

March 7, 1961

W. S. PLYMALE, JR
COLOSTOMY UNIT

2,973,759

Filed Nov. 16, 1956

2 Sheets-Sheet 1

Fig. 1.

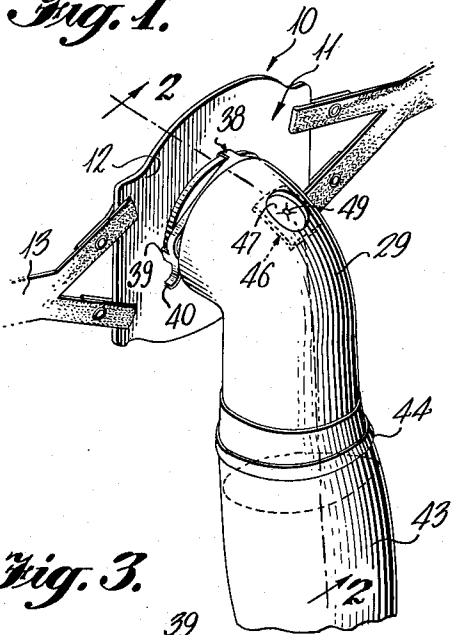


Fig. 2.

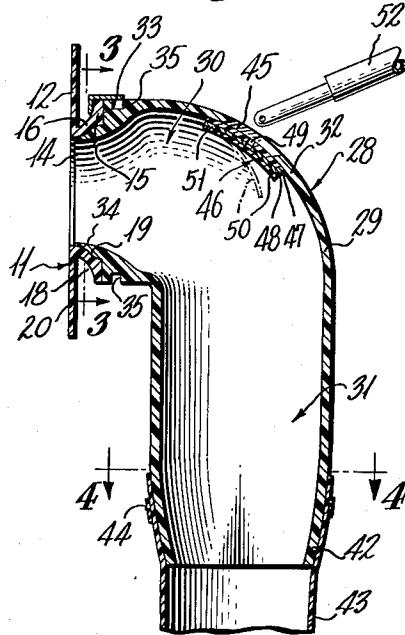


Fig. 3.

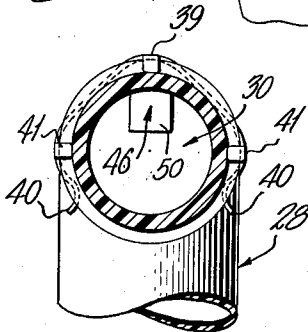


Fig. 4.

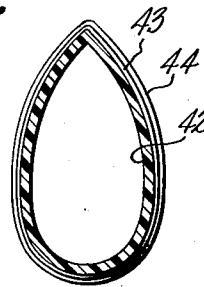
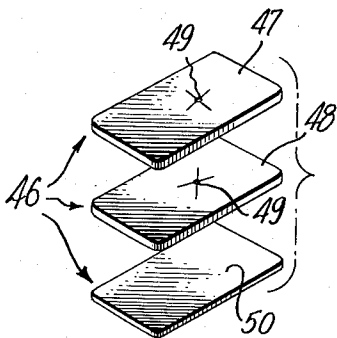


Fig. 5.



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Fig. 6.

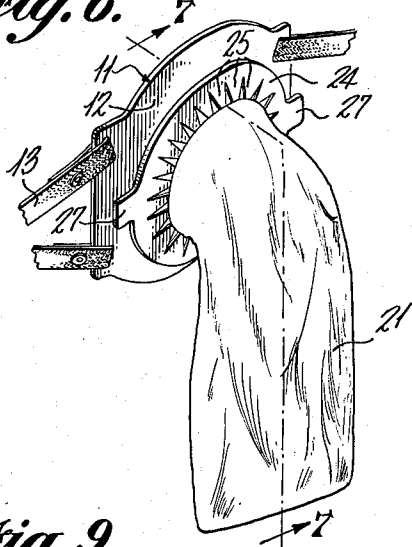


Fig. 7.

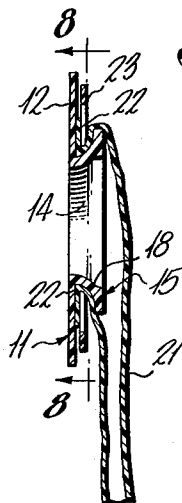


Fig. 9.

