

[54] **ENTEROSTOMY DRAINAGE APPLIANCE**

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[51] Int. Cl. **A61f 5/44**

[58] Field of Search **128/2 F, 283, 295, 214, 128/224, 226, 227, 272, 251, 275, 294, DIG. 128/24; 119/95; 150/2.1, 2.7**

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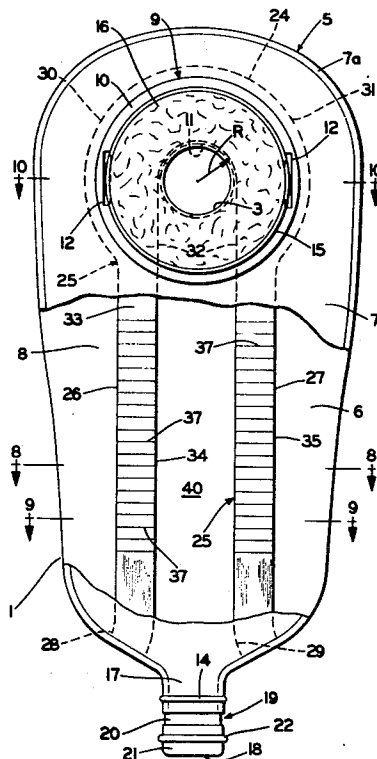
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[57] **ABSTRACT**

An enterostomy drainage bag having front and rear walls of flexible moisture-proof material forming a fluid collection chamber therebetween. A stoma-receiving opening is formed in the rear wall and is surrounded by disc means for attaching the bag to the body of a patient and for sealing the opening against leakage. An opening is formed in the bottom of the bag and communicates with a valve for draining collected fluid from the bag when filled. A rib assembly having a generally oblong, open-ended, U-shaped configuration is mounted on the front wall of the bag within the fluid chamber to prevent sealing of the stoma-receiving opening and bottom drain opening. A plurality of slits is formed in the rib assembly so that the bag and rib assembly will flex and bend with the body movements of a wearer. The drain valve is adapted to receive an end of a flexible tube which can be connected to a larger remote collection container permitting the appliance to be used during the inactive nighttime period.

