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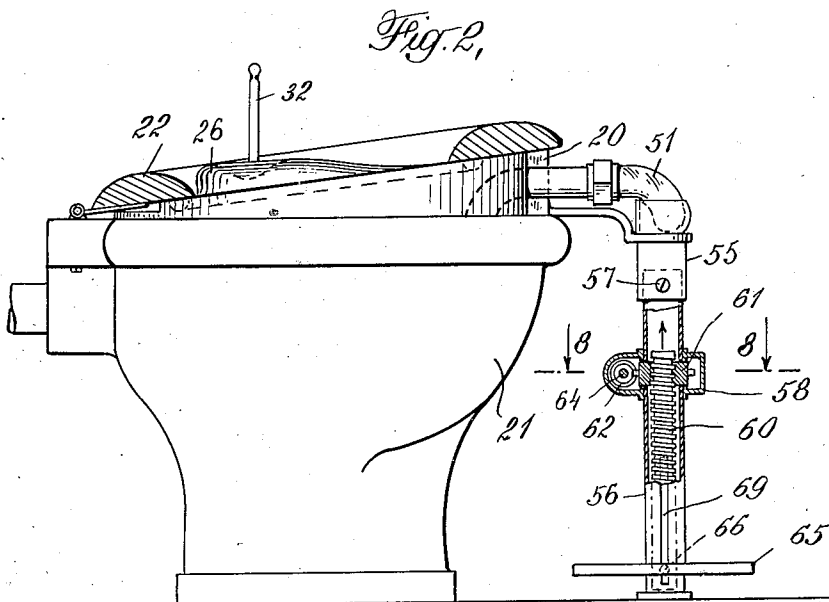
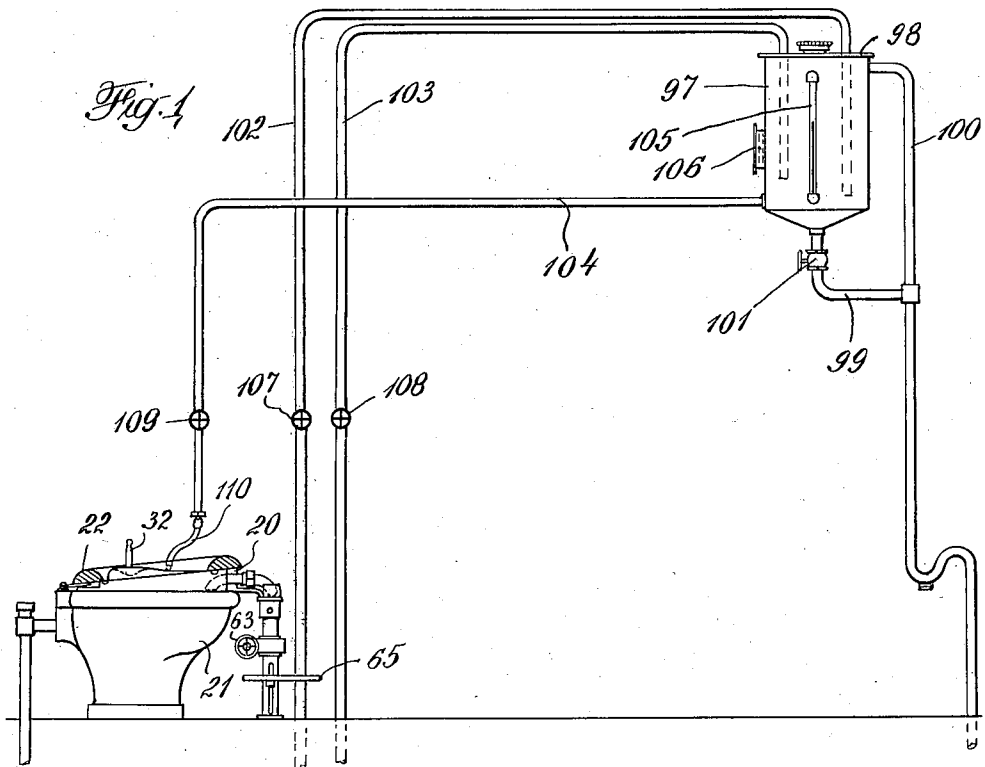
W. F. HUDGINGS

