

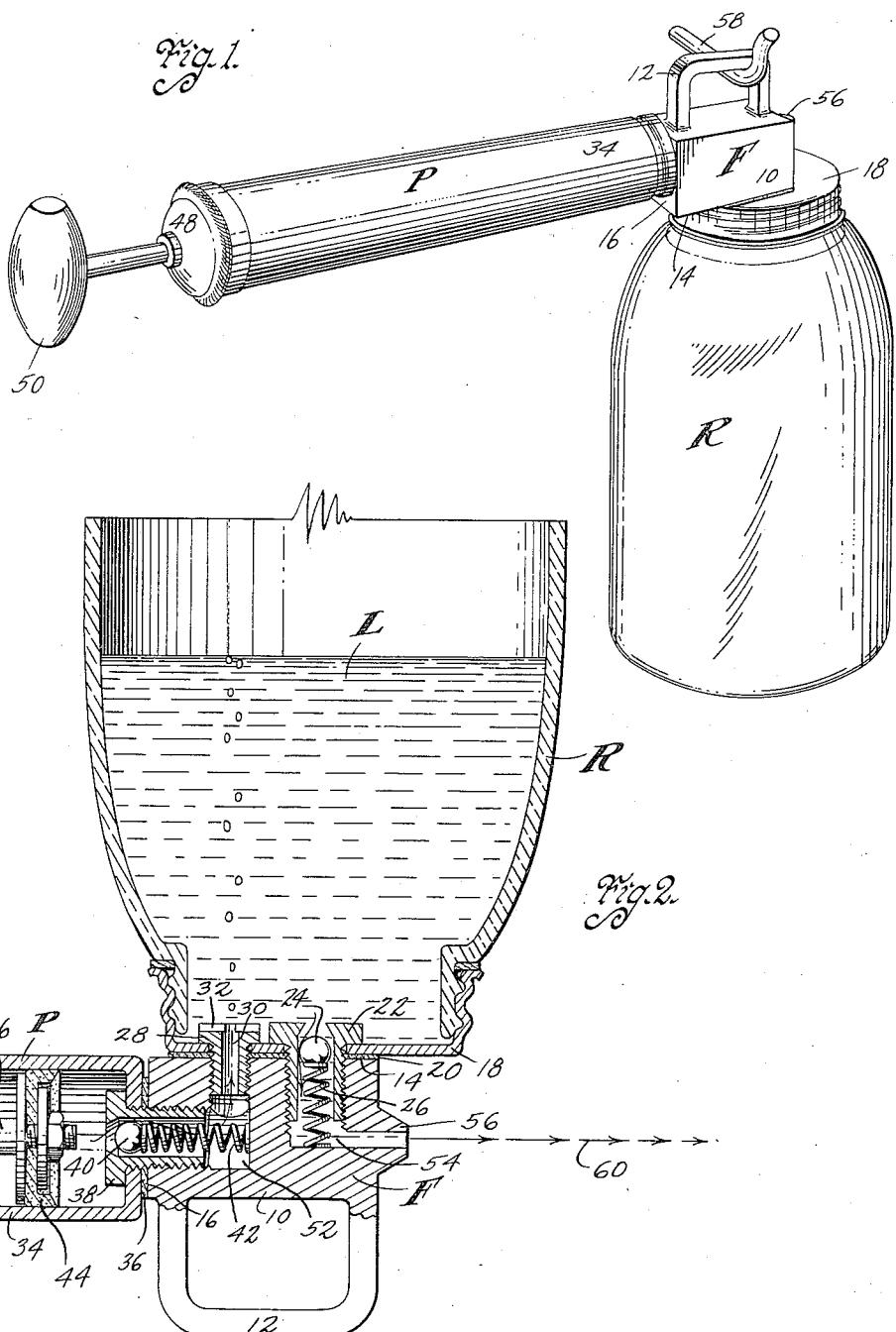
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W. G. DUNN

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PNEUMATIC LIQUID DISPENSER

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Inventor
William G. Dunn
By Bair, Freeman & Sinclair
Attorneys

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PNEUMATIC LIQUID DISPENSER

William G. Dunn, Clarinda, Iowa

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2 Claims. (Cl. 299—96)

One object of my present invention is to provide a pneumatic liquid dispenser—that is, a dispenser for liquid which is operated pneumatically, the same being comparatively simple and durable and also quite inexpensive as a manufacturing proposition.

Another object is to provide a pneumatic liquid dispenser in which a simple fitting has connecting member associated therewith, which members serve double purposes of containing check valves and connecting pumps and reservoir parts to the fitting.

A further object is to provide a fitting having a pair of faces against which gaskets are placed and a pump and a reservoir cap are secured to the fitting by hollow cap screws or the like, which at the same time attach the pump and the reservoir cap to the fitting and provide the necessary passageways for communication between the pump and the reservoir and between the reservoir and a discharge nozzle on the fitting.

A further object is to provide a pump and valve fitting unit which can be attached to any reservoir cap, such as the metal cap of a glass fruit jar or bottle, or to a metal cap of a tin can or the like and which can be detachably connected with the cap.

A further object is to provide a simplified apparatus which is inexpensive to manufacture, yet serves as an efficient dispenser for liquids such as for dispensing carbon tetrachloride for fire fighting purposes, the device having a desirable and easily operated test feature to insure that the dispenser is in proper working condition whenever it is desirable to examine it for this purpose yet do so without dispensing any of the liquid.

With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of my pneumatic liquid dispenser showing it hung in inoperative position on a hook for support; and

Figure 2 is an enlarged partial sectional view showing the dispenser inverted for use.

