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FLUID DISPENSING CONTAINER

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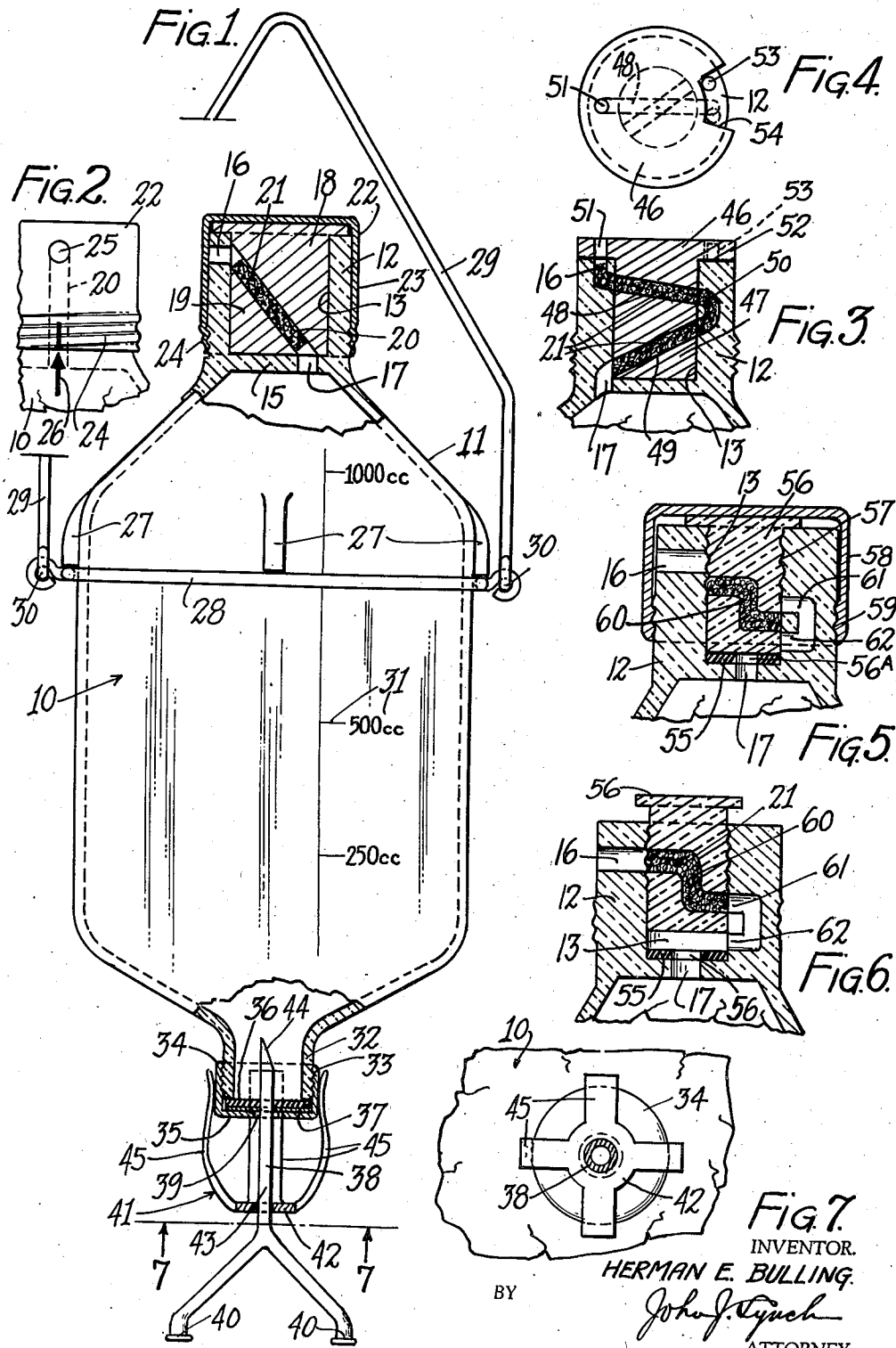


Fig. 7.
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FLUID DISPENSING CONTAINER

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3 Claims. (Cl. 128—214)

This invention relates to containers used in the administration of medicinal solutions and as particularly employed in hypodermoclysis and phlebotomy.

