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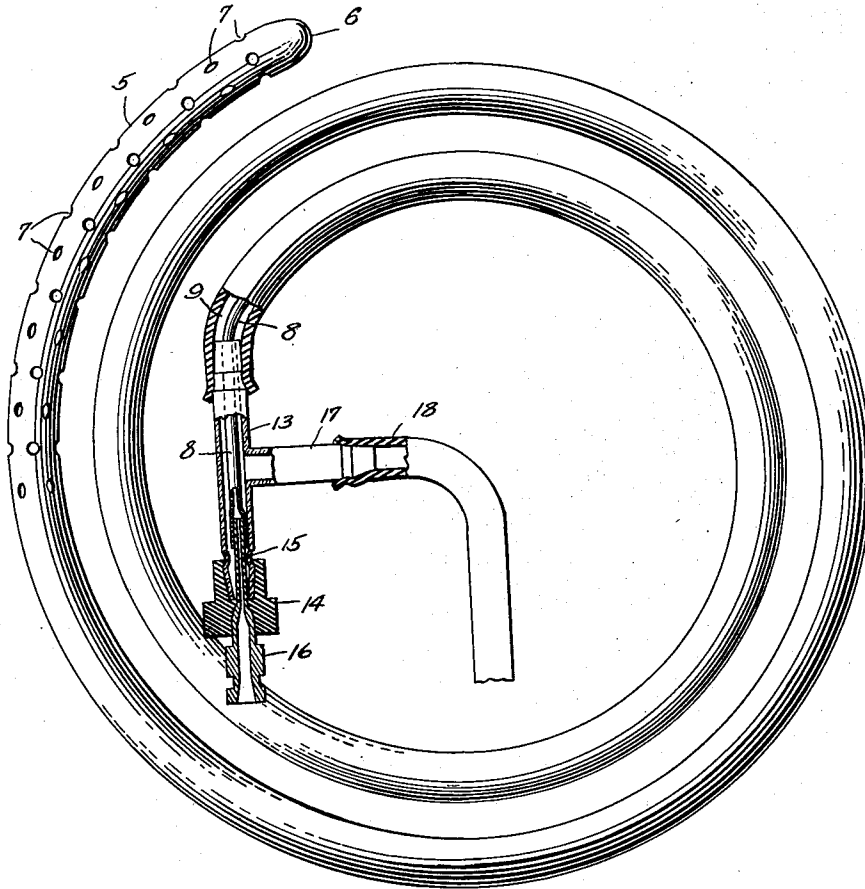
J. W. DEVINE, JR

2,614,563

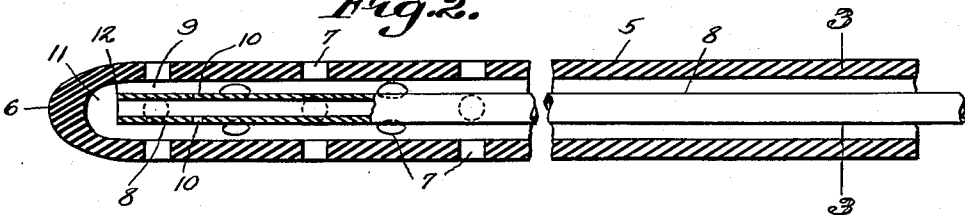
SURGICAL APPARATUS FOR INTESTINAL INTUBATION

Filed April 10, 1951

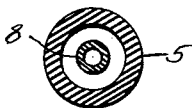
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE

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## SURGICAL APPARATUS FOR INTESTINAL INTUBATION

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1 Claim. (Cl. 128—276)

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This invention relates to a surgical apparatus, the primary object of the invention being to provide an appliance designed especially for use in intestinal intubation.

The primary object of the invention is to provide an appliance for use in intestinal intubation, which includes an outer perforated tubular member constructed of semi-yieldable material, and an inner semi-rigid plastic tube supported within the outer tubular member and spaced from the wall of the outer tubular member providing a passageway therebetween, means being provided and supported on the outer end of the inner tube of the device into which atmospheric air or oxygen may be drawn for the purpose of venting the intestines to prevent the mucosa from collapsing and being drawn into the perforations of the outer tubular member to obstruct passage of material therethrough.

Still another object of the invention is to provide means to eliminate any possibility of a vacuum in the intestinal tract due to the action of the suction creating apparatus, by admitting air to the inner end of the apparatus to be drawn off by the suction creating device used with the apparatus.

