

July 13, 1943.

W. W. HUBENET  
WHIPPED CREAM DISPENSER

2,324,162

Filed May 27, 1940

FIG. 1.

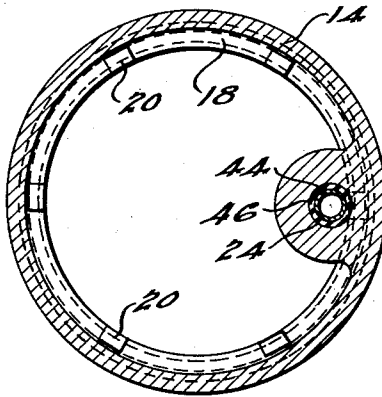
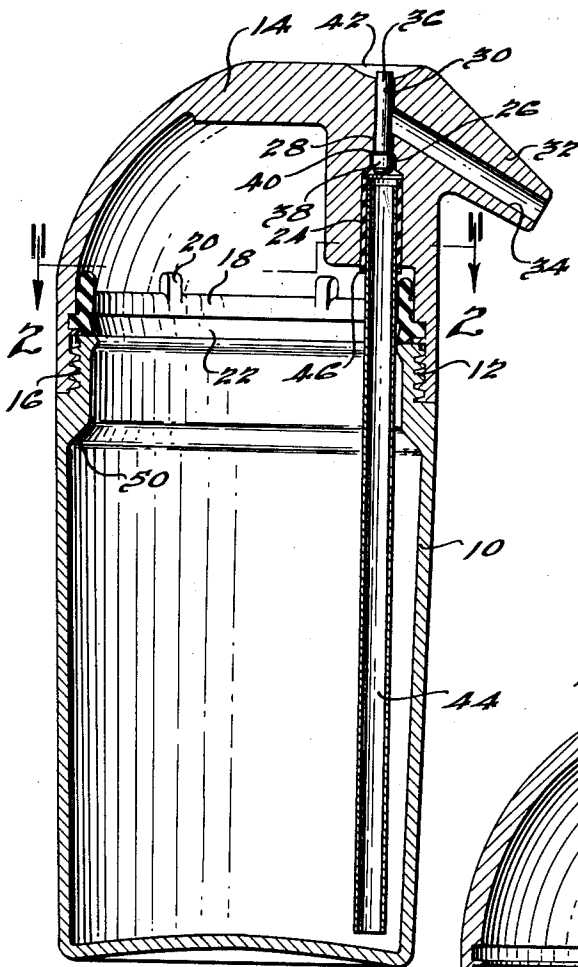


FIG. 2.

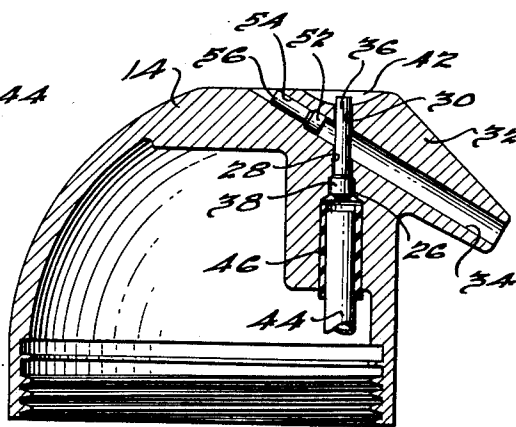
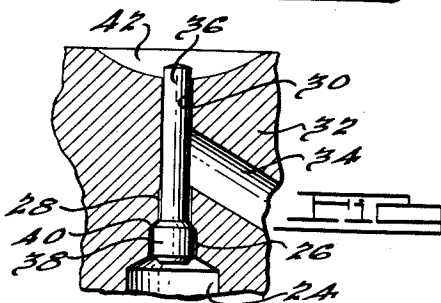


FIG. 3.



INVENTOR  
Will W. Hubenet.  
BY  
Harness, Dickey & Pierce  
ATTORNEYS.

## UNITED STATES PATENT OFFICE

2,324,162

## WHIPPED CREAM DISPENSER

Will W. Hubenet, Detroit, Mich.

