Feb. 2, 1960 M. R. HOLT 2,923,297

INTRAVENOUS SOLUTION BOTTLE ASSEMBLY

Filed Aug. 13, 1957

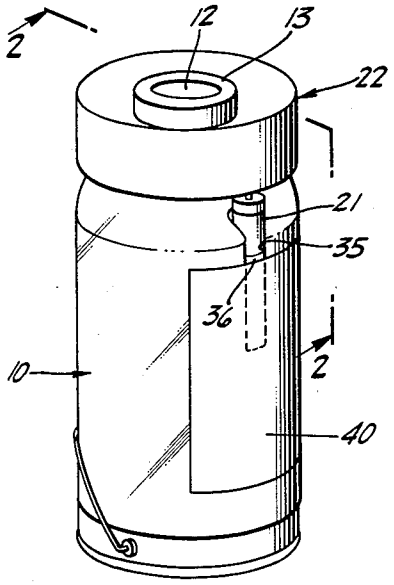


FIG. 1.

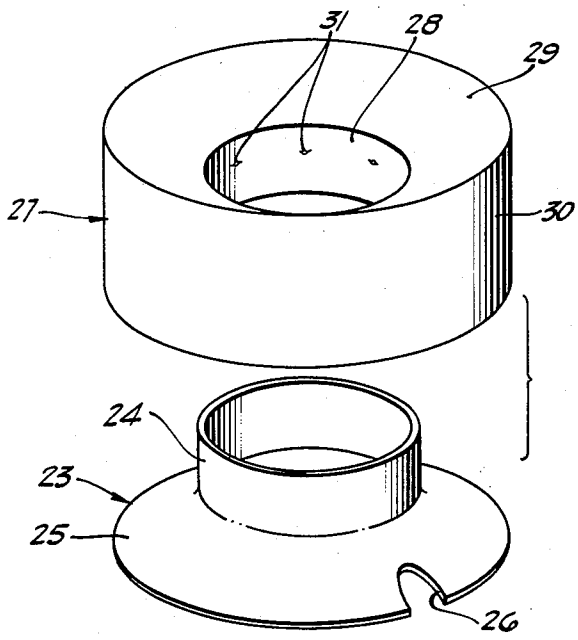


FIG. 3.

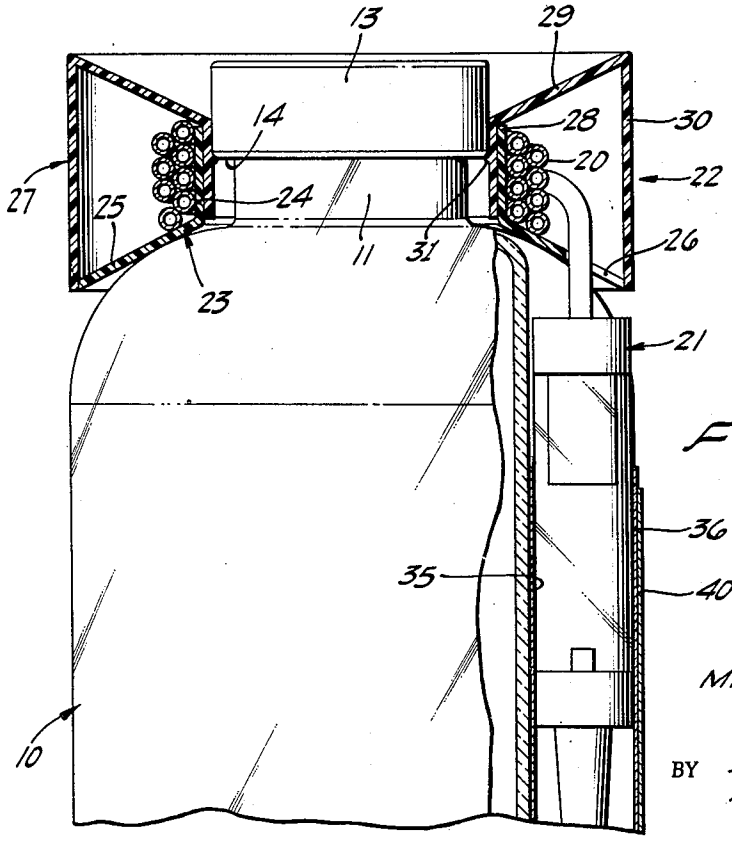


FIG. 2.

