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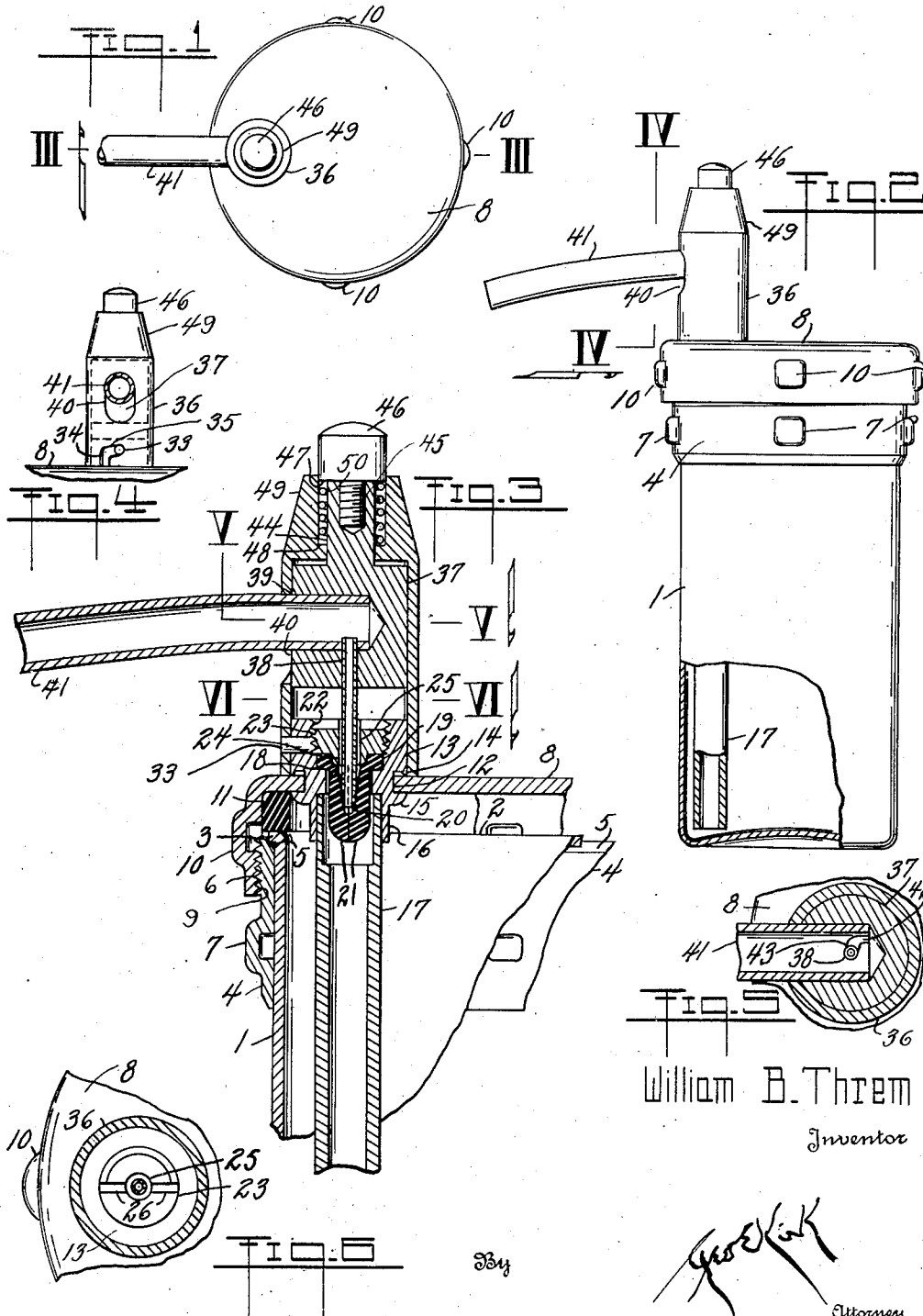
W. B. THREM

2,328,863

CONTROLLABLE CHARGING HEAD

Filed Aug. 11, 1941

2 Sheets-Sheet 1



Sept. 7, 1943.

