

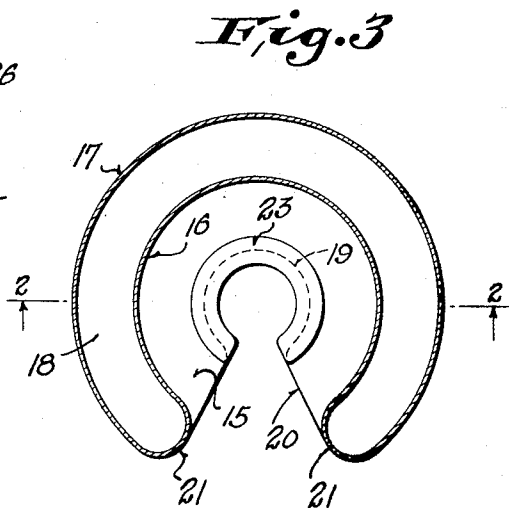
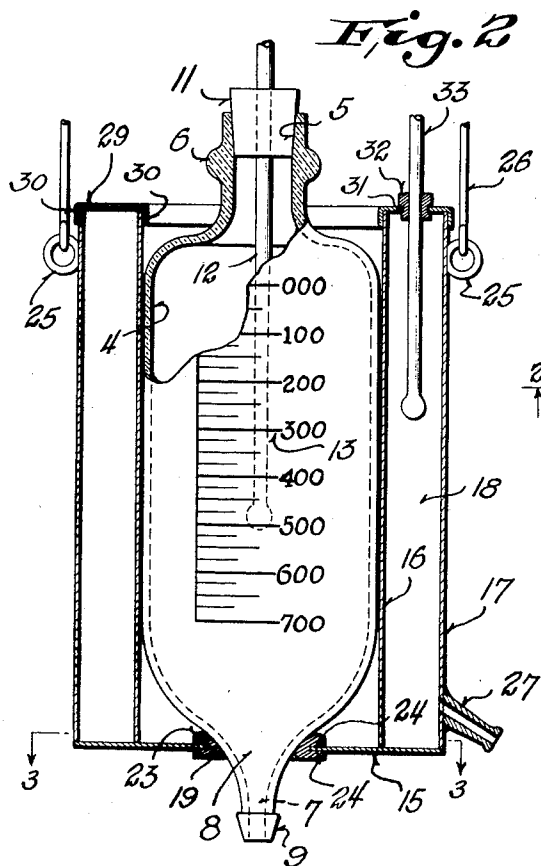
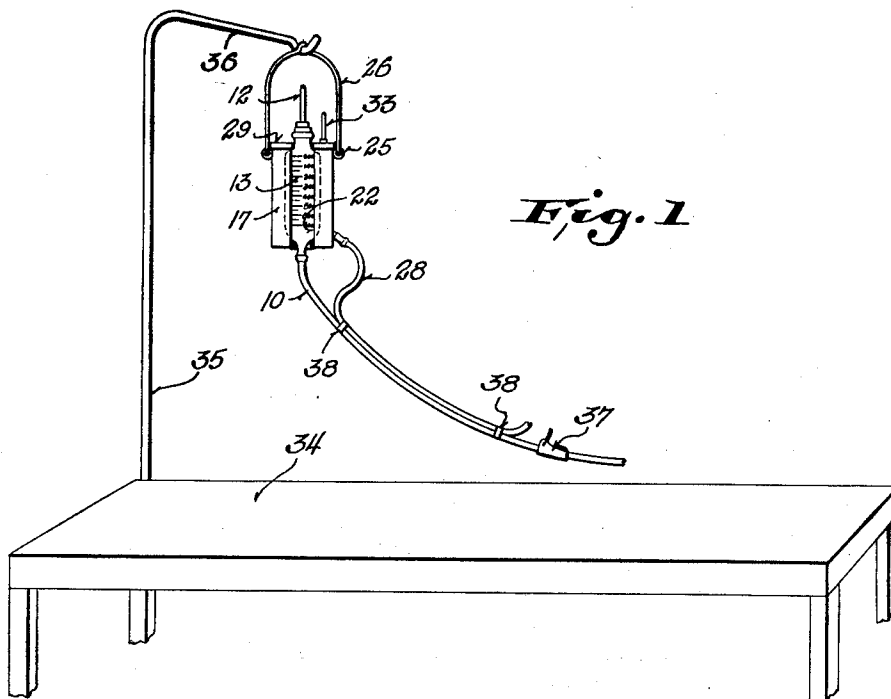
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INFUSION APPARATUS

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INFUSION APPARATUS

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4 Claims. (Cl. 128—272)

The invention relates to medical equipment and more particularly to apparatus for giving infusions.