1,983,293

MEDICAL APPARATUS

Filed Feb. 5, 1930

3 Sheets-Sheet 1



INVENTOR

William F. Hudgings

BY

Tennis, Davis, Marvin & Edmonds
ATTORNEYS

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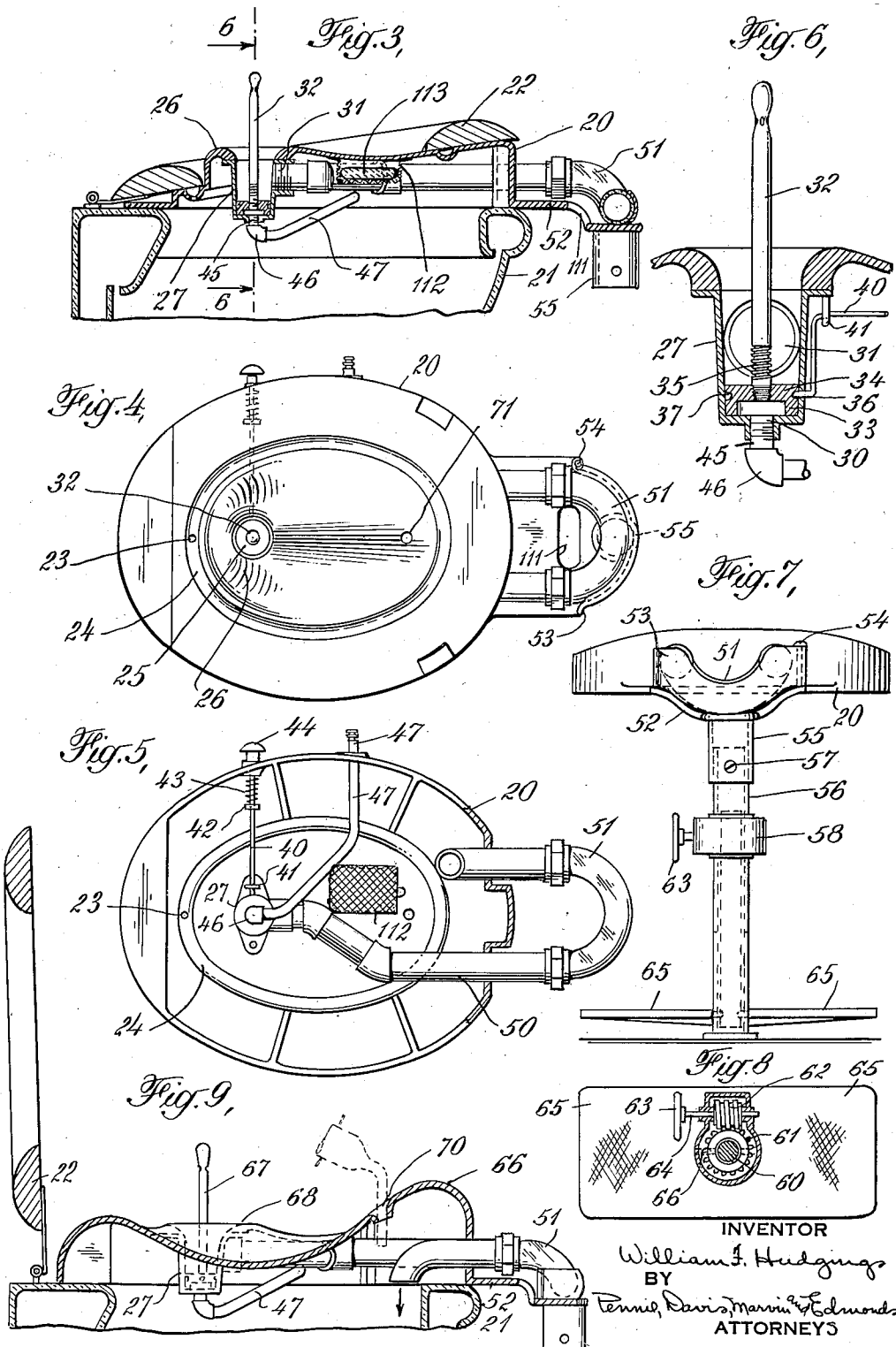
W. F. HUDGINGS

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3 Sheets-Sheet 2



INVENTOR
William F. Hudgings
BY
Tennie Davis, Marvin W. Edmonds,
ATTORNEYS

Dec. 4, 1934.

