

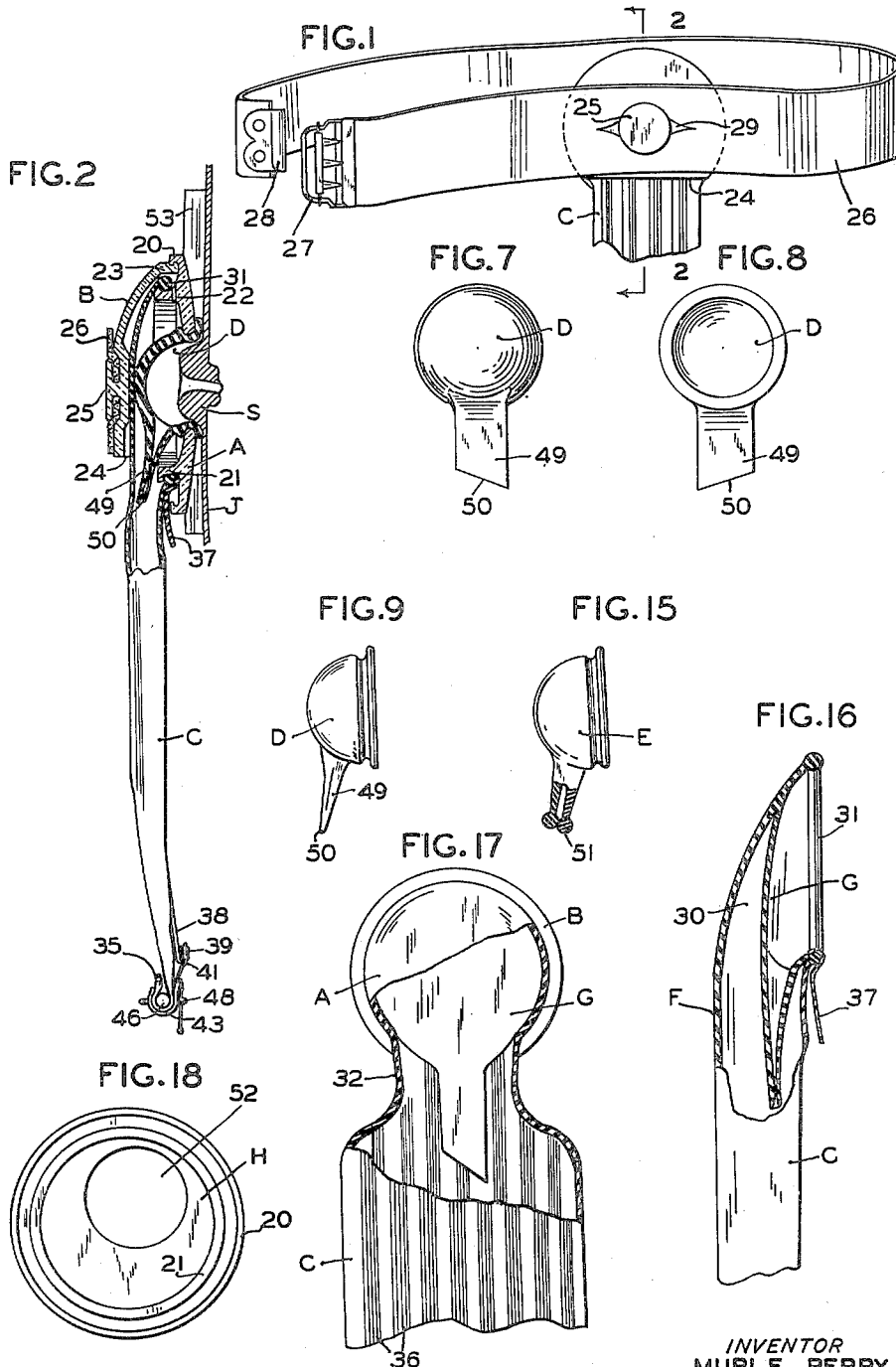
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Filed June 21, 1946

