F. E. HOLLINS.

DRAINAGE TUBE FOR EMBALMERS' USE.

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998,339.

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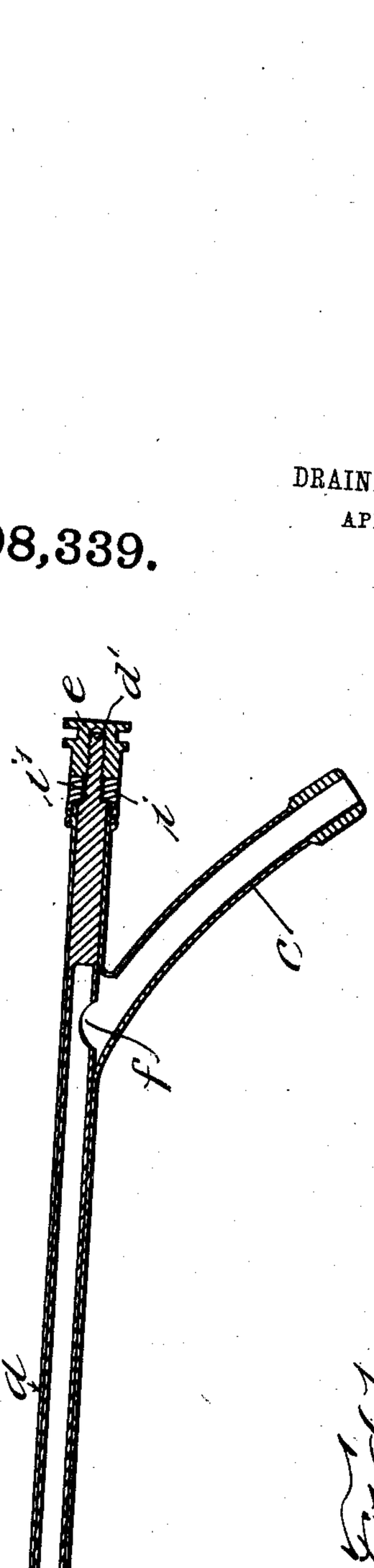

Fig. 2.

Fig. 1.

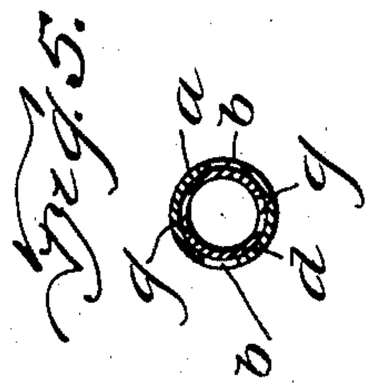

Fig. 4.

Fig. 5.

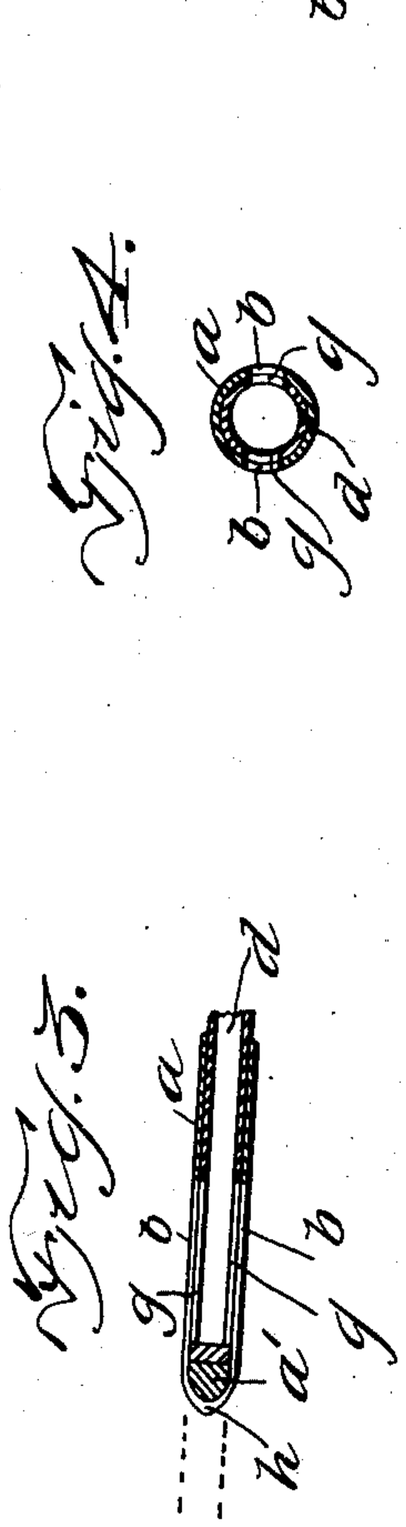

Fig. 3.

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DRAINAGE-TUBE FOR EMBALMERS' USE.

998,339. Specification of Letters Patent. **Patented July 18, 1911.**

Application filed May 9, 1911. Serial No. 626,058.

To all whom it may concern:

Be it known that I, FREDERICK E. HOLLINS, a citizen of the United States, and a resident of Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Drainage-Tubes for Embalmers' Use, of which the following is a specification.

