

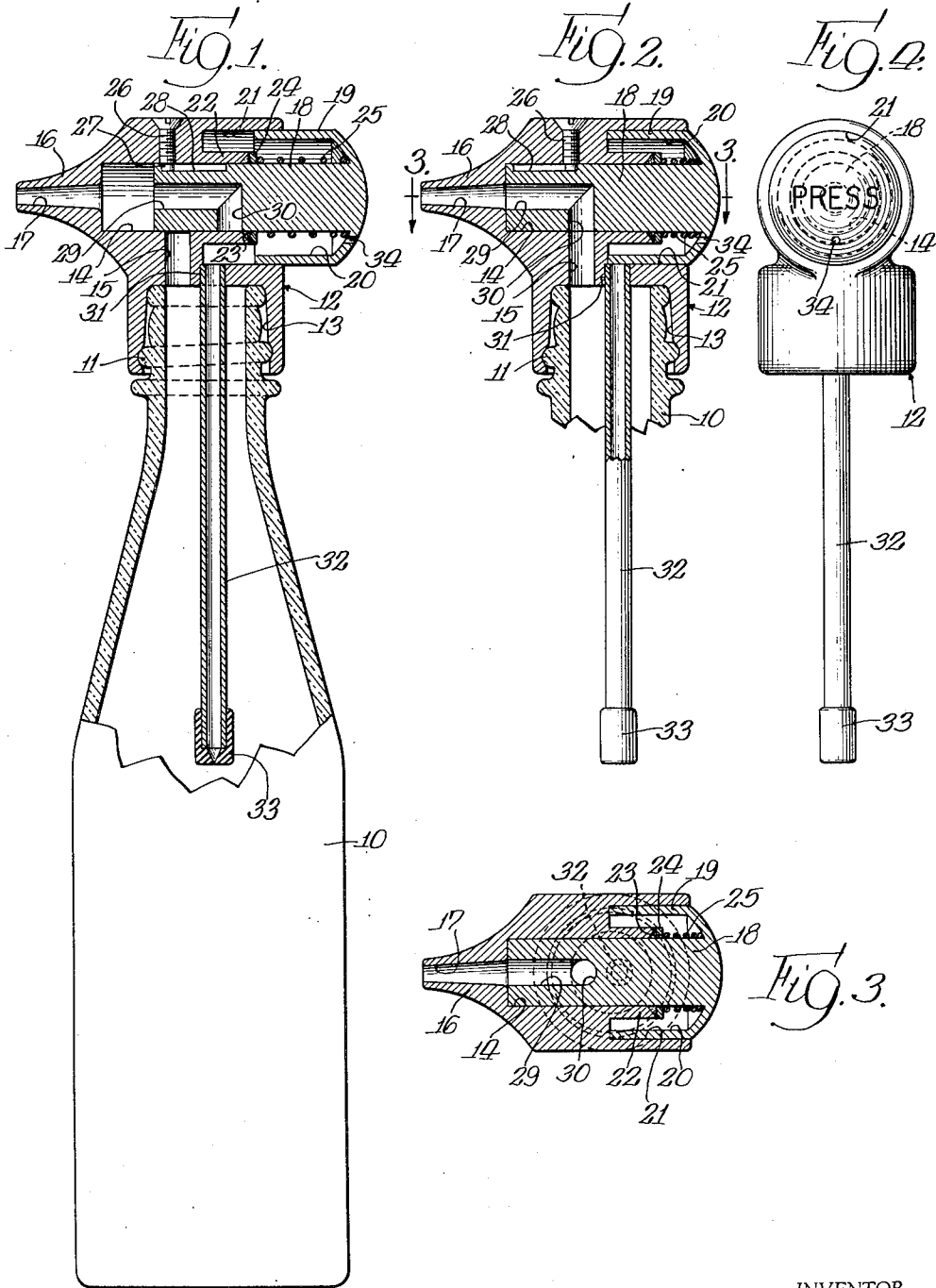
Aug. 17, 1943.

F. W. OPITZ

2,327,285

LIQUID DISPENSING DEVICE

Filed Oct. 6, 1941



INVENTOR.
BY *Frederick W. Opitz,*
John P. Smith atty.

UNITED STATES PATENT OFFICE

2,327,285

LIQUID DISPENSING DEVICE

Frederick W. Opitz, Chicago, Ill.

Application October 6, 1941, Serial No. 413,774

1 Claim. (Cl. 215—3)

The present invention relates generally to a liquid dispensing device, but more particularly to a device which may be substituted in lieu of the normal cork or cap of a bottle for dispensing catsup and the like or other similar viscous liquids.

Another object of the invention is to provide a simple, compact and efficient liquid dispensing device which will eject liquid from the container in certain amounts on successive reciprocations of a plunger and which, at the same time, will prevent dripping from the end of the spout at the conclusion of each reciprocation.

A further object of the invention is to provide a simple, compact and sanitary liquid dispensing device which can be easily removed for cleaning purposes.

These and other objects are accomplished by providing a construction and an arrangement of the various parts in the manner hereinafter described and particularly pointed out in the appended claim.

Referring to the drawing:

Fig. 1 is a side elevational view of a conventional catsup bottle showing my improved liquid dispensing device in cross section;

Fig. 2 is a cross sectional view of the dispensing device showing the plunger in depressed position in the operation of discharging liquid from the bottle;

Fig. 3 is a cross sectional view taken on the line 3—3 in Fig. 2 of the drawing; and

Fig. 4 is a rear elevational view of the device shown in Figs. 1 to 3 inclusive.