On the accompanying drawing, I have used the reference character F to indicate generally a fitting. A pump P and a reservoir R are associated therewith, the pump being designed and so connected with the reservoir as to discharge liquid contents therefrom when desired.

The fitting F comprises a body portion 10 hav-

ing an eye 12 for hanging purposes when the dispenser is in the position of Figure 1, or to serve as a handle when in position for use as in Figure 2. The body portion 10 has a pair of faces 14 and 16.

A reservoir cap 18 is associated with the face 14, it being connected thereto by a connecting member 22 and a gasket 20 being interposed between the fitting F and the reservoir cap 18 to prevent leakage. The connecting member 22 is in the form of a hollow cap screw or the like threaded through an opening in the cap 18 and into the fitting F. It serves the combination purpose of connecting the cap to the fitting and being a check valve, a check ball 24 being therein for this purpose and normally seated by a spring 26.

To prevent the reservoir cap 18 from rotating and to more solidly secure the cap to the fitting F and at the same time provide for the entrance of air from the fitting into the reservoir, I provide a second headed screw 28 having a bore 30. This screw may be rotated by a screw driver inserted in a slot 32 while the cap screw 22 has an angular head which can be rotated by a wrench or the like. Any means other than those described can be used for rotating the threaded connecting members 22 and 28 and thereby securing the cap 18 to the fitting F and compressing the gasket 20.

The reservoir R is detachably connected with the reservoir cap 18 for refilling purposes and is preferably of glass so that it can always be instantly determined whether or not there is liquid L within the reservoir R to be dispensed. This is quite important in a fire fighting apparatus as the reservoir for the ordinary fire extinguisher is opaque and experience has shown that through carelessness or unknown causes it is very common for a fire extinguisher to be found either partially or wholly empty at the time needed, in which case they are worse than useless because they have been depended upon for use in case of emergency.

The pump P has a cylinder 34, one end of which is engaged against a gasket 36 which in turn engages the face 16 of the fitting F. A headed connecting member 38 is provided for this purpose and has therein a check ball 40 normally seated by a spring 42. Thus the member 38 acts both in the capacity as a connector for the pump to the fitting and as a check valve fitting and passageway.

Within the pump cylinder 34 I provide a piston 44 connected with a piston rod 46. The piston

rod 46 extends through a cylinder head 48 to an operating handle 50.

The check valve fitting 38 communicates with a passageway 52 in the fitting F which in turn 5 communicates with the member 28. The connecting member 22 communicates with a passageway 54 in the fitting F, which in turn is adapted to discharge the liquid L through a discharge nozzle 56.

10 *Practical operation*

My pneumatic liquid dispenser can normally be hung on a hook 58, as shown in Figure 1, when not in use. Whenever it is desired to test the 15 operativeness of the device, it can be taken from the hook and the piston 44 may be reciprocated by the handle 50 with the device in its upright position of Figure 1, whereupon air will be pumped through the check valve 40, passageway 20 52 and bore 30 on top of the liquid L in the reservoir R.

It will then pass out through the check valve 24, passageway 54 and nozzle 56 to atmosphere with a hissing sound which indicates that the 25 pump is operating properly and accordingly the dispenser will operate properly if desired.

To operate the dispenser, it is taken from the hook 58 and then inverted as in Figure 2. The check valve 24 prevents the liquid L from dripping out of the nozzle 56 until the operator is 30 ready to dispense the liquid, as indicated by the arrows 60. When he does desire to dispense the liquid, the pump piston 44 is reciprocated for pumping air through the check valve 40 and into the reservoir R. The air will pass up through the 35 liquid L to its top surface and thereby place the liquid under pressure to first open the check valve 24 and then discharge the liquid, as indicated by the arrows 60, from the nozzle 56. The greater the air pressure maintained in the reservoir R, the farther the stream of liquid will be thrown and thus the dispensation operation is regulated as desired.

The check valve 40 will prevent any of the 40 liquid L from flowing into the pump P on the return stroke of the piston 44. Whenever it is desired to stop the dispensing operation before all of the liquid L is dispensed, it is merely necessary to turn the dispenser over to the position of Fig-

ure 1, whereupon the entrapped air will be released to atmosphere without further dispensing of the liquid.

From the foregoing, it will be obvious that I have provided a very inexpensive liquid dispenser for fire extinguishing or other purposes, yet one which is entirely fool proof and not at all complicated to either test, operate or stop its operation. A minimum of parts is involved and these are of novel character and assembled in a novel 10 manner, as set forth in my claims.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to 15 cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. A fitting of the character described comprising a body having a cavity and a discharge passageway, said fitting also having faces thereon, a pump against one of said faces, a cap screw for attaching said pump thereto, a closed reservoir against another face of said body and second 25 and third cap screws for attaching said reservoir thereto, said first cap screw having a passageway communicating with said pump and said cavity, said second cap screw having a passageway communicating with said cavity and said 30 reservoir and said third cap screw having a passageway communicating with said reservoir and said discharge passageways, one of said first and second cap screws and said third cap screw having check valves opening respectively toward said 35 reservoir and toward said discharge passageways.

2. A fitting of the character disclosed comprising a single body having faces thereon, a pump having its outlet against one of said faces, means for attaching said pump thereto, a closed reservoir against another face of said body, a passageway in said body from said pump to said reservoir and a passageway therein from said reservoir, means for attaching said reservoir to said body, said reservoir attaching means being located in said second mentioned passageway and containing a check valve opening away from said reservoir.

WILLIAM G. DUNN.