

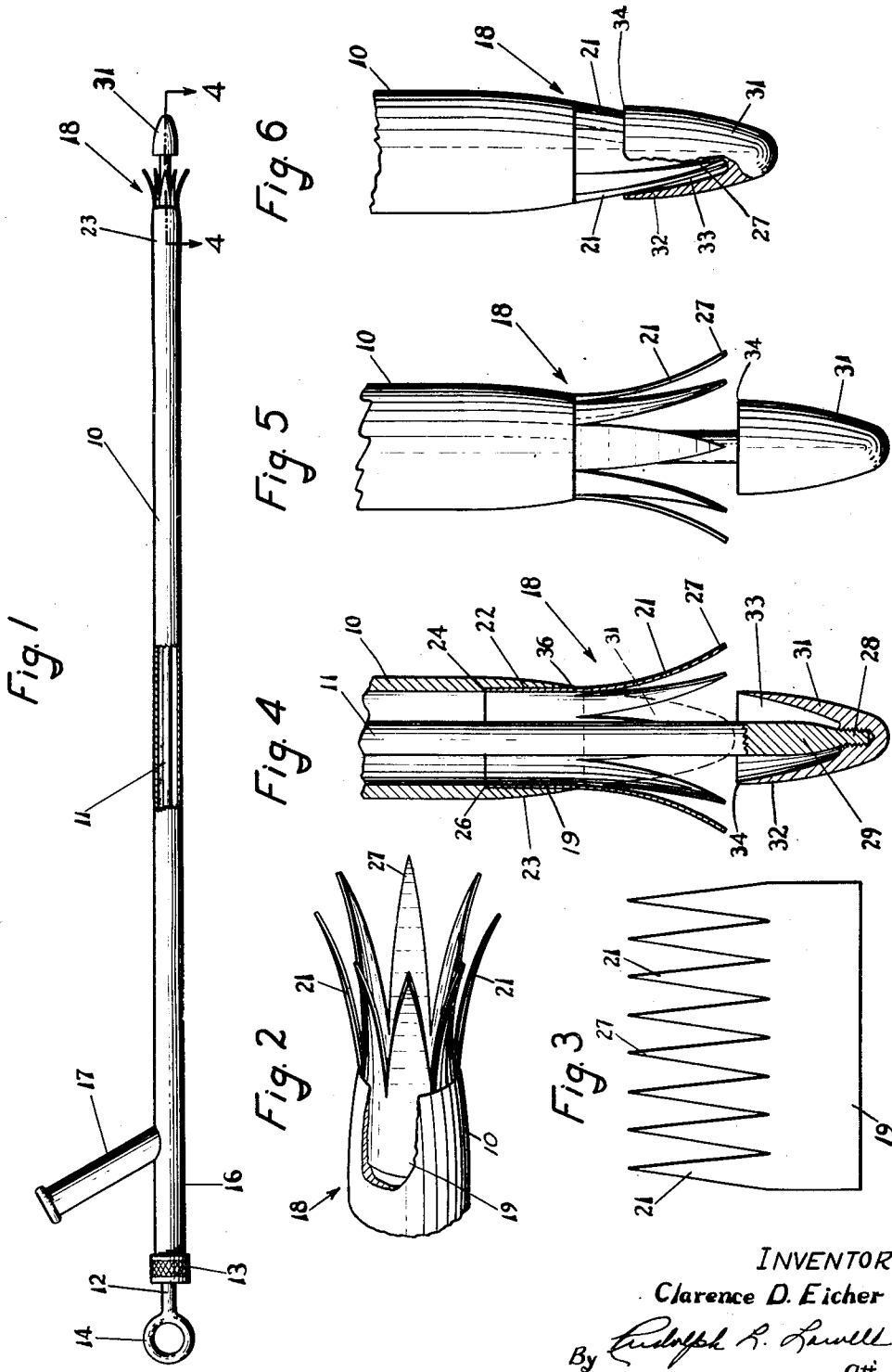
Feb. 13, 1951

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2,541,691

EMBALMER'S DRAINAGE INSTRUMENT

Filed June 24, 1949



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UNITED STATES PATENT OFFICE

2,541,691

EMBALMER'S DRAINAGE INSTRUMENT

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Application June 24, 1949, Serial No. 100,998

5 Claims. (Cl. 27—24)

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This invention relates generally to embalmers' instruments and in particular to a drainage or vein tube for withdrawing blood from a body including means for clearing the entrance end of the tube of any blood clots or other obstructions which may be present in the veins.

After death the blood supply tends to collect in the veins and to prevent discoloration, when an embalming fluid is injected into the arteries, the blood is generally withdrawn from the veins by a drainage tube, equipped with a suction means, concurrently with an injection of the embalming fluid. Blood is thus removed from the veins by the joint action of the pressure of the embalming fluid supplied to the arteries, and the suction pressure applied on the veins to be emptied of blood. Although the blood usually flows freely, it often times includes clots of a fibrin material that act, after the tube has been inserted in an artery, to obstruct the entrance end of the drainage tube.