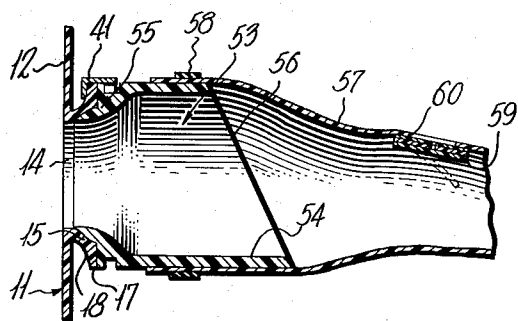


Fig. 8.

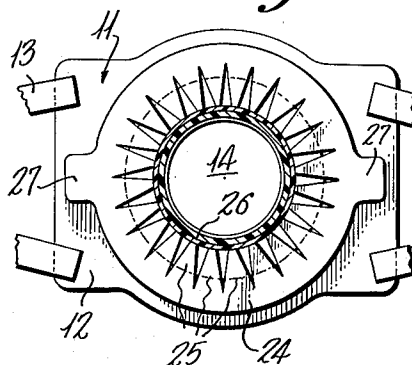
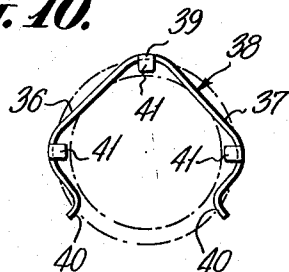


Fig. 10.



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3 Claims. (Cl. 128—283)

The present invention relates in general to surgical appliances and more particularly to stoma-receiving appliances of the type commonly known as colostomy apparatus.

Devices of the character generally designated in the medical profession as colostomy apparatus are designed for use by persons who have had a colostomy operation which prevents the natural use of the colon for evacuation purposes. Heretofore, colostomy apparatus to enable drainage from the body following such operations has been used. Area for improvement in such devices has been recognized, however, particularly in relation to the convenience and comfort of such appliances to the wearer, the effectiveness of the seal between the apparatus and the body, and the adaptability of the appliance to be modified for performance of irrigation procedures.

The object of the present invention, therefore, is the provision of a novel and improved colostomy appliance which can be applied to the body to fit over a stoma and effectively hold a disposable bag or the like in proper position to receive the discharge, which unit may be held on the body by a body-encircling belt and may be adjusted to properly fit the contour of the body.

Another object of the present invention is the provision of novel colostomy apparatus which facilitates performance of several different functions in connection with the stoma.

Another object of the present invention is the provision of novel colostomy apparatus having a foundation portion adapted to be comfortably adjusted over the stoma in sealed relation with the body of the wearer, which is readily adaptable to support either a flexible bag for receiving the discharge or irrigation apparatus for irrigating the stoma.

Another object of the present invention is the provision of a novel irrigation attachment for use in connection with colostomy appliances which facilitates conduct of the irrigation procedures with a minimum of undesired seepage of fluids.

Other objects, advantages, and capabilities of the present invention will become apparent from the following detail description, taken in conjunction with the accompanying drawings illustrating preferred embodiments of the invention.

Figure 1 is a perspective view of a colostomy appliance embodying the present invention, with an irrigation attachment for use with patients in a sitting position associated therewith;

Figure 2 is a vertical longitudinal section view taken along the line 2—2 of Figure 1;

Figure 3 is a vertical transverse section view taken along the line 3—3 of Figure 2;

Figure 4 is a horizontal transverse section view taken along the line 4—4 of Figure 2;

Figure 5 is an exploded perspective view illustrating the construction of the valve associated with the irrigation attachment of Figure 1;

Figure 6 is a perspective view of a colostomy appliance

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employing the foundation disk of the type illustrated in Figure 1, with a flexible bag releasably supported thereon;

Figure 7 is a vertical longitudinal section view taken along the line 7—7 of Figure 6;

5 Figure 8 is a vertical transverse section view taken along the line 8—8 of Figure 7;

Figure 9 is a vertical longitudinal section view of the colostomy showing an irrigation attachment for use with patients in a reclining position associated therewith; and

10 Figure 10 is an elevation view of the mounting ring for releasably supporting the irrigation attachments onto the foundation disk.

