April 13, 1965 W. F. SALEM, JR., ETAL 3,177,870

SECONDARY ADMINISTRATION SYSTEM

Filed Nov. 10, 1960 2 Sheets-Sheet 1

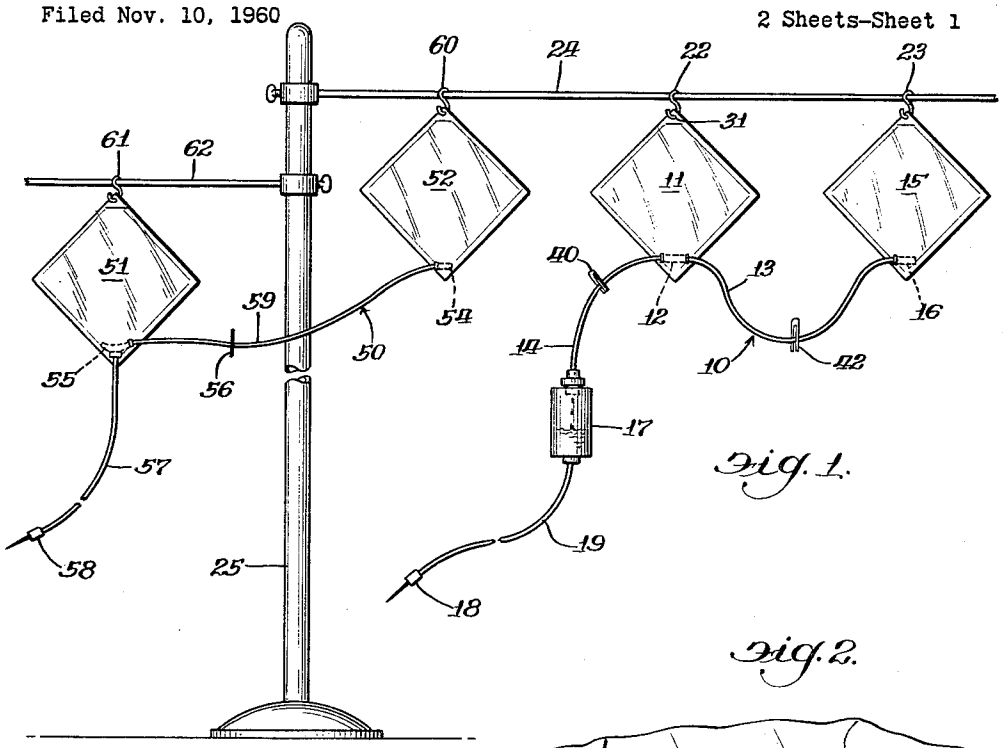


Fig. 1.

Fig. 2.

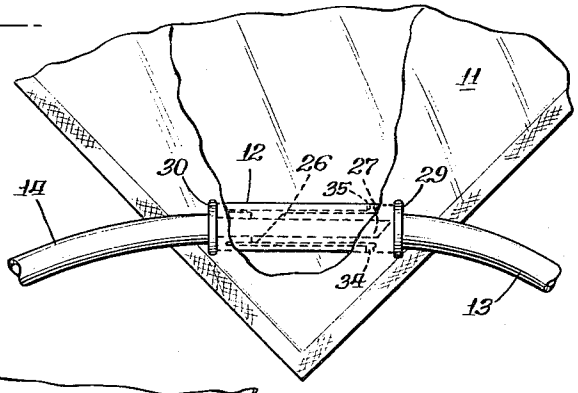
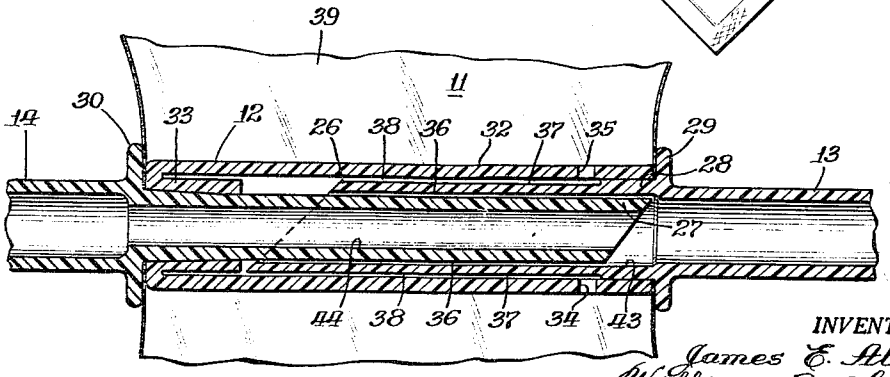


Fig. 3.



