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SIPHON BOTTLE WITH AERATION AND DISPENSING CONTROL MEANS

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Fig. 1.

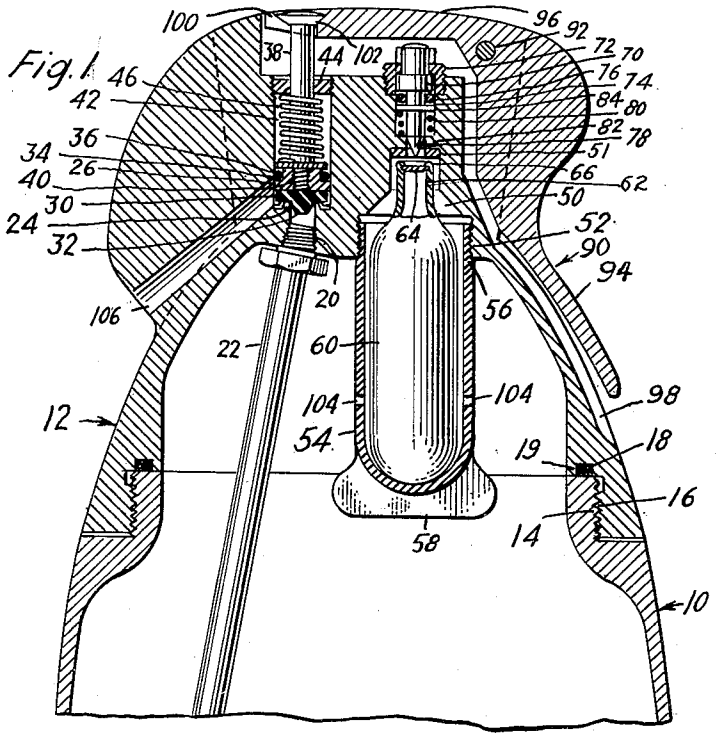
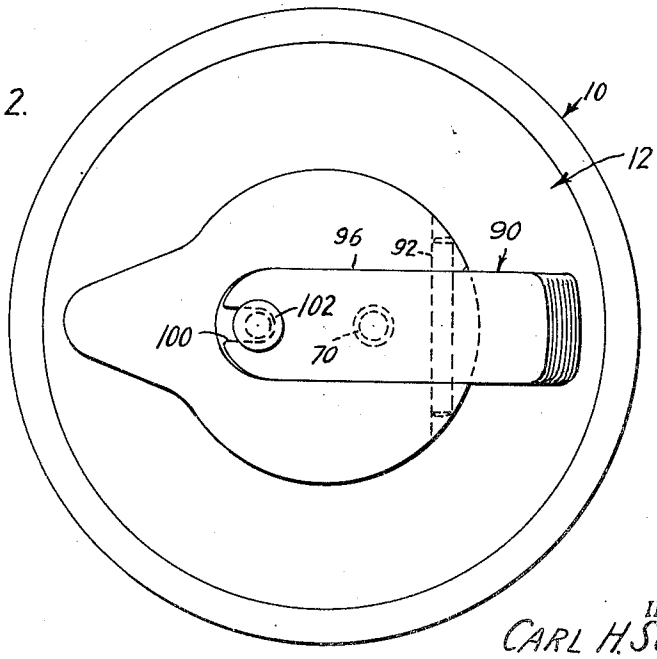



Fig. 2.




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## SIPHON BOTTLE WITH AERATION AND DISPENSING CONTROL MEANS

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12 Claims. (Cl. 222—30.5)

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This invention relates to improvements in dispensing devices and is particularly directed to discharge or dispensing heads or caps for siphons generally employed for preparing, storing and dispensing aerated liquids.

In siphons of the character indicated, as at present in use, a gas cartridge is mounted on or in the discharge or dispensing head of a container in a manner that, when the cartridge is opened, gas is discharged into a liquid in the container. Thereafter a discharge control valve is opened to dispense the charged or aerated liquid from the container. In such structures, separate operating means are provided for opening the cartridge and for opening the discharge control valve, necessitating separate manual operation of each of the operating means.

Accordingly, an object of the present invention resides in the provision of a discharge head for a siphon or the like which is readily operated to prepare and dispense aerated liquids.

Another object of the invention resides in the provision of a discharge head for a siphon or the like wherein operation of a lever or handle serves the dual function of selectively effecting opening of the gas cartridge and opening of the dispensing or discharge valve.

Further objects of the present invention reside in the provision of a siphon which presents a neat appearance, is of sturdy construction, and inexpensive to manufacture.