For the purpose of illustration I have shown my improved liquid dispensing device in connection with a conventional form of catsup bottle 10 which has the neck thereof provided with the conventional external thread 11. The dispensing device in this instance comprising a casing generally indicated by the reference character 12 which has an internally threaded socket 13 so as to engage the threads 11 of the bottle 10 in substitution of the removed cork or cap. Located horizontally and spaced from the threaded socket 13 is a cylindrical bore 14. Extending vertically through the casing 12 and communicating between the socket 13 and the horizontal bore 14 is a passageway 15. Located in axial alignment with the bore 14 is a nozzle 16 which has a centrally located discharge passageway 17 which communicates with the bore 14. Reciprocally mounted in the bore 14 is a plunger 18. The plunger 18 has formed integrally therewith and on the outer end thereof a depressable cap 19. Formed integrally with the

casing 12 so as to form an extension of the plunger bore 14 is an annular wall or barrel 22. The end of the barrel 22 is bevelled at 45° as shown at 23 so as to form a seat for a packing washer 24, the function and operation of which will hereinafter be more fully described. Formed within the casing 12 and surrounding the barrel extension 22 is an annular compression chamber 21 in which the cap 19 is reciprocally mounted. The packing washer 24 is normally held on its seat by a compression spring 25 by having one of the ends of the spring engage the packing washer and the other end engaging the bottom of the cap 19 within the chamber 21. This spring embraces the outer end of the plunger 18 in the manner clearly shown in Figs. 1, 2 and 3 of the drawing. The spring 25 also performs the function of returning the pressure cap and plunger to its outermost position or the position shown in Fig. 1. The plunger and cap is limited in its outward movement by a set screw 26 which is mounted in a threaded aperture in the casing 12 and has its lower end as shown at 27 engaging the longitudinally extending slot 28 on one side of the plunger 18. Obviously, when the lower end 27 of the screw 26 engages the end of the slot 28 as shown in Fig. 1 of the drawing, it will limit the outward movement of the plunger 18 and the cap 19. Extending longitudinally in the center of the forward end of the plunger 18 is a bore 29. The inner end of this bore 29 communicates with a vertically extending bore 30. The bore 30 is adapted to communicate with the vertical passageway 15 when the plunger 18 is in its innermost position or the position shown in Fig. 2 so as to discharge the liquid or catsup through the passageway 17 in the spout 16. Secured in the axial center of the socket 13 and secured in an aperture 31 of the casing is a vertically extending tubular member 32 which has its upper end communicating with the annular pressure chamber 21. The lower end of the tubular member is provided with a conventional valve member 33 which performs the function of permitting the air to be discharged from the tube without permitting the liquid to re-enter. The cap 19 is provided with a vent as shown at 34 to permit the entry of air on each outward movement of the plunger 18 and cap 19.

The function and operation of my improved liquid dispensing device as is follows: After my improved dispensing device is attached to the bottle in substitution for the regular cap in the manner shown in Fig. 1 of the drawing, the bottle may be tilted so as to cause the liquid to flow

into the neck thereof after which the thumb may be placed on the pressure cap 19 with the thumb covering the aperture 34. Upon depressing the cap 19 and plunger 18 from the position shown in Fig. 1 to that shown in Fig. 2, the air pressure created by such action is discharged from the pressure chamber 21 through the tube 32 and thence out through the rubber valve 33 placing the liquid in the bottle under pressure. At the conclusion of this inward stroke it will be noted that the passageway 30 of the plunger 18 then communicates with the passageway 15 in the casing 12 so as to permit the liquid to be discharged through the passageway 29 in the plunger 18 out through the passageway 17 of the discharge spout 16. When the thumb is released from the cap, the plunger 18 and cap 19 are returned by the pressure spring 25 to the position shown in Fig. 1 in which position the passageway 15 leading from the bottle is closed. This return stroke of the plunger 18 creates in effect a partial vacuum in the forward end of the bore 14 and in discharge passageway 17 and thereby withdraws the liquid therefrom and prevents the dripping of the liquid from the end of the spout 16. Should additional liquid or catsup be required to be dispensed, repeated reciprocation of the cap 19 may be made in the manner above described. It will be also noted that the closing of the passageway 15 by the plunger 18 on its return stroke prevents any excess pressure within the bottle from discharging any liquid retained in the spout 16.

From the above specification it will be understood that I have not only provided a very simple, compact and efficiently operable liquid dis-

pensing device, but also one which is sanitary in construction and serves as a stopper as well as a dispenser.

While in the above specification I have described one embodiment which my invention may assume in practice, it will of course be understood that the same is capable of modification and that modification may be made without departing from the spirit and scope of the invention as expressed in the following claim.

What I claim as my invention and desire to secure by Letters Patent is:

A liquid dispensing device for a bottle and the like comprising a casing to be secured to the neck thereof, there being a horizontal bore in said casing, a reciprocal plunger mounted in said bore, a discharge spout at one end of said casing and communicating with said bore, a passageway extending through said plunger communicating said spout with the inside of said bottle when said plunger is in its depressed position, there being a pressure chamber in said casing adjacent the other end of said plunger, an annular collar surrounding said plunger within said pressure chamber, a gasket mounted between said collar and said plunger, a cap carried by said plunger and reciprocally mounted in said pressure chamber, a tubular member communicating said pressure chamber with the inside of said bottle, and a spring mounted on said plunger having one end engaging said gasket and the other end engaging said cap for returning said plunger and cap to their outermost position and for retaining said gasket in position.

FREDERICK W. OPITZ.