

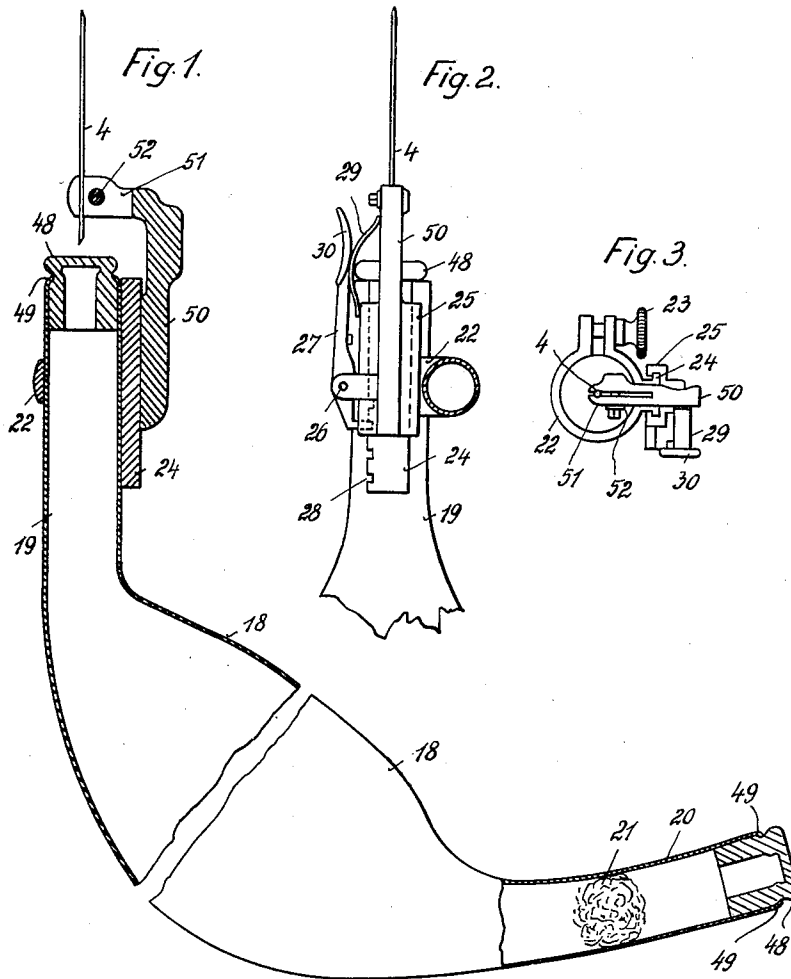
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BLOOD TRANSFUSION APPARATUS

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BLOOD TRANSFUSION APPARATUS

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Original application March 16, 1929, Serial No. 347,572, and in Germany March 24, 1928.
Divided and this application October 10, 1930.
Serial No. 487,876

1 Claim. (Cl. 128—214)

This application is a division of my application filed March 16, 1929, Ser. No. 347,572, relating to blood transfusion apparatus.

My invention refers to means for recovering blood and more especially for transfusing blood from a spender to a patient. It is an object of my invention to provide an apparatus adapted for this purpose, which is always ready for use, which renders it unnecessary to uncover the vein, which allows drawing blood from the spender and injecting same into the body of the patient after the manner of an intravenous puncture and which allows transporting the blood thus withdrawn in an absolutely sterile manner over long distances.

In the drawing affixed to this specification and forming part thereof an apparatus embodying my invention is illustrated diagrammatically by way of example.

In the drawing

Fig. 1 is a longitudinal section of the ampoule,

Fig. 2 is an elevation of one of the ampoule necks with the needle holder mounted thereon, and

Fig. 3 is a plan view of the needle holder.

The ampoule shown in Fig. 7 has the form of a glass vessel 18 with two open necks, one at each end, and both of which are closed by means of hollow stoppers 48. The marginal portions 49 of the necks are preferably drawn inwards, so as to tightly grip the stoppers. One neck, for instance 19, serves for withdrawing the blood, while the other neck 20, in which a filter mass 21 may be inserted, may serve for injecting the blood into the body of another patient. The needle holder mounted on the neck 19 consists of an arm 50 having a curved part 51 and split longitudinally to embrace the needle 4, which is held in position therein, by means of a screw 52. The arm 50 is formed with jaws 25 embracing a guide piece 23 fixed to the split clamping ring 22, which encircles the neck 19 of the ampoule and is held in position thereon by a screw 23. The guide piece 24 is formed with notches 28, and on one of the jaws of the needle holder 50 is mounted a pawl 27 for pivotal motion about a pin 26. A spring 29 tends to hold the curved operative end of the pawl 27 inserted in one of the notches 28. 30 is a handle forming part of the pawl.

By pressing the handle 30 the pawl 27 is disengaged from the part 24 and the needle holder 50 can be moved longitudinally relative to the part 24 and the neck 19 to be fixed in position thereon, when the handle 30 is released, so that

spring 29 can cause the operative end of the pawl to enter one of the notches 28. In order to withdraw blood by means of this device the pawl is disengaged from the part 24 by pressing the handle 30, the needle is forced into the body of the person whose blood shall be used for transfusion and the ampoule is now moved in gliding contact with the holder 50 towards the needle, the stopper 49 being forced against the free end of the needle, which will pierce the stopper and enter the ampoule, so that blood will be sucked into the ampoule owing to the interior thereof being partly evacuated. The pawl 27 is now released and its operative end will enter another notch whereby the needle holder and needle are fixed again to the ampoule and the needle can be withdrawn by the ampoule.

If the blood contained in the ampoule shall be transfused into the body of another patient the same or a similar holder is mounted on the end 20 of the ampoule together with a fresh needle, which is then inserted in the body of the patient, the ampoule being moved towards the needle which will pierce the stopper 48 in the neck 20. At the same time an inert gas is forced in any suitable manner through the neck 19 into the ampoule and by its pressure will force the blood contained in the ampoule through the needle into the body of the patient.

Preferably the ampoule contains a substance capable of preventing coagulation of the blood or glass pearls for defibrinizing the blood.

In view of the use of ordinary thin injection needles or cannulas the uncovering of the vein of the spender by incision can be dispensed with. On its way from the spender to the interior of the ampoule and from the ampoule into the vein of the patient the blood is only in contact with the inner surfaces of the short needles, so that in contradistinction to apparatuses hitherto used in which the blood had to pass through rubber tubes, valves and the like, a destruction of the red blood corpuscles and consequent rises of temperature are avoided. The withdrawal of the blood from the spender as well as its injection into the blood veins of the patient corresponds exactly to the ordinary puncturing of a vein. The blood is sealed in the ampoule against the access of the outer air and owing to the substance preventing its coagulation it is also stabilized, so that it can be conveyed in an absolutely sterile manner from one room into another and can even be shipped over considerable distances.

I wish it to be understood that I do not desire

to be limited to the exact details of construction shown and described for obvious modifications will occur to a person skilled in the art.

I claim:—

- 5 A blood transfusion apparatus comprising an evacuated vessel, two necks on said vessel, a read-

ily pierceable stopper of elastic material held in place at the entrance of each neck, a clamping ring encircling one of said necks, a needle holder axially slidable on said ring and means for locking said holder in various positions on said ring.

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