W. F. HUDGINGS

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3 Sheets-Sheet 3

Fig. 10,

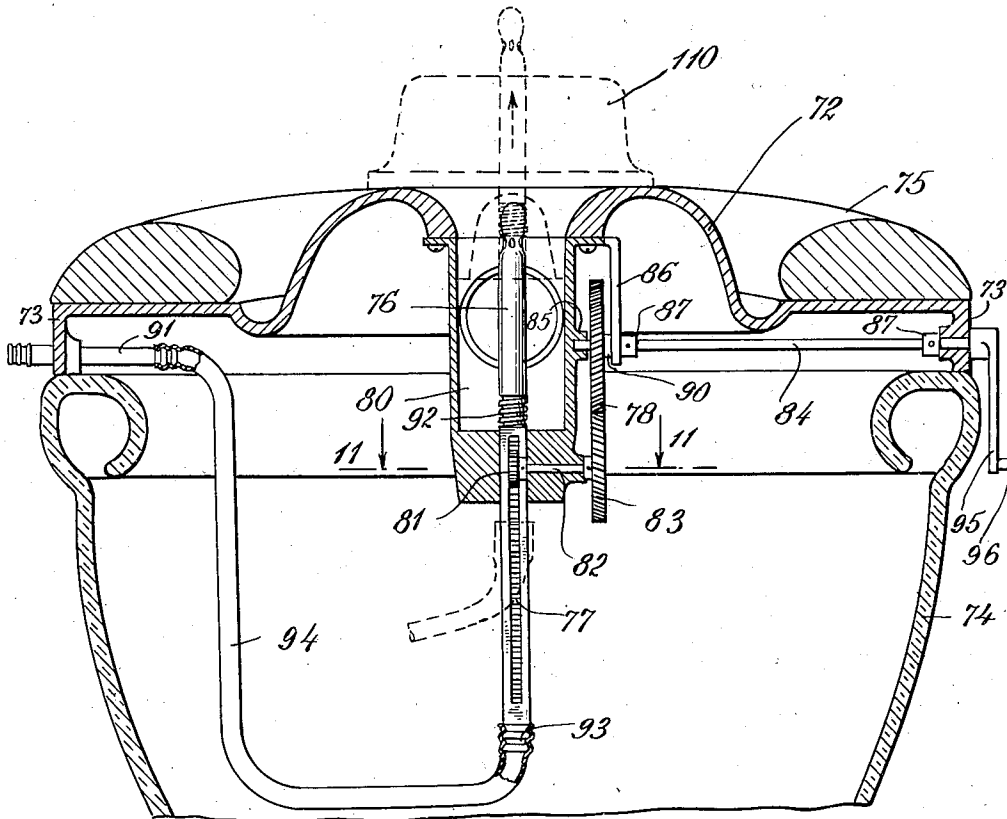
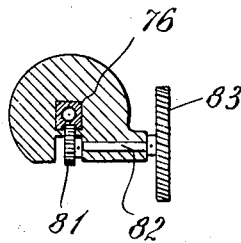


Fig. 11



INVENTOR
William F. Hudgings
BY
Fennel, Davis, Martin & Edmonds
ATTORNEYS

UNITED STATES PATENT OFFICE

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MEDICAL APPARATUS

William F. Hudgings, Brooklyn, N. Y., assignor
to Health Products Corporation of America

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10 Claims. (Cl. 128—227)

This invention relates to medical apparatus and has for an object the provision of an improved apparatus for intestinal irrigation. More particularly, the invention contemplates the provision of improved apparatus for intestinal irrigation by means of which treatment may be administered to a patient in a sitting or crouching posture and without undue strain on the colon.