11 Claims, 11 Drawing Figures



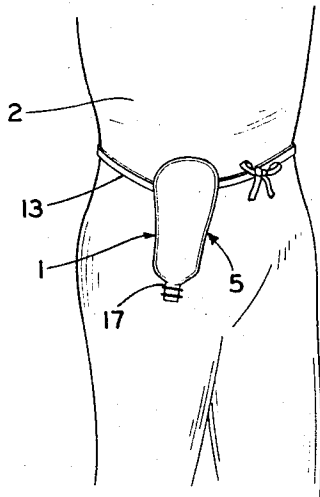


FIG. 1

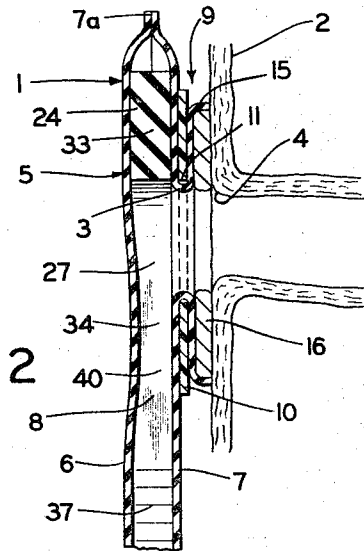


FIG. 2

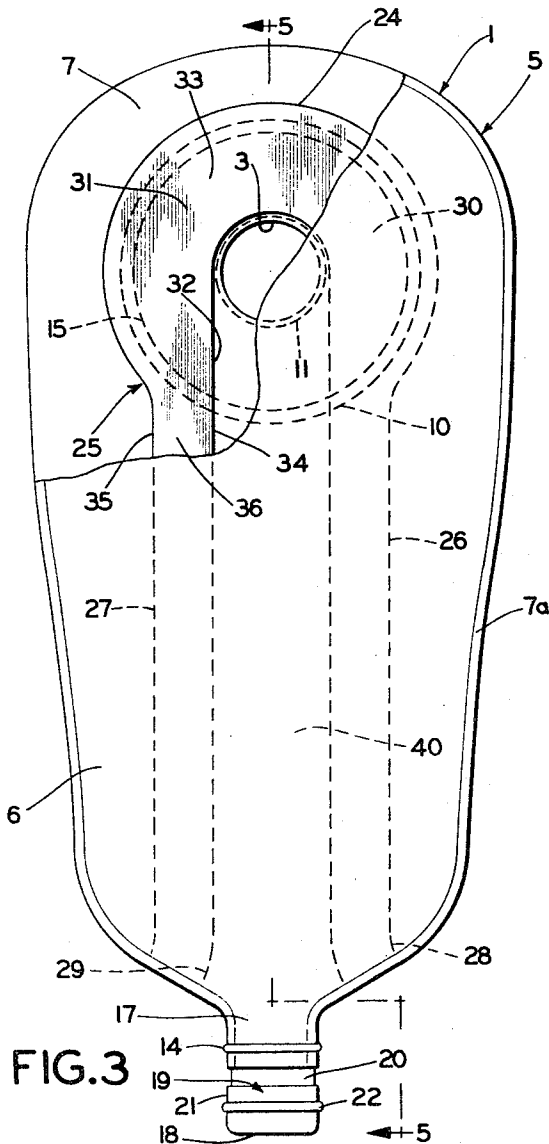


FIG. 3

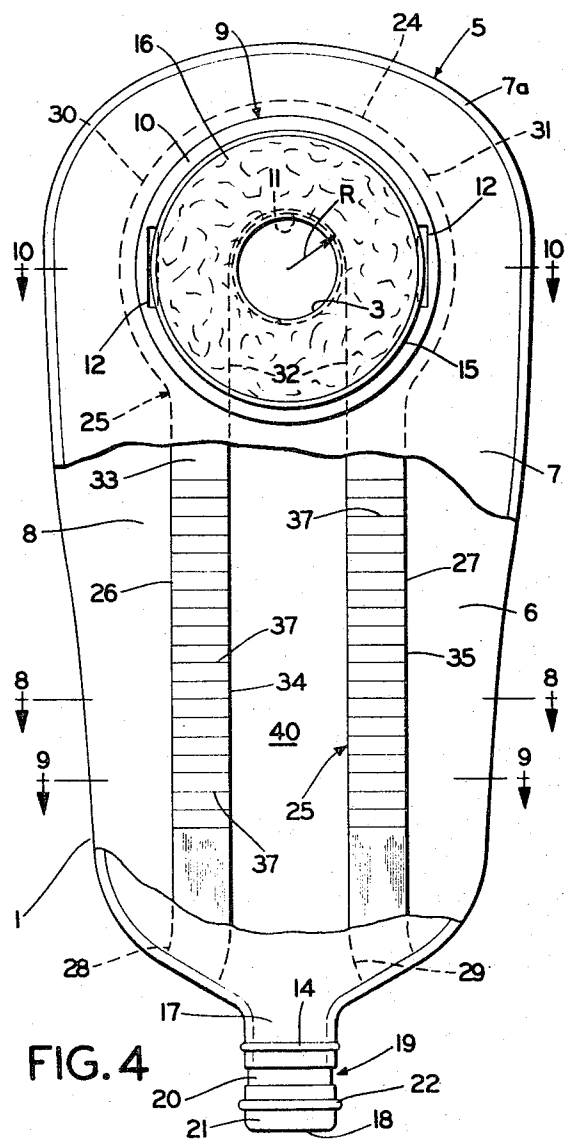


FIG. 4

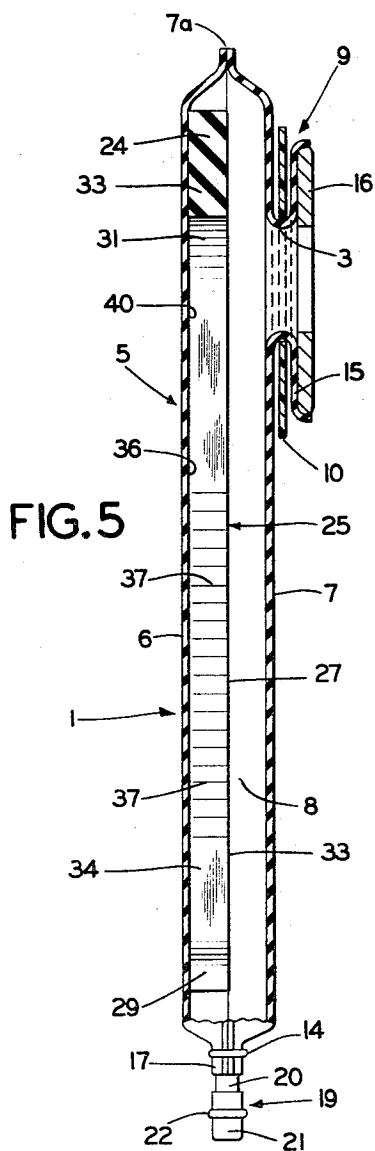


FIG. 5

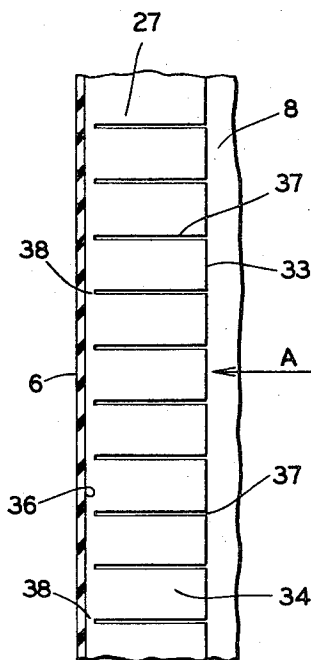


FIG. 6

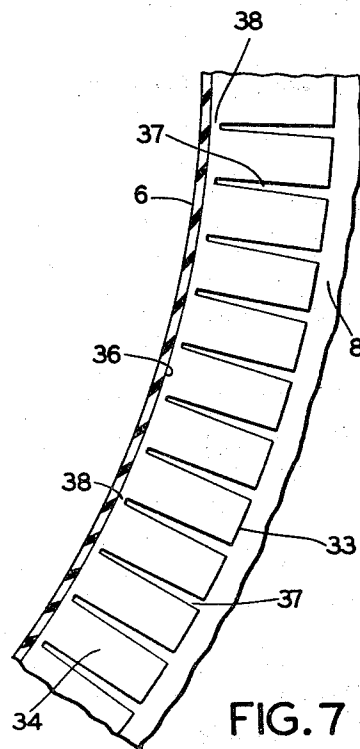


FIG. 7

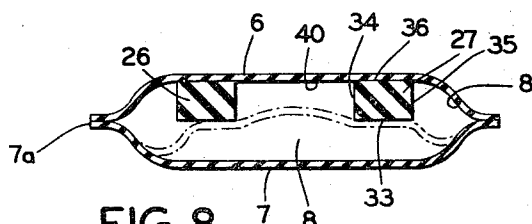


FIG. 8

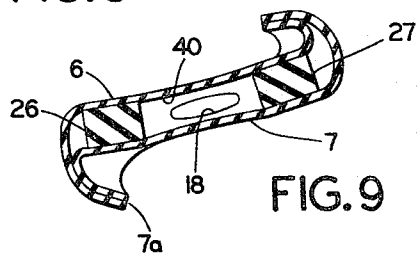


FIG. 9

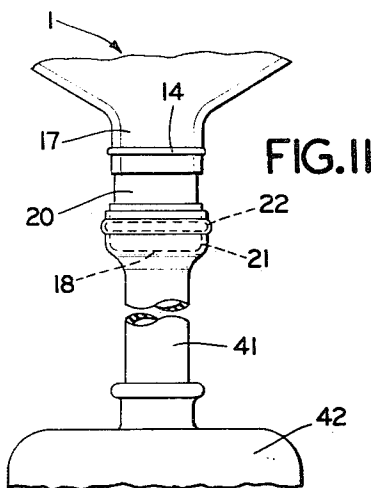


FIG. 11

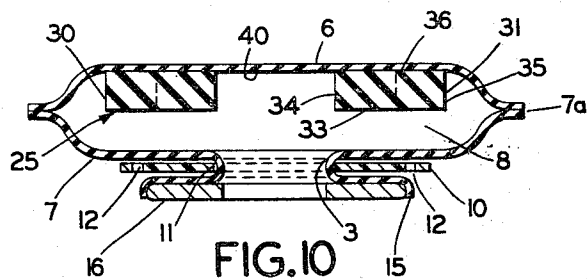


FIG. 10

ENTEROSTOMY DRAINAGE APPLIANCE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to drainage appliances and in particular to a drainage bag worn by a patient for receiving and collecting urine discharged through an artificial opening surgically formed in the abdominal wall. More particularly, the invention relates to a flexible urine drainage bag suitable for both daytime and nighttime use having means preventing sealing of the abdominal opening and of the appliance discharge drain by the flexible walls of the bag, and which provides a sufficiently flexible appliance for the comfort and convenience of the patient during use.

2. Description of the Prior Art

A considerable number of devices and appliances have been developed throughout the years to collect bodily discharges, fecal and urinal, from artificial openings called "stomas" formed in the abdominal region. These openings are formed to bypass diseased or damaged portions of the intestines. These openings are formed by surgical procedures known as colostomy, ileostomy, ureterostomy and the like.

