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COLON THERAPY DEVICE AND APPLICATOR THEREFOR

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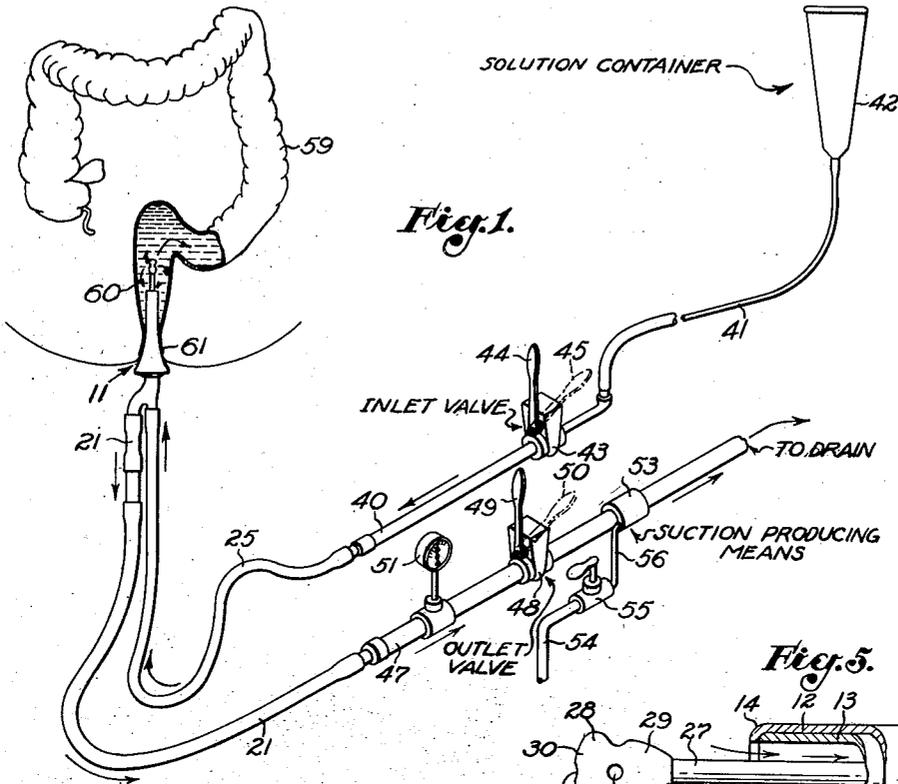


Fig. 2.

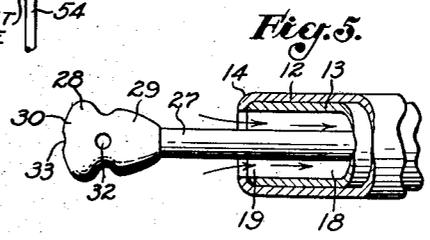


Fig. 5.

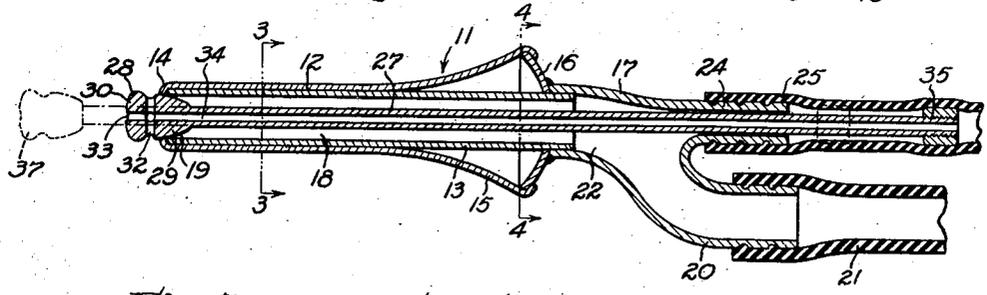
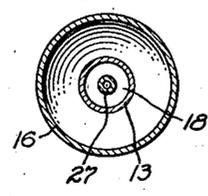
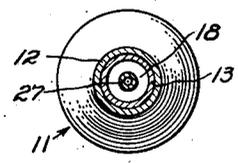


Fig. 3.

Fig. 4.



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# UNITED STATES PATENT OFFICE

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## COLON THERAPY DEVICE AND APPLICATOR THEREFOR

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5 Claims. (Cl. 128—227)

My invention concerns colonic therapy apparatus and relates to an apparatus in which new and improved treating methods may be practiced, and also relates to a unique applicator for use with or as a part of colonic therapy apparatus.