The apparatus of the invention comprises a member which is adapted to serve as a seat for supporting a patient in a sitting posture and which has an opening therein through which a rectal tube may extend or in alignment with which a rectal tube may be mounted. A rectal tube is associated with the seat and connected by means of a suitable conduit with a fluid container disposed at a suitable elevation.

The seat is preferably so formed that it may serve as a cover for a receptacle into which the flushed out contents of the colon may be discharged. For permitting the discharging of the flushed out contents of the colon, the opening with which the rectal tube is associated may be larger in cross-section than the cross-section of the rectal tube and a ridge or other means may be provided around the opening to provide a seal about the anus of a patient.

In the preferred form of the apparatus, the seat or receptacle cover is provided with a cavity or recess having a discharge opening and an opening for accommodating the rectal tube. The portion of the seat or cover surrounding the recess is so formed as to provide a seal about the anus of a patient seated thereon. This portion is preferably so formed as to conform to the contour of the portion of the human body surrounding the anus.

A discharge tube may communicate with the interior of the recess or cavity through the discharge opening therein. The discharge tube may extend outwardly beyond an outer edge of the seat or cover. The outwardly extending portion of the discharge tube may be provided with a transparent section formed of glass or other suitable material to permit observation of the flushed out material passing therethrough. When the seat is used as a cover for a receptacle, the discharge tube is provided with a return bend which permits the discharge end of the tube to be disposed within the rim of the receptacle. In such cases, the return bend is preferably formed of a transparent material, and it is preferably removably mounted to permit ready removal for cleaning purposes. The transparent section of the discharge tube is preferably bowed downwardly to insure the presence of sufficient discharged material therein for observation purposes.

The rectal tube may be stationary or adjustable, but it is preferably adjustably mounted to

permit insertion after the patient has been seated.

In order to more closely simulate the natural squatting or crouching posture during the treatment, the apparatus may be provided with means for elevating the feet of a patient and thus relieving the tension on the abdominal muscles.

The apparatus of the invention may be designed for temporary or permanent installations. The seat for supporting the patient may be so formed as to be capable of use with standard plumbing fixtures such as toilet bowls, or specially designed bowls or receptacles for receiving the flushed out contents of the colon may be provided, and the seat for the patient may be formed according to the requirements of each case.

Complete apparatus of the invention may include a container provided with means for readily providing liquid of a suitable temperature for use in flushing out the colon. The container is preferably provided with hot and cold water connections which are so disposed that uniform mixing of the hot and cold water is readily accomplished. The container is preferably so disposed with respect to the operative position of the seat that a thermometer associated therewith may be conveniently observed by the patient. The valves for controlling the flow of hot and cold water to the tank and flushing solution from the tank are preferably so disposed as to be within easy reach of a patient on the seat.

The invention will be better understood from a consideration of the following description in conjunction with the accompanying drawings in which

Fig. 1 is an elevation, partly in section, showing a complete arrangement of apparatus which may be provided in accordance with the invention;

Fig. 2 is an enlarged elevation of a portion of the apparatus shown in Fig. 1;

Fig. 3 is a sectional elevation of a seat or cover of the invention applied to a receptacle;

Fig. 4 is a top plan of a seat or cover of the invention;

Fig. 5 is a bottom plan of the seat or cover shown in Fig. 4 with certain front portions broken away;

Fig. 6 is a section taken substantially along line 6—6 of Fig. 3;

Fig. 7 is a front elevation of a seat or cover of the invention showing, in addition, means for elevating the feet of a patient;

Fig. 8 is a section taken substantially along line 8—8 of Fig. 2;

Fig. 9 is a sectional elevation of a modified form of seat or cover;

Fig. 10 is a transverse sectional elevation of a seat or cover of the invention showing an adjustably mounted rectal tube; and

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Fig. 11 is a section taken substantially along line 11—11 of Fig. 10.

The drawings show a seat 20 which is so formed as to provide a cover for a standard toilet bowl 21.