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SECONDARY ADMINISTRATION SYSTEM

Filed Nov. 10, 1960 2 Sheets-Sheet 2

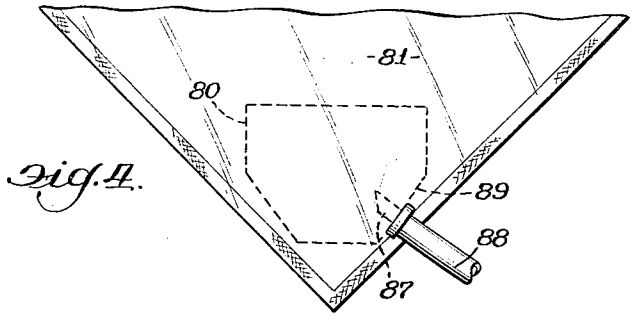


Fig. 4.

Fig. 5.

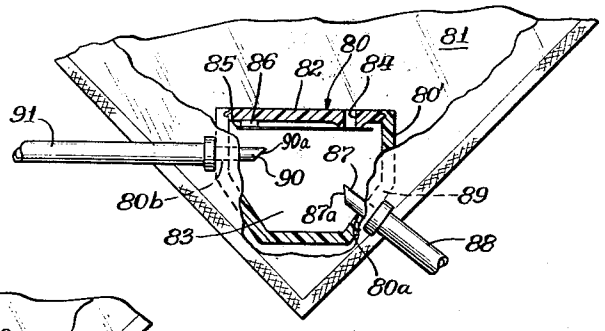


Fig. 6.

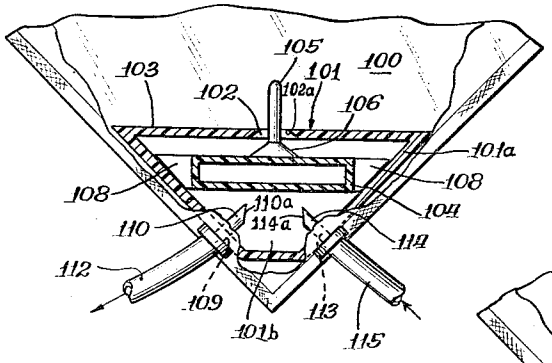


Fig. 7.

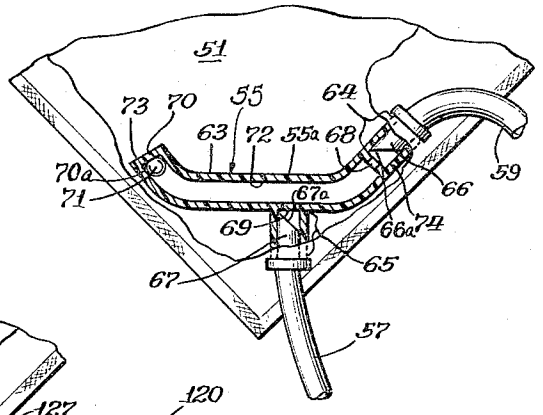
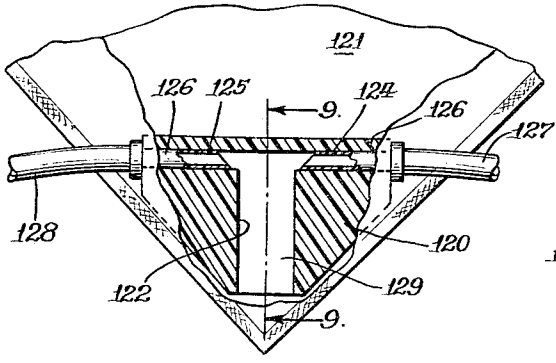


Fig. 8.



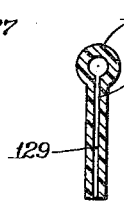


Fig. 9.

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3,177,870

SECONDARY ADMINISTRATION SYSTEM

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Filed Nov. 10, 1960, Ser. No. 68,472
12 Claims. (Cl. 128—214)

This invention relates to a system for administering parenteral liquids. More particularly, this invention relates to an automatic valving system for parenteral administration equipment adapted to operate within the confines of a liquid container.