In the giving of infusions a container is used 5 having a filling opening at the top and a discharge opening at the bottom and the container which is generally used for this purpose is known in the medical profession as a Kelly flask. Such 10 containers may be used for infusions of all solutions given intravenously such as blood, acacia, glucose and also saline solutions, all solutions given subcutaneously such as glucose and saline 15 solutions; all solutions given by rectum and all solutions for which the infusion bottle is used. These infusions may be made at the bedside of 20 the patient or in the operating room and it has always been a problem to support the infusion bottle or flask for use and to carry the same from the place where it is charged or filled to its place 25 of use and as the bottles are generally made of glass, the breakage has been high and these bottles are expensive. Also under practically all 30 conditions under which the infusion bottle is used it is necessary to either heat or cool the solution to a certain temperature for use and to keep it 35 at the desired temperature during the infusion treatment. The object of the present invention is to provide a device for receiving the infusion bottle so that it may be readily carried and supported for use and also to provide a means for 40 receiving a temperature controlling medium for heating or cooling the contents of the bottle.

A further object of the invention is to provide a device for supporting the infusion bottle so constructed that the volume scale on the bottle is 35 readily visible while the apparatus is in use and also so that the bottle with its discharge tubing may be readily removed from the device without 40 disconnecting the tubing from the bottle.

A further object of the invention is to provide 45 an infusion apparatus wherein both the contents of the infusion bottle and the tubing conveying the solution from the bottle to the patient may be heated or cooled.

The invention further consists in the several 45 features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawing; Fig. 1 is a side elevation view of an apparatus embodying the invention showing 50 it arranged for administering an infusion;

Fig. 2 is a vertical sectional view through the apparatus taken on the line 2—2 of Fig. 3;

Fig. 3 is a detail sectional view taken on the 55 line 3—3 of Fig. 2.

Referring to the drawing, the numeral 4 design-

ates the infusion bottle or flask having an inlet opening 5 passing through the neck at 6 at one end and an outlet 7, at its conically tapered end 8, provided with a head 9 for connection to the flexible tubing 10, usually rubber, by which the 60 solution in the bottle is conveyed to the patient. The filling opening 5 is here shown as closed by a rubber stopper 11 through which a thermometer 12 extends for the purpose of ascertaining the 65 temperature of the contents of the infusion bottle and a volume scale 13 is etched or otherwise formed on the outer surface of the bottle.

The device embodying the invention comprises a portable support for the bottle and means for 70 receiving a temperature controlling medium to heat or cool the contents of the bottle 4. In its preferred form this device comprises a container for the bottle including a bottom portion 15, inner 75 side walls 16 and outer side wall 17 joined to the bottom in a fluid tight manner, said walls being spaced apart to form a jacket space 18 to receive 80 a medium such as hot water, ice or other suitable heating or cooling medium for controlling the temperature of the contents of the bottle. The 85 walls of this container are made of metal whose exposed surfaces are provided with a suitable enamel or other readily cleanable or sanitary coating.

The bottom portion 15 has a centrally disposed opening 19 through which the outlet end portion 85 8 of the bottle extends and is provided with a slot 20 flaring radially outwardly from said opening and the jacket space 18 formed by the walls 16 and 18 terminates at the edges of this slot as 90 noted by the curved wall portions 21 thus providing a lengthwise extending opening 22 of such a width that that portion of the bottle having the scale 13 thereon is readily visible. Furthermore 95 the slot thus formed also permits the bottle to be removed from its support while the tube 10 is connected thereto and this is of decided advantage as the interior of the tubing has to be in a sterile condition and its removal from the bottle would 100 interfere with this condition.