Application May 27, 1940, Serial No. 337,364

1 Claim. (Cl. 221-74)

The present invention relates to devices for producing and dispensing whipped cream, wherein liquid cream is disposed within a syphon-like container which is then charged with a selected gas under pressure, preferably nitrous oxide, so that the cream may be dispensed in the quantities desired in whipped form.

One of the primary objects of the present invention is to provide an improved structure of the type mentioned which is sanitary, in that there are no threaded surfaces, crevices, washers, or rubber elements of any kind used in the dispensing passages which are formed with smooth surfaces.

A further object of the invention is to provide an improved structure of the type mentioned which may be readily inspected and cleaned and which may be taken apart for cleaning without the use of tools.

Further, an object of the invention is to provide an improved and simplified structure of the type mentioned having few parts, thereby effecting economy in manufacture and long life.

A further object of the invention is to provide a simplified operating structure, including a recessed valve plunger in which the top of the plunger is below the top of the recess so that the valve cannot be accidentally operated and may be readily controlled for releasing the whipped cream as desired.

A further object of the invention is to provide a strong and safe structure which cannot be charged until it is properly closed, and once pressure has been applied, cannot be opened by hand until the pressure is released.

Other objects of the invention will become apparent from the specification, the drawing relating thereto, and from the claim hereinafter set forth.

In the drawing, in which like numerals designate like parts in the several views throughout;

Figure 1 is a vertical cross-sectional view of a whipped cream dispenser embodying features of the present invention;

Fig. 2 is a cross-sectional view taken substantially along the line 2-2 of Fig. 1;

Fig. 3 is an enlarged, fragmentary view of a portion of the structure shown in Fig. 1; and

Fig. 4 is a vertical cross-sectional view of the cap showing a modified form of the dispensing passages.

Referring to Figs. 1, 2, and 3 of the drawing, a syphon-like dispenser is illustrated which includes a cream container 10, externally threaded at the upper end as indicated at 12, and a cap

portion 14, which is internally threaded at 16. When the parts are assembled, the cap or head portion 14 is threadedly attached to the lower portion 10, as shown in Fig. 1. A resilient sealing element 18, preferably of rubber, and of a large diameter, is disposed within the cap 14 adjacent the threaded portion 16. The sealing member 18 has a plurality of upstanding ribs 20 formed therearound which bear against the internal surface of the cap and is also formed with a downwardly extending and inwardly tapering annular lip portion 22 which is adapted to bear against the upper edge of the container 10 when the parts are assembled. When the parts are assembled and the container is charged with a gas under pressure, it will be appreciated that such pressure acts against the seal 18 and particularly against the portion 22 so that such seal is firmly forced against the upper edge portion of container 10 to effect a tight seal.

The present invention is particularly concerned with the dispensing valve structure including the outlet passages and the valve plunger for controlling the discharge of whipped cream from the container. The dispensing passages include a vertical passageway formed in the cap 14 having a first portion 24, a second portion 26, a third portion 28, and a fourth portion 30. These portions are of different diameters, as will be pointed out in detail hereinafter.

The cap 14 is formed with an integral dispensing nose 32 which slopes downwardly and outwardly from the main body portion of the dispenser. A dispensing passageway 34 is formed in the nose 32 and extends upwardly and inwardly toward the vertical passageway and communicates with portion 28 thereof.

A valve plunger 36 is adapted to be positioned within the vertical passageway for controlling the flow of whipped cream therethrough and is formed with an enlarged lower end 38 provided with a tapered shoulder 40. The tapered shoulder 40 has an angle of approximately 45° and is adapted to bear against a shoulder having a corresponding angle formed at the juncture between portions 26 and 28. When in the operative position, as shown in Fig. 1, the plunger 36 extends upwardly above portion 30 to a position within a recess or depression 42 formed in the top of cap 14. It will be seen that when the plunger is in its operative position, the top of the plunger is below the top edge of the recess 42 so that such plunger cannot be accidentally actuated.

An inner feed tube 44 has a short rubber tubu-

lar element 46 telescopically disposed over the top end thereof. Such member 44 is fixed to the cap 14 by means of the tubular element 46 which is received within portion 24 of the vertical passageway. It will also be seen that such vertical passageway is disposed adjacent one side of the container and extends to a position closely adjacent the bottom and one side. It will thus be appreciated that all of the cream within the container may be discharged without waste.