5 The seat or cover is provided with a downwardly extending peripheral flange, and it is so formed that the upper and lower surfaces of its peripheral edge portion engage the bottom surface of the ordinary hingedly attached annular toilet-seat 22, and the top surface of the rim of the bowl, respectively, when it is mounted on a standard toilet bowl. This arrangement permits the ordinary annular toilet-seat to assist in supporting the patient, and, also, provides a rather tight cover for the bowl which prevents the escape of odors, as the seat or cover is substantially impermeable when assembled and in use except for an aperture 23 in the bottom of the lowermost portion of an annular drain channel 24.

10 20 The seat or cover 20 is provided with an opening 25 surrounded by an annular ridge 26. A substantially cup-shaped member 27 provided with an aperture 30 in its bottom wall and a discharge opening 31 in its side wall is attached to the material of the portion of the seat or cover surrounding the opening 25 and forms a recess or cavity for the reception of a rectal tube 32.

15 The rectal tube 32 is removably mounted centrally within the recess or cavity in alignment with the aperture in the bottom wall of the recess. One end of the rectal tube is provided with a flange 33 which fits within a recess in a bushing 34 which fits snugly within the recess. The bushing 34 and the rectal tube are separable, a single bushing being provided for centering and retaining in position rectal tubes of different sizes. The rectal tube is provided with a flexible section 35 for aiding in its insertion.

20 The rectal tube is locked in position by means of a pin 36 (Fig. 6) which extends through an aperture in the side wall of the recess into an annular groove 37 in the bushing 34. The pin 36 forms a continuation of a bent rod 40 which extends through an aperture in a supporting lug 41 and through an aperture in the peripheral flange of the seat 20 to the exterior of the seat. A collar 42 (Fig. 5) is rigidly mounted on the rod 40 and forms a bearing for one end of a helical spring 43 through which the rod extends. The opposite end of the spring bears against the inner surface of the peripheral flange of the seat 20. The outer end of the rod 40 is provided with a knob or handle 44. The handle 44 provides means for manipulating the rod 40 and pin 36 to release the bushing 34 and the rectal tube. The spring 43 tends to maintain the pin 36 in its locking position and returns it to such position when the handle is released.

25 A nipple 45 is mounted in the aperture 30 in the recess and connected to an elbow 46 which in turn is connected to a metal conduit or tube 47 extending through an aperture in the peripheral flange of the seat 20 to a point exteriorly thereof. The outer end portion of the tube 47 is roughened or provided with annular ridges to provide means for retaining a rubber tube.

30 A discharge tube 50 is attached to the recessed portion of the seat and communicates with the interior of the recess or cavity through the discharge opening 31. The discharge tube 50 extends forwardly of the seat and bowl substantially horizontally and returns to a point within the rim of the bowl. A transparent return bend 51 is included in the discharge tube. The return bend 51 may be formed of glass or any other suit-

able transparent material. The transparent return bend is so formed that it is bowed or curved downwardly when in position.

35 A frame or extension 52 is rigidly attached to the front portion of the peripheral flange of the seat below the discharge tube and serves as a protecting member for the transparent section 51. A protecting plate 53 which is so formed as to conform to the shape of the return bend is pivotally mounted on a pin 54 carried by the extension 52. The plate 53 may be rotated on its pivot to permit the removal or insertion of the return bend.

40 The extension 52 is provided with a downwardly opening hollow boss 55 which is adapted to receive the upper end portion of a tubular foot-rest supporting post 56 (Figs. 2 and 7). The lower end of the post is adapted to engage the floor of the room in which the treatment is conducted. The post 56 is locked in position within the hollow boss by means of a set screw 57 extending through a wall of the hollow boss. The post may be inserted in the opening in the hollow boss to any desired extent to provide for the use of a particular assembly in conjunction with receptacles of different heights.

45 The tubular post 56 is divided into upper and lower axially aligned sections which are connected by means of a housing 58. A worm shaft 60 is mounted within the tubular post 56. A nut 61 is mounted on the worm within the housing 58, engaging the upper and lower inner walls of the housing and being locked against vertical movement thereby. The nut 61 is provided with teeth which mesh with the grooves of a worm 62 which is mounted within the housing 58 with its opposite ends engaging the inner surfaces of the side walls thereof. A handwheel 63 is rigidly attached to the worm 62 by means of a shaft 64. The handwheel 63 may be manipulated to raise and lower the worm shaft 60. A foot rest 65 is rigidly attached to the worm shaft 60 by means of reduced connecting portions 66 extending through longitudinal slots 69 in the opposite sides of the lower portion of the post 56. Movement of the worm shaft 60 causes movement of the foot rest relatively to the supporting post. The foot rest may be placed in any desired position relatively to the seat.

