shaft 55 against the action of the torsion spring 66 and causes thereby the angular movement of the lever arms 54 in a corresponding direction, so that the lever arms 48 carrying the pressure member 47 will be swung into the position shown in Fig. 2.

The receptacle is provided with a handle 70, disposed below the finger piece 58, and preferably having a section 71 adapted to be conveniently grasped in the palm of the hand, and slanting upwardly toward the receptacle so that the finger piece 58 is conveniently accessible for operation by the thumb of the hand grasping said handle.

In order to provide resilient yield between the pressure member 47 and the platen member 46 during stripping of the container, so that said members will permit the extra thickness of the container along the bottom seam to pass therebetween, said platen members are connected to a pair of spring plates 73, connected at their lower ends to the plate 30.

Means are provided for rendering the knife 40 inaccessible for container puncturing operation while the funnel is not in use, so as to prevent the hand of the operator from coming in contact with said knife and being accidentally injured. In the specific form shown, this means includes a guard 74, which is disposed within the receptacle and which extends over the knife 40, as shown in Fig. 3 when said funnel is not in use.

The guard 74 is advantageously formed of a wire having end extensions 75 secured to the lever arms 48, so that said guard is actuated in unison with said lever arms, and has an intermediate U-shaped section with the arms 77 thereof converging toward their outer end so that when the lever arms 48 are rotated into container receiving position shown in Fig. 2 the guard 74 will clear the side of the shell 21.

As an important feature of the present invention there is provided a valve mechanism, which controls the flow of liquid through the valve opening 23, and which is operated from the finger piece 58. For that purpose there is provided a valve member comprising a disc 80 of flexible material such as leather which is adapted to be seated on the upper edge of the elbow 24 forming a valve seat for the valve opening 23, and which is shown as rigidly clamped between a washer 81 disposed on top of said disc, and a washer 82 of smaller diameter disposed on the underside of said disc. Connected to this valve member is an arm 84, pivotally supported on a pin 85, which in turn is supported on the outer ends of a pair of bracket plates 86, secured to the plate 30, and forming a yoke through which the arm 84 is adapted to operate. This arm 84 has an angular extension 87 provided with a tongue 88 passing through slits in the valve disc 80 and the washers 81 and 82 and upset at its lower end to form a permanent connection to said valve member. The valve disc 80 is urged into closed position shown in Fig. 2 by means of a compression coil spring 90, one end of which is anchored to a lug 91 on the plate 30, the other end being affixed to the arm 84 in such a manner that the axis of said spring in said closed position extends below the pivotal pin 85.

For controlling the valve disc 80 from the finger piece 58, the hub 61 has a depending extension 92, pivotally connected at its lower end to one end of a link 93, the lower end of the latter being pivotally connected at 94 to the arm 84.

The slots 62 and 63 are so formed and arranged on the hub 61 that when the finger piece 58 is moved downwardly from the position shown in Fig. 3 toward the position shown in Fig. 2, said hub will engage the cross pin 64 and cause the corresponding rotation of the rock shaft 55 and the movement of the pressure member 47 into the position shown in Fig. 2, but when said finger piece is moved upwardly from the normal position shown in Fig. 3 toward the position shown in Fig. 4, the hub 61 will be rotated idly around the rock shaft 55, which is locked in the stripping position as shown in Figs. 3 and 4. For that purpose the slots 62 and 63 flare radially outwardly and extend from opposite sides of the cross pin 64 when the hub 61 is in normal position shown in Figs. 3 and 7, and the slot 63 presents a shoulder 95 which is immediately engaged by said hub 61 when the finger piece 58 is depressed from the position shown in said figures to cause rotation of the shaft 55.

The pivotal connection between the link 93 and the extension 92 is a loose one with a small amount of lost motion so that although the depressing of the finger piece 58 from the position shown in Fig. 3 to the position shown in Fig. 2 causes a slight angular movement of said link 93, this movement is not enough to affect the valve disc 80, except perhaps to press said valve disc more tightly against the valve seat.

