

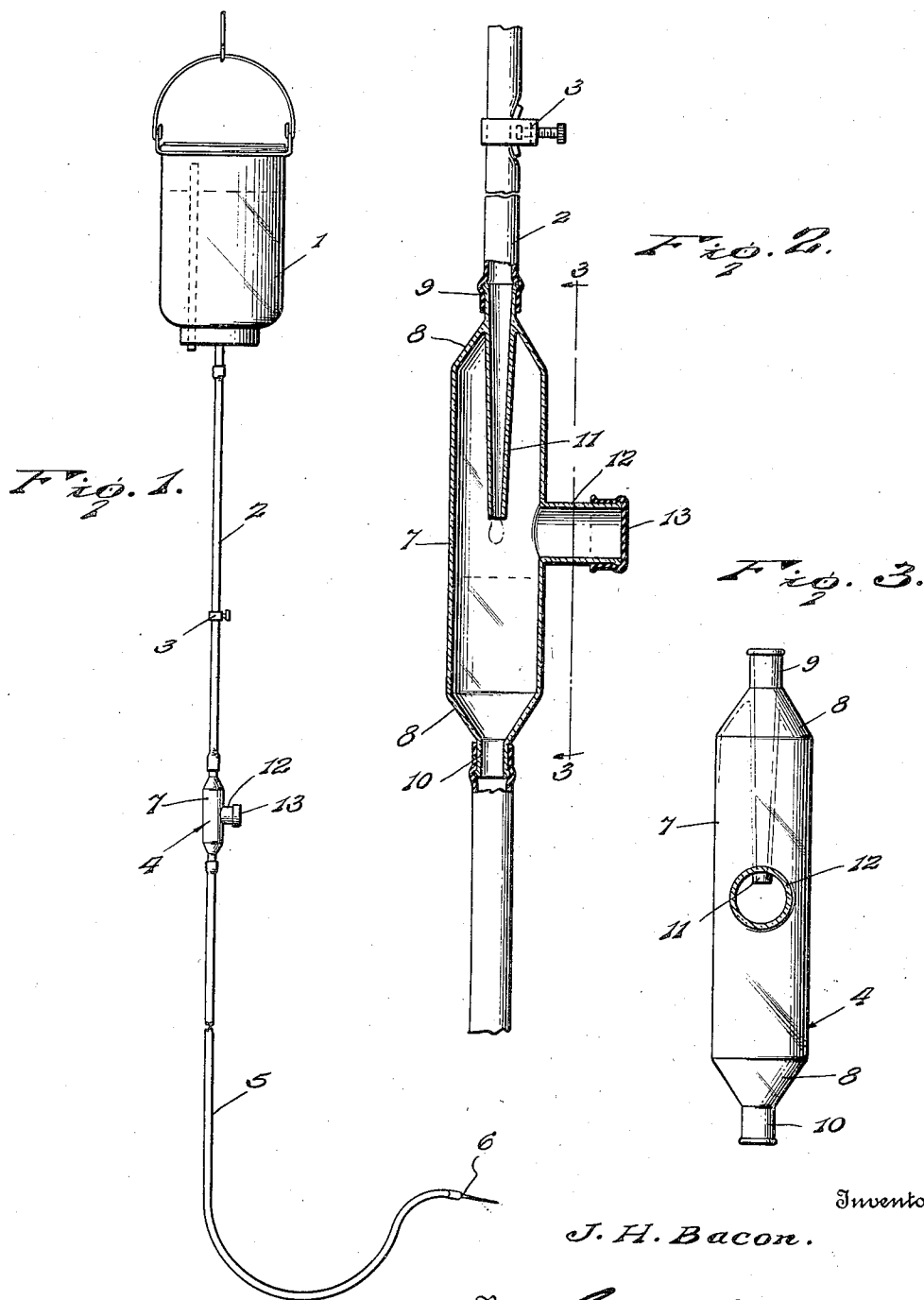
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SURGICAL APPLIANCE

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SURGICAL APPLIANCE

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3 Claims. (Cl. 128—214)

This invention relates to an improved surgical appliance.

It is well known by the medical profession that when a patient is in a very serious condition it is sometimes not possible to feed the patient either rectally or orally. When this condition exists, it is necessary, in order to sustain life, to introduce food directly into the blood stream by means of intravenous injection, or by subcutaneous or intraperitoneal injections, of which methods the intravenous injection permits the use of fluids in largest quantity and with the greatest food value. However, as this process is quite arduous and may consume a considerable period of time, it quite frequently happens that a patient will show signs of collapse before the treatment is completed. It is sometimes necessary to inject adrenalin or a drug in order to stimulate the patient. In the past it has been necessary to inject this stimulant by independent means, requiring an extra puncture of the skin, during which the patient will often jump or jerk and possibly dislocate the intravenous needle, thus requiring its withdrawal, with the result that the food injection operation has to be discontinued during the injection of the stimulant and often said food injection operation may not again be started for a considerable length of time, due to the fact that there is frequently no other vein in the patient's anatomy which may be used without first cutting through superincumbent tissues to reach the vein itself. The patient may be in great danger of demise during this intervening period.

While the above exposition of the objects of my invention has been confined to the specific example of feeding by intravenous injection, it should be understood that identical properties and advantages are contained in the use of such invention in accomplishing anesthesia and blood transfusion by means of intravenous injections.

One object of my improved invention, therefore, is to provide a surgical appliance the use of which will permit the injection of a stimulant without interruption of the main, or intravenous, injection.

