

Dec. 10, 1935.

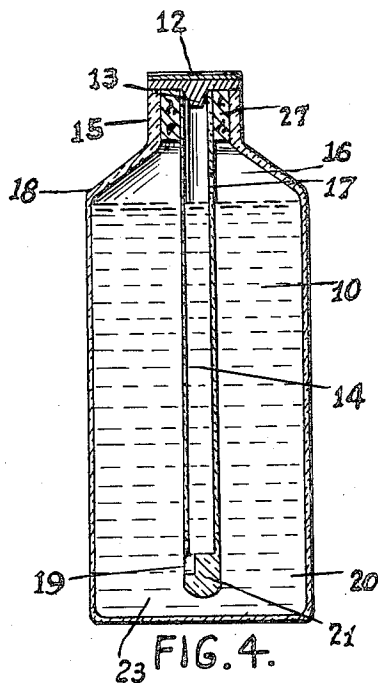
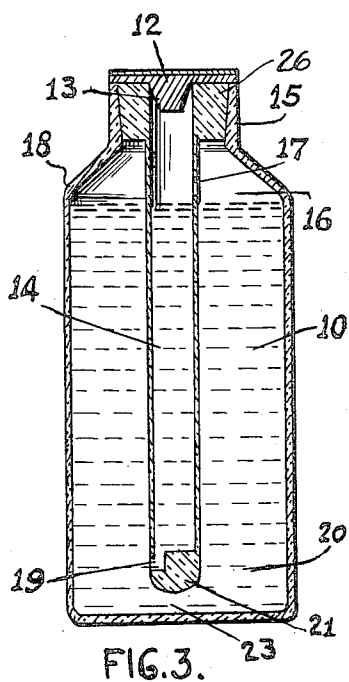
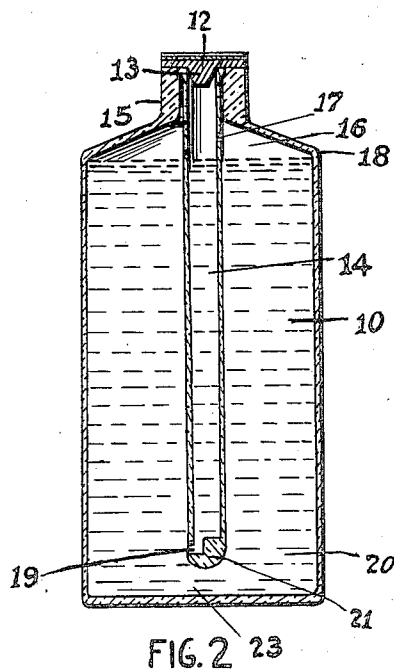
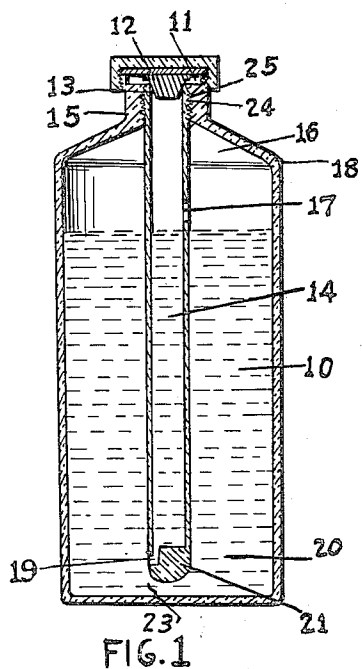
M. C. SCHWAB