Further objects, not specifically enumerated above, will be apparent as the invention is described in greater detail in connection with the accompanying drawing, wherein:

Figure 1 is a fragmentary sectional elevational view of a siphon embodying my invention; and

Figure 2 is a top plan view thereof.

Referring to the drawing in detail, the siphon comprises a body or receptacle 10 and a discharge or dispensing head, cap or closure 12. The body 10 is exteriorly screw threaded at 14, and the head or closure 12 is interiorly screw threaded at 16, whereby the two may be removably secured to each other. A gasket 18 is mounted in an annular recess 19 in the head to assure a hermetic seal between the head and the body.

The head 12 has a recess 20 screw threaded at its open end to receive the screw threaded end of a siphon tube 22 and has a valve seat 24 at its other end to receive a valve 26, which is adapted for movement in a valve chamber 42. The valve 26 includes a valve disc 30 of rubber, neoprene or other suitable material provided with a tapered extension 32 which enters the recess 20 when the

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valve is seated. The valve 26 has an annular groove 34 in its outer wall accommodating a packing 36. A valve stem 38 is screw threaded to the valve 26 at 40, the valve being moved by the stem in the manner hereinafter described. The end of the valve chamber opposite the valve seat 24 is provided with a bushing 44 screw threaded in the wall of the chamber 42 and through which the valve stem 38 extends. A compression spring 46 is carried by the valve stem intermediate the valve and the bushing 44 for retaining the valve normally on its seat.

The cap or closure 12 has another recess 50 which is internally screw threaded at 52 for removably receiving a cartridge support 54. This support is in the form of a hollow cylinder open at its upper or inner end exteriorly screw threaded at 56 for cooperation with the threads 52 to removably hold the support in place. The other end of the support is closed and is provided with a thumbpiece 58 whereby the same may be readily screwed into and removed from the recess 50.

A gas cartridge 60 is carried in the support 54. The diameter of the cartridge is slightly less than the inner diameter of the support whereby to slightly space the cartridge from the side walls of the support. The contour of the inside of the bottom of the support conforms substantially to that of the cartridge so that when the support is screwed into place the cartridge will be firmly held between the bottom of the support and washer 51 in the recess 50. This cartridge contains a pressure medium such as carbon dioxide and is provided in its neck portion 62, with a sealing disc 64 which is secured therein, by peening over the edge of the neck as shown at 66.

Means for piercing or puncturing the sealing disc 64 is positioned in the cap 12 in alignment with the sealing disc 64 of the cartridge. This puncturing means includes a plunger 70, one end of which projects beyond the body of the cap and is slidably held in the cap by means of a nut 72. This plunger has an annular recess 74 for receiving a packing 76. The plunger is tapered at its inner end to provide a pointed puncturing or piercing member 78. A compression spring 80 surrounds the puncturing member intermediate a shoulder 82 formed in the cap and a shoulder 84 formed on the plunger. This spring serves to maintain the puncturing member normally out of contact with the sealing disc 64 of the cartridge 60.

A lever 90 is pivotally mounted at 92 on the cap and comprises a handle 94 and an arm 96. The cap has a depression 98 conforming substan-

tially to the contour and dimensions of the handle 94 whereby to receive the handle when the same is depressed. The arm 96 of the lever is slotted or forked at 100, which fork spans the valve stem 38 and has a tapered recess to accommodate a tapered head 102 integral with the valve stem 38.

As will be seen from the drawing, the handle 94 is longer than the arm 96 and has an enlarged portion intermediate its pivotal point and its free end, to provide greater weight on the handle side of the pivot whereby the handle will fall by gravity. It will also be seen that the handle is retained in spaced relation to the cap by the head 102 of the valve stem. In this way, the lever is retained in neutral or inoperative position and is readily operable.

When it is desired to operate the discharge or dispensing head as herein illustrated and described, the handle 94 is first raised to move the same in a counterclockwise direction about the pivot 92, thereby bringing the arm 96 into engagement with the projecting end of the plunger 70 and moving the same inwardly. The inward movement of the plunger 70 will cause the puncturing member 78 to puncture or pierce the disc 64 of the gas cartridge whereby to permit the escape of gas therefrom. The escaping gas travels downwardly in the space provided between the cartridge and the wall of the support 54 and passes out of the support through openings 104 in the wall thereof into the body of the siphon whereby to aerate the liquid therein.

After the liquid has been aerated, the siphon is ready to dispense the liquid. This is accomplished by depressing the handle 94 to move the same in a clockwise direction (as viewed) about the pivot 92, thereby lifting the valve stem 38 which raises the valve 26 off its seat and permits the aerated liquid to be dispensed by way of the siphon tube 22 and discharge outlet or spout 106.