In containers of this character in which a large quantity of fluid is held, it is essential that said fluid be maintained in germ proof condition, that the container and contents can be sterilized without bursting the container, that the container can be hung up for use and that it can be opened and closed at will and in such a manner that the contents are kept free from bacteria and other contaminating influences.

A particular object of the invention is to provide a container for the fluid having upper and lower openings, the upper of which can be manipulated to admit air to the container, provision being made for the sterilization of the air as it passes into the container, and the lower opening being arranged so that a plurality of tubes or conduits can be used therewith to give the necessary administration of medicinal fluid stored in said container, without exposing the contents directly to the air and possible contamination.

Changes and variations may be made in the constructions shown in the drawing without departing from the principles of the invention or sacrificing its chief advantages; hence such invention is not to be confined to the precise structure shown in the accompanying drawing; in which,

Figure 1 is a view in elevation of a receptacle or container constructed in accordance with my invention,

Figure 2 is a fragmentary side view of a modified form of the upper closure employed on the receptacle,

Figure 3 is a modified form of closure employed on the upper end of the container and shown in sectional elevation,

Figure 4 is a top plan view of the closure illustrated in Figure 3,

Figure 5 is a further modified form of closure as used on the upper end of the container showing the parts in cross section and in closed position,

Figure 6 is a view similar to Figure 5 showing the parts in open position, and

Figure 7 is a section taken on the line 7—7 of Figure 1 showing the dispensing unit as used in the outlet end of the container.

Referring to the drawing in detail, 10 indicates a container made from alkali-free glass and of a nature commonly used in holding or storing medicinal fluids. The container 10 comprises a body portion 11 terminating at the top in an

upper outlet presenting a neck 12 providing a chamber 13 for reception of a stopper 18. The construction of the upper end of the container is substantially the same for all the forms of the invention and provides a bottom wall 15 in the said chamber 13. Air can pass into the container 10 through neck opening 16 and bottom wall opening 17, and in passing from one opening to the other will pass through suitable openings or passages in a stopper 18, various forms of which may be employed.

In the form of stopper illustrated in Figure 1, the stopper 18 has a body 19 which fills the chamber 13 within the neck to prevent air leakage and has a bore 20 passing therethrough at an angle to meet the neck openings 16 and 17 to form a passage to the interior of the container. The bore 20 is filled with a filtering material 21 such as medicated cotton, to form what is commonly referred to as a bacteria trap. The body 19 of the stopper is made of any suitable material and is secured at its top to, or abuts the under side of, a cap 22 which extends over the neck as at 23 and may or may not be threaded to said neck as at 24. The cap revolves and is provided as a modified form illustrated in Figure 2 with an opening 25 which, when in registry with the neck opening, admits air to the container because, the stopper and cap being a unit revolve together and the cap opening 25 and the stopper bore 20 are arranged relatively to each other and so that as opening 25 registers with opening 16, the bore 20 also registers with openings 16 and 17 and a clear passage is provided to atmosphere. Air entering will be cleaned of germs or bacteria and will not contaminate the contents of the container. The cap 22 in Figure 1 is removed before manipulation of stopper 18.

In order to facilitate the registry of the openings, suitable indicating indicia 26 may be employed on the cap and container.

The container is substantially cylindrical in cross section and may have a flattened portion at one side so that it can be laid on a table in use without rolling. The exterior wall of the container is provided with peripherally spaced lugs 27 beneath which passes a metal ring 28 to which a bail 29 is pivotally joined as at 30 and through the medium of which bail, the container can be suspended in use. The container may bear capacity markings 31 of any desired nature. The lower end of the container is provided with a lower neck portion 32 having exterior threads 33 to which is attached a pierceable closure 34 comprising a metal cap 35, a rubber disk 36 and a

paper or fiber disc 37. The rubber disk 36 will close after being pierced by a needle or pointed tapping member 38 so that no leakage of the contents is possible and will also closely hug the tap 38 to prevent any leak.