In my U. S. patent entitled "Colon irrigator", No. 1,910,756, issued May 23, 1933, and in my U. S. patent entitled "Method and apparatus for rehabilitating peristalsis of the colon", No. 2,024,967, issued December 17, 1935, I have fully described certain colonic therapy apparatus which has gone into general use. My present invention of applicator is especially designed for use in connection with or as a part of such apparatus, but is likewise useful on other colonic therapy apparatus.

The object of my invention forming the subject-matter of this application is to provide an applicator which is intended for general use but which is particularly designed for use in treating with safety and effectiveness certain conditions for which other applicators are not entirely satisfactory; such, for example, as where the patient has a prolapsed rectum; that is, a rectum without sufficient tonicity to prevent its collapsing completely. When such patient is treated the outlet opening or openings of the applicator which have been used prior to my invention are liable to be closed, thus preventing treatment from being properly administered and possibly injuring the rectal tissues. Also where the patient has hemorrhoids there is danger of the hemorrhoidal protrusions moving into the opening or openings of such prior art applicators, either during the insertion or removal thereof, or while the applicator is in an inserted position in the rectum.

It is an object of my invention to provide an applicator made in a plurality of parts which are retained in a retracted position while the applicator is being inserted in the rectum and thereafter the parts are moved into an extended position so that a relatively large outlet orifice is provided. The applicator of my invention which fulfils this object does not have any large openings while the applicator is being inserted. Therefore, trauma incident is less.

Another object of my invention is to provide an applicator which has a closure member which closes or shields outlet opening of the applicator while it is being inserted into the rectum and which is movable into a relatively extended position to open the outlet orifice of the applicator. The closure member in the preferred form of my invention not only serves as a closure member,

but also as an inlet or injection tip through which fluid may be introduced into the colon.

It is one of the objects of my invention to provide an applicator in which the parts are readily moved from retracted into extended position.

It is a further object of my invention to provide an applicator which is so designed as to effect a tight seal with the rectal sphincter so that pressure and vacuum may be applied to the colon without seepage, or drawing air into the rectum when using vacuum.

Another object of the invention is to provide an applicator in which the parts may be disassembled to expose all cavities thereof for ready and thorough sterilization.

Another object of my invention is to provide a colonic therapy apparatus in which the colon or a portion thereof may be expanded and contracted while a continuous flow of fluid flowing into and from the colon is maintained.

Other objects and advantages of my invention will be made evident in the course of the following description of a preferred form of my invention.

Referring to the accompanying drawing in which apparatus incorporating the features of my invention is illustrated.

Fig. 1 is a perspective view showing the essential elements of the colonic therapy apparatus of my invention illustrating its use.

Fig. 2 is a sectional view taken through the applicator of my invention.

Figs. 3 and 4 are sectional views taken on the lines 3—3 and 4—4 of Fig. 2.

Fig. 5 is a fragmentary sectional view showing the inner end of the applicator with the parts in relatively extended positions.

Referring to the drawing in detail, I shall first describe the applicator of my invention. The applicator has a body 11 which provides an insertion portion or cylindrical portion 12. The body 11 fits over a tube 13 and the inner end of this cylindrical portion 12 is rolled as indicated at 14. The outer end of the cylindrical portion 12 is provided with a dilator 15 which consists of a conical shaped wall preferably formed integrally with the cylindrical portion 12 and expanding or enlarging outwardly or distally. Secured to the dilator 15 is an end wall 16 through which the tube 13 extends, and secured on the extending end of the tube 13 is a Y connection 17. The cylindrical wall 12, the dilator 15, the end wall 16, and Y fitting 17 all may be considered as comprising the body 11. The body 11 provides an outflow or ejection channel 18, the inner end of

which is provided with an outlet orifice 19 which is located at the inner end of the cylindrical portion 12. The Y fitting 17 is provided with an outlet branch 20 to which an outlet hose 21 may be connected as shown. The outlet branch 20 is in communication with the outlet channel 18 through the passage 22 formed in the Y fitting 17.

The other branch of the Y fitting 17 is provided in the form of an inlet tube passage or bearing 24 to which an inlet hose 25 may be connected as shown. The bearing 24 is preferably arranged concentric to the outlet channel 18. Extending through the bearing 24 and the base portion of the Y fitting 17 and through the outlet channel 18 is an inlet tube 27. The inlet tube 27 has a closure member or injection tube 28 connected to the inner end thereof. The closure member is of such a size that when it is in retracted position the tapered outer portion 29 thereof extends into the outlet orifice 19 and shields or closes it. The rounded end 30 of the closure member is slightly larger than the tapered part 29 and therefore acts as a rounded nose which enables the applicator to be readily inserted when the parts are in retracted position. The closure member 28 has side passages 32 and an end passage 33 which are in communication with the inlet channel 34 provided by the inlet tube 27, and these passages serve as a means whereby liquid may be injected into the colon.