When the desired amount of liquid has been dispensed, the handle is released, whereupon the spring 46, which was placed under tension when the handle was depressed, will return the valve to its seat and the handle to its normal position, whereby to close and seal the discharge outlet.

After the cartridge has been discharged and the liquid aerated in the aforesaid manner, it is not necessary in further dispensing the liquid to again raise the handle, it merely being necessary to depress the handle to unseat the discharge control valve.

When all the liquid has been dispensed, and it is desired to recharge the siphon, the cap 12 may be unscrewed from the body, the cartridge support unscrewed from the inside of the cap, the used cartridge replaced by a new one, a new supply of liquid placed in the container and the cap replaced on the body, whereupon the siphon is again ready for use.

As will be seen from the foregoing, the present invention provides a siphon or liquid dispenser which is readily operable to prepare and dispense charged or aerated liquids and which is operated by simple manipulation of a single lever.

As various changes may be made in the form, construction and arrangement of the parts herein, without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in any limiting sense.

It is also to be understood that the following claims are intended to cover all the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim:

1. A siphon comprising a fluid container having an outlet, a cartridge containing pressure medium, a valve normally closing said outlet, and pivotally mounted manually engageable lever means adapted for movement in one direction about its pivot to effect opening of said cartridge to cause the pressure medium to be discharged into said container and adapted for movement in the opposite direction about its pivot to open said valve to effect discharge of the fluid under pressure from the container.

2. In combination a siphon bottle for a fluid, a cap for said bottle, a cartridge containing a pressure medium mounted in said cap, means for piercing said cartridge, a discharge outlet for the bottle, a normally closed valve for said outlet and a manually engageable lever pivoted on said cap adapted upon movement about its pivot in one direction to actuate said piercing means to effect discharge of the pressure medium into the bottle, and adapted upon movement about its pivot in the opposite direction to effect opening of said valve whereby the fluid under pressure is discharged from the bottle.

3. In combination a siphon bottle for a fluid, a cap for said bottle, a cartridge containing a pressure medium mounted in said cap, means for piercing said cartridge, means for normally retaining said puncturing means in non-piercing position, a discharge outlet for the bottle, a valve for said outlet, spring means for retaining said valve normally closed, a manually engageable lever pivoted on said cap adapted upon movement about its pivot in one direction to actuate said piercing means to effect discharge of the pressure medium into the bottle, and adapted upon movement about its pivot in the opposite direction to effect opening of said valve whereby the fluid under pressure is discharged from the bottle, and means for retaining said lever in operative position.

4. In a device of the class described, the combination of a container for a liquid, a removable closure therefor, a gas cartridge holder removably mounted in said closure, puncturing means carried by said closure for puncturing a gas cartridge adapted to be mounted in said holder to discharge the gas into the container, a discharge outlet in said closure, a siphon tube carried by said closure and extending into the container, a normally closed valve intermediate said outlet and siphon tube, a valve stem for said valve extending to the outside of said closure and a lever having a manually operable handle and an arm pivotally mounted on said closure, said arm extending in juxtaposition to said puncturing means and valve stem whereby movement of said lever about its pivot in one direction will cause said arm to actuate said puncturing means to discharge the pressure medium into the container and movement of said lever about its pivot in the opposite direction will cause said arm to lift said valve stem to open said valve to dispense liquid from the container by way of the siphon tube and discharge outlet.

5. In a device of the class described, the combination of a container for liquid, a removable cap therefor, a gas cartridge holder removably mounted in said cap and having means providing communication with said container, a

sealed gas cartridge removably mounted in said holder, means carried by and extending to the outside of said closure for opening said cartridge to discharge the gas through said communicating means into the container, a discharge outlet for the container in said closure, a siphon tube carried by said closure and extending into the container, a normally closed valve intermediate said outlet and tube, a valve stem for said valve extending to the outside of said closure, and a lever having a manually operable handle and an arm pivotally mounted on said closure, said arm extending in juxtaposition to said cartridge opening means and valve stem whereby movement of said lever about its pivot in one direction will cause said arm to actuate the opening means to discharge the pressure medium into the container and movement of said lever about its pivot in the opposite direction will cause said arm to lift said valve stem to open said valve to dispense liquid from the container.