Some examples of such devices are shown in U.S. Pat. Nos. 2,869,548, 2,874,697, 2,973,759, 2,976,869, 3,077,192, 3,221,742, 3,292,626, 3,398,744, 3,570,490 and 3,613,123.

Such appliances must be worn at all times by the patient, during the night as well as during the day. The appliance worn during the day usually consists of a bag constructed of flexible material such as rubber or thin plastic so as to bend and flex with the body movements of the patient, to reduce bulges and projections beneath the patient's clothes, and to provide comfort to the patient.

The flexibility of such material, however, has the disadvantage of easily pressing against and sealing off the stoma opening causing improper drainage and discomfort to the patient. This sealing off of the stoma becomes an even more critical problem during the night when the patient sleeps on his stomach and is not readily aware that sealing of the stoma has occurred.

Therefore, most flexible appliances for daytime use are not suitable for nighttime use due to such sealing problems. This requires an appliance having a more rigid bag or collection receptacle, less susceptible to sealing of the stoma for nighttime use. Most appliances for nighttime use have a drain opening at the bottom of the bag which is connected by flexible tubing to a larger collection container attached to the bed or adjacent thereto, due to the large amount of urine which may be discharged during the night.

Where a flexible bag is used during the nighttime for the comfort of the patient, sealing also may occur at the lower drain opening due to twisting of the bag at this location caused by the tossing and turning of the patient before and during sleep. A more rigid bag for nighttime use in an attempt to eliminate such sealing, adds to the discomfort of the patient making it more difficult for him to sleep.

Thus, the need has existed for a drainage appliance having a collection bag sufficiently flexible to be worn conveniently and comfortably during the active daytime period, which may be adapted readily for nighttime use by eliminating sealing of the stoma-receiving

opening even when the wearer sleeps on his stomach, and which also eliminates sealing of the lower drain opening caused by the twisting and turning of the patient while sleeping.

SUMMARY OF THE INVENTION

Objectives of the invention include providing an enterostomy drainage appliance having a flexible bag formed of moisture-proof material such as rubber, plastic or the like, which bag has internal rib means which extends generally throughout the length thereof preventing sealing of the stoma-receiving opening and of a lower drain opening, and in which the internal rib means of the drainage bag are formed with a plurality of transverse slits spaced longitudinally therealong to enable the rib means to bend and flex with the body movements of the patient; providing an enterostomy drainage appliance adapted to be worn by a patient during active daytime periods, and which is adaptable further for nighttime use by connection of a drainage tube between the bag drain opening and a remotely located collection container; providing an enterostomy drainage appliance permitting known sealing and attachment means to be used for supporting the bag on the body of the patient, and for providing a moisture-proof, nonirritating seal between the bag opening and the patient's body, thus enabling usual readily available sealing materials, supporting belts, etc., to be utilized with the improved appliance; and providing an enterostomy drainage appliance which is sanitary, safe, comfortable to wear, easy to empty and clean, which can be produced economically; and which eliminates difficulties heretofore encountered, achieves the stated objectives simply and effectively, and solves problems and satisfies existing needs.

These objectives and advantages are obtained by an improved enterostomy drainage appliance of the type having a flexible bag with at least front and back walls forming a fluid collection chamber therebetween, in which a stoma-receiving opening is formed in the upper end of the back wall, and in which means are provided for mounting the bag on the body of a patient and for sealing the back wall opening with respect to the stoma; the general nature of the improvement may be stated as including flexible rib means having a generally elongated, inverted U-shaped configuration mounted on the front bag wall and located within the collection chamber; the rib means comprising a pair of straight leg portions extending longitudinally within the collection chamber and terminating at their upper ends in an integral curved portion to form the U-shaped configuration; fluid drainage channel means being formed between and by the leg and curved rib portions; the curved rib portion being located adjacent the upper bag end substantially opposite the stoma-receiving opening and substantially surrounding the stoma-receiving opening when the front wall is pressed towards the back wall; the stoma-receiving opening communicating with the channel means within the curved rib portion when the rib means is pressed against the rear wall to prevent sealing of the stoma-receiving opening by the bag front wall and to provide a continuous open drainage channel extending from the stoma-receiving opening throughout the length of the collection chamber between the straight leg portions; drain opening means being formed in the lower end of the bag and communicating with the drain channel means

within the collection chamber; valve means being mounted on the bag for opening and closing the drain opening means; the rib leg portions terminating in outwardly flared lower ends with the lower ends being located adjacent the drain opening means and on opposite sides thereof; and a plurality of transversely extending slits being formed in the top surface of the straight leg rib portions and spaced longitudinally therealong to provide flexibility to the leg portions.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention - illustrative of the best mode in which applicant has contemplated applying the principles - is set forth in the following description and shown in the drawings and is particularly and distinctly pointed out and set forth in the appended claims.