The outer end of the inlet tube 27 extends into the inlet hose 25 and has a head 35 removably secured on the end thereof. This head is rounded so that it may be caused to slide in the hose 25 without injury to the hose and its outer diameter is greater than the inner diameter of the hose in order that a tight seal will be formed between the head 35 and the hose.

In Fig. 2 full lines illustrate the retracted position of the inlet tube and parts associated therewith and dotted lines 37 illustrate the parts in extended position. The parts are moved from retracted to extended position by forcing the head 35 outwardly through the hose 25 toward the bearing 24. This is readily done by squeezing the hose immediately adjacent the head 35 which causes the inlet tubing and the parts to be moved inwardly into extended position.

As illustrated diagrammatically in Fig. 1, the inlet hose 25 is connected to an inlet pipe 40 which is in turn connected through flexible tubing 41 to a solution container 42. The inlet pipe 40 is provided with an inlet valve 43 having an operating lever 44 which has a closed position as illustrated in full lines and an open position as indicated by dotted lines 45. This inlet valve 43 is operative to control the flow of liquid into the colon. The outlet hose 21 is connected to an outlet pipe 47 which is extended to a drain (not shown). The outlet pipe 47 includes an outlet valve 48 having an operating lever 49 which has a closed position as illustrated by full lines and an open position as illustrated by dotted lines 50. Also included in the outlet pipe 47 between the valve 48 and the applicator so as to be in communication with the colon at all times is a combination pressure and vacuum indicating means which is illustrated in the form of a pressure and vacuum gauge 51. There is also included in the outlet pipe 47 on the outlet side of the valve 48 a suction producing means 53 which may be of any desired type. In the form illustrated herein the injector principle is used and water under high pressure flows through

a pipe 54 as controlled by a valve 55 and through a small tube 56 to the interior of the outlet pipe 47. When the valve 55 is opened water under pressure flows into the outlet pipe 47, thus producing a suction which places a vacuum on the outlet pipe 47, the hose 21, and through the applicator on the colon.

In utilizing the invention the parts are connected as illustrated in Fig. 1. The solution container 42 is provided with the desired solution at the desired temperature. The applicator is then ready to be inserted in the colon of the patient. In Fig. 1 the numeral 59 represents the colon having the rectum 60 and a rectal sphincter 61. When inserting the applicator the parts are positioned as shown in full lines in Fig. 2 in order that the outlet orifice 19 will be closed. The only openings, therefore, in the applicator are the relatively small openings 32 and 33 which are so small that there is no danger of any injury being done to a patient having a prolapsed rectum or hemorrhoids. The body of the applicator is inserted until there is a firm engagement between the rectal sphincter 61 and dilator 15 thereof. The distance that the applicator is inserted depends upon the patient, and due to the shape of the dilator it may be inserted to a position which is suitable to form a tight seal between the dilator 15 and the rectal sphincter 61. After the body has been thus installed the technician then moves the inlet tube 27 and closure member into extended position, as illustrated by the dotted lines 37 in Fig. 2 and by full lines in Fig. 5. This is effective in moving the closure member away from the inner end of the cylindrical portion 12 and fully exposes the orifice 19, this orifice 19 being of annular shape around the inlet tube 27. Treatment is then administered by operating the apparatus, using the care and skill to protect the patient as particularly pointed out in my U. S. Patent No. 2,024,967, and the numerous details will not be referred to herein.

It will be seen that since the outlet orifice is closed during the inserting of the applicator, there is absolutely no danger of injuring the patient and that by a simple adjustment of the parts the outlet orifice is opened so that effective treatment may then be carried on. When treating a patient having a prolapsed rectum it is necessary to hold the rectum from collapsing, otherwise there is danger of the rectum closing the outlet orifice and thus preventing treatment. This type of treatment is administered by opening the inlet valve 43 so as to supply liquid to the rectum 60. This expands the rectum into an expanded position, such as illustrated in Fig. 1, so that the tissue or wall of the rectum is held away from the inlet and particularly the outlet orifice of the applicator. When the rectum has been thus expanded circulation may be maintained by opening the outlet valve 48. We then have a continuous inflow and a continuous outflow, and the inlet and outlet valves are so adjusted that a safe pressure will be built up in the colon as indicated on the gauge 51 which is known to be sufficient to hold the rectum in an expanded position. During this treatment any fecal masses or encrustations which are loosened are readily carried by the flow of liquid through the outlet orifice 19, which is of a relatively large size, through the applicator, the hose, and outlet to the drain.