In the course of administering a parenteral liquid, it is often necessary to administer along with the initial liquid, a second or even a third parenteral solution. To avoid making a separate insertion into the body of the recipient for each such liquid, it is common practice to provide some means of interconnecting the containers of each liquid into a common feed line. This procedure requires the use of supplementary equipment in addition to that usually provided with a standard parenteral solution container. When employing such additional equipment, constant supervision is required where it is desired to administer a first solution and then to switch over to a second solution.

With the advent of the flexible plastic bag into the parenteral solution field, further problems were encountered. The plastic bag is much preferred over the standard bottle as it can be mass produced, is more economical and is not fragile. However, the standard administration equipment cannot, for obvious reasons, be attached to the flexible walled bag as it is to a bottle.

It is, therefore, an object of the present invention to provide a valving system for parenteral liquids which functions inside of a liquid container and thereby eliminates the need of external supplementary equipment.

It is another object of this invention to provide a valving system for parenteral liquids which will automatically deliver a first liquid and subsequently a second liquid.

It is still another object of this invention to provide a valving system for plastic parenteral solution containers which affords secure attachment to the container with standard administration equipment.

It is also an object of this invention to provide a valve structure which has no parts projecting therefrom which must be manipulated to select the desired parenteral liquid from two or more containers thereof, and which, therefore, does not involve the sealing problems connected with valve operators on conventional valves nor is there any possibility of loss of sterility because of parts moving out of and into the liquid containers.

Further objects of this invention are to provide a device for administering parenteral liquids which employs a minimum number of parts, is easily assembled and sterilized, and is disposable.

The foregoing objects and other objects of the present invention will be readily appreciated by reference to the following detailed description when considered in conjunction with the accompanying drawings showing embodiments of the invention wherein:

FIGURE 1 is an elevational view of two parenteral administration sets illustrating two embodiments of the present invention with each set being composed of two parenteral solution containers interconnected by means of a length of flexible tubing and one container of each set having a valve therein with another length of tubing leading therefrom to a hypodermic needle.

FIGURE 2 is an enlarged fragmentary view of one of the solution containers shown in FIGURE 1 with a portion broken away to better illustrate one embodiment of a valve.

FIGURE 3 is an enlarged view in vertical section of the valve of FIGURE 2.

FIGURE 4 is a fragmentary view of a solution container that can be employed in the administration sets of FIGURE 1 illustrating another embodiment of a valve therein.

FIGURE 5 is a view in vertical section of the valve of FIGURE 4.

FIGURE 6 is a fragmentary view of a solution container illustrating still another embodiment of a valve to be used in the apparatus of FIGURE 1, the valve being shown in vertical section.

FIGURE 7 is a view like FIGURE 6 illustrating yet another embodiment of a valve.

FIGURE 8 is a view like FIGURE 6 illustrating still another embodiment of the present invention.

FIGURE 9 is a view in vertical section taken along line 9—9 of FIGURE 8.

Briefly stated, the apparatus of this invention is comprised of a first or primary flexible, plastic, parenteral liquid container with a valve body in the bottom of the container. The valve body has an opening communicating into the interior of the container. The valve body also has a discharge connection and a secondary fluid connection. The discharge connection is attached to a length of tubing leading ultimately to the recipient, and the secondary fluid connection is attached to a length of tubing which in turn is connected to a plastic container containing a secondary parenteral liquid. In the valve body are means to block the flow of the primary liquid through the opening into the valve body when the secondary liquid is flowing and permitting the flow of primary liquid out through the discharge connection when the secondary flow is stopped.

Proceeding to a detailed description, two embodiments of the present invention employing basically the same component parts, but different valving means, are shown in FIGURE 1. In one embodiment, generally indicated at **10**, a first rectangular flexible container **11**, composed of a polyethylene material, has a valve body **12** located in the bottom interior thereof. Valve body **12** in this instance is molded from a high density polyethylene material.

Two lengths of flexible polyvinylchloride plasticized tubing **13** and **14** are connected to valve body **12**. Tubing **13** communicates with the interior of a second polyethylene container **15** by means of a connector **16**. In the preferred embodiment, connector **16** actually is a valve body. With all the containers having a valve body therein, any number of solution containers may be connected in series and fluid selectively drawn from any container. A sight or drip chamber **17** is attached to tubing **14** for indicating the flow rate. Chamber **17** in turn communicates with hypodermic needle **18** by means of tubing **19**. Containers **11** and **15** are supported at the same level by means of S-shaped hooks **22** and **23**, respectively, which are attached to supporting arm **24** of standard **25**.