FIG. 1 is a fragmentary perspective view of the enterostomy drainage appliance being worn by a patient;

FIG. 2 is an enlarged fragmentary sectional view of the enterostomy appliance shown in FIG. 1 communicating with a stoma opening when mounted on the body of a patient;

FIG. 3 is a front plan view of the enterostomy appliance bag with portions of the front wall broken away;

FIG. 4 is a rear plan view of the enterostomy appliance bag with portions of the rear wall broken away;

FIG. 5 is a vertical section taken on line 5-5, FIG. 3;

FIG. 6 is a greatly enlarged fragmentary sectional view of a portion of the internal rib assembly as shown in FIG. 5;

FIG. 7 is a view similar to FIG. 6 showing the rib assembly in a flexed position;

FIG. 8 is a sectional view taken on line 8-8, FIG. 4, with the back wall shown in dot-dash lines in collapsed position;

FIG. 9 is a sectional view taken on line 9-9, FIG. 4, with the lower portion of the bag being twisted with respect to the lower drain valve;

FIG. 10 is a sectional view taken on line 10-10, FIG. 4; and

FIG. 11 is a fragmentary diagrammatic view showing a flexible tube attached to the bag drain valve and extending to a remote receptacle.

Similar numerals refer to similar parts throughout the drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The improved enterostomy appliance indicated generally at 1, FIG. 1, is shown being worn by a patient 2. Appliance 1 has a stoma-receiving opening 3 which is located over the stoma 4 of patient 2 through which the fluid discharged from stoma 4 is received into appliance 1 (FIG. 2).

Appliance 1 has a flexible bag 5 formed of moisture-proof material, such as rubber, plastic or the like, which is not affected or attacked by the fluid discharged from stoma 4. Appliance 1 is intended primarily for receiving urine discharge, but can be adapted easily for use as a colostomy bag for receiving fecal discharge.

Bag 5 is formed by front and rear walls 6 and 7 which preferably have an elongated, generally tapered oval shape as seen in FIGS. 3 and 4. Walls 6 and 7 may be

integral with respect to each other or joined at a seam 7a by a heat sealing process, an adhesive or the like. Walls 6 and 7 form a fluid collection chamber 8 therebetween for receiving and storing the discharged fluid when appliance 1 is being worn by patient 2 during active daytime use.

A usual sealing and attachment device 9 may be used to secure bag 5 to the body of patient 2, and to provide an effective moisture-proof seal around stoma-receiving opening 3. Device 9 may include a disc-shaped face plate 10 formed with a central opening 11 and a pair of spaced slots 12. A belt or strap 13 extends through slots 12 and encircles the patient's waist to secure bag 5 to the patient.

A shallow cup-shaped disc 15 may be formed as an integral part of rear wall 7 and has stoma-receiving opening 3 formed therein which aligns with face plate opening 11 when mounted on patient 2. A disc of vegetable gum material or absorbent padding 16 is placed within rear wall disc 15 and may be coated with an adhesive for sealing bag 5 against the patient's body.

The bottom ends of bag walls 6 and 7 taper into and form a somewhat oval-shaped neck 17 providing drain opening 18 for collection chamber 8 (FIGS. 3-5). A usual valve assembly 19 is mounted within drain opening 18 and may be secured in neck 17 by an O-ring 14. Valve assembly 19 has a generally rigid stem portion 20 having a generally flattened oblong cross-sectional shape, thereby reducing the bulkiness of the stem and enabling stem 20 to lie along the patient's leg or body without bulging.

A usual push-pull closure cap 21 is mounted on the extended end of stem 20 for opening and closing valve 19. A raised boss 22 surrounds the end of cap 21, the purpose of which is discussed below. Stem 20 preferably is removably inserted into bag drain opening 18 and may be retained therein by O-ring 14 enabling valve assembly 19 to be a permanent, reusable item eliminating its replacement when bag 5 is replaced. Bag 5 preferably is of a sufficiently low cost enabling it to be replaced periodically.

Closure cap 21 will be in the closed position of FIGS. 3-5 during the active daytime period when worn by a patient to trap the drained fluid within collection chamber 8. Valve 19 also provides an easy and sanitary means for emptying bag 5 while worn by the patient during the daytime upon becoming filled with discharged fluid.