MILES R. HOLT
INVENTOR.

BY Lyon & Lyon

ATTORNEYS

United States Patent Office 2,923,297 Patented Feb. 2, 1960

2,923,297

INTRAVENOUS SOLUTION BOTTLE ASSEMBLY

Miles R. Holt, Glendale, Calif., assignor to Courtland Laboratories, Los Angeles, Calif., a corporation of California

Application August 13, 1957, Serial No. 677,871

9 Claims. (Cl. 128—272)

This invention relates to packages for sterile solutions and has particular reference to a novel combined intravenous solution bottle and administration set.

One of the principal objects of the present invention is to provide a novel intravenous solution bottle and administration set assembly for the storage and administration of solutions of the type which are to be injected intravenously, such as, for example, whole blood, plasma and the like.

In order that the administration of intravenous solutions can be most economically handled with the greatest assurance of safety, such solutions and the apparatus for administering the same should be packaged by the manufacturer in a manner so that the solutions and apparatus may be presented as a unitary assembly for immediate and convenient use. Attempts have heretofore been made to accomplish this end, but without complete success, due to any number of causes, the most usual one being improper design of the package or assembly. One of the primary objects of the present invention is to provide a novel intravenous solution storage bottle and administration set assembly wherein the administration set is conveniently and effectively maintained in assembled relation with the bottle or other intravenous solution container until ready for use.

Another object of the present invention is to provide a novel intravenous solution bottle and administration set assembly which is highly effective and yet which is adapted to be produced economically on a quantity basis.

Other objects and advantages of this invention it is believed will be readily apparent from the following detailed description of a preferred embodiment thereof, when read in connection with the accompanying drawings.

In the drawings:

Figure 1 is a perspective view of the device of the present invention.

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1.

Figure 3 is a perspective exploded view, on an enlarged scale, of the administration set container or housing member.

Referring now to the drawings, the assembly of the present invention includes a container **10**, such as a glass bottle, for storing the intravenous solutions. The bottle is provided with a neck **11** and a stopper **12** sealed in place by means of a ferrule element **13** of thin sheet metal such as aluminum which is crimped under the shoulder **14** formed on the bottle neck.

Container or housing means are provided for the administration set which includes a length of flexible tubing **20** connected at one end to a drip meter **21** having a sterile needle (not shown) adapted to be inserted through the stopper **12**. The other end of the tubing is provided with a sterile needle (not shown) adapted to be inserted into the vein of the recipient.

In the assembled relation shown, the tubing **20** is contained within a housing **22**, being wound about a spool

element **23** comprising a cylindrical central portion **24** and a flange or skirt portion **25** provided with a recess or cut-out portion **26** through which the rubber tubing projects. The housing also includes a cover element **27** comprising a central cylindrical member **28** received within the cylindrical portion **24** in friction fit relationship therewith, a flange or skirt portion **29** and an outer cylindrical member **30** contacting the outer rim of the skirt portion **25**. The housing is preferably formed of a semi-rigid or resilient plastic material such as polyethylene, and fits snugly over the neck of the bottle as shown. Preferably, the inner surface of the cylindrical member **28** is provided with a plurality of spaced raised portions **31** adapted to engage under the shoulder **14** to prevent accidental disassembly of the housing from the bottle.