As best illustrated in FIGURE 2, valve body **12** is placed inside and diagonally across the bottom corner of container **11**. The ends of tubing **13** and **14** are secured to piercing pins **26** and **27**, respectively. Two circular flanges, **29** and **30** are provided on the respective pins. The preferred material for composing pins **26** and **27** is a methacrylate resin.

Valve body **12** is of a tubular configuration, and has an external cylindrical wall portion **32** with a second internal wall portion **33** at one end thereof. Two oppositely disposed openings **34** and **35** are provided through wall **32**. The internal diameter of wall portion **32** is of such dimension as to frictionally receive pin **26** therein. Pin **26** has an annular shoulder **28** which frictionally engages the inner face of wall portion **32**. Pin **27** telescopes within

pin 26 with the internal diameter of pin 26 being slightly larger than the external diameter of pin 27 thereby creating an axially aligned, capillary-like passageway 36 between the two pins. Pin 26 has a reduced diameter section 37, and when inserted in valve body 12, creates a second axially aligned capillary-like passageway 38 between pin 26 and the inside of valve body 12.

Valve body 12 is tack sealed inside one corner of the container at the time container 11 is formed and filled, for example, with isosalt solution. At the opposite corner of the container the two walls of the container are sealed together and an opening 31 provided through the sealed area to receive hook 22. Valve body 16, which is an exact duplication of valve body 12, is likewise sealed in container 15 with a parenteral solution such as dextrose. Containers 11 and 15 are then ready for shipment and storage.

When it is desired to administer the contents of containers 11 and 15 they are supported at the corners opposite valve bodies 12 and 16 by means of hooks 22 and 23 respectively, which engage supporting arm 24. A standard administration set having a sight chamber 17, a hypodermic needle 18 and a tubing clamp 40, is employed with tubing 14 being connected to piercing pin 27. With clamp 40 in the closed position on tubing 14, pin 27 is inserted through wall 39 of container 11 and into valve body 12 within interior wall 33. Wall 33 with pin 27 placed therein serves to seal off the end of valve body 12. A length of tubing 13 having piercing pin 26 connected thereto at one end and a second pin (not shown but of the same structure as represented by numeral 27) is employed to interconnect containers 11 and 15. Pin 26 is inserted in valve body 12 and around pin 27. With clamp 42 in the closed position, the second pin at the opposite end is connected to valve body 16 in the same manner as pin 27 engages valve body 12. Upon insertion of needle 18 into the vein of recipient, the apparatus 10 is ready for operation.

In this instance, it is assumed that the dextrose solution in container 15 is to be administered first and the isosalt solution in container 11, second. Clamps 40 and 42 are opened and the dextrose solution flows through valve body 16, into tubing 13 and into a small portion of channel 43 of pin 26 where it flows into channel 44 of pin 27 and on into tubing 14 to the recipient. While the dextrose solution is taking the previously described course, the isosalt solution in container 11 has traveled through openings 34 and 35 of valve body 12 and into passageways 38 and 36. However, the rate of flow of isosalt solution is impeded by the small cross sectional area and the length of capillary passageways 36 and 38. This frictional drag when coupled with the head pressure of the dextrose solution prevents the isosalt solution from entering the channel 43. When all the dextrose solution has passed from container 15, or the flow is interrupted by closing clamp 42, isosalt solution from container 11 will enter channels 43 and 44 and through tubing 14 to the recipient. It will be noted that tubing 13 is allowed to drop below valve bodies 12 and 16. This serves as a trap for the dextrose solution and prevents isosalt solution from leaking into tubing 13 when the flow of the dextrose solution is stopped either by closing clamp 42 or by the emptying of container 15.

The capillary-like passageways 36 and 38 prevent any flow from container 11 so long as liquid is flowing from container 15. At the same time, the channels prevent any of the solution from container 15 from flowing back into container 11 even though there may be a substantial difference in specific gravity or density of the two liquids in the containers. Thus, valve body 12, along with the two pins 26 and 27, acts as a valve which is controlled by controlling the flow of fluid from container 15 through the manipulation of clamp 42.