The relative proportions and dimensions of the passageways and the plunger are important in providing for proper and controlled dispensation of whipped cream from the container. The lengths of the various portions 26, 28, and 30 have also been found to be important in obtaining best results. For example: Clearance between plunger 36 and portion 36 should be between .001 and .002 inch; clearance between portion 28 and the plunger should be between .010 and .012 inch; and clearance between the portion 38 of the plunger and portion 26 of the passageway should be between .030 and .033 inch. The length of portion 26 should be approximately  $\frac{1}{8}$  of an inch; the length of portion 28 should be approximately  $\frac{1}{8}$  of an inch; and the length of portion 30 should be approximately  $\frac{1}{8}$  of an inch. The clearances indicated in the drawing have, of course, been exaggerated for the purpose of illustration. The diameter of the discharge passageway 34 should be about  $\frac{1}{4}$  of an inch. The above dimensions and clearances have been indicated since best results have been obtained with such proportions. However, they are to be considered merely as exemplary.

In the use of the structure above described, the cap 14 is removed from the container 10, and the container is filled with liquid cream to approximately the level indicated at 50. The plunger 36 is disposed within tube 44 and by tilting such tube, it may slide to a position adjacent the top of the cap. The cap 14 with the tube 44 is then positioned with respect to the container 10 and the cap 14 is tightly secured thereon. It will be seen that the plunger 36 cannot drop out of the tube, although it may drop to the bottom thereof, because the lower end of the tube 44 is only slightly spaced from the bottom of the container 10. Further, the cream will flow through tube 44 and hold the plunger 36 within the tube. The gas, such as nitrous oxide, is then introduced into the container through conduit 34 by an attachment which fits into the nose 32. The upper end of passage 30 may be sealed off during the application of such pressure. It will thus be seen that the gas flows downwardly through tube 44 and is mixed with the liquid cream within the container 10, exerting a pressure within the space to cap 14. Such pressure will then force the plunger 36 upwardly to the position shown in Figure 1.

To dispense cream in whipped form, the plunger 36 is depressed so that the shoulder 44 is unseated from the adjacent complementary shoulder formed in the cap a predetermined

amount. The cream then flows around portion 38 of the plunger, past portions 26 and 28 of the vertical passageway and outwardly through passageway 34. In passing through such restricted passageways, when the pressure is released, the cream is whipped and discharges in whipped form. Due to the consistency of the cream, it has been found that cream does not leak through portion 30 of the passageway 36 and through the top.

It will be evident from the above description that by the construction of the present invention, the plunger may be moved to various predetermined positions to obtain various release restrictions in the passageways. This is desirable and important since the consistency of the cream varies with time and temperature.

Referring to Fig. 4, a modified structure is illustrated in which the cap 14 and the elements with like numerals are the same as in the embodiment described above. In this structure, however, a continuation of passageway 34 is formed in the cap on the opposite side of plunger 36 and extends through the top of the cap. Such additional passageway has portions 52 and 54 of different diameters. A plug 56, which may be of the same shape as plunger 36, is light press-fitted into passageway 54. The plug 54 and the passageways 52 and 56 do not affect the operation of the device, which is the same as that described above; but, after the device is used, the plug 54 may be removed providing a clear line of vision through passageway 34 for the purpose of inspection and receipt of a brush thereby assuring that such passageway is clean.

Formal changes may be made in the specific embodiments of the invention described without departing from the spirit and substance of the invention, the scope of which is commensurate with the appended claim.

What is claimed is:

In a device for producing and dispensing whipped cream, a container including a bottom portion and a cap portion removably connected together for housing liquid cream and a gas under pressure, and discharge means formed in said cap through which said cream and gas flow, said discharge means including an upright passageway having smooth internal surfaces throughout, said passageway being divided into first, second, and third sections of progressively decreasing diameter toward the top thereof, the adjoining portions of said first and second sections forming a tapered valve seat, a discharge passageway intersecting said first named passageway at said second section, a valve plunger having an enlarged portion with a tapered shoulder adapted to seat against said valve seat, said valve plunger being slidably disposed within said first named passageway and, another passageway formed in said cap in alignment with said discharge passageway and forming a continuation thereof, and means closing said another passageway.

WILL W. HUBENET.