2,023,905

HYGIENIC CONTAINER

Filed Dec. 1, 1933

3 Sheets-Sheet 1



INVENTOR
MARTIN C. SCHWAB
BY *James R. McKnight*
ATTY

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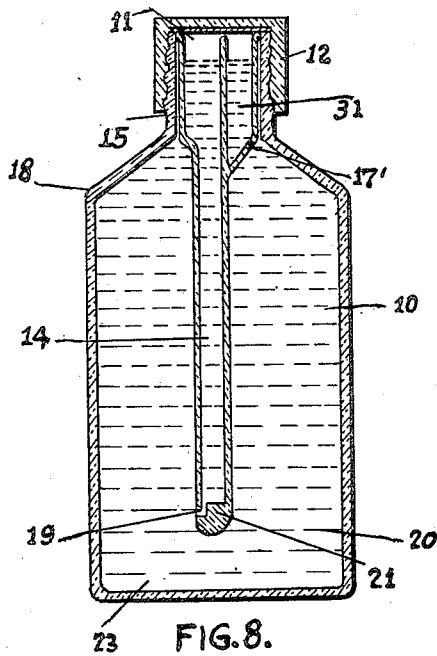
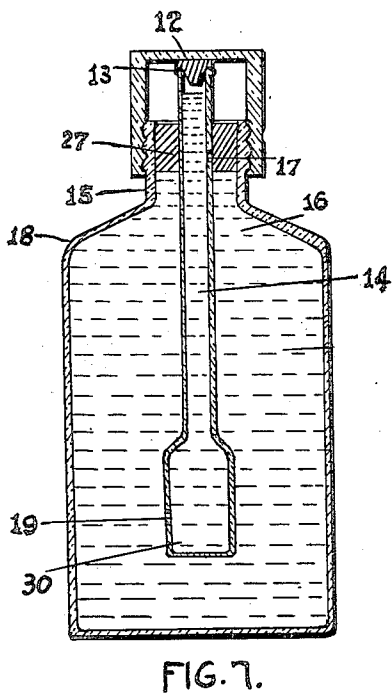
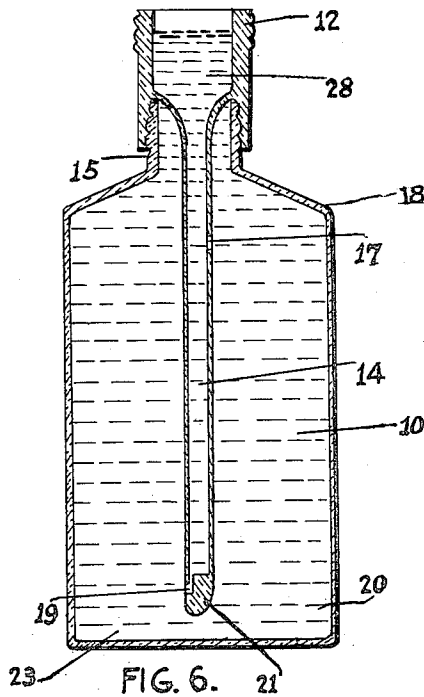
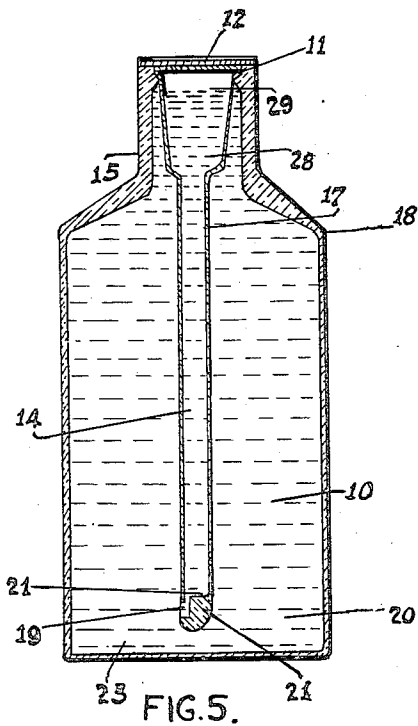
M. C. SCHWAB

2,023,905

HYGIENIC CONTAINER

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3 Sheets-Sheet 2.



INVENTOR
MARTIN C. SCHWAB
BY *James R. McKnight*
ATT'Y

Dec. 10, 1935.

