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P. BERMAN

1,844,342

BOTTLE NOZZLE

Filed April 21, 1930

Fig. 1

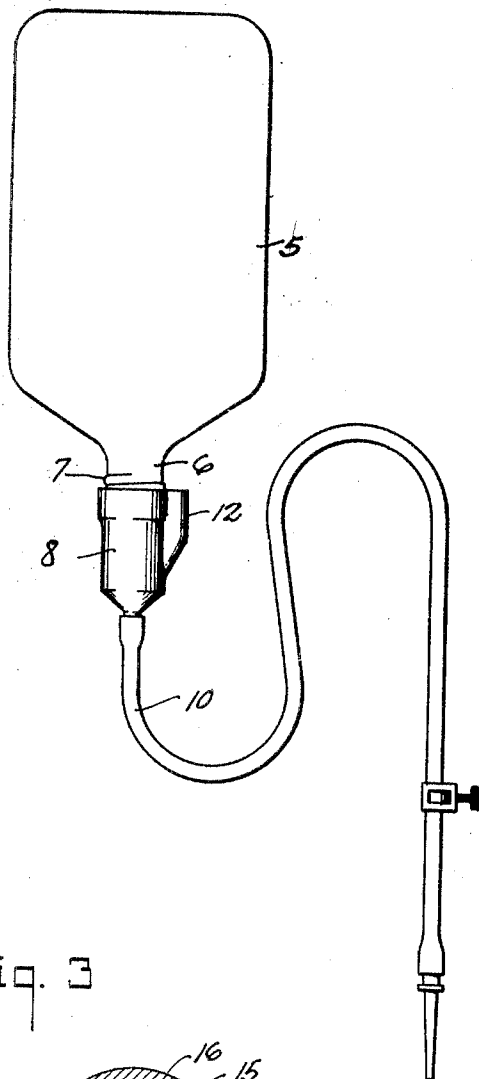


Fig. 2

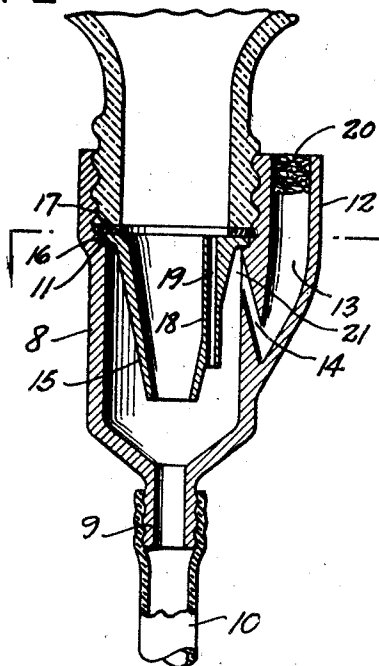
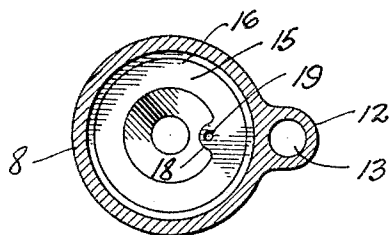


Fig. 3



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BOTTLE NOZZLE

Application filed April 21, 1930. Serial No. 445,845.

This invention relates to a bottle nozzle or cup adapted for connection to tubing and serving as a coupling between the bottle and nozzle in emptying the latter of liquid. The invention contemplates inversion of the bottle and use as a fountain. It provides for an air inlet to relieve the pressure below atmospheric in the bottle, when in inverted position, provides against entrainment of air with the liquid being drained and also a trap to prevent drippage when the bottle is restored to its upright position.

In the treatment of certain diseases, it is a common practice to direct liquid medications under pressure to the body. Such practice is current in hospitals for hyperdermiclisis, proctoclysis, intravenous injections and the like. Sterilized liquid is placed in containers and when desired for use transferred therefrom to a fountain container from which it is gravitatively delivered through tubing. Such handling of the liquid is subject to objections and disadvantages well known to the medical profession. The present invention has a field of use as above set forth but is not limited to such use. It has for its primary object the provision of a device making it unnecessary to transfer the liquid from a storage container to a fountain and makes use of the container as a fountain. The invention relates to a cap which may be substituted for the sealing cap and is provided with a tubing connection. Other objects of this invention relate to details of structure whereby a simple, compact, efficient device meeting the above mentioned requirements is obtained.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of my invention illustrated in the accompanying drawings, in which:—

Fig. 1 is a side elevation of the bottle in inverted position serving as a fountain and having a tube connected thereto for draining the contents of the bottle; Fig. 2 is an axial section on an enlarged scale through the neck of the bottle and the connector; and Fig. 3 is a section as seen on the line 3—3 of Fig. 2.