Another object of the invention is to provide a surgical appliance which will maintain the sterility of the injected fluids while permitting injection of additional liquids into the blood stream without additional puncturing of the flesh of the patient and without possibility of air entering the blood stream.

A further object of the invention is to provide a device of this character which will be charac-

terized by the utmost simplicity so that it may be easily cleaned and readily placed in use.

Other and incidental objects of the invention, not specifically mentioned hereinabove, will render themselves apparent as the description of the invention proceeds.

In the drawing forming a part of my application:

Figure 1 is a plan view of my improved surgical appliance showing it properly installed on a syringe or fountain.

Figure 2 is an enlarged vertical sectional view of my device.

Figure 3 is an enlarged vertical sectional view on the line 3—3 of Figure 2, looking in the direction indicated by the arrows.

Referring now more particularly to the accompanying drawing, wherein like numerals of reference designate similar parts throughout the various views, the numeral 1 indicates the container of an irrigator or fountain supply. A collapsible, sterilizable tube 2, preferably of rubber, leads from the container 1 and the fluid flow through said tube 2 is controlled by a suitable clamp or stop valve 3. The container 1 may be formed of any suitable material and the stop 3 may be of any conventional construction so long as perfect control of liquid flow from the container is assured.

My improved surgical appliance is shown in general at 4 while a flexible tube 5 connects said appliance with a conventional hypodermic needle 6 which is, of course, adapted to be applied to the patient.

The appliance 4 comprises a preferably glass casing 7 which is tubular in shape and is tapered at each end, as shown at 8, to define nipples 9 and 10. The nipple 9 is adapted to receive thereon the lower end portion of the tube 2 for permitting effectual connection between the container of the fountain and said appliance. As best seen in Figure 2 of the drawing, the nipple 9 is projected axially downwardly within the casing and is tapered toward its lower end to define a dropper tube 11 which is adapted to extend throughout substantially half the length of the casing. The dropper tube is adapted to receive liquid flow therethrough from the container 1 through the tube 2 and said dropper tube is intended to make it possible to visually measure said liquid flow through the casing so that liquid will enter the hypodermic needle, through the tube 5, at a constant and known rate.

Formed on the outer wall of the casing 7 and extending laterally therefrom at a point sub-

stantially medially of the length of said casing is an inlet tube 12, preferably circular in shape. The tube 12, of course, communicates with the interior of the casing 7 and a cap, or plug, 13 is adapted normally to close the outer end of the tube so that air will be prevented from entering the casing through said tube. The cap 13 is preferably formed of rubber or some other material which may be sterilized with the remainder of the device, or separately, and which is resilient so that an opening made therethrough by an hypodermic needle will close immediately upon its withdrawal, thereby insuring an hermetic seal at all times. The cap is adapted to be punctured by an hypodermic needle in a manner to be presently described.

In use, when it is desired to feed a patient, or to accomplish anesthesia or blood transfusion, either autogenous or heterogeneous, in conjunction with feeding, by means of intravenous injection, the fountain container 1 is first filled with the liquid to be injected. The liquid will flow through the tube 2 into the casing 7 of my improved surgical appliance 4, when the valve 3 is open. As explained, the dropper tube 11 will make it possible to accurately measure the flow of liquid so that flow through the casing will be in small amounts and can be controlled to a nicety by regulation of the valve 3. The liquid will flow through the tube 5 and into the hypodermic needle 6 and thence into the vein of the patient after proper insertion of the needle has been effected. It will be understood, therefore, that a feeding operation may thus be effectually carried on.

In the event that the feeding operation becomes too arduous for the strength of the patient and he begins to show signs of collapse, or it is desired to combine blood or an anesthetic with the food or other fluid, it is only necessary to insert an hypodermic needle through the rubber cap 13 into the inlet tube 12. The stimulant, blood, or anesthetic is allowed to flow from the needle into the inlet tube and casing, through the tube 5 into the hypodermic needle 6. It will be understood that by the use of the inlet tube 12 and cap 13, the supplemental injection may be made without the necessity of making further insertions of the needle into the patient and without the need of interrupting the food feeding or fluid injection. It will be seen, therefore, that

by the use of my improved surgical appliance, much time may be saved in intravenous injection operations so that strain on the patient undergoing such an operation will be materially reduced. Also, such injections may be made quickly and efficiently without disturbing the patient unduly, and it will be possible to avoid the puncture of more than one vein per injection which is especially valuable where only one vein is readily available in the patient for such injection.

My improved appliance may be easily and quickly cleaned and may be manufactured with ease.

Having thus described the invention, what I claim is:

1. In a device of the class described, a casing having oppositely tapered ends terminating in nipples, means connecting said casing with a source of liquid supply, means connecting the other of said nipples with an hypodermic needle, a dropper tube extending axially within the casing and adapted for measuring liquid flow through said casing, an inlet tube formed on the casing and communicating therewith, and a resilient puncturable cap normally closing the inlet tube, said cap being adapted to be punctured by puncturing means for permitting injection of a substance from said means into said casing for flow to the hypodermic needle.

2. In a surgical appliance, a casing having openings permitting fluid flow therethrough, said casing having an additional opening, and puncturable means adapted normally to close the additional opening and permitting the insertion of a needle for feeding a substance to the interior of the casing, said puncturable means being adapted to close the opening made by said needle when said needle is withdrawn.

3. In a surgical appliance, a casing having openings permitting fluid flow therethrough, said casing having an additional opening, and a flexible diaphragm adapted normally to close the additional opening and adapted to be punctured by a needle for permitting insertion of the substance to the interior of the casing, the material of said diaphragm being adapted automatically to close the opening made by the needle when the needle is withdrawn.

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