The cap 35 has a central opening 39 through which the tap 38 is passed, the tap 38 being bifurcated in its lower end and each branch thereof being provided with an annular bead 40 so that a rubber hose may be attached to each as the medicinal treatment is usually given at two spaced points in the body simultaneously. In order that the tap 38 may be held in place without twisting or skewing, I provide a collar guide 41, the collar 42 of which embraces the shank 43 of the tap 38, the shank terminating in an upper piercing end 44, and the said collar 42 having upwardly extending spring arms 45 for engaging said closure 34.

In the form of the invention illustrated in Figures 3 and 4, the stopper 46 in its body portion 47 has a plurality of bores 48 and 49 which meet a U-shaped bore 50 in the neck 12 and also meet and register with the neck openings 16 and 17. In this instance the neck opening 16 opens upwardly and may register with an opening 51 in the flanged portion 52 of the stopper 46. The upper edge of the neck is provided with a pin 53 which is disposed in the segmental cut-out 54 of the flange 52 so that the revolving movement of the stopper can be limited, the position shown in Figures 3 and 4 indicating the open position of the stopper and the outline position in Figure 4, the closed position. In this instance, the bores 48, 49 and 50 may be filled with filter material 21 as desired.

In the form of the invention illustrated in Figures 5 and 6, the neck 12 of the container is provided with the openings 16 and 17 and the chamber 13 has in the bottom thereof, a rubber washer disk 55 whose central opening 56A registers with opening 17. The stopper 56 is made from glass or other suitable material and is threaded as at 57 to coact with the threaded internal wall of the chamber 13 so that the stopper can be threaded down tightly against the washer 55 to seal the container and can be held closed by the cap 58 which is threaded as at 59 to the exterior of the neck 12. The stopper 56 has a tortuous diametrically extending bore 60 therethrough whose ends register with the opening 16 and one side or leg 61 of a U-shaped bore, whose other leg 62 opens into the chamber 13 when the stopper is in open position as shown in Figure 6.

When the stopper is in open position, a continuous passage is provided from atmosphere to

the interior of the container and the bore 60 carrying a sterilizing material 21 provides the bacteria trap. When the stopper is threaded shut the ends of the bore 60 are out of register with the bores 16 and 61 and the stopper is pressed against the disk 55, and no air can enter the container. The metal cap 22 (Figure 1) may be a separate sealing cap without the opening 25 and when the cap is removed the stopper may be rotated to align the vent openings.

What I claim is:

1. A container for administering medicinal fluids comprising a receptacle having upper and lower neck portions, means associated with the lower neck portion for dispensing the fluid, said upper neck portion being provided with a wall extending across the bottom thereof and having a pair of ducts, one of which communicates at one end with the atmosphere and at the opposite end with the interior of the neck portion and the other of which communicates at one end with the interior of the receptacle and at the opposite end with the interior of the neck portion, and a closure rotatably mounted in the neck portion and having a bore extending therethrough and having filtering material disposed in the bore, said closure being shiftable between closed position with the bore out of registry with the ducts and open position with the ends of the bore communicating with the ends of the ducts, whereby air can be admitted to the interior of the receptacle through the ducts and bore and will be filtered by the material in the bore.

2. A container as set forth in claim 1, in which a hood is provided over the upper neck portion and is attached to the top of the closure, said hood being formed with an aperture which is in alignment with the outer end of the first-mentioned duct in the neck portion when the closure is in open position.

3. A container for administering medicinal fluids comprising a receptacle having upper and lower neck portions, filtering means associated with the upper neck portion for administering filtered air to the interior of the receptacle, a closure made of pierceable resilient material disposed over the lower neck portion, a hood having a central aperture disposed over said closure and embracing the lower neck portion for holding the closure in position, a bifurcated tap projecting through the aperture in the hood and through the closure, and means engaging the bifurcated tap and having spring arms resiliently engaging the sides of the said hood for holding the tap in position.

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