The lifting of the finger piece 58 from the normal position shown in Fig. 3 toward the position

shown in Fig. 4 will cause the clockwise movement of the arm 84 about its pivotal support 85, and against the action of the spring 90 and will thereby cause the valve disc 80 to be moved into open position. The extent of opening of the valve disc 80 will be controlled by the position of the finger piece 58. When the axis of the spring 90 passes through the pivot pin 85, the valve disc 80 will be in dead center position, and a slight further movement of the finger piece 58 will cause the valve disc to be snapped into the wide open position shown in Fig. 4 through the action of the spring 90. The valve disc 80 is limited in this latter position by the engagement of the wall of the slot 62 or 63 with the cross pin 64.

In the operation of the device the finger piece 58 is depressed from the position shown in Fig. 3 to that shown in Fig. 2 by the application of thumb pressure thereon. This operation causes the pressure member 47 to move away from the platen rods 46 as shown in Fig. 2. While in this position the container 10 is dropped into the receptacle chamber 32 between said pressure member and said platen rods and against the partition plate 30 so that the piercing knife 40 cuts out a substantially semi-circular opening in said container adjacent to the bottom thereof. The pressure on the finger piece 58 is then released and pressure member 47 is moved into stripping position in contact with and between the platen rods 46 as shown in Figs. 3 and 4. In this position any pressure applied to the arms 48 tending to rotate said arms in a counterclockwise direction will apply a pressure at the floating pin 53 upwardly in a direction substantially lengthwise transversely of the slot 52, so that these arms are locked against such movement except by operation of the finger piece 58.

The receptacle is of such height with respect to the container that when said container is in said receptacle, a substantial portion of the container flap 11 will extend beyond the platen rods 46 or may be so held that when the pressure member 47 returns into pressure applying position shown in Figs. 3 and 4, the upper portion of said container flap will be caught between said pressure member and said platen rods. The upper portion of the container flap 11 extending above the platen rods 46 is then grasped by the fingers and the container drawn upwardly. The combined drawing action on the container and the pressure action of the roller causes the stripping of the container and the forcing out of its entire contents.

The opening of the valve is effected by the application of upward thumb pressure on the finger piece 58 as already described. By means of suitable thumb play on the finger piece 58, the discharge of the oil from the receptacle can be controlled in any desired manner. This valve control may be effected while the container 10 is being stripped or after the stripping operation.

The receptacle is advantageously large enough to accommodate two quarts of liquid so that two containers 10, each containing one quart of oil may be emptied and stripped in said receptacle before or while the valve is opened.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device for discharging the contents of a flexible walled container, including a receptacle for receiving said container, means at the top of said receptacle for stripping said container of its