In accordance with the invention, a generally elongated, inverted U-shaped rib assembly indicated at 25 is mounted within bag 5 between walls 6 and 7 as shown in FIGS. 2-10. Rib assembly 25 preferably is formed of a non-absorbent rubber-type material which is unaffected by the discharged fluid. Rib 25 includes a pair of generally straight leg portions 26 and 27 which extend in a generally longitudinal direction throughout the length of bag 5.

Legs 26 and 27 terminate at the bottom of bag 5 with slightly flared ends 28 and 29, respectively. Ends 28 and 29 flare slightly outwardly and away from each other as shown in FIGS. 3 and 4. The upper end portions 30 and 31 of legs 26 and 27 preferably are curved outwardly in generally semicircular configuration and join integrally adjacent the top of bag 5. Curved rib portions 30 and 31 form a generally circular rib configuration 24 about and concentric with bag opening 3 ex-

cept for the open space 32 between the tops of legs 26 and 27 (FIGS. 3 and 4).

Portions 26-31 of rib assembly 25 preferably are rectangularly shaped as shown in FIGS. 8, 9 and 10, each having a top surface 33, opposite side surfaces 34 and 35, and a bottom surface 36. Bottom surface 36 is attached to the inside surface of front bag wall 6 by an adhesive, bonding, etc., or may be formed as an integral part thereof.

A plurality of transversely extending slits 37 are formed in top surfaces 33 throughout most of the length of straight leg portions 26 and 27 (FIGS. 4-7). Slits 37 preferably extend throughout nearly the entire depth of legs 26 and 27 except for a small uncut area 38 at the bottom of each slit. Slits 37 are similar to a cut made in the rubber rib assembly by a narrow blade, such as a razor or the like.

The inner radius of the curved generally circular rib portion 24 formed by inner surface 34, indicated by arrow R (FIG. 4), is slightly larger than the radius of stoma-receiving opening 3 in rear wall 7 and is located oppositely and concentric with opening 3 as shown in FIGS. 3 and 4. Upper curved leg portions 30 and 31 preferably are flared outwardly as shown in FIGS. 3 and 4 to form a wider top surface 33 than that of straight leg portions 26 and 27 to provide a broader area which presses against the patient's body, adding to the wearer's comfort. Outer side surfaces 35 of curved rib portions 30 and 31 form a nearly circular configuration 24, approximately three quarters, before merging with the outer side surfaces of leg portions 26 and 27. Circular portion 24 is concentric to the semicircular configuration formed by inner surface 34.

Rib assembly 25 has sufficient thickness, preferably in the range of 1/4 inch to 3/4 inch, to prevent sealing of stoma-receiving opening 3 and fluid chamber 8 by the collapse of walls 6 and 7 as later described.

Appliance 1, while being worn during the active daytime period by patient 2, will lie in a generally flat vertical condition against the body of the patient (FIG. 2) beneath his outer garments forming the fluid collection chamber 8 therein for receiving any discharged fluid from stoma 4. Chamber 8 can retain a considerable amount of discharged fluid before requiring emptying of the contents by drain valve 19 as do heretofore usual enterostomy appliances. Slits 37 in leg portions 26 and 27 enable rib assembly 25 and bag 5 to flex easily and conform to the contour of the patient's body upon sitting, standing, bending and various other movements of the patient. This flexibility prevents bulges or projections from protruding against the patient's garments and adds considerably to the comfort of the patient.

The flexibility of rib assembly 25 due to slits 37 in leg portions 26 and 27 is illustrated in FIGS. 6 and 7. Legs 26 and 27 assure the generally vertical position of FIGS. 5 and 6 while the patient is in standing position. When the patient sits bag 5 will follow the body contour with rib legs 26 and 27 bending outwardly to lay along the patient's legs as shown in the greatly enlarged condition of FIG. 7. The solid rubber forming rib 25 provides sufficient stiffness to resist forces exerted in the direction of arrow A, yet flexes extremely easily in the longitudinal direction due to slits 37 when leg portions 26 and 27 are bent outwardly away from the patient's body as during bending and sitting.

In further accordance with the invention, rib assembly 25 prevents the sealing of stoma-receiving opening

3 and collection chamber 8 by the complete collapse of bag walls 6 and 7 during day and nighttime use. Rear wall 7 will press against top surfaces 33 of rib assembly 25, and even if tightly pressed and sealed against the portions of front wall 6 located outwardly of rib assembly 25, a sufficiently large channel opening 40 will be maintained between rib legs 26 and 27 (FIGS. 2, 8 and 9). Likewise, curved rib portion 24 prevents sealing of stoma-receiving opening 3 in rear wall 7 as shown in FIG. 2. The anti-sealing result produced by rib assembly 25 is important during both day and nighttime use, thereby enabling appliance 1 to be used satisfactorily for both day and nighttime use heretofore not practical with most known flexible bag-type drainage appliances.

