

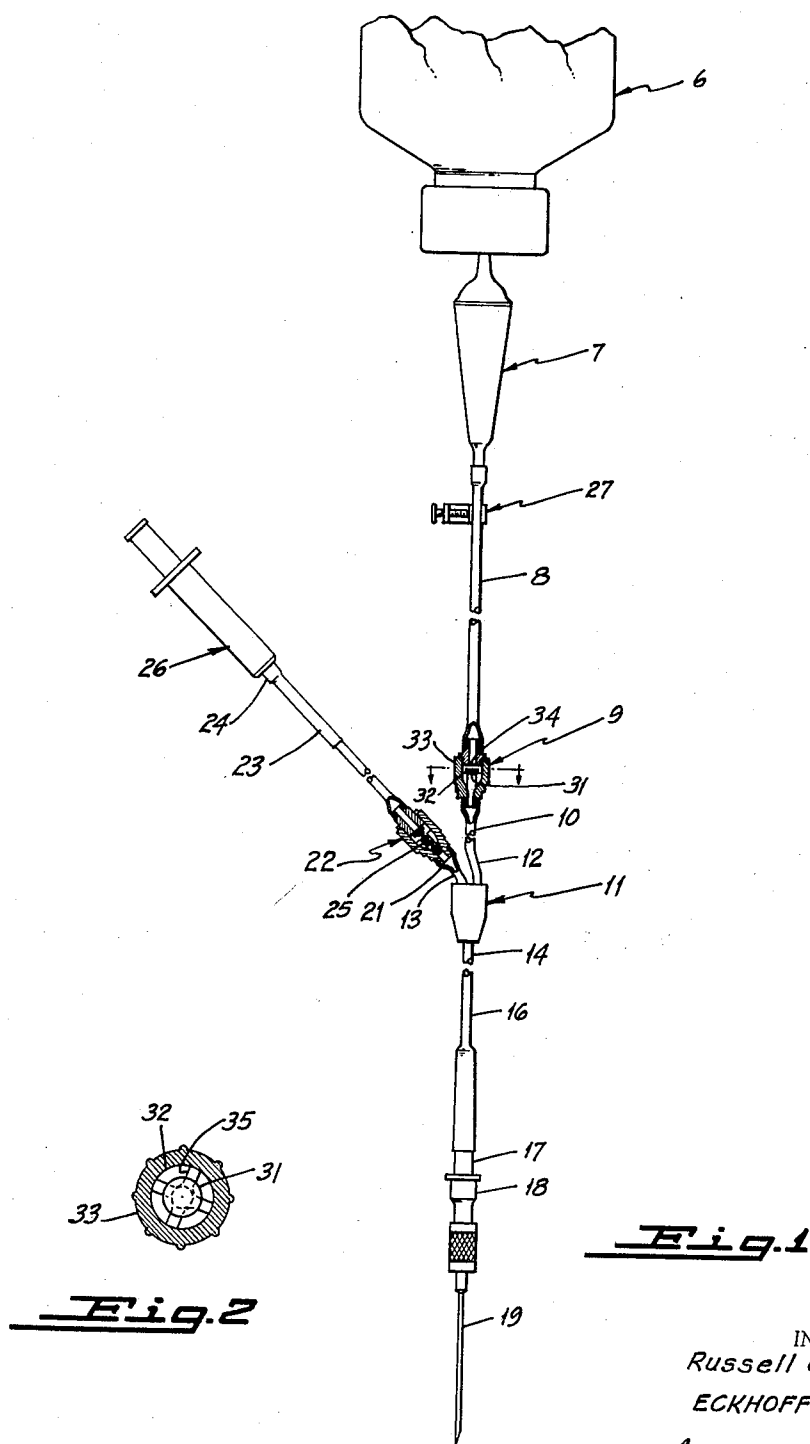
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APPARATUS FOR ADMINISTRATION OF PARENTERAL FLUIDS

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APPARATUS FOR ADMINISTRATION OF  
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2 Claims. (Cl. 128—214)

This invention relates to the administration of par-  
enteral fluids.

It has been usual heretofore to include in the appara-  
tus employed in the administration of parenteral fluids  
suitable clamps or a multiple-way stopcock to permit of  
the administration of two or more fluids. For example,  
it is sometimes desirable to administer an anesthetic or  
other supplementary medication during the course of  
administration of a parenteral fluid. It will be obvious  
that a flow-controlling device such as a multiple-way  
stopcock must include a relatively complicated fluid pas-  
sage system and is therefore expensive to manufacture  
and, additionally, is difficult to clean and sterilize.  
Further, the operation of such a flow control device is  
relatively involved and unless the person handling the ad-  
ministration is quited skilled, more than one operator is  
usually required.

The present invention provides a simple apparatus  
assembly enabling supplemental medication to be added  
to an existing intravenous administration set-up. This  
apparatus is extremely simple and positive in its opera-  
tion. With previous set-ups, the time lost in opening  
and closing of valves, shut off clamps and the like could  
be quite lengthy and frequently, in surgery, the time lost  
in such procedures is critical. In addition, a slight mal-  
adjustment can result in a loss of the fluid level in the  
drip chamber which is utilized to control the rate of flow  
of the parenteral fluid. All of difficulties and objections  
are overcome with the apparatus of the present invention.