My invention is particularly useful in the treating of prostatitis which consists of circu-

lating a hot medicated solution in the rectal portion of the colon. This type of treatment is effected by opening the valve 43 so as to permit an inflow of fluid into the rectum. When the ampulla of the rectum becomes filled the outlet valve 48 may be opened slightly so that an excess pressure will not be built up in the colon, thus causing ballooning, and so that a circulation of the hot medicated solution may be maintained.

A further and very important treatment which may be administered by my invention is the exercising of the colon and particularly the rectal portion thereof by alternate expansion and contraction while at the same time maintaining a continuous flow of fluid which may continuously remove any freed fecal masses or encrustations. This type of treatment may be performed as follows: The outlet valve 48 is opened a small amount in order to allow a small flow of liquid through the outlet. The inlet valve may be opened to permit liquid to flow into the colon. By watching the gauge 51 which indicates the pressure in the colon through the medium of the fluid it will be known when the colon has been expanded. This in the ordinary case occurs with about one-half pound of pressure. The technician may then simultaneously close the inlet valve so that it is allowing but a small flow of fluid therethrough and open the outlet valve a considerable distance and at the same time operate the suction producing means 53 to produce a vacuum on the outlet of the apparatus. This removes the liquid from the colon and produces a suction or vacuum thereon as will be registered by the gauge 51. This suction or vacuum imposed on the colon contracts the colon. However, during this phase of the treatment there is a small flow of solution flowing inwardly through the inlet so that a continuous flow is maintained. By repeating the operation just outlined the colon will be alternately expanded and contracted so as to exercise it, and at the same time there will be a continuous flow of fluid through the rectal portion of the colon as pointed out heretofore.

It will be seen that the applicator may be used on other apparatus than that illustrated in Fig. 1 and may be used in performing other modes of treatment. The applicator, however, was particularly designed to solve certain problems outlined heretofore which existed in colonic therapy, and therefore includes many features and advantages over the prior art.

I claim as my invention:

1. In an applicator of the class described, the combination of: a body providing an outlet channel and an outlet orifice at the inner end thereof; a closure member having a retracted position in which said orifice is closed and an extended position; an inlet tube on which said closure member is mounted, extending through said body, whereby said closure member is moved between retracted and extended position; an inlet hose connected to said body; and a head on the outer end of said inlet tube and

resting within said hose in engagement with the wall thereof.

2. In an applicator of the class described, the combination of: a body having an outlet channel, an outlet orifice at the inner end thereof, and a bearing at the outer end thereof aligned with said outlet channel; an inlet tube slidably supported by said bearing and projecting through said outlet channel, said inlet tube having a retracted and an extended position; an apertured closure member mounted on the inner end of said inlet tube, and closing said outlet orifice when said inlet tube is in retracted position; an inlet hose connected to said bearing; and a head on the outer end of said inlet tube and resting in said hose in engagement with the walls thereof for frictionally holding said inlet tube in retracted or extended position.

3. In a colonic apparatus of the class described, the combination of: an applicator having an inlet channel and an outlet channel adapted to be inserted into the rectal portion of the colon; and means for establishing a circulating flow of fluid inwardly through said inlet channel into said colon and outwardly through said outlet channel and for alternately expanding and contracting at least a part of said colon while said fluid is so circulating.

4. In an applicator of the class described, the combination of: a body having an insertion portion shaped to be inserted into the rectum, and a dilator formed at the outer end of said insertion portion for extending into the rectal sphincter for forming a seal therewith, said body also having an outlet channel, an outlet orifice at the inner end thereof, and a bearing at the outer end thereof aligned with said outlet channel; an inlet tube slidably supported by said bearing and projecting through said outlet channel, said inlet tube having a retracted and an extended position; an apertured closure member mounted on the inner end of said inlet tube, and closing said outlet orifice when said inlet tube is in retracted position; an inlet hose connected to said bearing; and a head on the outer end of said inlet tube and resting in said hose in engagement with the walls thereof for frictionally holding said inlet tube in retracted or extended position.

5. In an applicator of the class described, the combination of: a body having an outlet channel, an outlet orifice at the inner end thereof, and a bearing at the outer end thereof aligned with said outlet channel; an inlet tube slidably supported by said bearing and projecting through said outlet channel, said inlet tube having a retracted and an extended position; an apertured closure member mounted on the inner end of said inlet tube, and closing said outlet orifice when said inlet tube is in retracted position; and an inlet hose connected to said bearing, the outer end of said inlet tube resting in said hose in engagement with the walls thereof for frictionally holding said inlet tube in retracted or extended position.

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