50 Fig. 9 shows a modification similar to that shown in Figs. 1 to 8, inclusive, but in which the upper surface of the seat is so formed as to provide means for comfortably supporting the patient without using a toilet-seat. The portions of the seat 66 surrounding the rectal tube 67 and the annular ridge 68 are shaped to conform to the shape of the buttocks portion of the human body. The front portion of the seat is provided with an opening 70 through which the discharge tube of a urethral device may extend. A urethral connection is shown in dotted lines. This may be any standard or suitable type of device provided with means for securing it to the body of a patient. A similar device may be provided for use in connection with the type of seat illustrated in Figs. 1 to 8, inclusive, and the discharge tube may extend through an opening 71 therein (Fig. 4). A seat member of the type illustrated in Fig. 9 may be used to advantage in permanent installations. Such types of members are desirable for use in conjunction with adjustable foot rests, as they provide relatively large supporting surfaces for the body of the patient.

55 The type of seat illustrated in Fig. 10 is similar to that illustrated in Figs. 1 to 8, inclusive, 150

except that an adjustable mounting for the rectal tube is provided. The seat 72 having a downwardly extending flange 73 is mounted on a toilet bowl 74 with its lower peripheral surface engaging the rim of the bowl and its upper peripheral surface engaging the lower surface of an annular toilet-seat 75.

A rectal tube 76 having a rectangular bottom portion provided with longitudinally extending rack 77 extends through a rectangular opening in the bottom wall of the recess 80. A pinion 81 is rigidly mounted on one end of a stub shaft 82 journaled in the bottom wall of the recess with its teeth meshing with the teeth of the rack 77. A gear 83 is rigidly mounted on the opposite end of the shaft 82 and its teeth mesh with the teeth of a gear 78 which is rigidly mounted on a shaft 84 which normally extends horizontally from the recess to the exterior of the seat. The shaft 84 is supported for rotation at its opposite ends in a bearing formed in a boss 85 on the outer wall of the recess and a bearing formed in the flange 73. The shaft 84 may also be supported by an arm 86 formed integrally with the recessed portion of the seat and which also serves to maintain the gear 78 in proper alignment. Collars 87 are rigidly mounted on the shaft 84 in engagement with the arm 86 and the portion of the flange 73 which supports the shaft 84. A washer 90 is loosely mounted on the shaft 84 between the gear 78 and the arm 86. A metal tube 91 having rough or corrugated ends is rigidly mounted in an opening formed in the flange 73. The rectal tube 76 is provided with a flexible section 92 and a rough or corrugated lower end portion 93. A flexible rubber tube 94 connects the tube 81 with the lower end portion 92 of the rectal tube 76.

A crank 95 provided with a knob or handle 96 is rigidly mounted on the outer end of the shaft 84 and it may be manipulated to raise and lower the rectal tube. The relative sizes of the rectal tubes employed and the recessed portion of the seat are preferably such that the rectal tube may be retracted to such a position that it will not contact with a patient on the seat. The rectal tube may be removed from the apparatus by moving it in either of its directions of movement until the rack and pinion no longer mesh.

A complete arrangement of apparatus of the invention is shown in Fig. 1.

A liquid receptacle 97 is mounted at such an elevation as to supply liquid at suitable pressure to a rectal tube. The receptacle 97 is open at the top and provided with a loose-fitting cover 98. A sediment drain pipe 99 communicates with the interior of the receptacle at its lowermost point. An overflow pipe 100 communicates with the interior of the receptacle adjacent the top thereof. The overflow pipe may be connected to a sewer conduit at any suitable point. The sediment pipe is connected to the overflow pipe. A valve 101 is provided in the sediment pipe to control the flow of liquid therethrough. Hot and cold water supply pipes 102 and 103 communicate with the interior of the receptacle preferably near the bottom thereof. A conduit 104 for supplying liquid to the rectal tube communicates with the interior of the receptacle near but above the bottom. A liquid level gauge 105 is mounted on the receptacle. A thermometer 106 is mounted on the receptacle about midway between the top and bottom and near the liquid level gauge.