Referring to the drawings wherein like reference characters designate corresponding parts throughout the several figures, the colostomy apparatus of the present invention, generally indicated by the reference character 10, includes a foundation disk 11 comprising a flexible supporting plate 12 adapted to be held against the body of the wearer by means of a conventional adjustable fabric belt 13. The supporting plate 12 is provided with a central opening 14 through which the stoma is received, which opening is bounded by an outwardly projecting annular ring 15 which is integral with the supporting plate 12 but is substantially rigid and flares from a neck region 16 immediately adjacent the supporting plate 12, which is of relatively constricted diameter, to a rim 17 of relatively greater outer diameter. The radially outwardly facing surface of the neck region 16 is of arcuate concave configuration, as indicated at 18, extending from the supporting plate 12 and terminating at the rim 17. The radially inwardly facing surface 19 of the ring 15 is of S-shaped configuration in cross section for a purpose to be later described. The foundation disk 11 is preferably molded from Teflon, or some equivalent material, and is etched on the inner surface 20 of the supporting plate 12 by a suitable chemical process to increase the force of adhesion between this surface and the adhesive of the conventional sealing disk interposed between the supporting plate 12 and the body of the wearer when the foundation disk is mounted in position for use.

In normal use, the foundation disk 11 supports a suitable flexible bag 21 of polyethylene, or other suitable plastic material, which is sealed or otherwise closed at the bottom and along the sides thereof and is provided with an upwardly opening end 22. The upwardly opening end 22 of the flexible bag 21 is supported in surrounding relation to the ring 15 of the foundation disk 11 by means of an annular retaining collar 23 which is preferably formed of Teflon, or like material. The retaining collar 23 comprises an annular body portion 24 from which project integral flexible fingers 25 whose radially inwardly disposed ends define an opening 26 which corresponds substantially in diameter to the minimum diameter of the neck region 16 of the ring 15. Diametrically oppositely extending peripheral projections 27 are also formed on the retaining collar 23 to facilitate manual adjustment of the retaining collar 23 relative to the foundation disk 11.

To assemble the flexible bag 21 onto the foundation disk 11, the upwardly opening end 22 of the flexible bag 21 is first projected through the opening 26 in the retaining collar 23 while the retaining collar is separated from the foundation disk, and then the retaining collar 23 and flexible bag 21 are shifted together over the rim 17 of the foundation disk ring 15 until the flexible fingers 25 snap over the rim 17 and resiliently force the neck region of the bag 21 immediately adjacent the end 22 thereof against the smaller diameter arcuate concave surface 18 of the foundation disk ring 15. The inherent resiliency of the flexible fingers 25 thereafter maintains the neck region of the flexible bag 21 in intimately contacting surrounding relation with the foundation disk ring 15.

In Figures 1-5 of the drawings there is shown an irrigation attachment, generally indicated by the reference character 28 which is adapted to be associated with the foundation disk 11 for use by patients in a sitting position. The irrigation attachment 28 comprises an elbow tube 29 of Plexiglas or like material having an upper horizontal portion 30 and a lower depending portion 31 whose axes are disposed at right angles to each other. The portions 30 and 31 are connected by a smoothly curved intermediate portion 32. The upper horizontal portion 30 terminates in an especially formed end adapted to mate precisely with the confronting surfaces of the foundation disk ring 15 to provide an effective seal against passage of fluids at the interface between these components. To this end, the end of the upper horizontal portion 30 of the elbow tube 29 comprises an annular shoulder 33 which lies in a vertical plane and conforms precisely to the annular confronting surface of the foundation disk 11 lying between the rim 17 thereof and the outer end of the opening 14. Projecting from the annular shoulder 33 is an annular lip 34 which surrounds the central bore of the elbow tube 29 and is shaped along its radially outward surface to mate precisely with the outer portions of the S-shaped surface 19 of the foundation disk ring 15. Spaced slightly back from the annular shoulder 33 and in coplanar relation therewith is a peripheral outwardly opening groove 35 which extends entirely around the upper elbow tube portion 30 and is formed in the outer wall thereof. This groove 35 is adapted to receive the legs 36, 37 of a stainless steel clip 38 adapted to releasably clamp the elbow tube 29 onto the foundation disk ring 15. The legs 36, 37 of the clip 38 are joined at their upper ends, as indicated at 39 and terminate in reversely curved ends 40 to facilitate slipping of the clip 38 into position in the groove 35. Integral right angle fingers 41 project from the legs 36, 37 to extend behind the lip 17 of the foundation disk ring 15 and hold the shoulder 33 of the elbow tube 29 intimately against the confronting surface of the foundation disk ring.

