Sept. 26, 1939. J. E. TRAFFORD 2,174,295

SUCTION APPARATUS FOR SURGICAL USE

Original Filed Jan. 27, 1936

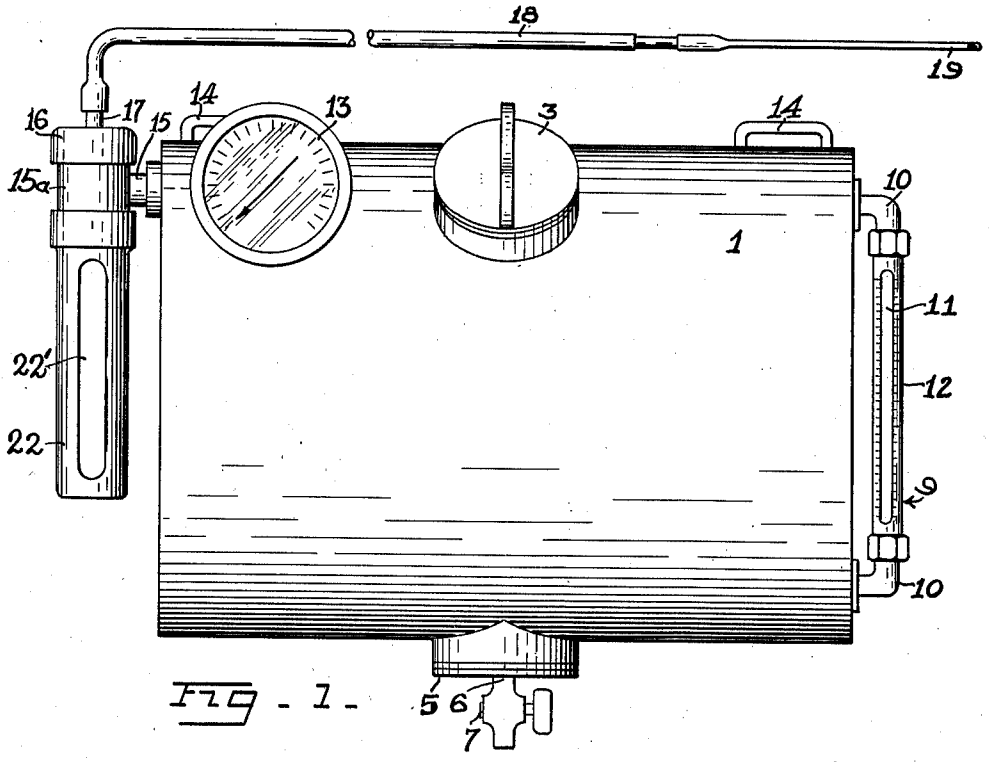



Fig. 1.

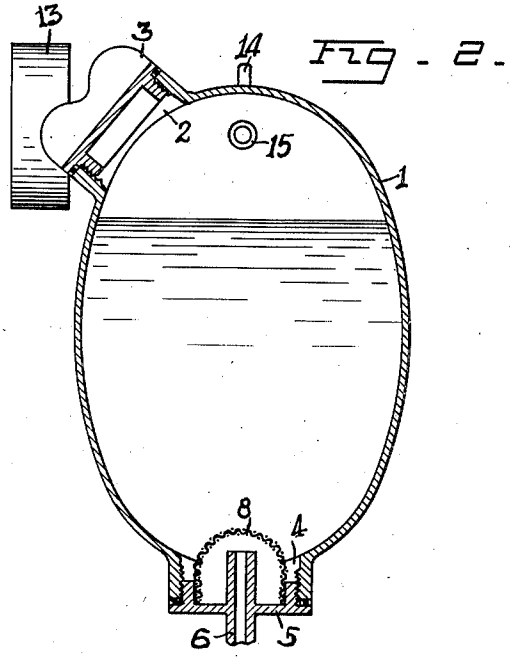



Fig. 2.

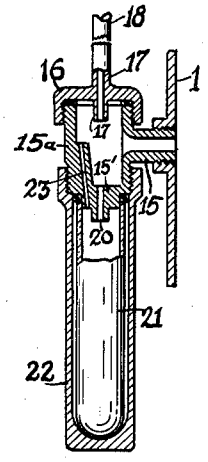



Fig. 3.

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## SUCTION APPARATUS FOR SURGICAL USE

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Application January 27, 1936, Serial No. 61,038
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2 Claims. (Cl. 128—350)

This invention relates to improvements in medical apparatus for use in withdrawing fluids from organs of the body.

An object of my invention is to provide improved apparatus for use with catheters or other similar instruments, which functions uninterruptedly and without attention, in withdrawing fluids from a particular cavity or organ in a person's body.

Another object of my invention is to provide improved medical apparatus for draining fluids from the bladder or other organs before and after a surgical operation has been performed, which embodies means for supplying a specimen of the withdrawn fluid.

A further object of my invention is to provide improved apparatus of the kind characterized, embodying novel means for indicating and regulating the vacuum pressure therein.