6. In a device of the class described, the combination of a container for a liquid, a cap for said container, a cartridge containing a pressure medium removably mounted in said cap, means for releasing the pressure medium from said cartridge, a discharge outlet for the container, a normally closed control valve for said outlet having a valve stem, a manually operable lever pivotally mounted on said cap having an arm constructed and arranged to actuate said releasing means upon movement of the lever about its pivot in one direction and provided with a slot, said valve stem extending through the slot in said arm whereby the arm during the said movement will move relatively to said stem, and means on said stem adapted to be engaged by said arm when the lever is moved about its pivot in the opposite direction whereby to move the valve off its seat to effect discharge of the liquid from the container.

7. A discharge head comprising an outlet, a valve for closing said outlet including a stem provided with a lateral extension, a cartridge holder in said head for a cartridge containing pressure medium, means for opening the cartridge including a movable element, and a lever pivotally mounted on said head having a manually operable handle and an arm arranged for engaging said cartridge opening means element upon movement about its pivot in one direction and for engaging said extension to effect opening of said valve upon movement about its pivot in an opposite direction.

8. A discharge head comprising a cap having an outlet, a valve for closing said outlet having a stem extending through the top of said cap formed with a lateral extension adjacent its outer end, a cartridge holder on the underside of said cap, means for opening a cartridge in said holder including an element extending through the top of said cap, and a lever pivotally mounted on said cap having a manually operable handle and an arm arranged to cause its inner end to engage said element and move said cartridge opening means downwardly and actuate the same upon movement of said lever about its pivot in one direction, said arm having its outer end constructed and arranged to engage said extension and lift said valve stem and actuate said valve to open said outlet upon movement of said lever about its pivot in the opposite direction.

9. A discharge head comprising a cap having a discharge outlet formed with a valve seat, a valve member for said seat, a stem connected to said valve member, a cartridge holder on the underside of said cap, means for opening a cartridge in said holder including an element, a lever pivotally mounted on said cap having a manually operable handle and having an arm extending across said element for effecting movement thereof upon rocking said lever in one direction, and linkage means connecting the end of said lever arm and said stem for lifting said stem upon rocking said lever in the opposite direction and for permitting relative movement between said lever arm and said stem upon rocking said lever in the first mentioned direction.

10. A discharge head comprising a cap having a discharge outlet formed with a valve seat, a valve member for said seat, a spring for normally urging said valve member at its seat to close said outlet, a stem connected to said valve member, a cartridge holder on the underside of said cap, means for opening a cartridge in said holder including an element, a lever pivotally mounted on said cap having a manually operable handle and having an arm extending across said element for effecting movement thereof upon rocking said lever in one direction, and linkage means connecting the end of said lever arm and said stem for lifting said stem to unseat said valve member upon rocking said lever in the opposite direction and for permitting relative movement between said lever arm and said stem upon rocking said lever in the first mentioned direction.

11. A discharge head comprising a cap having a discharge outlet formed with a valve seat and having a recess extending across the top and along one side thereof, a valve member for said seat, a stem connected to said valve member having its free end disposed in the top portion of said recess, a cartridge holder on the underside of said cap, means for opening a cartridge in said holder including an element having an end thereof disposed in the top portion of said recess, a lever pivotally mounted on said cap having a manually operable handle partially disposed in the side portion of said recess and having an arm disposed in the top portion of said recess and extending across said element for effecting movement thereof upon rocking said lever in one direction, and linkage means connecting the end of said lever arm and said stem for lifting said stem upon rocking said lever in the opposite direction and for permitting relative movement between said lever arm and said stem upon rocking said lever in the first mentioned direction.

12. A discharge head comprising a cap having a discharge outlet formed with a valve seat and having a recess extending across the top and along one side thereof, a valve for said seat, a spring for normally urging said valve at its seat to close said outlet, a stem connected to said valve having its free end disposed in the top portion of said recess, a cartridge holder on the underside of said cap, means for opening a cartridge in said holder including an element having an end thereof disposed in the top portion of said recess, a substantially L-shaped lever pivotally mounted on said cap having a manually operable handle partially disposed in the side portion of said recess and having an arm disposed in the top portion of said recess and extending across said element for effecting movement thereof upon rocking said lever in one direction, and linkage means connecting the end of said lever arm and said stem for lifting said stem to unseat

said valve member upon rocking said lever in the opposite direction and for permitting relative movement between said lever arm and said stem upon rocking said lever in the first mentioned direction.

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## REFERENCES CITED

The following references are of record in the file of this patent:




UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 629,752 | Murray | July 25, 1899 |
| 824,249 | Kleinfeldt | June 26, 1906 |
| 2,129,465 | Dodelin | Sept. 6, 1938 |

FOREIGN PATENTS

| Number | Country | Date |
|---|---|---|
| 3,009 | Great Britain | Feb. 10, 1896 |