The opposite end 42 of the elbow tube 28 at the lower end of the depending portion 31 is deformed into a substantially tear-shaped cross section, as illustrated in Figure 4, and is adapted to receive a flexible tube 43 of polyethylene or other suitable plastic thereof which is frictionally retained thereon by means of a rubber band 44 to facilitate conduction of the discharge to a suitable receptacle.

In the intermediate portion 32 of the elbow tube 29 is an opening 45 covered underneath by a flap valve 46 of special design, as illustrated in Figure 5, which comprises a pair of small rectangular vinylite or other suitable flexible plastic sheets 47 and 48 which are cemented together and to the bounding surfaces of the opening 45 and have a small hole 49 and a rectangular fitting 50 of polyethylene or like flexible plastic forming the movable valve member which is disposed in underlying relation to the sheets 47 and 48 and is affixed thereto along the upper end thereof, as indicated at 51.

When the nozzle of the catheter or other irrigation device, indicated schematically at 52 in Figure 2, is projected through the opening 45 and through the deformable hole 49 in the valve member sheets 47 and 48, it flexes the valve member 50 out of intercepting relation with the catheter nozzle to permit projection of the nozzle into the stoma opening and effect irrigation of the stoma. Upon withdrawal of the catheter nozzle from the opening 45, the valve member 50 is flexed by its own internal resiliency into intimate surface contact with the sheet 48 to close the hole 49 against passage of fluid therethrough when the fluid is discharged from the stoma. Since the direction of fluid discharge from the stoma is against the under side of the valve member 50, the discharged fluid urges the valve member 50 into more intimate contact with the adjacent sheet 48 of the valve to facilitate maintenance of the seal at the opening 45.

There is illustrated in Figure 9 a modified irrigation attachment, indicated generally by the reference character 53, which is designed to facilitate conduct of the irrigation procedures when the patient is in a reclining position. The irrigation attachment 53 comprises a straight tube 54 of Plexiglas or like material having its forward end, generally indicated by the reference character 55, configured in precisely the same manner as the end of the upper portion 30 of the elbow tube 28 to facilitate attachment of the tube 54 in sealing relation with the foundation disk ring 15 by means of the clip 38 in the same manner as is described above.

The opposite end 56 is cut along a plane inclined away from the perpendicular plane of the axis of the tube 54. A flexible polyvinyl tube 57, which is open at both ends, is adapted to be frictionally supported over the end 56 of the tube 54 by means of a rubber band 58, and a flap valve assembly 59 corresponding exactly to the structure of the flap valve 46 is provided in the flexible tube 57 underlying a catheter opening 60 therein.

It will be seen that by the above construction, the colostomy appliance can be adapted for irrigation of the stoma without removal of the foundation disk from the body of the wearer by withdrawing the retaining collar 23 and the flexible bag 21 from the ring 15 and supporting either the irrigation attachment 28 or the irrigation attachment 53 on the foundation disk ring 15 in the manner described above. By having an elongated flexible tube 57, which is approximately 15 inches in length and which carries a flap valve 59 on the tube 57 in the irrigation attachment 53, the discharge from the stoma can be conveniently conducted to the side of the patient into a suitable receptacle, while the particular design of the irrigation attachment 28 is specially adapted to facilitate conduct of the irrigation procedure by the patient in a sitting position. There has, therefore, been disclosed a colostomy apparatus which greatly facilitates performance of the varied functions which are required in connection with proper care of colostomy patients.

While several preferred embodiments of the invention have been particularly shown and described, it is distinctly understood that the invention is not limited thereto but that various modifications may be made in the invention without departing from the spirit and scope thereof, and it is desired therefore, that only such limitations shall be placed thereon as are imposed by the prior art and are set forth in the appended claims.