M. C. SCHWAB

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HYGIENIC CONTAINER

Filed Dec. 1, 1933

3 Sheets-Sheet 3

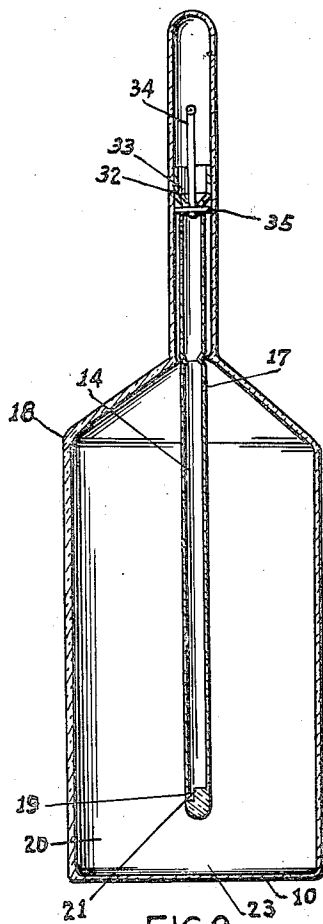


FIG. 9.

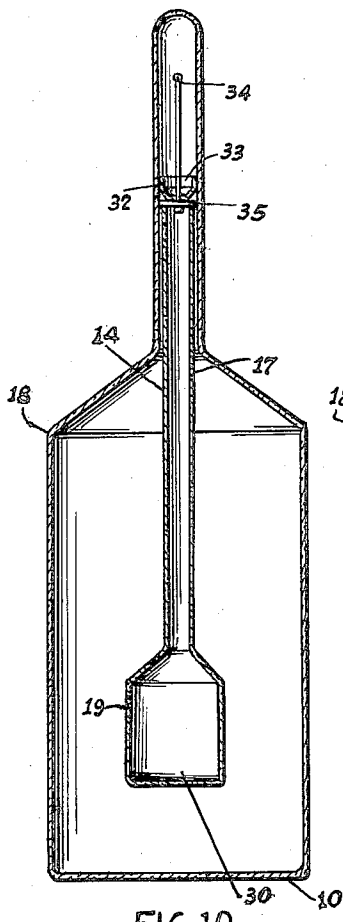


FIG. 10.

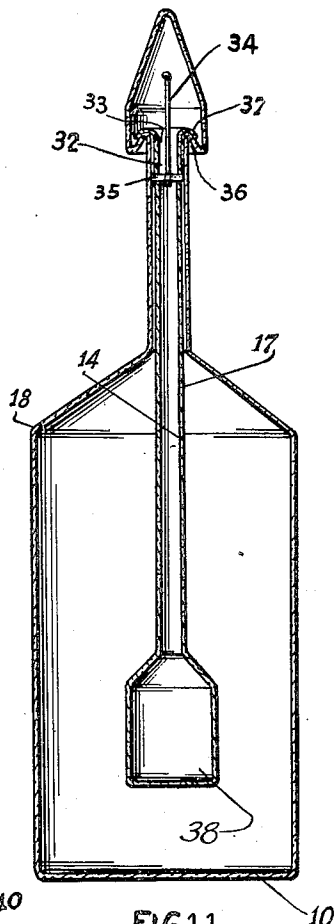


FIG. 11.

INVENTOR
MARTIN C. SCHWAB
BY *James R. McKnight*
ATT'Y

UNITED STATES PATENT OFFICE

2,023,905

HYGIENIC CONTAINER

Martin C. Schwab, Chicago, Ill.

Application December 1, 1933, Serial No. 700,433

14 Claims. (Cl. 215—1)

My invention relates to any hygienic container. Among the objects of my invention are to provide a container so constructed that liquid may be withdrawn therefrom with the danger of contamination minimized, and such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by my invention.