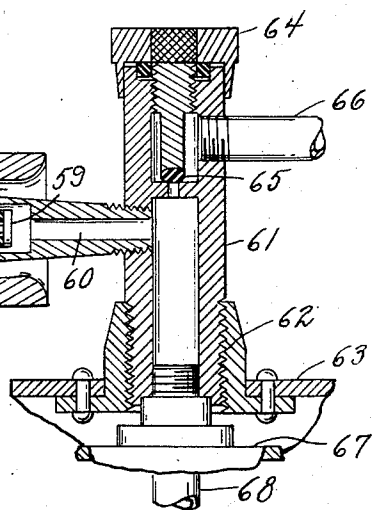
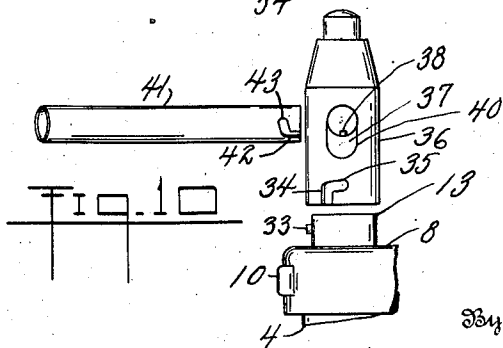
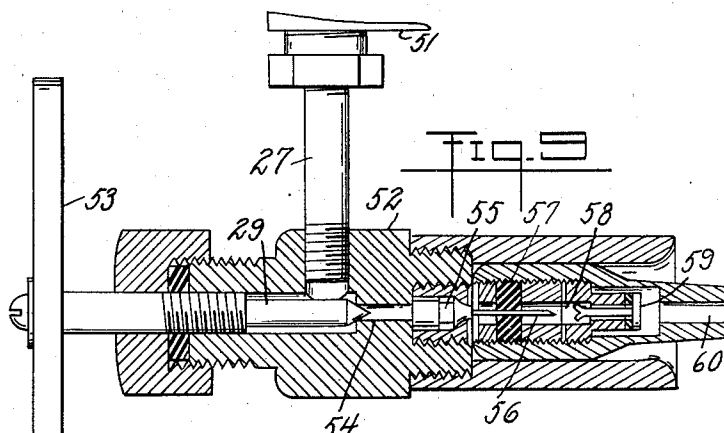
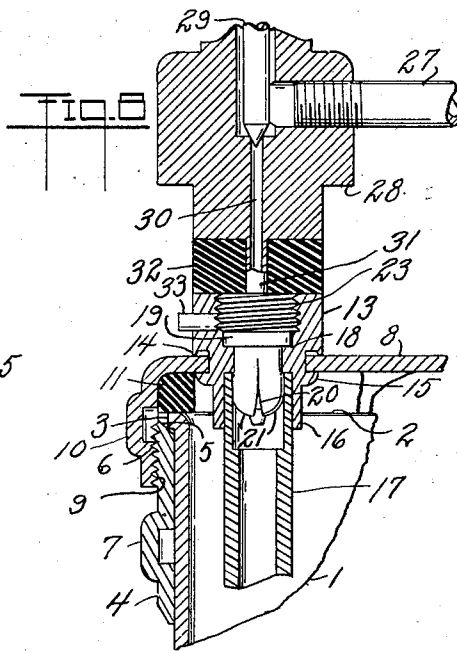
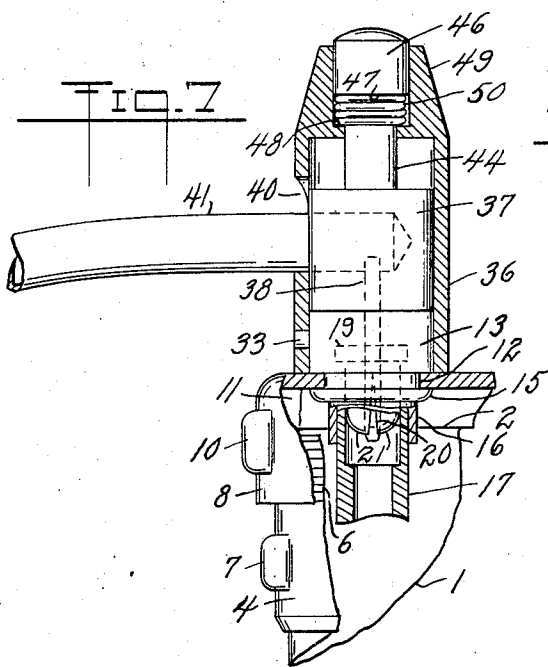
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2 Sheets-Sheet 2