It is in general the broad object of the present inven-  
tion to provide a novel, simple and improved apparatus  
for the administration of parenteral fluids.

The invention includes other objects and features of  
advantage, some of which, together with the foregoing,  
will appear hereinafter wherein the present preferred  
form of administration apparatus is disclosed. In the  
drawing accompanying and forming a part hereof, Figure  
1 is a side view, partly in section, showing an apparatus  
assembly embodying the present invention.

Figure 2 is a section taken along the line 2—2 in Fig-  
ure 1, showing the construction of the check valve.

Referring to the drawing, I have indicated at 6 a con-  
tainer for a suitable parenteral fluid, the latter being  
closed with a puncturable stopper, as is well-known in  
the art. A flow meter or drip meter, generally indicated  
at 7, is inserted through the stopper in the container 6  
and provides a means for observing the rate of the flow  
of fluid from the container 6. A length of tubing 8 con-  
nects the outlet end of the drip meter to a check valve,  
generally indicated at 9. The other end of the check  
valve is connected by tubing 10 to a Y-connection, gen-  
erally indicated at 11. The Y-connection includes a first  
inlet leg or passage 12, a second inlet leg or passage 13,  
and an outlet leg or passage 14, the latter being con-  
nected by a length of tubing 16 to an adapter 17, the lat-  
ter being fitted within the hub 18 of a needle 19.

The second leg 13 is connected by a short length of  
tubing 21 to a second check valve, generally indicated

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at 22. The second check valve has an inlet 23 into  
which, for example, supplementary medication is intro-  
duced as by a syringe 26, the end 24 of the syringe being  
shown in tight frictional engagement with the inlet 23.

5 In use, the flow of fluid from container 6 is regulated  
by a screw clamp, generally indicated at 27. Unless it is  
desired to administer a supplementary fluid, the inlet 23  
on the second check valve 22 is closed as by a sterile  
cover. If it is desired during the course of the adminis-  
10 tration of the parenteral fluid from container 6 to ad-  
minister a supplementary fluid, for example, an anesthetic  
medication such as sodium pentothal, it is only necessary  
to uncover the inlet 23, insert the end 24 of syringe 26  
and inject the supplementary medication into the fluid  
15 system. The injected material cannot pass check valve 9  
nor can the fluid in the system pass the check valve 22.  
Thus, the two portions of the system are isolated, one  
from the other, by the two check valves, yet the supple-  
mentary material can be injected into the fluid system  
20 and to the patient. In place of a syringe, any other fluid  
feeding means can be employed.

As suitable check valves, any device well-known in the  
art can be utilized and one can use a ball-check or a flap  
check valve, as desired. That depicted is one which is  
25 well-known and which includes a disc 31 supported on  
several lugs 35 in spaced relation to the sidewalls 32 of  
check valve body 33 to permit free fluid flow in one direc-  
tion. The disc is also spaced closely adjacent to the end  
of check valve inlet 34. If fluid flow reversal occurs, the  
30 disc is moved slightly upwardly to cover the end of the  
inlet 34 and so prevent the back-flow of fluid.

If the inlet end 23 of the second check valve 22 is ex-  
posed and if the length of tubing between the Y-connec-  
tor 11 and needle 19 is unduly long, it is possible, under  
35 some circumstances, to aspirate air into the system. This  
can be avoided in either of two ways. Preferably, the  
overall length of tubing between the end of the needle  
19 and the Y-connection is made relatively short so that  
the flow of fluid is incapable of aspirating air into the  
40 system past the check valve 22. If it is desired to pro-  
vide a more positive check, check valve 22 can be main-  
tained in closed position as by application of pressure  
from spring 25 so that it is only moved out of sealing  
position upon application of a positive external fluid  
45 force.

From the foregoing, I believe it will be apparent that  
I have provided a novel, simple, and improved apparatus  
for the administration of parenteral fluids and particularly  
for the administration of supplementary medication.

I claim:

50 1. In a parenteral fluid administration set, a fluid con-  
tainer having an outlet, a drip meter connected to said  
outlet, a first check valve, a first fluid conduit connected  
first check valve, a Y-connection having a first and second  
55 inlet conduit and a common third outlet conduit, conduit  
means connecting the first check valve and the first inlet  
conduit, a second check valve connected to the second  
inlet conduit and having a movable valve member therein  
normally maintained in closed position and movable  
60 under positive fluid force application to permit fluid flow  
therethrough into the second inlet conduit and thence to  
the third outlet conduit.

2. In a parenteral fluid administration set, a fluid con-  
65 tainer having an outlet, a drip meter connected to said  
outlet, a first check valve, a first fluid conduit connected  
at one end to said drip meter and at its other end to said  
first check valve, a Y-connection having a first and second  
inlet conduit and a common third outlet conduit, conduit  
70 means connecting the first check valve and the first inlet  
conduit, a second check valve connected to the second  
inlet conduit and having a movable valve member therein

normally maintained in closed position and movable under positive fluid force application to permit fluid flow therethrough into the second inlet conduit and thence to the third outlet conduit, the second check valve being adapted for connection to a hypodermic syringe whereby a liquid can be forced preferentially to the third outlet conduit.

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