Referring to the drawings Figs. 1 to 4 are front sectional views of my invention. Fig. 1 shows a removable tube; Fig. 2 shows a tube permanently fixed to the neck of the container by welding or the like; Fig. 3 shows the tube fixed to the container by a ground joint beveled; and Fig. 4 shows the tube held by a cork fitted to the neck. Figs. 5, 6, 7 and 8 are also front sectional views of my invention. Fig. 5 shows an enlarged portion of the tube at the upper end; Fig. 6 shows the enlarged portion at the upper end of the tube as extending beyond the container itself; Fig. 7 shows an enlarged portion of the tube at the lower end; Fig. 8 illustrates the double tube. Figs. 9, 10 and 11 refer more particularly to the ampuls and are front sectional views thereof. Fig. 9 shows the tube without an enlarged portion; Fig. 10 shows the tube with an enlarged lower portion; and Fig. 11 shows the tube with an enlarged lower closed portion.

While I have shown herein preferred embodiments of my invention yet I wish it understood that the same are susceptible of modification and change without departing from the spirit of my invention.

My invention comprises a container 10 having a mouth 11 sealed by a stopper 12. Said stopper 12 has an extension 13 extending down into a tube 14, said tube connected to the neck 15 of the container 10 and extending down into the container but ending short of the bottom of said container. The container 10 is substantially filled with liquid but leaving a small portion of the container adjacent its neck 15 unfilled for an air space 16. The tube 14 has an air inlet 17 adjacent the shoulders 18 of the container 10 and a liquid inlet 19 adjacent its lower portion 20 and on the side opposite the air inlet 17. A stop member 21 is placed within the tube 14 adjacent the liquid inlet 19.

In use my device is applicable particularly to instances where small containers filled with medicated solutions are carried by physicians for quick use. The physician removes the stopper 12 and inserts his needle into the tube and withdraws his needle filled with the solution. Air

from the air space 16 is pressed down by new air coming in through the opening 11 caused by removal of the stopper 12 and passes through air inlet 17 to relieve the vacuum and forces liquid into liquid inlet 19 and thus up into tube 14. The needle can only touch that portion of the liquid which is within tube 14. In the liquid in the container there may be foreign bodies. If these foreign bodies are heavy they will settle to the bottom of the container below liquid inlet 19 and are thus impounded in the sediment chamber 23 where they cannot be withdrawn. Likewise none of the surface of the liquid which may float foreign bodies is withdrawn. Therefore the danger of contamination is minimized by my 15 structure.

In Fig. 1 I provide for a removable tube 14, by placing screw threads 24 on the tube which meet screw threads 25 on the neck 15 of the container. This permits the removal of the tube 20 14 so that the container 10 can be more easily filled or cleared.

In Fig. 2 the tube 14 is permanently fixed to the neck of the container by welding or the like. In Fig. 3 the tube 14 has an enlarged 25 top portion 26 which is fixed to the neck of the container by a ground joint beveled. In Fig. 4 a cork 27 is tightly fitted to the neck of the container and is hollowed out to receive and hold the tube 14. 30

Another embodiment of my invention shown in Fig. 5 discloses the container 10 filled with liquid so as to leave no air space 16 within the container itself.

The tube 14 is enlarged adjacent its top portion 35 to form an expansion chamber 28. After the container is filled with liquid the tube 14 is inserted and the enlarged portion 28 is fixed to the neck 15 by an annealed or mechanical joint. Liquid also fills a portion of the enlarged portion 28 to a predetermined level leaving an air or vacuum space 29. Because of changes in temperature liquid may expand. It is, therefore, desirable to leave a space unfilled with liquid so that if the liquid expands it may occupy this 40 space. Otherwise, expansion would cause breakage of the container. With my enlarged portion 28 the container itself may be completely filled without the necessity of space if corresponding space 29 is allowed in the enlarged portion. The 50 liquid may if heated expand into space 29. This allows a complete filling of the container and assures full measure, particularly when the enlarged portion extends beyond the container as in Fig. 6 and as later described herein. Another 55

function of enlarged portion 28 is to increase the amount of liquid that can be withdrawn from the tube at one operation of a needle.

As in Fig. 1 where the tube is removably attached to the neck by screw threads my tube having enlarged portion 28 may be removably attached to the neck by placing screw threads on both the enlarged portion 28 and the neck 15. These parts may also be removably joined by means of a ground joint. Likewise as in Fig. 4 a cork or the like may fit within the neck 15 and have a hollowed out portion to receive and hold enlarged portion 28.