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CONTROLLABLE CHARGING HEAD

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2 Claims. (Cl. 221-74)

This invention relates to controlled pressure charging and release of gases.

This invention has utility when incorporated in fixtures at control heads for pressure gas servicing.

Referring to the drawings:

Fig. 1 is a plan view of an embodiment of the invention as attached to a "bottle," herein pressure-charge-carrying metal container adapted to receive and dispense pressure gas, say for dispensing at soda fountains or like occasions in connection with foodstuffs or beverages, for delivering cream aerated to have whipped appearance;

Fig. 2 is a side elevation, with parts broken away, of the service assembly device of Fig. 1;

Fig. 3 is a section on the line III—III, Fig. 1, showing features of the control connections for the fixtures and container;

Fig. 4 is a view on the line IV—IV, Fig. 2, showing detachable mounting of the servicing fixture as to the container;

Fig. 5 is a section on the line V—V, Fig. 3, showing the assembly of the nozzle or pouring spout with the control fixture;

Fig. 6 is a section on the line VI—VI, Fig. 3, showing the assembly of the holder for locating the multi-cheek-providing check valve;

Fig. 7 is a view in section of the shell of the fixture in check valve opening position for discharge servicing as effected by the depressing of the push button or head on the fixture shell;

Fig. 8 is a section of the tube or cheek spreading fixture in the check valve control for charging as distinguished from the dispensing position of Fig. 7;

Fig. 9 is a view of an embodiment of the charger, wherein the tubular passage through the yieldable partition is effected by a needle instead of partition spreading tube as shown in Fig. 3; and

Fig. 10 is a distributed view showing the portions adapted for ready assembly in the dispensing fixture, thereby contributing to ready upkeep in maintaining proper sanitary condition therefor.

Rigid wall container 1 is shown as having open top 2 with outwardly extending offset or flange 3. Sleeve 4 has snug fit about the side walls of the container 1 and is thrust to have wedge incline 5 snugly abut the offset flange 3. This sleeve 4 has adjacent the terminus abutting the offset 3 externally threaded portion 6, and spaced therefrom a plurality of lugs 7 for special tool or wrench holding in order

that closure 8 having internally threaded portion 9 may have its lugs 10 engaged in assembling this closure 8 with the sleeve 4 and compressing gasket 11 between the closure 1 and the offset 3 in this pressure resistant assembly. This closure 8 adjacent the side wall of the vessel or container 1 has opening 12 into which may be thrust fitting 13 having slight annular projection or rib 14 surrounding the opening 12. As this fitting 13 is thrust through the opening 12, thin ring portion 15 may be rivet-offset toward the minor rib 14 in pressure type assembly seal with the closure 8. This fitting 13 of the charging head (Fig. 3), as protruding beyond or away from the closure 8 into the container 1, has short sleeve portion 16 into which is drive fit terminus of tube 17 extending into the container 1 away from the closure 8 and with slight clearance for its bottom part as to the bottom of such container 1. Accordingly, as the container 1 may be charged with a liquid and additionally with a less specific gravity medium as gas, then in the normal upright position for this container 1, the gas will cause the more heavy substance, as whipping cream, to rise in the duct or tube 17. This fitting 13 opposite from the tube 7 has shoulder 18 on which may rest flange 19, say of check valve body, having central opening 20 extending toward pair of opposing cheeks 21 normally in abutting relation to form a yieldable partition. The fitting 13 above this shoulder 18 has internal threaded portion 22 adapted to be engaged by externally threaded member 23 having tubular boss 24 adapted as an extension of a central opening or way 25. This tubular boss 24 has, for tool engagement diametrical notches 26 (Fig. 6) as a screw driver progresses the externally threaded member 23 to bring this boss 24 into initial normal spread and holding position for the, say soft material or rubber-like, check valve. This check valve is accordingly anchored with the container 1 in this fitting 13.