I claim:

1. Colostomy irrigation apparatus comprising a foundation disk having a plate portion to be disposed adjacent the body of a wearer and an annular supporting ring projecting from the plate portion away from the wearer and having an aperture extending therethrough to accommodate a stoma, the ring having an annular surface bounding said aperture and facing inwardly toward the axis thereof which is curved in cross-section and progresses outwardly from the wearer and from the axis of the aperture, an irrigation attachment removably coupled to said foundation disk comprising a rigid tubular member having right angularly related end portions terminating in open opposite ends and a curved intermediate portion interconnecting said end portions, one of said end portions having an annular lip portion at one end thereof projecting into the aperture of said supporting ring and shaped to mate precisely with the curved annular surface of said supporting ring to effect fluid-sealing between said tubular member and said ring, said tubular member having an aperture in the wall of said intermediate portion positioned closely adjacent to the projected axis of the aperture of said supporting ring to admit a catheter nozzle therethrough into a stoma located in said supporting ring aperture, a normally closed flap valve of flexible material supported on said tubular wall in underlying relation to said aperture therein deformable toward said supporting ring by the catheter nozzle to admit said nozzle

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through said tubular aperture and positioned in the path of discharge of fluid from said stoma to be urged in a valve closing direction by said fluid discharge, and means for releasably securing said tubular member in supported relation on said supporting ring.

2. Colostomy irrigation apparatus comprising a foundation disk having a plate portion to be disposed adjacent the body of the wearer and an annular supporting ring projecting from the plate portion away from the wearer and having an aperture extending therethrough to accommodate a stoma, said ring including an annular lip spaced from said plate portion and disposed in parallelism therewith and an annular planar surface normal to the axis of said aperture at the edge of said lip remote from said plate portion, the ring having an annular surface bounding said aperture and facing inwardly toward the axis thereof which is substantially S-shaped in section to be disposed in sealing engagement and progressing outwardly from the wearer and from the axis of the aperture, an irrigation attachment removably coupled to said foundation disk comprising a rigid tubular member having right angularly related end portions terminating in open opposite ends and a curved intermediate portion interconnecting said end portions, one of said end portions having an annular lip portion at one end thereof projecting into the aperture of said supporting ring and shaped to mate precisely with said S-shaped annular surface of said supporting ring and having an annular planar shoulder extending perpendicular to the axis of the lip portion abutting said annular surface of said ring, said tubular member having an aperture in the wall of said intermediate portion positioned closely adjacent to the projected axis of the aperture of said supporting ring to admit a catheter nozzle therethrough into a stoma located in said supporting ring aperture, a normally closed flap valve of flexible material supported on said tubular wall in underlying relation to said aperture therein deformable toward said supporting ring by the catheter nozzle to admit said nozzle through said tubular aperture and positioned in the path of discharge of fluid from said stoma to be urged in a valve closing direction by said fluid discharge, said tubular member having an annular outwardly opening groove in the surface thereof spaced slightly from said annular shoulder and disposed in the plane paralleling the plane of said shoulder, and a resilient clamp releasably supporting said tubular member on said supporting ring having a body portion which is slidably receivable in said annular groove and fingers which project into clamping relation with the lip of said supporting ring.

3. Colostomy irrigation apparatus comprising a foundation disk having a plate portion to be disposed adjacent the body of the wearer and an annular supporting ring

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projecting from the plate portion away from the wearer and having an aperture extending therethrough to accommodate a stoma, said ring including an annular lip spaced from said plate portion and disposed in parallelism therewith and an annular planar surface normal to the axis of said aperture at the edge of said lip remote from said plate portion, the ring having an annular surface bounding said aperture and facing inwardly toward the axis thereof which is substantially S-shaped in section to be disposed in sealing engagement and progressing outwardly from the wearer and from the axis of the aperture, an irrigation attachment removably coupled to said foundation disk comprising a tubular member having open opposite ends, a lip portion at one end thereof projecting into the aperture of said supporting ring and shaped to mate precisely with the S-shaped annular surface of said supporting ring, an annular planar shoulder extending perpendicular to the axis of the lip portion disposed in intimately abutting relation to said annular planar surface of said supporting ring when said lip portion of said tubular member is projected into said aperture in mating engagement with said S-shaped annular surface, said tubular member having an aperture in the wall of the portion thereof intermediate the ends of the tubular member and positioned closely adjacent to the projected axis of the aperture of said supporting ring to admit a catheter nozzle therethrough into a stoma located in said supporting ring aperture, a normally closed flap valve of flexible material supported on the wall of said tubular member in underlying relation to said aperture therein deformable toward said supporting ring by the catheter nozzle to admit said nozzle through the aperture in said tubular member and positioned in the path of discharge of fluid from said stoma to be urged in a valve closing direction by said fluid discharge, and means for releasably securing said tubular member in supported relation on said supporting ring.

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