The specific valve structure wherein capillary-like channels are employed to control the flow and prevent mixing

is the invention of Richard W. Pecina, Frank C. Dayton, Jr. and Henry M. Scislowicz. It is the subject matter of a patent application filed March 29, 1961, Serial No. 99,083, now abandoned. However, since such a valve may advantageously be used in connection with our invention, it has been illustrated and described herein.

Another embodiment, generally 50, of the present invention is shown in FIGURE 1 and is similar in its component parts to that of device 10. Embodiment 50 has a plastic blood container 51, a secondary plastic container 52 for parenteral solutions such as dextrose and an interconnecting length of flexible tubing 59. A valve body 54, which is an exact duplicate of valve body 12, is provided in the bottom corner of container 52 and is connected to tubing 59 in the manner described in reference to valve body 12. A valve body 55 also is placed in the bottom corner of container 51. Tubing 59 communicates with valve body 55 and has clamp 56 engaged thereon. Another length of tubing 57 communicates with valve body 55 and is connected to a hypodermic needle or delivery member 58. The standard drip chamber as represented by numeral 17 can be attached to tubing 57 in the usual manner. Container 52 is supported by S shaped hook 60 engaging arm 24 and container 51 is supported by hook 61 engaging arm 62.

Referring specifically to FIGURE 7, there is shown a valve generally indicated at 55 having a valve body 55*a*. The valve body 55*a* has a curved tubular body 63 with an open-ended marginal inlet end 64 and an open-ended marginal outlet end 65 for frictionally accommodating cannulae 66 and 67 having piercing ends or fitments 66*a* and 67*a*, respectively, therein. The marginal inlet and outlet ends 64 and 65 in the valve body 55*a* extend beyond openings 68 and 69, respectively. An opening 70 defining a valve seat 70*a* is provided in the valve body 55*a*. A metal valving ball 71 of a slightly smaller diameter than passageway or chamber 72 is housed therein. It will be seen that the valve body 55*a* has two ends 73 and 74 that extend upwardly in the container 51. The ends 73 and 74 surround the openings 70 and 68, respectively, and define valve seats with which the ball 71 cooperates to shut off the fluid flow as hereinafter described. The preferred material for composing the valve body 55*a* is a plasticized polyvinylchloride material. Valve bodies 54 and 55*a* are placed in the containers 52 and 51, respectively, in the manner generally described for the containers 11 and 15.

The contents of the containers 51 and 52 are administered in a manner similarly described for the containers 11 and 15 except that the container 52 is placed at a higher level than container 51. The cannulae 66 and 67 to which the tubing 59 and 57, respectively, are connected, are inserted through the walls of the container 51 and seated in the marginal inlet and outlet ends 64 and 65. The tubing 59 is connected to the container 52 in the same manner as the tubing 13 was connected to the container 15. When the clamp 56 is opened, the dextrose solution in container 52 flows through tubing 59 and into passageway 72 by way of opening 68. This forces the ball 71 against the valve seat 70*a* obstructing the opening 70 and preventing the blood from the container 51 from entering the passageway or chamber 72 and flowing into the tubing 57. The obstruction of the opening 70 also prevents the dextrose from mixing with the blood in the container 51. The purpose for having the container 52 at an elevated height is to give the dextrose solution flowing against the ball 71 a greater head pressure than the blood which tends to flow through the opening 70. When all of the dextrose solution has passed from the container 52, the pressure of the blood will force the ball 71 away from the opening 70 and against the opening 68 thereby permitting the blood to flow into the tubing 57 and to the recipient. If the clamp 56 is closed, the same result occurs, but in addition, the presence of the ball 71 over the opening 68 obstructs that opening and

prevents the blood from mixing with the dextrose in the tubing 59.

A further embodiment of a valve generally indicated at 80 is illustrated in FIGURES 4 and 5 for use in flexible plastic container 81. A valve body 80' is of a generally cylindrical configuration with a truncated conical bottom portion. It is formed from high density polyethylene material. The valve body 80' has a top 82 with an opening 84 for communication with a closed, internal chamber 83 of the valve body 80'. A flexible flap 85 of the same material as the valve body 80' is secured to the inside of top 82 by means of projection 86 and is biased by the secondary liquid so as to normally be urged in a position to cover the bottom of the opening 84. A piercing cannula having a piercing end 87*a* secured to tubing 88 communicates with the chamber 83 of valve body 80' through an accommodating opening 89*a* in tapering side wall 89 formed by the truncated conical portion of valve body 80'. The cannula 87 frictionally engages the valve body 80'.