This invention relates to embalming apparatus and particularly to drainage tubes which are inserted in veins in a body to conduct therefrom blood displaced by embalming fluid injected under pressure into the arteries.

The invention has for its object to provide a compact and conveniently operated drainage tube having certain advantageous features.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings which form a part of this specification,—Figure 1 represents a side elevation of a drainage tube embodying my invention; Fig. 2 represents a longitudinal section of the same; Fig. 3 represents a section on line 3—3 of Fig. 1; Figs. 4 and 5 represent enlarged sections on line 4—4 of Fig. 1, showing the inner tube in different positions.

Similar reference characters indicate the same or similar parts in all the figures.

In the drawings, *a* represents a case which is formed as an elongated cylindrical tube adapted to be inserted in a vein. The outer end portion of the case is closed by a portion *a'* which interrupts the continuity of the lumen of the tube and constitutes a stop for the inner tube hereinafter described. In opposite sides of the case, just back of the closed end portion *a'* are longitudinal slots *b* constituting inlet ports. The case *a* is provided at its inner end portion with a branch outlet tube *c*.

d represents an inner tube which is adapted to fit somewhat snugly and rotate in the case *a*, the length of said inner tube being such that its outer end bears against the closed end portion or stop *a'* of the case, and its inner end portion *d'* projects from the inner end portion of the case, said inner end portion being provided with a rigidly secured operating head or knob *e* whereby the inner tube may be rotated. The lumen of the inner tube is closed at the inner end of the tube, an outlet port *f* being provided in the inner tube which connects the lumen thereof with the lumen of the outlet tube *c*, as shown by Fig. 2. In the outer end portion of the inner tube are formed longitudinal slots *g*, *g*, constituting inlet ports which are adapted to coincide with the inlet ports *b*, as shown by Fig. 4, so that liquid entering the ports *b* may flow through the inner tube and may flow therefrom to the branch tube *c*.

The closed end portion *a'* of the outer tube or case is provided with a groove *h* which extends across the outer end of the case and along the sides thereof, said groove communicating with the ports *b* which constitute extensions of the groove. The groove *h* insures a non-obstructed passage from a point immediately in advance of the closed end of the outer tube to the ports *b*, so that said ports cannot be obstructed by the walls of a vein in which the device is inserted.

Before the insertion of the device in a vein, the inner tube is moved to a position shown by Fig. 5, the ports *b* being thus closed so that no obstructions can enter them while the device is being inserted. When the device is in place and the embalming operation is commencing, the inner tube is turned to the position shown by Fig. 4, so that liquid displaced in the veins by pressure of the embalming fluid injected into the arteries, flows through the ports *b* and *g*, the inner tube and the outlet branch *c*.

The case *a* and the head or handle *e* on the inner tube are provided with indicating marks which denote the position of the inlet ports of the inlet tube, said marks being preferably the letters O and S indicating respectively "open" and "shut," placed on a sleeve *i*, and an arrow placed upon the head *e* and adapted to coincide with one of said letters when the ports *g* are in their open position, and with the other letter when the ports are in their closed position. The sleeve *i* is screwed upon the inner end of the case *a*, and has a flange *i'* which engages a shoulder on the inner end portion of the inner tube and prevents outward endwise movement of the inner tube.

The described apparatus is simple and compact and does not require elongation to make it operative. In all drainage tubes for embalmers' use heretofore provided, so far

as I am aware, a single tube has been employed having a longitudinally movable plunger which is inserted in the tube while the latter is being forced into a vein, and is then withdrawn from the tube sufficiently to permit passage of liquid through the latter, it being necessary therefore to considerably elongate the device to make it operative. The device when elongated is inconvenient to handle and is liable to injury. These objections are obviated by my improved construction.

I claim:—

1. An appliance of the character stated, comprising an elongated tubular case formed to be inserted in a vein, and having inlet ports at its outer end portion and an outlet branch at its inner end portion, and an inner tube rotatable in the case, and having inlet ports which coincide with the inlet ports in the case when the inner tube is turned to a given position, and an outlet port which coincides with the outlet branch when the inlet ports of the inner tube and case coincide, the inner tube being caused by a partial rotation to close the ports in the case.

2. An appliance of the character stated, comprising an elongated tubular case having a closed and tapered outer end portion provided with a groove extending across the closed end of the case and longitudinally in opposite sides thereof, the case being provided with an outlet branch at its inner end portion and with inlet ports forming continuations of said groove, and an inner tube rotatable in the case and having inlet ports adapted to coincide with the inlet ports in the case and an outlet port adapted to coincide with the outlet branch.

3. An appliance of the character stated, comprising an elongated tubular case formed to be inserted in a vein, and having inlet ports at its outer end portion and an outlet branch at its inner end portion, and an inner tube rotatable in the case, and having inlet ports which coincide with the inlet ports in the case when the inner tube is turned to a given position, the inner tube being adapted to be turned from said position to close the inlet ports in the case, and provided at its inner end with a head whereby it may be turned, said head and the adjacent portion of the case bearing marks which indicate the position of the inlet ports in the inner tube.

In testimony whereof I have affixed my signature, in presence of two witnesses.

FREDERICK E. HOLLINS.

Witnesses:

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