

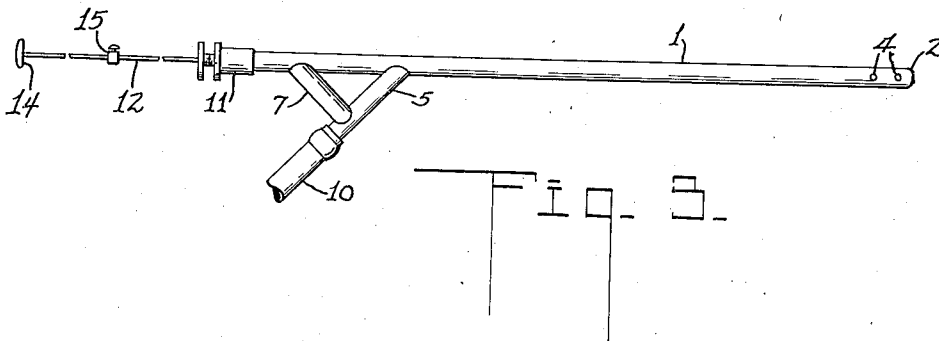
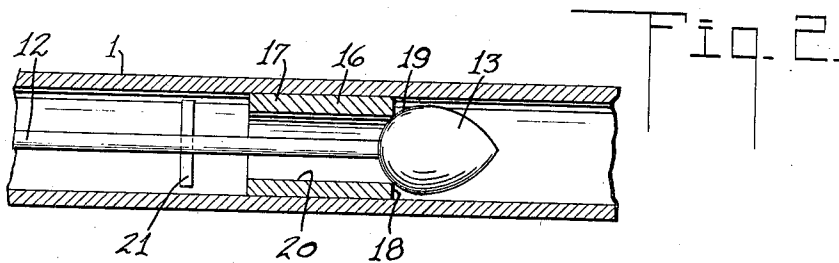
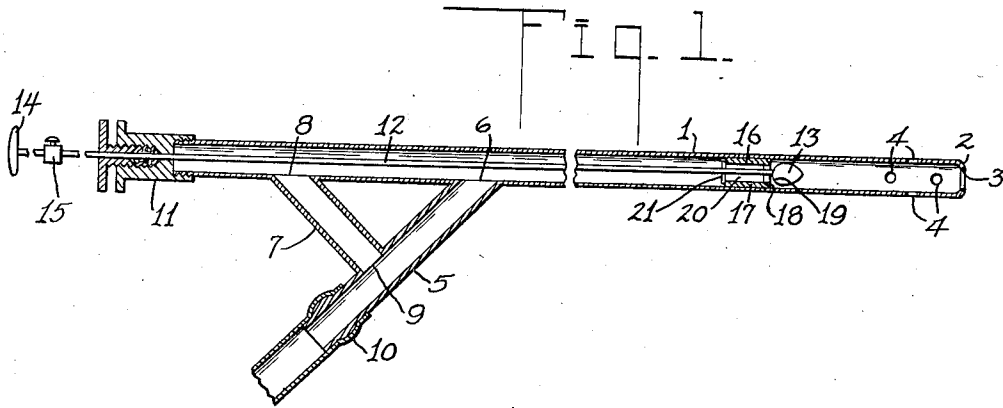
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BOOSTER EMBALMING TUBE

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BOOSTER EMBALMING TUBE

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4 Claims. (Cl. 27-24)

My invention relates to improvements in a booster embalming tube, and it consists of the combinations, constructions and arrangements hereinafter described and claimed.

5 In the standard embalming tube, a piston is used for aiding the withdrawal of the blood from the body. This piston is reciprocated in the tube for withdrawing the blood from the vein into the tube. After each suction stroke of the piston, 10 it is necessary to move the piston in the opposite direction and this will cause any air that is trapped in front of the piston, to be forced into the vein and this air will coagulate the blood. The coagulation of the blood interferes with the 15 efficient draining of the blood from the body.