The liquid receptacle is mounted in such a position that a patient on the seat may observe the

thermometer and the liquid level gauge. The hot and cold water pipes 102 and 103 and the rectal tube supply conduit 104 are provided with valves 107, 108 and 109 within easy reach of a patient on the seat. A rubber tube 110 is provided for connecting the rectal tube supply conduit 104 with a tube 47 or a tube 91 carried by the seat.

In using apparatus of the type illustrated in the drawings, the receptacle 97 may first be filled to the desired extent with water and any desired medicament at a suitable temperature. A patient may then be placed on the seat by means of his own individual efforts or with the aid of an attendant. In case apparatus provided with a non-adjustable rectal tube (such as that shown in Figs. 1 to 9, inclusive) is employed, the patient may be seated while the rectal tube is in position, or the rectal tube may be inserted before the patient is seated. In the latter case, the rectal tube readily assumes its proper position in the recess when the patient is seated. When apparatus provided with an adjustable rectal tube is employed, the rectal tube may be in an entirely retracted position when the patient is first seated and the complete insertion may then be made, or the rectal tube may be permitted to project to some extent to aid the patient in assuming the proper position. It is advisable to use apparatus provided with an adjustable rectal tube when a patient to be treated is afflicted with sore or tender tissues in the rectal region. In such cases, insertion may be effected as slowly and cautiously as may be necessary.

When the patient has been seated and the rectal tube properly inserted, the valve 109 may be manipulated to permit the introduction of liquid from the receptacle 97 into the colon at any desired rate of flow. The contents of the colon may be discharged at will, with the rectal tube remaining in the rectum, or (in the case of the adjustable rectal tube) it may be retracted if preferred, and the introduction of liquid from the receptacle 97 may be discontinued during the periods of discharge if desired. The discharged material will flow through the discharge tube in which it may be observed through the transparent walls of the return bend. The treatment may be continued until observation of the discharged material indicates that a clear liquid is being discharged.

When necessary, additional liquid of the proper temperature may be provided during the course of a treatment. The valves 107 and 108 may be manipulated to admit hot and cold water into the interior of the receptacle 97. The water entering near the bottom of the receptacle causes agitation of the contents so that a body of liquid of uniform temperature may be readily obtained. The temperature of the liquid within the receptacle will be registered by the thermometer and any adjustment desired may be readily made by adding hot or cold water as may be required.

When a treatment has been completed, the seat may be sterilized by detaching the foot elevating assembly and immersing the seat in a suitable disinfecting solution or by forcing a stream of water containing a disinfectant through the recess and discharge tube. Cleaning and disinfecting of the apparatus may also be accomplished by removing or retracting the rectal tube, introducing a disinfecting solution into the recess 80, then plugging the recess and passing a flow of water through the conduit which normally supplies liquid to the rectal tube, thence through the discharge tube into the toilet bowl. A suitable plug 110 is shown in Fig. 10. The front

extension 52 is provided with an opening 111 (Fig. 4) in which the hand may be inserted for carrying the seat.

A wire-mesh dish or holder 112 is attached to the under side of the seat for the purpose of supporting a cake of disinfecting or deodorizing material as indicated by the numeral 113 (Fig. 3). The holder 112 may be supported in any desired manner as by means of a hinged connection at one side or end and a releasable fastening arrangement at the opposite side or end.

The various portions of the seat may be formed of any suitable materials. The transparent section of the discharge tube is preferably formed of glass, and the flexible conduits and the urethral connection required are preferably formed of rubber. The remaining portions are preferably formed of metal. When possible it is advisable to employ a light metal such as aluminum.

I claim:

1. Apparatus for intestinal irrigation comprising a receptacle, a cover for said receptacle having a recess therein provided with an opening, means surrounding said recess to provide a seal about the anus of a patient seated on said cover, a rectal tube extending into said recess in alignment with the opening, and a discharge tube communicating with said recess, extending outwardly beyond said cover and returning to a point within the rim of said receptacle, said discharge tube having a transparent section in the portion thereof which extends beyond said cover.