It is an object of this invention, therefore, to provide a drainage tube adapted to distend a vein at the entrance end of the tube and including means for breaking up blood clots and the like at such entrance end for passage through the tube.

A further object of this invention is to provide an improved drainage tube.

Another object of this invention is to provide a drainage tube having expansible spring fingers at its entrance end which are releasably locked in collapsed positions when the tube is inserted, released after the tube is inserted and capable of being withdrawn from a vein when in expanded positions.

A further object of this invention is to provide a drainage tube having a vein distending unit at its entrance end for distending the vein at a position forwardly of such end and constituting a flared guide for directing material into the tube.

A feature of this invention is found in the provision of a drainage tube having a reciprocatory rod extended therethrough which carries an inserting head on its inner end. The entrance or inner end of the tube is equipped with a series of longitudinally extended spring fingers, normally sprung outwardly, and capable of being collapsed to positions substantially within the transverse confines of the tube. The insertion head is formed on its rear face or trailing end with a circular cavity, concentric with the rod, for receiving the free ends of the fingers to hold the fingers together against outward springing movement. The fingers are releasably locked in the holding

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cavity, by being manually held against the rod, after which the rod is retracted to position the finger tips within the holding cavity. The tube is inserted within a vein with the fingers locked within the insertion head, after which the rod is manipulated to move the insertion head forwardly whereby the fingers are released to distend the vein.

Another feature of this invention is found in the provision of a drainage tube in which a spring finger unit at the entrance end of the tube is permitted to be sprung outwardly, after the tube has been inserted, so as to distend the vein ahead of such entrance end. A reciprocatory rod, movable through the tube, has an insertion head of a size to be received within the tube. The rear end of the head member is constructed to function as a cutter in cooperation with the entrance edge of the tube whereby to shear and break up any obstructing material at the entrance end of the tube for passage therethrough, on reciprocation of the rod.

Further objects, features and advantages of this invention will become apparent from the following description when taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevational view of a drainage tube showing the vein distending unit of this invention in assembly relation therewith with parts broken away for the purpose of clarity;

Fig. 2 is an enlarged perspective view of the vein distending unit and entrance end of the drainage tube, with a part of the tube being broken away;

Fig. 3 is a developed view of the distending unit; Fig. 4 is an enlarged detail sectional view, as seen along the line 4—4 in Fig. 1;

Fig. 5 is an enlarged showing of the entrance end of the tube with the distending unit shown in its expanded position; and

Fig. 6 is a view illustrated similarly to Fig. 4 showing the distending unit collapsed and in a locked position for insertion of the tube.

With reference to the drawing, there is illustrated in Fig. 1 an embalmer's draining instrument which includes a tube 10 having a reciprocatory rod 11 extended longitudinally therethrough. The rear end section 12 of the rod 11 is slidably supported within a suitable packing means 13 and terminates in a finger grip 14, of a ring shape, by which the rod 11 is reciprocated within the tube 10. The rear or outer end 16 of the tube 10 is provided with an outlet 17 adapted to be connected with a suction means

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(not shown), such as a hand-operated pump or hydro-aspirator.

A vein distending unit, indicated generally as 18, includes a body member 19 integrally formed with finger members 21 (Figs. 2 and 3). As shown in Fig. 3, the unit 18 is stamped from a flat piece of a spring steel material so as to include a flat body member 19 having the fingers 21 extended laterally from one of its sides. The body member 19 is then formed into a ring shape, as shown in Fig. 2, with the fingers 21 being extended longitudinally from one end of the ring or body member 19 and sprung laterally outwardly, as a result of the circular forming of the body member 19.

The ring member 19 (Fig. 4) is receivable within an internal recess 22, formed within the entrance end 23 of the tube 10, to a position defined by the engagement of the inner end 24 of the ring member 19 with the shoulder or bottom wall 26 of the recess 22. It is contemplated that the ring member 19 be substantially fully inserted within the tube 10 so that only the fingers 21 project longitudinally outwardly from the entrance of the tube. Further, the fingers 21 are of a length such that in their sprung positions their free or tip ends 27 are outside of the transverse confines of the tube 10. Threadably connected at 28 on the inner or forward end 29 of the rod 11 is an insertion head or probe member 31 of a curved tapered shape. The rear or trailing end 32 of the insertion head 31 is formed with an annular tapered cavity 33, within which the rod end 29 is positioned in a concentrically spaced relation.

In the use of the instrument of this invention, the fingers 21 are manually held in a collapsed position against the rod 11, when the insertion head 31 is spaced forwardly of the fingers. The rod 11 is then retracted, or moved rearwardly, whereby to position the free ends of the fingers 21 within the cavity 33, as illustrated in Fig. 6, so that the side wall of the cavity 33 is engageable with the fingers 21 to hold the fingers against outward springing movement. The cavity 33 thus constitutes a finger-holding pocket for releasably holding the fingers in their collapsed positions.