Regardless of the amount of pressure exerted on the front wall 6 of bag 5 by the patient's garments during bending or sitting, stoma-receiving opening 3 will remain open as shown in FIG. 2, as well as a portion of chamber 8 between and adjacent rib legs 26 and 27 as shown in FIG. 8, to continue to receive drainage liquid.

Twisting forces exerted on bag 5, likewise will not seal channel 40 between legs 26 and 27 as shown in FIG. 9 due to the rubber having sufficient stiffness to retain its generally elongated U-shape with spaced legs 26 and 27.

An important advantage of appliance 1 is its ability to be worn by a patient while sleeping as well as during active daytime periods. Heretofore the required special nighttime appliance accessories have leaked due to the wide variations in lightweight and heavyweight construction materials and/or the various valve assemblies used in conjunction with the nighttime hook-up accessory. This resulted in patient discomfort due to urine saturation of bedding.

For nighttime use a usual flexible rubber tube 41 is telescopically mounted on closure cap 21 (FIG. 11) and is frictionally held thereon by engagement with embossed ring 22. A separate O-ring or the like also can be used to clamp tube 41 more securely on cap 21 should the patient so desire. The other end of tube 41 is connected to a larger fluid receptacle 42 usually mounted on the side of the bed or adjacent thereto. Closure cap 21 is moved to open position after attachment of tube 41.

Rib assembly 25 provides a continuous drainage channel 40 between legs 26 and 27 from stoma-receiving opening 3, through lower drain opening 18, and through tube 41 to the remote drain receptacle 42, even when the patient sleeps on his stomach.

Flared ends 28 and 29 of leg portions 26 and 27 prevent twisting of the lower bag end as shown in FIG. 9, which heretofore usually resulted in sealing of drain opening 18 of most flexible bag constructions during nighttime use. Even if the valve stem 20 is twisted with respect to bag 5, flared ends 28 and 29 prevent closing of opening 18, thus insuring continuous drainage from stoma-receiving opening 3 into tube 41 for deposit in the remote nighttime receptacle.

Patient 2 in the morning only needs to remove tube 41 and close valve cap 21, and after sanitizing and flushing the interior of bag 5, appliance 1 is ready for daytime use. This procedure can be performed even without removing appliance 1 from its attached position on the body should the patient so desire.

Improved enterostomy appliance 1, thus provides an appliance which retains the usual desirable body attachment and sealing means, and the general shape and flexibility of known appliances while achieving the above described desirable results and advantages. Appliance 1 is equally suitable for both day and nighttime use and enables the patient to lay on his stomach while sleeping without the opposite wall of the bag pressing against and closing off the stoma opening. Likewise, the rib assembly located within the bag maintains a constant open fluid flow channel between the upper stoma-receiving opening 3 and the lower drain opening 18, yet enables the bag to flex and bend with the body movement of the patient, preventing bulging or undesirable projections beneath the patient's garments.

Appliance 1 is adapted rapidly and conveniently for nighttime use by attachment of a flexible drainage hose to the drain valve stem at the lower bag end, to connect the appliance to a larger nighttime remotely located fluid collection receptacle. The lower flared ends of the rib assembly also prevent twisting of the flexible bag 5 from sealing off the flow of fluid through the drain opening during nighttime use.

Bag 5 preferably is formed of a rubber or plastic type moisture-proof material which can be produced relatively inexpensively enabling a patient to dispose of the same after several days' use, yet which can be cleaned and sanitized for use over a longer period of time should the patient so desire.

The improved appliance 1 is very simple in construction, can be mass produced economically and efficiently, is sanitary during use, prevents sealing of the stoma-receiving opening and provides a continuous drainage passage through the bag; and provides a construction which eliminates difficulties encountered with prior devices, achieves the objectives indicated, and solves existing problems in the art.

In the foregoing description, certain terms have been used for brevity, clearness and understanding but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such terms are used for descriptive purposes and are intended to be broadly construed.

Moreover, the description and illustration of the invention is by way of example, and the scope of the invention is not limited to the exact details of the construction shown or described.

Having now described the features, discoveries and principles of the invention, the manner in which the improved enterostomy drainage appliance is constructed, assembled and operated, the characteristics of the new construction, and the advantageous, new and useful results obtained; the new and useful structures, devices, elements, arrangements, parts, and combinations are set forth in the appended claims.