Still another object of the invention is to provide a surgical apparatus which may, if desired, be converted into an apparatus including a sump for removing fluids and gas from the intestines.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawing:

Figure 1 is a view illustrating an appliance constructed in accordance with the invention as rolled into a coil.

Fig. 2 is an enlarged sectional view through the outer or sump tube of the appliance illustrating the construction of the sump end of the tube with the inner tube as held therein.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2.

Referring to the drawing in detail, the device embodies an outer or main tube 5 having one of its ends closed at 6, the tube 5 being provided with openings 7 formed in the wall thereof, the openings being arranged in staggered relation

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with respect to each other, as clearly shown by the drawing.

The outer or main tube 5 is constructed of semi-rigid plastic, rubber or similar material, which is of a character to permit the device to be inserted into the intestinal tract, in the usual way.

Mounted within the outer or main tube 5, is the inner tube 8 which is also constructed of semi-rigid plastic material to permit of bending of the apparatus on entering the intestinal tract.

As clearly shown by Fig. 2 of the drawing, the inner tube 8 is of a diameter substantially less than the diameter of the outer or main tube 5, with the result that a passageway 9 is provided between the inner and outer tubes of the apparatus into which gas and liquids are drawn, and from which the gas and liquids are drawn into the inner tube 8. As shown, the inner tube is provided with apertures 10 which are arranged adjacent to the openings 7, the apertures 10 establishing communication between the inner tube and passageway 9, to permit the gases and liquids to be drawn into the inner tube.

The construction of the outer or main tube 5 at its end, is such that a sump 11 is provided, into which the open end 12 of the inner tube 8 extends, so that liquids finding their way into the sump, may be drawn off by a suction created within the inner tube 8.

The inner tube 8 extends through the coupling 13 which has one of its ends extended into one end of the main tube 5, as shown by Fig. 1 of the drawing, the opposite end of the coupling 13 extending into the hollow gasket 14 through which the reduced end 15 of the coupling 16 extends, the gasket providing an air-tight connection between the coupling 16 and coupling 13. As shown, the reduced end 15 of the coupling 16 is extended into the end of the inner tube 8, the enlarged end of the coupling 16 constituting means for connecting a suction hose thereto, should it be desired to operate the apparatus as a sump, in which case it would be necessary to create a suction towards the atmosphere, through the inner tube 8, to draw off material from the sump 11.

The reference character 17 indicates a branch pipe which is disposed intermediate the ends of the coupling 13, the branch pipe 17 having a tapered end fitted in one end of the tube 18, the branch pipe and tube 18 being in communication with the passageway 9 so that air and material may be drawn therethrough. A suction is created through the tube 18, branch 17 and passageway

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9, by means of a suction creating means not shown, and which is of a conventional structure, the tube 18 being connected to the suction creating means.

In the use of the apparatus, the outer main tube, containing the inner tube, is inserted through the esophagus into the intestinal tract to the point of obstruction in the intestinal tract. Suction is now created in the passageway 9, with the result that fluids and gases may be drawn from the intestines through the passageway 9.

Due to the fact that the inner tube 8 communicates with the atmosphere through the coupling 16, it is obvious that when the apparatus has eliminated the fluids and gases of the intestines, air will be drawn through the inner tube 8, discharging into the passageway 9 and drawn off through the coupling 13, branch 17 and tube 18, thereby preventing a vacuum which would collapse the intestines or draw the mucosa into the openings of the outer tube 5.

Having thus described the invention, what is claimed is:

An intestinal intubation apparatus, comprising an outer tube having a closed end, said outer tube having groups of openings extending through the wall thereof, the groups of openings in the wall of the outer tube adjacent to the closed end thereof being spaced from the closed end providing a sump at the closed end of said outer tube, said outer tube adapted to be inserted in the intestinal tract, an inner tube of semi-

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rigid plastic material extending into the outer tube, the walls of said tubes being spaced apart providing an annular passageway around said inner tube, said inner tube terminating at a point a substantial distance beyond the openings adjacent to the closed end of the outer tube, a coupling fitted in one end of the outer tube through which the inner tube extends, said inner tube communicating with the atmosphere through said coupling, a branch tube extending from said coupling to which a suction tube is secured, and through which air is drawn creating a suction in the inner tube, venting said outer tube.

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