With the fingers 21, received within the cavity 33, as illustrated in Fig. 6, the tube 10 is inserted within a vein to a desired distance. After being inserted, the rod 11 is moved forwardly whereby to move the insertion head 31 out of engagement with the fingers 21. As a result, the fingers 21 are sprung outwardly so as to distend or expand the vein at a position forwardly of the entrance end 23 of the tube 10 to permit a free passage of material into the tube.

As best appears in Fig. 4, the rear end 32 of the insertion head 31 is of a diameter slightly less than the inner diameter of the ring member 19 so as to be capable of passing therethrough into the tube 10. Thus, in the event any blood clots or other material become lodged between the fingers 21, or at the entrance end 23 of the tube 10, by merely retracting, or moving the rod 11 rearwardly, to inturn move the insertion head 31 to its dotted-line position shown in Fig. 4, the rear edge 34 of the insertion head 31 is brought into close contact with the ring member 19 at the base of the fingers 21, as indicated at 36, so as to function as a cutter with the ring member in shearing or breaking up the blood clot and other material for passage into the tube 10. During this function of the insertion head

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31, it will be appreciated that the fingers 21 constitute an outwardly flared guide for directing the material within the tube 10 and into the cutting or shearing zone of the edge 34 and the ring member 19.

On the completion of a draining operation, the tube 10 is withdrawn from the vein with the fingers 21 in their sprung positions. The fingers 21 being of a light spring material readily yield to any changes in the contour of the vein side wall so as to eliminate any tearing or cutting of such wall.

When the tube 10 is completely withdrawn, the packing nut 13 is loosened, and the rod 11 and insertion head 31 are removed from the tube 10 as a unit. As a result, all parts of the instrument are readily accessible for cleaning and sterilizing purposes.

From a consideration of the above description, it is seen that the invention provides an embalmer's draining instrument, which is of a compact and simple construction, equipped with a spring finger unit adapted to be readily inserted within a vein and capable of expanding the vein at a position forwardly of the entrance end of the tube. An insertion head member for the finger unit functions both as a releasable locking means for the finger unit and as a cutter for shearing and breaking up any material that might clog or obstruct the entrance end of the tube.

Although the invention has been described with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes can be made therein which are within the full intended scope of this invention, as defined by the appended claims.

I claim:

1. An embalming instrument having a tube member, a plurality of spring fingers extended longitudinally and laterally outwardly from the forward end of said tube, a rod reciprocally movable within said tube, a head member on the forward end of said rod of a size to be received within said tube, said head member having a cavity in its rear end for receiving the free ends of said spring fingers to hold said fingers within the transverse confines of said tube, with said rod, on insertion of the said tube within a vein, being movable forwardly to move said head member out of a finger-holding position to provide for the distending of the vein by said fingers.

2. In an embalming instrument having a tube with a reciprocatory rod extended longitudinally therethrough, a series of spring fingers arranged about the forward end of said tube and normally sprung laterally outwardly from said tube, and an insertion head member on said rod of a size to be drawn within said tube having a circular cavity in its rear end concentric with said rod for receiving the free ends of said fingers therein on movement of the rod to one moved position therefor, with said fingers being released for movement to their normal sprung position on movement of said rod forwardly from said one position therefor.

3. In an embalming instrument having a tube with a plunger rod extended longitudinally therethrough, a spring member having a circular body portion fixed to the forward end of said tube and a plurality of fingers sprung outwardly and laterally from said tube end, a head member on said rod having a probe portion at its forward end and a cavity formed in its rear end about said rod, with the tip ends of said fingers, when said

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fingers are moved inwardly and held against said rod, being receivable within said cavity on rearward movement of the rod to a finger-holding position at which the rear end of said head member is opposite said finger tips, whereby to hold said fingers against outward springing movement, said fingers, on insertion of said tube within a vein, being released to their outward sprung positions on movement of the head member forwardly from said finger-holding position, said head member being of a size to be drawn by said rod through said body portion and into said tube.

4. An embalming instrument including a tube member, a reciprocatory rod extended through said tube, an insertion head carried by the rod, a plurality of expansible spring finger members on the entrance end of said tube extended longitudinally forwardly therefrom, and means on said insertion head for receiving the free ends of said spring members therein, with said rod, after insertion of said tube in a vein, being movable forwardly from said entrance end of the tube to release said spring members.

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5. An embalming instrument including a tube member, a reciprocatory rod extended through said tube member, an insertion head carried by the rod, an expansible spring finger unit projected longitudinally forwardly from the entrance end of said tube, said insertion head being of a size to pass through said finger unit and into said tube, when said unit is expanded, and means on the rear end of said insertion head for releasably engaging the free ends of said finger unit to hold said finger unit contracted during a tube-inserting operation.

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