2. Apparatus for intestinal irrigation comprising a receptacle, a cover for said receptacle having a recess therein provided with an opening, means surrounding said recess to provide a seal about the anus of a patient seated on said cover, a rectal tube extending into said recess in alignment with the opening, and a discharge tube communicating with said recess, extending outwardly beyond said cover and returning to a point within the rim of said receptacle, said discharge tube having a downwardly curved transparent section in the portion thereof which extends beyond said cover.

3. Apparatus for intestinal irrigation comprising a receptacle, a cover for said receptacle having a recess therein provided with an opening, means surrounding said recess to provide a seal about the anus of a patient seated on said cover, a rectal tube extending into said recess in alignment with the opening, and a discharge tube communicating with said recess, extending forwardly of said cover and returning to a point within the rim of said receptacle, said discharge tube having a downwardly curved transparent section in the portion thereof which extends forwardly of said cover.

4. Apparatus for intestinal irrigation comprising a receptacle, a cover for said receptacle having a recess therein provided with an opening, means surrounding said recess to provide a seal about the anus of a patient seated on said cover, a rectal tube extending into said recess in alignment with the opening, and a discharge tube communicating with said recess, extending forwardly of said cover and returning to a point within the rim of said receptacle, said discharge tube having a transparent return bend section therein.

5. In apparatus for intestinal irrigation, a rigid seat for supporting a patient in a sitting posture and having an opening therein, a rectal

tube adjustably mounted on the seat below and in alignment with the opening therein, means for moving the rectal tube relatively to the seat to adjust the position of the discharge end portion thereof, a source of supply of liquid, and means connecting the rectal tube with the source of supply of liquid.

6. In apparatus for intestinal irrigation, a rigid seat having a recess therein provided with an opening in its bottom wall, a discharge tube communicating with the interior of the recess, a rectal tube adjustably mounted below said recess and extending through the opening in the bottom wall thereof, means for moving the rectal tube relatively to the seat to adjust the position of the discharge end portion thereof, a source of supply of liquid, and means connecting said rectal tube with the source of supply of liquid.

7. In apparatus for intestinal irrigation, a rigid seat having a recess therein provided with a relatively small opening for the reception of a tube, means surrounding the recess to provide a seal about the anus of a patient, a rectal tube extending into the recess in alignment with the opening therein with its walls spaced from the walls of the recess to form an annular space surrounding the rectal tube, a discharge tube communicating with the annular space surrounding the rectal tube, a source of supply of liquid, and means connecting the rectal tube with the source of supply of liquid.

8. Apparatus for intestinal irrigation comprising an open-top receptacle, a rigid cover detachably mounted on the receptacle having a recess therein provided with a relatively small opening for the reception of a tube, means surrounding the recess to provide a seal about the anus of a patient, a rectal tube extending into the recess in alignment with the opening therein with its walls spaced from the walls of the recess to form an annular space surrounding the rectal tube between the rectal tube and the walls of the recess, a discharge tube communicating with the space surrounding the rectal tube, a source of supply of liquid, and means connecting said rectal tube with the source of supply of liquid.

9. In apparatus for intestinal irrigation, a seat having a recess therein provided with a relatively small opening for the reception of a tube, a rectal tube mounted on said seat and extending through said opening with its walls spaced from the walls of the recess, and means for moving said rectal tube from a position in which its discharge end is below the rim of the recess to a position in which its discharge end projects above the rim of the recess.

10. In apparatus for intestinal irrigation, a receptacle, a rigid cover forming a seat for supporting a patient in a sitting posture detachably mounted on the receptacle, said cover having a recess therein provided with a relatively small opening for the reception of a tube, means surrounding the recess to provide a seal about the anus of a patient, a rectal tube adjustably mounted within the relatively small opening in the recess with its walls spaced from the walls of the recess to form an annular space surrounding the rectal tube between the rectal tube and the walls of the recess, and a discharge tube communicating with the annular space surrounding the rectal tube and with the interior of the receptacle.

WILLIAM F. HUDGINGS.