2 Sheets-Sheet 1



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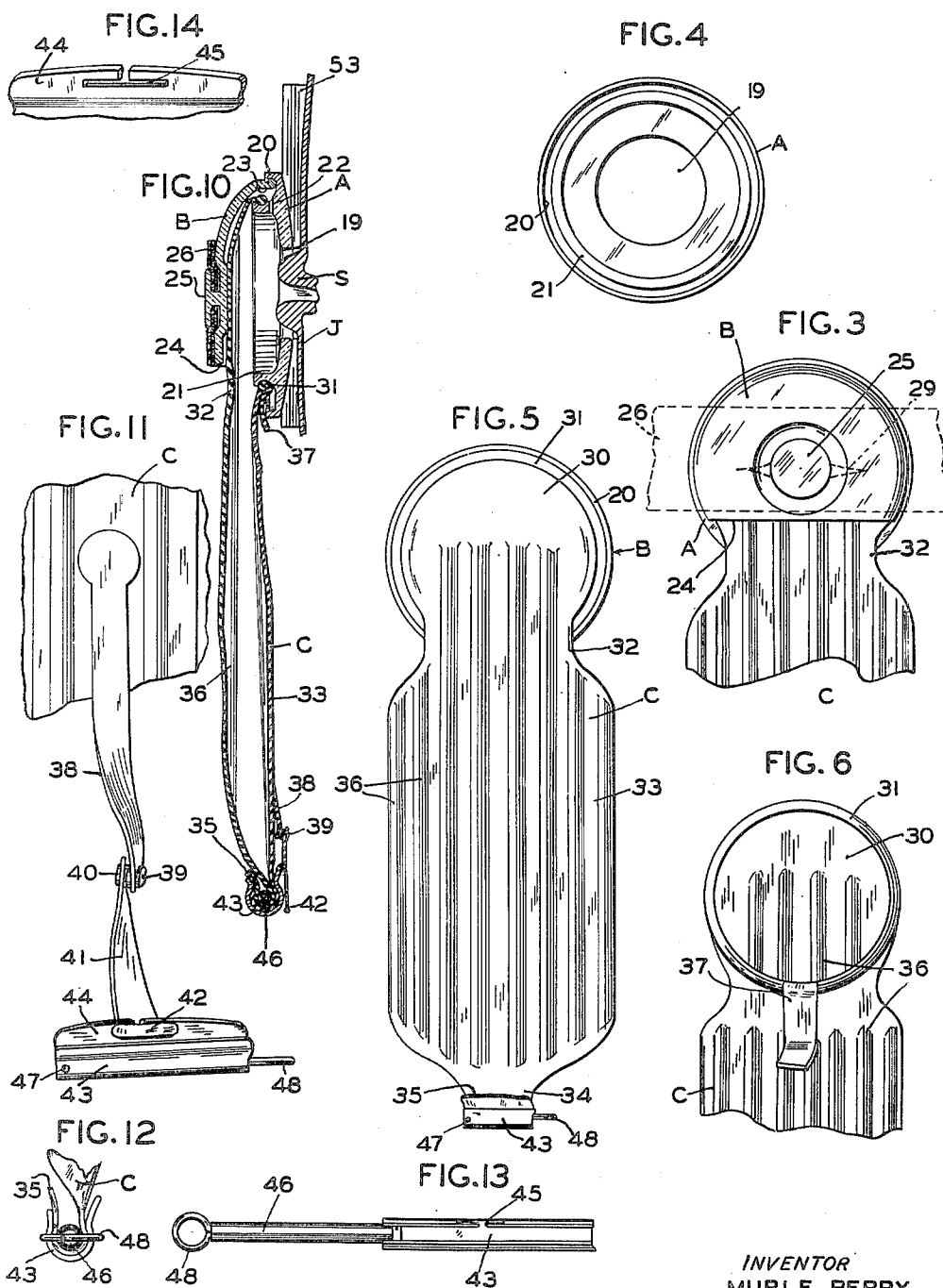
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STOMA RECEIVER

Murle Perry, Minneapolis, Minn.

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8 Claims. (Cl. 128-283)

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This invention relates to stoma receivers, sometimes referred to as colostomy appliances.

Certain operations are now performed on the human body known as colostomy and ileostomy operations for the lower intestine or the upper intestine respectively, and these operations require either the temporary or permanent formation of artificial outlets from the intestine usually through the abdomen. An outlet so formed is called a stoma. The stoma remains open at least a considerable portion of the time and it is necessary to provide a receiver for the stoma to take the digested food material which passes through the same. In many instances the stoma is located near the groin and large and bulky stoma receivers cannot be satisfactorily used unless the rigid parts thereof are quite small. On the other hand, it is almost necessary and certainly desirable that the stoma receivers have large capacity. While certain stoma receivers have heretofore appeared on the market, there is a distinct necessity for improvements in the existing constructions.

It is an object of the present invention to provide a novel and improved stoma receiver which can be conveniently and comfortably worn without being noticeable under the ordinary clothing, which will conform to the body movements, which will have large capacity and yet which will have but small rigid parts so that it can be worn close to the groin or elsewhere and which can be maintained in a sanitary condition at all times.