The valve body 80' is sealed in the container 81 and the container filled with the desired parenteral solution in the manner previously described for the other embodiments. As shown in FIGURE 4, the valve body 80' can be substituted in the device 50 for the valve body 54 in the container 52. In this form, the valve body 80' serves as a means of securing the cannula 87 in the container 81. The tubing 88, connected to cannula 87, leads to a hypodermic needle in the recipient.

The valve body 80' has a second opening 80*b* to receive a second piercing cannula 90 having a piercing end 90*a* which frictionally engages valve body 80'. With the second piercing cannula 90 connected to the tubing 91 and communicating with the interior of the valve body 80', as shown in FIGURE 5, the container 81 and the valve body 80' can be substituted for the valve body 55 in the container 51. In this case, the tubing 91 is connected to the container 52 in place of the tubing 59. When the container 81 contains isosalt and the tubing 91 is connected to a secondary source of parenteral solution such as dextrose, the dextrose solution will flow into valve body 80' through tubing 91. The head pressure will force the flap 85 against the opening 84 and thereby prevent isosalt from flowing into the chamber 83. The dextrose solution flows from the chamber 83 to the recipient through the tubing 88. If the flow from the tubing 91 is cut off, as by means of a tubing clamp, the liquid in the container 81 will force the flap 85 away from opening 84 and will flow out through tubing 88. In all other respects, the function of the container 81 and the valve body 80' is the same as that described generally for device 50.

In all instances, the delivery of parenteral liquid to the recipient is extremely slow, that is, the liquid flow through the sight chamber between the last container in the series and the needle is only a drop at atime. For example, in FIGURE 1, the tubing clamp 40 is adjusted so that the flow of liquid into the sight chamber 17 is seen as individual drops. Thus, the tubing clamp 40 so obstructs the tubing 14 that there is a back pressure in the interior of the valve body 12. Similarly, in the use of the embodiment of FIGURE 5, there is a back pressure in the chamber 83, because of the constriction provided by a tubing clamp on the like downstream therefrom, i.e., between the chamber 83 and the hypodermic needle.

FIGURE 6 illustrates a float type valve 101 which is composed of the same materials as the valve 80 of FIGURES 4 and 5, namely, a high density polyethylene plastic. It is fabricated and operated in the same manner. A container 100 encloses a hollow valve body 101*a* which defines a chamber 101*b* which is of a truncated conical configuration, having a tapered opening 102 defining a valve seat 102*a* in the center of the top 103 thereof. A float 104 is housed in the valve body 101*a* and has a guide 105 and a tapering plug member 106 for reception in the opening 102. The guide 105 is of sufficient length to maintain contact with the opening 102 at all times. Lateral, angular fins 108 are provided for the float member 104 and serve to allow liquid to flow about the float between the top and bottom of the chamber 101*b*. The fins 108 also serve as a limiting stop means to restrict the downward movement of the float. Liquid in the container 100 thereby flows through the opening 102, along the fins 108, through a cannula 110 and out the tubing 112. The cannula 110 having a piercing end 110*a* is inserted through the wall of the container 100 and into an opening 109 in valve body 101, in which the pin is frictionally engaged. The tubing 112 leads to a hypodermic needle inserted in the recipient. The valve body 101*a* has a third opening 113 therein. If two liquids, in two containers, are to be connected to a single hypodermic needle, a second cannula 114 having a piercing end 114*a* is inserted through the wall of container 100 and into opening 113 where the cannula 114 is frictionally engaged by the valve body 101*a*. A length of tubing 115 is connected to a second container corresponding to containers 15 or 52. If liquid is permitted to flow through the length of tubing 115 that liquid will fill the chamber 101*b* sufficiently full to raise the float 104 and seat the plug member 106 in the valve seat defined by the opening 102, thereby obstructing the flow of liquid from the container 100. The normal rate of flow to the recipient through the tubing 112 is so slow (as previously mentioned with respect to FIGURE 5), that there is no problem of the chamber 107 not filling. Of course, the second liquid from tubing 115 also will flow to the recipient through tubing 112. When the flow of liquid through the tubing 115 is obstructed, the float 104 again will descend and permit the liquid from the container 100 to flow to the tubing 112.