The infusion bottles are usually cylindrical in 100 cross section and the diameter of the inner wall 16 is such as to receive the bottle within it and be somewhat larger than the bottle but at the same time maintain the bottle in a substantially 105 upright position.

To prevent any possible injury to the bottle 110 through a jarring contact with the bottom of the support, a cushion 23 of rubber or other suitable cushioning material is provided and is here shown in the form of a channel-shaped ring member

surrounding the opening 19 and open at the slot 20 with the flanges 24 thereof engaging the sides of said bottom portion 15 adjacent said opening.

For readily carrying the device with the bottle 5 therein and for suspending it from a suitable support I have provided bail ears 25 secured to the outer wall 17 and connected with a bail 26.

The outer wall 17 is also provided with a discharge spout 27 constructed for connection with 10 a rubber tube 28 so that a constant flow of the temperature controlling medium may be maintained through the jacket space 18 if desired.

A cover 29 may also be provided to cover over the open end of the jacket space and provided 15 with either inner or outer flanges 30 to engage the side wall or walls and be provided with an opening 31 having a rubber washer 32 mounted therein to receive a thermometer 33 to register the temperature of the medium within the jacket. 20 This cover may be formed as shown in Fig. 1 to terminate at the curved walls 21 or it may extend across the upper end of the slot formed in the side walls as it is a simple matter to remove this cover in case it is desired to remove the bottle 25 from the support while the tubing 10 is connected thereto.

As an illustration of one way in which the apparatus embodying the invention is set up in making an infusion treatment, I have shown in 30 Fig. 1 an operating table 34, a stand 35, with which operating rooms are provided, having a laterally extending arm 36 from which the device embodying the invention is readily suspended by the mounting of the bail 26 on said arm 35 whereby the infusion bottle is supported above the patient on the operating table so as to provide the desired gravity head for the flow of the infusion solution from the bottle through the tubing 10 to the patient, the tubing having the usual 40 shut off clamping device 37 to control the flow of solution to the patient and a similar device may also be used on the tubing 28 to control or shut off the flow of the heating or cooling medium through said tubing.

With the above arrangement the bottle and 45 tubing may be sterilized and prepared for use outside the operating room and then placed in the device embodying the invention and carried to the operating room and suspended in operative position and the temperature of the solution may then 50 be brought to the desired amount through the action of the medium introduced within the jack-

et space 18 and during the treatment the amount of solution being delivered is at all times visible to the doctor or nurse. Furthermore, if desired, the tubing 28 may be brought into close association with the discharge tubing 10 as by connecting the same at spaced points thereto as by means of adhesive tape 38 or other suitable fastening means so that the temperature controlling medium in the jacket space may be also used to 80 heat or cool the discharge tubing 10. 85

I desire it to be understood that this invention is not to be limited to any particular form or arrangement of parts except in so far as such limitations are included in the claims.

What I claim as my invention is:

1. A portable support for infusion bottles comprising a container having side walls and a bottom providing a support for the bottle and a jacket space for receiving a temperature controlling medium for the contents of the bottle, said bottom having an opening and said side walls having an opening aligned with and intersecting said bottom opening to permit the ready removal of said bottle while its discharge tubing is attached thereto. 90 95 100

2. A portable support for infusion bottles comprising a container having a jacket space formed therein partially surrounding the bottle and open at one side to expose a portion of the bottle to view and having a bottom portion apertured to receive the discharge end of the bottle and slotted from said opening in alignment with said open side. 105

3. A support for infusion bottles comprising a container having a jacket space formed therein partially surrounding the bottle and open at one side to expose a portion of the bottle to view and having a bottom portion apertured to receive the discharge end of the bottle from said opening with said open side, a carrying bail for said container, and a drain passage for said jacket space. 110 115

4. A portable support for infusion bottles comprising a container having an annular wall portion to receive a temperature controlling medium with an opening extending along one side and having means to support an infusion bottle centrally within said annular wall portion with its discharge tubing depending from the bottle, said means having a passage communicating with the side opening in said container to permit the removal of said bottle and its tubing without detaching its tubing. 120 125

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