From the source of pressure supply, say of nitrous oxide gas, such source or cylinder may have duct 27 (Fig. 8) to head 28 having rotatable needle valve 29 openable to allow flow from the duct 27 to passage 30. This head 28 has extending therefrom tubular portion 31. As a cushion between this head 28 and about this tubular extension 31 there may be compressible gasket 32 with this tubular needle or member 31 protruding therefrom. Rotation of this valve 29 brings about longitudinal movement or re-

ciprocation thereof axially of the needle 31. Accordingly, the operator may bring the container 1 into such position as to the head 28 that the needle or tubular portion 31 is thrust through the yieldable check valve partition to spread the cheeks 21. As this position is achieved, then it is timely to operate the needle valve 29 to open a way for flow of gas, as nitrous oxide, by duct 27 by way of the passage 30 and the tube 31 into the duct or tube 17 of the container 1. As the charging pressure desired is achieved, the needle valve 29 may be shut off and the container 1 removed from the head 28. The check valve forthwith closes automatically.

In this gas charging normally there may be initial charging of the container with the substance to be dispensed as whipping cream. In so doing, the closure 8 may be removed and a charge, say sixteen ounces or a pint of the whipping cream, placed in the vessel, which vessel or container 1 may have a capacity of around eighteen or twenty ounces. The pressure gas charge through the tube or duct 17 up to the desired pressure of fifteen or twenty atmospheres may thus give a reserve servicing volume for efficient dispensing of the whipping cream. For such service there is the readily attachable sanitary fixture of the disclosure herein.

This fitting 13, as protruding above the closure 8, has radially therefrom projection or lug 33. This lug 33 (Fig. 10) may ride into notch 34 having offset 35 and thereby providing bayonet joint assembly for a fixture sleeve 36 with this container. This sleeve 36 has therein reciprocable slide 37 (Fig. 3), from which axially extends tube or needle 38 concentric with the sleeve 36. This tube 38 protrudes into transverse opening 39 which may be in register with slot 40 in the side of the sleeve 36. Dispensing or pouring spout 41 as thrust through the slot 40 into the opening 39 has seat assembly with the slide 37 at notch 42 to ride over the projecting terminus of the tube 38, thence into offset 43 in providing bayonet joint assembly for this pouring spout 41 with this slide 37. Opposing this tube 38 the slide 37 carries concentric projection 44 into which extends threaded stem 45 of push button head 46 providing shoulder 47 opposing shoulder 48 in tapered extension 49 from the sleeve 36. There is thus provided between the shoulders 47 and 48 clearance for helical compression spring 50, thereby tending normally to thrust the head 46 away from the remote portion of the sleeve 36 and tend to hold the nozzle or pouring spout 41 adjacent the terminus of the slot 40 toward the helical spring 50. This is a normal retracted position for the tubular needle 38 as directed by the member 23.

Accordingly, in this assembly the cheeks 21 of the check valve are in abutting relation and the valve is closed. However, at servicing position the attendant or operator grasping the container, say with the nozzle protruding between the second and third fingers and the thumb over the push button 46, may depress such push button 46, thereby thrusting the tube 38 to spread the cheeks 21 as the spout 41 moves from one limit of the slot 40 to the other limit thereof. There is as a result of this dispensing action a gas charge outflow by way of the tube or duct 38 and by way of port means into the spout 41 for the attendant to work a design or otherwise distribute as the service portion on ice cream, pie, fruit, beverages, or other occasions for use. At once the push button 46 is released, the spring 50 thrusts

the spout 41 against the terminus of the slot 40 and thereby withdraws the tube 38 from between the cheeks 21 and the check valve forthwith closes. The experience in this operation is that the flow of the dispensed material is entirely restricted to the tube 38 and such does not accumulate even in the vicinity of the element 23. This leaves for servicing care as to cleanliness merely the disconnecting of the spout 41 and a washing of such and its connection with the tube 38.