I claim:

1. An enterostomy drainage appliance of the type having a flexible bag with at least front and back walls forming a fluid collection chamber therebetween, in which a stoma-receiving opening is formed in the upper end of the back wall, and in which means are provided for mounting the bag on the body of a patient and for sealing the back wall opening with respect to a stoma; the improvement including, flexible rib means having a generally elongated inverted U-shaped configuration mounted on the front bag wall and located within the collection chamber; said rib means comprising a pair of

spaced straight leg portions extending longitudinally within the collection chamber and terminating at their upper ends in an integral curved portion to form the U-shaped configuration; fluid drainage channel means being formed between and by said leg and curved rib portions; the curved rib portion being located adjacent the upper bag end substantially opposite the stoma-receiving opening and substantially surrounding said stoma-receiving opening when the front wall is pressed towards the back wall; and said stoma-receiving opening communicating with the channel means within the curved rib portion when the rib means is pressed against the rear wall to prevent sealing of the stoma-receiving opening by the bag front wall and to provide a continuous open drainage channel extending from the stoma-receiving opening generally throughout the length of the collection chamber between the straight leg portions.

2. The construction defined in claim 1 in which drain opening means is formed in the lower end of the bag and communicates with the collection chamber; and in which valve means is mounted on the bag for opening and closing said drain opening means.

3. The construction defined in claim 2 in which the rib leg portions terminate in lower ends; in which said lower ends are located adjacent the drain opening means and on opposite sides thereof; and in which the channel means communicates with and extends between the stoma-receiving opening and said drain opening means to provide a continuous open fluid drain channel when the rib means is pressed against the rear bag wall.

4. The construction defined in claim 3 in which the rib leg lower ends are flared outwardly to reduce twisting of the flexible bag in the area adjacent the drain valve means and to prevent closing of the drain opening.

5. The construction defined in claim 2 in which means is formed on the valve means for detachably mounting a flexible tube thereon.

6. The construction defined in claim 1 in which the curved and straight leg portions of the rib means are formed of a non-absorbent semi-rigid rubber material; and in which a plurality of transversely extending slits are formed in the straight leg portions and are spaced longitudinally therealong to provide flexibility to said leg portions.

7. The construction defined in claim 6 in which the curved and straight leg portions are generally rectangular in cross section having top, bottom, and inner and outer side surfaces; in which the bottom surfaces are secured to the front wall of the collection bag; and in which the slits are formed in the top surfaces of the straight leg portions.

8. The construction defined in claim 7 in which the top, bottom and outer side surfaces of the curved rib portion are flared outwardly to provide a broad area of contact when the rib means is pressed against the body of a patient.

9. The construction defined in claim 7 in which the inner side surface of the curved rib portion has a semi-circular configuration with a radius slightly larger than the radius of the stoma-receiving opening in the back wall; and in which said semicircular configuration is concentric to the stoma-receiving opening when the rib means is pressed against the back wall of the appliance bag.

10. The construction defined in claim 9 in which the outer side surface of the curved rib portion forms a generally three-quarter circular configuration; and in which said circular configuration is concentric to the inner surface semicircular configuration.

11. An enterostomy drainage appliance of the type having a flexible bag with at least front and back walls forming a fluid collection chamber therebetween; in which a stoma-receiving opening is formed in the upper end of the back wall; and in which means are provided for mounting the appliance on the body of a patient and for sealing the back wall opening with respect to a stoma; the improvement including generally inverted U-shaped rib means formed on the appliance front wall and extending longitudinally, generally throughout the length of the bag, within the collection chamber; the rib means having spaced first and second straight leg portions and a joined curved portion joining said straight leg portions integrally at their upper ends; drainage channel means being formed by said leg and curved rib portions; the leg portions each having top, side and bottom surfaces, with said bottom surfaces mounted on the appliance front wall; the rib means side walls having

sufficient thickness to prevent the appliance back wall from readily sealing against the front wall within the drainage channel means when the front wall is pressed towards the back wall; a plurality of transversely extending slit means formed in top surfaces of the straight leg portions; said slit means being spaced longitudinally along the major portion of the leg portions permitting said leg portions to bend and flex with the body movement of a patient; the integrally joined curved upper portion of the rib means being located substantially opposite the stoma-receiving opening so that said opening is located within the curved rib portion and between the leg portions when the front wall is pressed in a direction towards the back wall to maintain communication between said stoma-receiving opening and the drainage channel means; drain opening means formed in the bottom of the collection chamber; and valve means communicating with the drain opening means for opening and closing said drain opening means, said valve means being adapted for detachably mounting an end of a flexible tube for drainage of the fluid within the collection chamber to a remote storage receptacle.

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