A substantially flat walled V-shaped valve body 120 is shown in FIGURE 8 in conjunction with container 121. Valve body 120 like the previously described valve body of FIGURE 5 is composed of a high density polyethylene material. A T-shaped passageway 122 is provided in valve body 120 with piercing pins 124 and 125 being frictionally engaged in the tubular arm portions 126 of passageway 122. Pins 124 and 125 are connected to lengths of flexible tubing 127 and 128, respectively. Container 121 with valve body 120 can be used in place of valve body 12 in container 11, or it can be used in conjunction with an elevated container as shown in device 50. Valve body 120 operates on the same principle as valve body 12. To illustrate, a secondary liquid flows in through tubing 127, through the tubular portion, between the pins into pin 125 and out through tubing 128. The primary liquid in container 121 tends to flow through the narrow passage 129 of passage 122 which is in open communication with the interior of container 121. However, because of the narrow thickness of passage 129 (as illustrated in FIGURE 9), the flow of the primary liquid is impeded. This frictional resistance when coupled with the head pressure of the secondary liquid passing through the arm portion 126 halts the flow of the primary liquid into either tubing 127 or 128. This frictional resistance in narrow passage 129 also prevents the secondary liquid from entering the primary liquid container 121. When the flow of secondary liquid from tubing 127 is stopped, the primary liquid from container 121 will flow through passage 129 and into tubing 128. Flow of secondary liquid from the tubing 127 may be stopped by a tubing clamp closing the tubing or by the emptying of the container holding the secondary liquid.

The plastic containers 11, 15, 51, 52, 81, 100 and 121 have been described as being composed of a polyethylene material. It should be understood that other plastic materials such as polypropylene, plasticized polyvinylchloride and polyvinylidene-chloride, commonly

known as Saran, could also be employed. As regards the valve body, in addition to high density polyethylene, any autoclavable plastic material could be employed, such as nylon and polypropylene. Likewise, piercing pins **26, 27, 66, 67, 87, 90, 110, 124** and **125** can be composed of any rigid material such as nylon, polyethylene and polypropylene. While the novel apparatus of the present invention has been shown for use with two liquid containers, it should be understood that three or more plastic solution bags could be interconnected in a series as suggested by FIGURE 1. By closing the tubing, (as by means of a tubing clamp **42**), just beyond the container holding the liquid to be delivered to the needle (e.g. **18**), the valve in that container will allow the liquid to flow from the container. The liquid flowing from that container through the valves of all containers downstream therefrom will prevent any liquid from flowing out of those downstream containers.

The term "parenteral liquid" has been used interchangeably herein with dextrose, isosalt solutions and blood. It should be understood that it is meant to include all the commonly known liquids which are fed by the intravenous route such as Aminosol®, Ringer's solution, the various isotonic solutions and the like.

It will be seen that applicant has provided a valving system for parenteral liquids which functions within the confines of a parenteral liquid container and can also be made integral with the container. When the valving mechanism is employed to adminster a primary and a secondary parenteral liquid, it can do so automatically without the supervision of an attendant. That is, if the secondary liquid permitted to flow, it will cut off flow of the primary liquid. Upon the emptying of the container holding the secondary liquid, the primary liquid flow will automatically be established. When it is desired to administer only a single liquid, the valving mechanism serves as a means of attaching a piercing pin for communication with the inside of a plastic solution bag. All of the valve bodies utilized in the present invention are molded from a plastic material and employ a minimum of parts. This results in a substantial cost savings and trouble free operation.

The terms "primary" and "secondary" have been used herein with respect to the liquids in the containers for identification purposes only and not as necessarily being indicative of the order of their importance or sequence of delivery to the recipient. These latter factors will be determined by the doctor, etc., supervising the administration of parenteral liquids to the recipient. In some instances, two or more containers each holding the same liquid would be connected together as previously described. In such case, the extra containers would act as a reserve supply for the container from which liquid was being delivered. When the latter container is emptied, the next container in the series automatically would commence delivering the liquid.

Others can readily adapt the invention for use under various conditions of service, by employing one or more of the novel features disclosed or equivalents thereof. As at present advised with respect to the scope of our invention, there is claimed the following subject matter.

What is claimed is:

1. A parenteral administration apparatus comprising a first source of parenteral fluid, a second source of parenteral fluid, a valve body located in said first source of parenteral fluid defining a flow chamber, a delivery member in communication with said chamber, conduit means intercommunicating said chamber and said second source of fluid, passage means intercommunicating said chamber and said first source of fluid and means in said chamber to block and unblock communication between said chamber and said first source of fluid responsive respectively to flow and cessation of flow from said second source of fluid to said chamber.