Referring more particularly to the draw-

ings, 5 denotes the bottle which may be of any type convenient. As an essential, it has a neck 6 with means for attaching a cap to seal the bottle and in this instance shown as exterior threads 7. Obviously, the bottle may be placed in an upright position and a standard type of cap mounted thereon.

To drain the bottle or a portion of the contents thereof the sealing cap is removed and my improved nozzle cap attached. The bottle is then inverted as shown in Figs. 1 and 2. The nozzle cap comprising a shell 8 is internally threaded on one end for engagement with the thread 7 on the bottle and at the other end having a bored stem 9 suitable for connection thereto of tubing 10. The shell constitutes an auxiliary reservoir for liquid. It is shouldered at 11 to provide a seat for a petticoat. At the side of the shell is a boss 12 with a passageway 13 extending downwardly in the boss and meeting an upwardly extending branch passageway 14 which opens to the shell adjacent the shoulder 11. This constitutes an air inlet for the relief of pressure below atmospheric in the bottle when used as a fountain. Disposed within the shell is a petticoat 15 having a flange 16 to rest upon the seat 11 and to be clamped between the bottle and the shell 8. To provide for sealing, a gasket 17 is mounted between the flange and the bottle. It will be noted that the petticoat extends short of the outlet 9. In the wall of the petticoat is a diagonally extending boss having a bore 19 with its lower end opening adjacent the bottom of the petticoat at its upper end adjacent the top.

In the operation of the device, liquid will pass downwardly from the bottle into the reservoir formed in the shell and rise to a level above the bottom of the petticoat. Liquid will be drained from the reservoir into the tubing. As the liquid level uncovers the lower end of passage 18, air may enter the passage and pass upwardly in the bottle. The passageway 13 may have a wad of filtering material such as cotton placed therein to filter the air. On air passing upwardly in the bottle, liquid will enter the reservoir through the petticoat and rise to cover the

lower end of passage 18 as the liquid lever in the reservoir lowers to uncover the duct 19, air enters the bottle and liquid is delivered to the reservoir. It will be apparent that because of the position of the air relief ports, air cannot be educed and entrained with the liquid being delivered. On placing the bottle in an upright position, liquid from the reservoir will collect in the bend 21 and the latter forms a trap.

What I claim is:—

1. A nozzle cap for a bottle adapted to be mounted on the bottle at the neck end and comprising a shell having an outlet for connection of tubing thereto, said shell in inverted position of said bottle serving as an auxiliary reservoir for liquid, a petticoat means engaged with said shell at its upper part and extending short of said outlet forming an air chamber above liquid in said shell and an air inlet opening to the upper part of said air chamber through said shell including an air passage ranging downwardly toward said outlet to provide a liquid trap whereby air may enter and pass from the exterior to the interior of said petticoat means adjacent its free end and thus to the bottle to relieve pressure below atmospheric therein.

2. A nozzle cap for a bottle adapted to be substituted for the sealing cap and comprising a shell having an outlet for connection of tubing thereto, said shell in inverted position of said bottle serving as an auxiliary reservoir for liquid, a petticoat joined at one end to said shell and extending short of said outlet to provide an air chamber above liquid in said shell and an air inlet opening to the upper part of said air chamber including an air passage ranging downwardly from the upper part of said chamber toward said outlet to provide a liquid trap whereby air may enter and pass from the exterior to the interior of said petticoat adjacent its free end and thus to the bottle and relieve pressure below atmospheric therein.

3. A nozzle cap for a bottle adapted to be substituted for the sealing cap and comprising a shell having an outlet for connection of tubing thereto, said shell in inverted position of said bottle serving as an auxiliary reservoir for liquid, a petticoat joined at one end to said shell and extending short of said outlet to provide an air chamber above liquid in said shell and an air inlet opening to the upper part of said chamber including an air passage ranging from the exterior of said shell downwardly and upwardly to provide a liquid trap with said bottle upright and a drip trap with said bottle converted, a port extending through the wall of said petticoat longitudinally whereby air may enter and pass from the exterior to the interior of said petticoat adjacent its free end and thence to the bottle to relieve pressure below atmospheric therein.

In witness that I claim the foregoing I have hereunto subscribed my name this 4th day of April, 1930.

PHOEBUS BERMAN. 70

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