- entire contents during the withdrawal of the container from the receptacle, a valve for controlling the discharge of liquid from said receptacle, a finger piece projecting from said receptacle, a member within said receptacle for supporting both said stripping means and said finger piece, and means responsive to the operation of said finger piece for controlling the operation of said valve.
- 10 2. A device for discharging the contents of a flexible walled container, including a receptacle for receiving said container, means on said receptacle for stripping said container of its entire contents, a valve for controlling the discharge of liquid from said receptacle, a finger piece on said receptacle, and means responsive to the operation of said finger piece for moving said stripping means into container receiving position, and for controlling the operation of said valve.
- 15 3. A device for discharging the contents of a flexible walled container, including a receptacle for receiving said container, means on said receptacle for stripping said container of its entire contents, a valve for controlling the discharge of liquid from said receptacle, a finger piece on said receptacle, means responsive to the operation of said finger piece in one direction for moving said stripping means into container receiving position, and means responsive to the operation of said finger piece in an opposite direction for controlling the operation of said valve.
- 20 4. A device for discharging the contents of a flexible walled container, including a receptacle having a partition therein dividing said receptacle into adjoining compartments, means supported on said partition for stripping said container of its entire contents, and a valve mechanism also supported on said partition for controlling the flow of liquid from said receptacle.
- 25 5. A device for discharging the contents of a flexible walled container, including a receptacle having a detachable container supporting wall therein extending obliquely lengthwise with respect to the axis of said receptacle and forming a pair of adjoining compartments, and a container puncturing member supported on said wall and removable therewith.
- 30 6. A device for discharging the contents of a flexible walled container, including a receptacle having a detachable container supporting wall therein extending obliquely lengthwise with respect to the axis of said receptacle and forming a pair of adjoining compartments, and means supported on said wall and removable therewith for collapsing and squeezing a punctured container, whereby upon removal of said container from said receptacle, said container will be stripped of its entire contents.
- 35 7. A device for discharging the contents of a flexible walled container, including an open topped receptacle having a discharge outlet at the bottom, a valve member for controlling the extent of opening of said outlet, a mechanism for operating said valve member, a container puncturing member in said receptacle, and means connecting said members and said valve operating mechanism and forming a removable unit from the open top of said receptacle.
- 40 8. A device for discharging the contents of a flexible walled container including a receptacle having a discharge outlet, a valve member for controlling the extent of opening of said outlet, a mechanism for operating said valve member, and means on said receptacle for stripping a punctured container upon removal of said punctured container from said receptacle, said valve member, said valve operating mechanism and said stripping means forming a removable unit from said receptacle.
- 45 9. A device for discharging the contents of a flexible walled container, including a receptacle having a discharge outlet, a valve member for controlling the extent of opening of said outlet, a mechanism for operating said valve member, a container puncturing member in said receptacle, and means on said receptacle for stripping a punctured container upon removal of said punctured container from said receptacle, said valve member, said valve operating mechanism, said puncturing member, and said stripping means forming a removable unit from said receptacle.
- 50 10. A device for discharging the contents of a flexible walled container, including a receptacle, a valve mechanism for controlling the discharge of liquid from said receptacle, a partition dividing said receptacle into a container receiving chamber, and a housing for receiving said valve mechanism, and a container puncturing device in said container receiving chamber.
- 55 11. A device for discharging the contents of a flexible walled container, including a receptacle, a valve mechanism for controlling the discharge of liquid from said receptacle, a partition dividing said receptacle into a container receiving chamber and a housing for receiving said valve mechanism, and a mechanism in said container receiving chamber for stripping a punctured container upon removal of the container from the receptacle.
- 60 12. A device for discharging the contents of a flexible walled container, including a receptacle, a rock shaft, a finger piece mounted on said rock shaft, a platen member, a pressure member cooperating therewith and operable from said rock shaft, a valve for controlling the discharge of liquid from said receptacle, means responsive to the movement of said finger piece in one direction for rotating said rock shaft to move said pressure member, and means responsive to the movement of said finger piece in the opposite direction for operating said valve.
- 65 13. A device for discharging the contents of a flexible walled container, including a receptacle, a bottom wall on said receptacle having a discharge outlet, a valve member cooperating with said outlet, a lever piece connected to said valve member, a finger piece, a link between said finger piece and said lever piece, and means in said receptacle for puncturing a container.
- 70 14. A device for discharging the contents of a flexible walled container, including a vessel, a bottom wall on said vessel having a discharge outlet, a valve member cooperating with said outlet, a finger piece, means operable when said finger piece has been moved beyond a predetermined position for snapping said valve member into fully open position, and means in said vessel for puncturing the container.
- 75 15. A device for discharging the contents of a flexible walled container, including a cylindrical vessel having a conical bottom wall provided with a central opening, a plate extending obliquely in said vessel and having its lower end extending laterally beyond said opening to form a container receiving chamber and a housing adjacent thereto, a container puncturing device in said chamber, and a valve mechanism in said housing for controlling the flow of liquid through said opening.

16. A device for discharging the contents of a flexible walled container, including a vessel, a valve for controlling the outlet of said vessel, a finger piece extending into said vessel and accessible from the outside of said vessel, means on said vessel for stripping a punctured container upon removal of said container from said vessel, means responsive to the downward movement of said finger piece for moving said stripping means into container receiving position, and means responsive to the upward movement of said finger piece for operating said valve into open position.

17. A device for discharging the contents of a

flexible walled container including a receptacle, a valve mechanism for controlling the discharge of liquid from said receptacle, a mechanism in said receptacle for stripping the contents of a punctured container, a finger piece, means responsive to the movement of said finger piece in one direction for gradually operating said valve into partially open position, and means for snapping said mechanism into wide open position when said finger piece is moved beyond a predetermined position.

CLARENCE W. VOGT.