Other and further objects of the present invention will be pointed out hereinafter, indicated in the appended claims, or obvious to one skilled in the art upon an understanding of the present disclosure. For the purposes of this application I have elected to show herein certain forms and details of medical apparatus representative of my invention; it is understood, however, that these are presented here for purposes of illustration only, and that therefore they are not to be regarded as exhaustive of the variations of the invention, nor are they to be given any interpretation such as might have the effect of limiting the claims, short of the true and most comprehensive scope of the invention in the art.

In the accompanying drawing:

Fig. 1 is a front view of apparatus embodying the preferred form of my invention;

Fig. 2 is a vertical sectional view taken centrally through the tank shown in Fig. 1; and

Fig. 3 is a vertical sectional view taken centrally through that part of the apparatus for supplying a specimen of the fluid entering the tank.

Referring to the drawing the numeral 1 designates a vacuum tank of any suitable and convenient shape, having an opening 2 in its upper side which permits its being filled to a desired level with water or other liquid. The opening 2 is normally closed by a closing cap 3. The bottom of the casing is provided with a large threaded opening 4 into which is screwed a plug 5 having a discharge pipe 6 secured to and extending therethrough so as to regulate the discharge of the liquid from the tank 1 the pipe 6 is provided with a valve 7. Secured to the plug 5 by frictional engagement or by other suitable means is a screen 8 which extends over and around the inwardly disposed end of the discharge pipe 6, thereby preventing any solid substances entering the tank from clogging the latter.

Secured to the side of the tank 1 and communicating with the inside thereof at points preferably above and below the water level therein, is a tubular water level indicator 9 comprised of tubular end fittings 10, a glass tube 11 interposed between the said fittings and a slotted metal protective casing 12 extending around the glass tube 11. A suitable sensitive pressure gauge 13 communicating with the inside of the tank at a point above the water level indicates the vacuum pressure inside the said tank.

The tank 1 is provided with straps 14 which permit the convenient hanging of the apparatus from the foot rail of a patient's bed.

Screwed into a threaded inlet opening at the side of the tank at a point above the water level is a substantially horizontal tubular member 15 which is integrally or otherwise suitably secured to a vertically disposed hollow fitting 15a having a cap 16 threaded on its upper end. The cap 16 is provided with a centrally disposed inlet pipe 17 secured to and extending therethrough which has a flexible tube 18 secured thereon, the said tube 18 being connected to a catheter 19. The hollow fitting 15a is provided with a bottom 15' which has an opening 20 extending therethrough permitting the passage of some of the fluid coming into the hollow fitting to proceed into a test tube 21 removably held in a position beneath the said opening 20 by a metal casing 22 threaded onto the said fitting. A small side opening 23 in the bottom 15' of the fitting permits air to escape from the tube 21 as fluid drops into and fills the latter. The metal casing 22 has vertical slots 22' in its side wall which permits the contents of the test tube 21 to be viewed at all times to enable a nurse or physician to determine the condition of the fluid withdrawn from the patient. Whenever desired, a specimen of the fluid being withdrawn from a person's body may be obtained by first unscrewing the casing 22 from the tubular fitting 15a and then removing the test tube 21 with the fluid therein.

In actual practice the tank 1 is first filled to the proper level with liquid, and the valve 7 is then adjusted so the liquid is suitably discharged, preferably in quantities approximately proportionate to the inflow of the fluids from the patient's body. The suction exerted upon the interior of the person's organ being drained should be such that no harmful effects are produced, and

in this connection it is important that the tank 1 be provided with the correct amount of liquid and that the valve 7 be properly adjusted to allow the right amount of liquid to be discharged from the tank in a given time.

It is to be understood that the apparatus comprising my invention is capable of being applied to many different uses where a continuous and uniform suction is desired.

Having described my invention, what I claim is:

1. Apparatus of the kind described comprising a vacuum tank having a fluid inlet and a fluid outlet, means for regulating the discharge of fluid from the tank, a tube adapted to be inserted into a cavity from which fluid is to be withdrawn, and means connected to and interposed between the tube and the inlet for receiving and holding a specimen of the fluid withdrawn through the tube, the said last mentioned means including a hollow fitting secured to the tank having an inlet connected to the tube, an outlet connected to the tank, and a fluid outlet opening in its lower side, and a fluid receiving receptacle detachably secured to the hollow fitting and positioned to receive fluid draining through the fluid outlet opening in the lower side of the said fitting.

2. Apparatus of the kind described comprising a vacuum tank adapted to hold a quantity of liquid; liquid outlet means on the tank; inlet means on the tank; a tube adapted to be inserted into a cavity from which liquid is to be withdrawn; and means connected to and interposed between the inlet means and the tube for receiving and holding a specimen of the fluid withdrawn through the tube; the said last mentioned means including a chambered fitting secured to the tank having an inlet connecting its chamber with the tube, an outlet connecting its chamber with the tank, and a second outlet opening leading from its chamber; and a fluid receiving receptacle detachably secured to the fitting and positioned to receive fluid draining through the second outlet opening from the said chamber.

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