2. A parenteral administration apparatus comprising a first container containing a first parenteral fluid, a second container containing a second parenteral fluid, a valve body located in said first container defining a flow chamber, a delivery member, first conduit means intercommunicating said delivery member and said chamber, second conduit means intercommunicating said chamber and said second container, passage means intercommunicating said chamber and said first container and means operative to interrupt and permit communication between said chamber and said first container responsive respectively to fluid flow and cessation of flow from said second container to said chamber.

3. A parenteral administration apparatus comprising a first source of parenteral fluid, a second source of parenteral fluid, a hypodermic needle, a valve body located in said first source of parenteral fluid and defining a flow chamber, first conduit means intercommunicating said second source of parenteral fluid and said chamber, passage means intercommunicating said first source of parenteral fluid and said chamber, second conduit means intercommunicating said hypodermic needle and said chamber, and means in said chamber responsive to flow and cessation of flow from said second source of fluid to respectively block and unblock communication between said chamber and said first source of fluid.

4. A parenteral administration apparatus comprising a first plastic bag containing a first parenteral fluid, a second plastic bag containing a second parenteral fluid, a valve body located in said first plastic bag, a flow chamber defined by said valve body, a port defined by said valve body intercommunicating said chamber and said first fluid, first conduit means intercommunicating said chamber and said second plastic bag, a delivery member, second conduit means intercommunicating said chamber and said delivery member, and means in said chamber to respectively close and open said port responsive to flow and cessation of flow of said second parenteral fluid into said chamber.

5. A parenteral administration apparatus comprising a first flexible bag containing a first parenteral fluid, a second flexible bag containing a second parenteral fluid, a valve body located in said first bag, a flow chamber defined by said valve body, a first cannula extending through said first bag in communication with said chamber, delivery means, first conduit means intercommunicating said first cannula and said delivery means, a second cannula extending through said first bag in communication with said chamber, second conduit means intercommunicating said second cannula and said second bag, a port defined by said valve body communicating said chamber with said first fluid, and means located in said chamber to respectively block and unblock said port in response to flow and cessation of flow of said second parenteral fluid into said chamber.

6. Apparatus as claimed in claim 5 wherein said last-named means comprises a ball seatable over said port.

7. Apparatus as claimed in claim 5 wherein said last-named means comprises a flexible flap having a first end face attached to said valve body and a second end face seatable over said port.

8. Apparatus as set forth in claim 5 wherein said last-named means comprises a float member having a plug attached to said float and seatable over said port.

9. A parenteral administration apparatus comprising a first plastic bag containing a first parenteral fluid, a second plastic bag containing a second parenteral fluid, a valve body located in said first bag, a flow chamber defined by said valve body, a port defined by said valve body communicating said chamber with said first parenteral fluid, a pair of apertures defined by said valve body, a pair of cannulae, each of said cannulae extending through said first bag and respectively sealingly seated in one of said apertures in communication with said chamber, a first conduit intercommunicating said second bag and one of said cannulae, a deilvery member, a second

conduit intercommunicating said delivery member and the other of said cannulae, and means located in said chamber to respectively block and unblock said port in response to flow and cessation of flow of said second parenteral fluid into said chamber.

10. Apparatus as set forth in claim 9 wherein said port is located in the top of said valve body and wherein said last-named means comprises a flexible flap having a first end face secured to the valve body and a second end face seatable over said port.

11. Apparatus as set forth in claim 9 wherein said port is located in the top of said valve body and wherein said last-named means comprises a float member and a plug member overlying said float and seatable over said port.

12. A parenteral administration apparatus comprising a first plastic bag containing a first parenteral fluid, a second plastic bag containing a second parenteral fluid, a tubular valve body located in said first bag and having an upturned end portion, a flow chamber defined by said valve body, a pair of fitments attached to said valve body and communicating with said chamber, a pair of cannulae, each of said cannulae extending through said first bag and respectively sealingly seated in one of said fitments, a first conduit intercommunicating one of said cannulae and said second bag, a delivery member, a second conduit intercommunicating said delivery member and the other of said cannulae, a port defined by said upturned end portion of said valve body and a ball located in said chamber and adapted to seat over said port in response to flow of said second parenteral fluid into said chamber.

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