As shown in the drawings, the drip meter **21** is positioned exteriorly of the housing, being nested in a groove **35** formed integrally in the wall of the bottle **10**, the groove extending from the neck partially down the bottle side wall. Preferably, a paper or cardboard tube **36** encircles the drip meter **21** and the conventional adhesive-backed label **40** extends across that part of the groove in which the tube **36** is seated, but without contacting the drip meter **21**. Thus, the drip meter is securely held in assembled relation with the bottle, but may be readily removed therefrom.

From the above description it will be understood that a novel intravenous bottle and administration set has been provided. In use, the housing and contents, and the drip meter, are easily removed from the bottle. The cover element **27** is readily removed from the spool element **23** and the tubing **20** unwound for immedaite use.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details set forth, but my invention is of the full scope of the appended claims.

I claim:

1. A combined intravenous solution container and administration set comprising a container having a side wall and a neck, means forming a groove integral with the side wall of the bottle, a housing having a central cylindrical opening, said housing fitting closely over the neck of the bottle, a length of flexible tubing contained in said housing, one end of the tubing extending exteriorly from said housing, and a cylindrical drip meter connected to said exterior end of the tubing, said drip meter being seated in said groove.

2. A combined intravenous solution container and administration set comprising a container having a side wall and a neck, means forming a groove integral with the side wall of the bottle, a housing having a central cylindrical opening, said housing fitting closely over the neck of the bottle, a length of flexible tubing contained in said housing, one end of the tubing extending exteriorly from said housing, a cylindrical drip meter connected to said exterior end of the tubing, a tubular member in said groove, said drip meter being seated in said tubular member, and adhesive means retaining said tubular member in said groove.

3. A combined intravenous solution container and administration set comprising a container having a side wall and a neck, means forming a groove integral with the side wall of the bottle, an annular resilient housing having a central cylindrical opening, said housing fitting closely over the neck of the bottle, a length of flexible tubing contained in said housing, one end of the tubing extending exteriorly from said housing, a cylindrical drip meter connected to said exterior end of the tubing, said drip meter being seated in said groove.

4. A combined intravenous solution container and administration set comprising a container having a side wall and a neck, means forming a groove integral with the side

wall of the bottle, an annular resilient housing having a central cylindrical opening, said housing fitting closely over the neck of the bottle, a length of flexible tubing contained in said housing, one end of the tubing extending exteriorly from said housing, a cylindrical drip meter connected to said exterior end of the tubing, a tubular member in said groove, said drip meter being seated in said tubular member, and adhesive means retaining said tubular member in said groove.

5. The combination of claim 1, wherein the housing comprises a spool element having a central cylindrical portion and a skirt member, and a cap member including a central cylindrical member containing said cylindrical portion in friction fit relationship therewith.

6. The combination of claim 2, wherein the housing comprises a spool element having a central cylindrical portion and a skirt member, and a cap member including a central cylindrical member contacting said cylindrical portion in friction fit relationship therewith.

7. The combination of claim 4, wherein the housing comprises a spool element having a central cylindrical portion and a skirt member, and a cap member including a central cylindrical member contacting said cylindrical portion in friction fit relationship therewith.

8. A combined intravenous solution container and administration set comprising a container having a side wall and a neck, a housing having a central cylindrical opening, said housing fitting closely over the neck of the bottle, a length of flexible tubing contained in said housing, one end of the tubing extending exteriorally from said housing a cylindrical drip meter connected to said exterior end of the tubing, and means for attaching said drip meter to said bottle.

9. The combination of claim 8, wherein the housing comprises a spool element having a central cylindrical portion and a skirt member, and a cap member including a central cylindrical member containing said cylindrical portion in friction fit relationship therewith.

References Cited in the file of this patent

UNITED STATES PATENTS

1,498,055	Martin	June 17, 1924
2,259,276	Swabacker	Oct. 14, 1941
2,780,225	Barr et al.	Feb. 5, 1957

FOREIGN PATENTS

672,138	Germany	Feb. 20, 1939