While I prefer to have the enlarged portion 28 within the container 10 yet I may find it desirable (see Fig. 6) to have the enlarged portion 28 extend beyond the container so that the closure or cap instead of fitting over the mouth of the container will be removably fixed to the top of the enlarged portion 28 by screw threads or other suitable means.

As variations I may provide that the liquid inlet 19 instead of being placed on the side of the tube 14 be located at the bottom of tube 14. I may also provide the tube 14 adjacent its bottom portion with an enlarged sediment chamber 30, as shown in Fig. 7.

I may also provide that the tube 14 eliminate the air inlet 17 as hereinbefore disclosed. Instead I provide the tube 14 having a second passage 31 leading from the neck of the container and ending within the container adjacent the shoulder 18 of the container 10 as in Fig. 8.

My invention is applicable to the type of container which is sealed by a removable cap and it is also adaptable to ampuls or other one piece sealed glass containers, as shown in Figs. 9, 10 and 11.

My container besides being a device from which liquid may be hygienically withdrawn may also be used as a shaker. Since it is so difficult to add liquid to my container my device may be used where it is desired to insure that the original contents have not been diluted, or changed.

Wherever I employ an ampul I provide a removable trap 32 which in one form will float on the liquid adjacent the top of the container or expansion chamber. My trap has a receiving portion 33, a handle 34 and in one form an anchor 35. Another embodiment eliminates the anchor and instead of floating, my trap 32 is held by arms 36 to turns 37 in the ampul. When the ampul is broken any glass which may fall into the container will drop into the receiving portion of my trap. I merely remove the trap by using the handle 34. (See Figs. 9, 10 and 11.)

As shown in Fig. 11 I may provide for an expansion chamber 38 at the bottom end of the tube 14. This will allow the complete filling of the container with liquid since any expansion will be within the expansion chamber.

As particularly shown in Fig. 7 I employ a cork sleeve 27 tightly fitted to the neck of the container 10 and hollowed out to receive tube 14. When the air inlet 17 is flush with the cork 27 no air can enter the container.

Having thus described my invention, I claim:

1. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a neck, a removable cap for sealing said body member, a tube connected to the neck of said body member and leading downwardly to a point above the bottom of said body member, said tube having a single air inlet adjacent the top of said tube and on the side there-

of and a single liquid inlet adjacent the bottom of said tube and on the opposite side to said air inlet said tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn.

2. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a neck, a removable cap for sealing said body member, a tube connected to the neck of said body member and leading downwardly to a point above the bottom of said body member, said tube having a single air inlet adjacent the top of said tube and on one side thereof and a single liquid inlet adjacent the bottom of said tube and on the side opposite to said air inlet said tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom, and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn, and a stop member closing the bottom of the tube for preventing an instrument from passing through the bottom of said tube and withdrawing liquid from said sediment chamber.

3. A container comprising a hollow body member, a removable cap for sealing said body member, and a tube within said body member, said tube having an enlarged portion at its bottom end.

4. A container comprising a hollow body member, a removable cap for sealing said body member, a tube within said body member having an opening adjacent its upper end, said tube having a closed enlarged portion adjacent its bottom end, said opening adjacent the upper end closed by the neck of said container until the tube is inserted further within the container when said opening is exposed.

5. A hygienic container for liquid comprising a hollow body member having a neck, a removable cap for sealing said body member, a tube connected to the neck of said body member so that liquid in the container cannot be withdrawn from its top level through said tube, said tube extending down into said body member to a point above the bottom thereof, a stop member closing the bottom of said tube, said tube having an air inlet and a liquid opening, said body member having a bottom portion adapted to impound foreign bodies sunk therein as a sediment chamber, said stop member adapted to prevent the withdrawal of liquid from the sediment chamber.

6. A device from which liquid may be hygienically withdrawn comprising a hollow body member having a neck and removable sealing means, a tube connected to the neck and extending downwardly within said body member, said tube having a closed bottom, and side openings for air and liquid, said tube adapted to receive an inserted needle for the withdrawal of liquid, and to prevent the withdrawal of liquid at both the bottom and top levels of said body member.

7. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a removable cap for sealing said body member, a tube having an enlarged upper portion, said tube connected to the

mouth of said body member and leading downwardly to a point above the bottom of said body member, said tube having a single air inlet adjacent the top of said tube and on the side thereof and a single liquid inlet adjacent the bottom of said tube and on the opposite side to said air inlet, said tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn.

8. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a removable cap for sealing said body member, a tube having an enlarged upper portion, said tube connected to the mouth of said body member and leading downwardly to a point above the bottom of said body member, said tube having a single air inlet adjacent the top of said tube and on one side thereof and a single liquid inlet adjacent the bottom of said tube and on the side opposite to said air inlet, said tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom, and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn, and a stop member closing the bottom of the tube for preventing an instrument from passing through the bottom of said tube and withdrawing liquid from said sediment chamber.

9. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a tube connected to the mouth of said body member and leading downwardly to a point above the bottom of said body member, said tube having an enlarged portion continuing above the mouth of said body member, a removable cap for sealing the top of said enlarged portion of said tube, said tube having a single air inlet adjacent the top of said tube and on the side thereof and a single liquid inlet adjacent the bottom of said tube and on the opposite side to said air inlet, said tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn.

10. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a tube connected to the mouth of said body member and leading downwardly to a point above the bottom of said body member, said tube having an enlarged portion continuing above the mouth of said body member, a removable cap for sealing the top of said enlarged portion of said tube, said tube having a single air inlet adjacent the top of said tube and on one side thereof and a single liquid inlet adjacent the bottom of said tube and on the side opposite to said air inlet, said tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom, and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the

liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn, and a stop member closing the bottom of the tube for preventing an instrument from passing through the bottom of said tube and withdrawing liquid from said sediment chamber.

11. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a removable cap for sealing said body member, a double tube having an enlarged upper portion, said tube connected to the mouth of said body member and leading downwardly to a point above the bottom of said body member, said double tube having a liquid passage tube with a liquid inlet adjacent the bottom of said tube, said double tube also having an air passage tube leading to said body member, said liquid passage tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn.

12. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a removable cap for sealing said body member, a double tube having an enlarged upper portion, said tube connected to the mouth of said body member and leading downwardly to a point above the bottom of said body member, said double tube having a liquid passage tube with a liquid inlet adjacent the bottom of said tube, said double tube also having an air passage tube leading to said body member, said liquid passage tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn, and a stop member closing the bottom of the tube for preventing an instrument from passing through the bottom of said tube and withdrawing liquid from said sediment chamber.

13. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a removable cap for sealing said body member, a tube having an enlarged lower portion, said tube connected to the mouth of said body member and leading downwardly to a point above the bottom of said body member, said tube having a single air inlet adjacent the top of said tube and on the side thereof and a single liquid inlet adjacent the bottom of said tube and on the opposite side to said air inlet, said tube adapted to receive a needle inserted therein for the hygienic withdrawal of liquid therefrom and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom portion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn.

14. A container from which liquid may be hygienically withdrawn comprising a hollow body member having a mouth, a removable cap for sealing said body member, a tube having an enlarged lower portion, said tube connected to the mouth of said body member and leading downwardly to a point above the bottom of said body member, said tube having a single air inlet ad-

jacent the top of said tube and on the side thereof and a single liquid inlet adjacent the bottom of said tube and on the opposite side to said air inlet, said tube adapted to receive a needle
5 inserted therein for the hygienic withdrawal of liquid therefrom and a bottom portion to said body member for receiving as a sediment chamber foreign bodies in the liquid, said bottom por-

tion being below the level of the liquid inlet in the tube so that said liquid in said bottom portion cannot enter the tube and be withdrawn, and a stop member closing the bottom of the tube for preventing an instrument from passing
5 through the bottom of said tube and withdrawing liquid from said sediment chamber.

MARTIN C. SCHWAB.