The principal object of my invention is to provide a booster embalming tube which makes use of a piston that will not only draw the blood from the vein during the suction stroke, but will 20 instantly provide a passage through the piston on the return stroke of the piston. This will prevent any air being trapped in advance of the piston on the return stroke and being forced into the blood. The result is that the blood can not 25 become coagulated because no air is forced into the vein. The mere reciprocation of the piston will cause the parts forming the piston to coact to produce a suction when the piston is moved on its suction stroke, and to instantly open a by-pass through the piston when it is moved in the 30 opposite direction.

The parts forming the piston also perform the additional function of removing any coagulated blood from the vein. It frequently happens that 35 portions of the blood in a body are coagulated, especially where the person has been placed under ether while living. With my improved piston, the forming of a by-pass through the piston on the return stroke will permit the coagulated blood to enter the by-pass. The reciprocation of the piston will cause it to work 40 the coagulated portion of the blood through the by-pass.

A further object of my invention is to provide a device of the type described in which an auxiliary passage leads from the tube at a point 45 in back of the main discharge passage and this auxiliary passage will permit any fluid trapped in back of the piston on its suction stroke to pass 50 from the tube through the auxiliary passage to the main discharge passage. This will prevent the trapped fluid from exerting sufficient force at the rear of the tube for blowing out the packing. The tube may be formed in various shapes 55 and sizes and it is possible to either insert the

tube itself into the vein or to attach a rubber hose to the tube and then insert the hose in the vein.

The invention is extremely simple in construction and is durable and efficient for the purpose intended.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing forming a part of this application, in which

Figure 1 is a longitudinal section through the device;

Figure 2 is an enlarged detailed section of the piston and tube; and

Figure 3 is a side elevation of the device.

In carrying out my invention I provide a tube 1 that is cylindrical in shape and has a rounded end 2 provided with an entrance opening 3. 20 Additional openings 4 are provided in the wall of the tube near the entrance opening 3. The tube has a discharge passage 5 communicating therewith at 6 and an auxiliary passage 7 communicating with the tube at 8 and with the discharge passage 5 at 9. The discharge passage 5 25 has a flexible hose 10 connected thereto in any manner desired.

The rear end of the tube 1 is provided with a packing gland indicated generally at 11. A 30 piston rod 12 is slidably mounted in the packing gland 11 and extends into the tube 1. The rod 12 has a head 13 at one end and a handle 14 at its other end. An adjustable stop 15 is mounted on the rod.

The head 13 forms one part of a piston indicated generally at 16. The other part of the piston comprises a sleeve 17 that slides in the tube 1. The sleeve 17 has a cutting edge 18 that 35 also acts as a seat for receiving a rounded portion 19 of the head 13 and when the head 13 is seated on the sleeve, as shown in Figure 2, the head will act as a valve for closing the opening or passageway 20 in the sleeve. A stop 21 is 40 mounted on the rod 12 and permits relative movement between the head 13 and the sleeve 17.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

In embalming a body, a vein is cut and the 50 tube 1 is inserted in the vein, while a tube, not shown, is connected to the artery and conveys a fluid by gravity into the artery as the blood is withdrawn from the vein. This fluid will, upon entering the artery, flow through the entire body 55

and will force the fluid from the body into the tube 1. In order to aid this flow of blood into the tube 1, it is necessary to reciprocate the piston 16.

5 During the suction stroke of the piston 16, the head 13 will be moved to the left in Figure 1, until it seats in the sleeve 17 as shown in Figure 2. The head 13 and sleeve 17 will now constitute a piston that will create a suction for withdrawing blood from the vein while the rod 12 is moved to the left in Figure 1. After the piston has completed its suction stroke the return stroke is commenced and this return stroke will immediately separate the head 13 from the sleeve 17 because the head will be moved by the rod 12 while the sleeve 17 will remain stationary in the tube 1. This will cause the rounded portion 19 of the head to be freed from the seat 18 with the result that the passage 20 in the piston will be opened. Further movement of the rod 12 in the direction to the right in Figure 1 will cause the stop 21 to contact with the sleeve 17 and move the sleeve therewith. It will be seen, however, that the by-pass 20 through the piston is kept open during the entire return stroke. It will therefore be impossible for the piston to trap any air during the return stroke and to force this air into the blood. The piston will therefore not cause any coagulation of the blood during its return stroke.