Pressure cylinder 51 (Fig. 9) may be the source of compressed gas for flow therefrom by way of the duct 27 to head or fitting 52 having needle valve operating stem 29 flow controlled from handle 53. The pressure gas flow is effective upon opening of this needle valve 29 by way of passage 54 against head 55 to thrust needle tube or duct 56 through perforable or yieldable partition 57, thereby to discharge gas flow received by port means as to the needle 56 into way 58 and unseat check valve 59 for further flow by way of duct 60 into fixture 61 having assembly 62 with pressure receiving dispensing container 63. This dispensing container 63 may have the head 52 removed therefrom and the check valve 59 hold the pressure for this container 63 so that, as control cap 64 is rotated relatively to the head 61, valve 65 may be opened or closed for dispensing and shutting off flow of the charged material to dispensing nozzle or spout 66. This material, say whipping cream, from the container 63 may be from charge in supplemental container 67, which container 67 has duct 68 therein for this outflow charge direction as well as inflow gas reception passage, functioning somewhat as the duct 17.

In practice hereunder, the containers for servicing are initially charged with the substance to be dispensed, which may be flavored, colored, or given such attention as may be appropriate for the dispensing purposes sought. As so charged with the body forming material to be dispensed, the closure for the container is assembled therewith. Next in the usual order is the pressure charging, say from a reserve source. This may be from a pressure cylinder, suggested herein as nitrous oxide. Such may be with the check valve assembly so that the dispensing container will hold. Such check valve assembly is at the check valve 59 and diaphragm 57 as the needle tube 56 is withdrawn (Fig. 9). Under the check-providing check valve (Fig. 8) as the charge is completed, withdrawal of the tubular needle 31 allows such automatically to close. The dispensing container is now charged, ready for the dispensing attention which it may be in order to give. Intermittent therewith the container may be stored in a cooling chamber in the event it be desired so to maintain the contents at a low temperature. As dispensing occasion arises, the container assembly (Fig. 9) has therewith the rotatable control 64 on the head 61. For more compact storage, the fixture 36 as away from the container 1 having the closure 8 leaves this fixture 36 one which may be readily assembled with a selected container for service operation. This is a factor in compact assembly of different containers or different flavors or character of contents for dispensing. The bayonet joint permits ready assembly, as well as ready disconnection. Furthermore, the push button control is one quickly responsive and readily controllable for the desired extent of dispensing use.

This application is a continuation-in-part of copending application Ser. No. 264,394, filed March 27, 1939, for Fluid charging heads.

What is claimed and it is desired to secure by Letters Patent is:

1. For a storage charge carrying container having a check valve operable against discharge, a duct in the container, adapted in general upright position of the container for fluid under pressure in the container, to isolate the valve from liquid in the container outside the duct, with the duct inside providing a way for discharge flow of liquid from the container into the duct remote from the valve and thence through the duct to the valve, said valve comprising spreadable cheeks, internally threaded means extending therefrom and concentric with the valve, and an externally threaded member assembled with the internally threaded means for the member to provide a fixed way therethrough toward the valve, and means movable along said way having a tubular terminus portion insertable in the valve to spread the cheeks for controlling liquid flow from the duct through the valve.

2. For a pressure charge carrying container, a detachable service head, positive locking means including a bayonet joint element adapted to contact with complementary bayonet joint means on the container, a spout for the service head movable relatively to the head and bayonet joint element, a member guided by the head with which the spout has bayonet joint assembly, tubular check valve opening means fixed with the member, and a spring enclosed by the head and normally holding the valve opening means clear of the valve, whereby upon pressing the member to overcome the spring, the head provides a guide for connecting the tubular check valve opening means with the valve to open said valve to permit liquid to pass through the valve opening means, member and spout clear of the head.

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