30 Upon the next suction stroke, the sleeve 17 will again remain stationary in the tube 1 until the head 13 again seats and closes the by-pass 20. Should any coagulated blood be encountered during the reciprocation of the piston, this coagulated blood will find its way into the passage 20 during the movement of the piston to the right in Figure 1 and then a movement of the piston in the opposite direction will cause the head 13 and the sleeve 17 to grip the coagulated portion of the blood and to move it along the tube toward the discharge passage 5.

A return movement of the piston will cause the head 13 and the sleeve 17 to instantly release their hold on the coagulated portion and again engage with the coagulated portion at a new place when the piston again starts on its next suction stroke. In this way the coagulated portion of blood is gripped at successive places and is moved through the piston and tube and into the discharge passage 5.

Should any fluid be trapped in back of the piston during its suction stroke after the piston has passed the opening 6, then this fluid will flow into the auxiliary passage 7 instead of being forced against the packing gland 11. This arrangement protects the packing gland from being blown out. The head 13 may be likened to a valve, that on the so-called "pressure stroke" of the piston 16, becomes unseated and on the suction stroke, again becomes seated.

The purpose of the booster embalming tube is not only to withdraw blood from the vein, but also to simulate the heart action of the body. The reciprocation of the piston 17 will give to the blood stream an impulse somewhat the same as that caused by a heartbeat, and this will permit the blood to flow through the veins and into the tube 1 more readily. The valve head 13 co-operating with the sleeve 17 not only moves a

clot of blood through the passage 20, but has a shearing action on the blood that tends to cut the clot into small parts which will more readily flow through the passage 20 and into the discharge passage 5. The sleeve 17 in moving past the openings 4 also has a shearing action on any blood clots that might be passing through the openings 4. This will prevent the blood clots from clogging the openings 4. The end 2 of the tube 1 is rounded in order to enter a vein without puncturing it. The openings 4 permit a greater quantity of blood to enter the tube.

While I have shown only the preferred form of my invention, it should be understood that various changes or modifications may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. A booster embalming tube having an inlet at one end, an outlet pipe spaced from the other end, a packing gland closing the end of the tube disposed close to the outlet pipe, a piston rod slidable in the tube and packing gland, a piston mounted on the rod and being slidable in the tube, and an auxiliary pipe leading from the tube at a point adjacent to the packing gland and communicating with the outlet pipe.

2. A booster embalming tube comprising a cylindrical member having an entrance opening at one end, a discharge passage communicating with the tube adjacent to the other end, a piston rod slidable in the tube, a head secured to the rod and having a diameter smaller than the cylindrical member, a sleeve slidable in the cylindrical member and inclosing the rod, said sleeve having only an annular edge designed to contact with the head when the head is moved toward the discharge end of the tube, whereby the head and sleeve will cooperate to constitute a piston during the suction stroke of the device and will provide a by-pass during the return stroke, the annular edge of the piston when striking the head aiding in breaking up and feeding any blood clot through the member.

3. In a device of the type described, a cylindrical member, a sleeve slidably mounted in the member, a piston rod extending through the sleeve, a head carried by the rod and forming a seal with the sleeve during the suction stroke, and a stop carried by the rod and engaging with the sleeve to move it on the return stroke and after the head has separated from the sleeve, said sleeve having only an edge engageable with the head, whereby a cutting action will take place between the sleeve edge and head for breaking up any blood clots.

4. A booster embalming tube comprising a cylindrical member having an entrance end, a discharge passage communicating with the other end of the member, a piston rod mounted in the member, a sleeve encircling the rod and being slidable in the member, a head mounted on the end of the rod and being movable on the suction stroke to close one end of the sleeve, a stop carried by the rod and engaging with the sleeve on the return stroke and after the sleeve has separated from the head, whereby an unobstructed annular opening is provided between the head and sleeve during the return stroke.

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