Another object of the invention is to provide such a stoma receiver which includes a small, comparatively rigid casing which will fit over the stoma and a flexible bag which will hang down below the casing, the mouth of the bag being so located that it can be placed in communication with the stoma and the mouth of the bag being disposed within the casing so that it will be protected at all times by the casing to permit the free flow of waste matter at all times from the stoma into the bag.

A further object is to provide a stoma receiver which will not heat up the body unduly at the point where it is located.

Still another object is to provide a stoma receiver including a bag which can be easily cleaned, which can be positively sealed, which can be removed for emptying, and which can be held by the hands of the wearer and emptied readily by the wearer without difficulty and without danger of soiling clothing of the wearer.

It is another object of the invention to provide a stoma receiver including a bag into which the

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stoma empties, there being valve means associated with the bag which will permit the ingress of matter into the bag from the stoma but which at the same time will prevent the egress of matter from the top of the bag.

Another object is to provide a highly sanitary type of stoma receiver including a bag formed of flexible, transparent plastic material so made that the bag will hang naturally against the body of the wearer but yet which bag can expand as material enters the same so that the bag will have large capacity.

Another object is to provide a stoma receiver which has rigid parts of a small size so that the rigid parts of the stoma receiver can be located close to the groin and yet the stoma receiver will have large capacity.

The objects and advantages of the present invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the various views and in which:

Fig. 1 is a view in side elevation of the stoma receiver applied to a belt as the receiver will be worn, the lower portion of the bag being broken away.

Fig. 2 is a view taken chiefly in vertical section on the line 2-2 of Fig. 1 as indicated by the arrows and showing the stoma receiver as it will be worn on the human body.

Fig. 3 is a view in side elevation showing the upper part of the receiver, a belt being indicated in dotted lines.

Fig. 4 is a view showing the inner casing section removed from the remainder of the device and looking toward this inner casing section from the side opposite that side which fits against the body.

Fig. 5 is a view in side elevation of the bag detached looking toward the outer side thereof.

Fig. 6 is a view in side elevation of the upper portion of the bag detached looking toward the inner side of the bag.

Fig. 7 is a view in front elevation of the valve member looking toward the outer portion thereof.

Fig. 8 is a view in rear elevation of the valve member looking toward the inner portion thereof.

Fig. 9 is a view in side elevation of the valve member.

Fig. 10 is a vertical section through the stoma receiver in use without employing a valve member.

Fig. 11 is a detail showing a portion of the bag and the closure device for the lower end of the bag when hanging loosely from the bag.

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Fig. 12 is a detail view looking toward the left edge of the lower end of the bag as seen in Fig. 5.

Fig. 13 is a detail of the bag closing device, showing the clamp swung to open position.

Fig. 14 is a detail of the flange of the channel member of the bag closing device.

Fig. 15 is a view taken similar to Fig. 9 of an alternative form of valve member, the lower portion of the valve member being shown in section.

Fig. 16 is an illustration of the upper portion of an alternative form of bag wherein the valve member is formed integral with the upper portion of the bag, this bag being shown partly in vertical section and partly in side elevation.

Fig. 17 is a view looking toward the outer side of the bag shown in Fig. 16, a portion of the bag being broken away and other parts being shown in section to more clearly illustrate the construction of the bag; and

Fig. 18 is a view similar to Fig. 4 but illustrating an alternative form of inner casing section.

Referring first to the embodiment of the invention shown in Figs. 1 to 14, there is provided, in accordance with the invention, a casing formed of relatively rigid material and including an inner casing section A and an outer casing section B. The inner casing section A is of circular shape in side elevation. In inwardly spaced relation from its periphery it is provided with a suitable stoma receiving opening 19, which is shaped to receive a stoma and is usually circular as shown although in some instances it may be of somewhat oval shape, depending on the shape of the stoma of the individual that the receiver is adapted to fit. The inner surface of the inner casing section A is preferably somewhat convexly formed as shown and this surface is made quite smooth. At its periphery the inner casing section A is provided with an outwardly extending grooved flange 20. Inwardly from the flange 20 and circumscribing the stoma opening 19, the inner casing section A is equipped with an outwardly extending grooved flange 21, the groove being formed in the exterior portion of this flange 21. A small gas vent 22 is cut through the base of the flange 21 inwardly from the groove thereof.

The outer casing section B is of somewhat greater than semi-circular shape in side elevation and it is dished at its inner side. It has an arcuate grooved flange 23 adapted for cooperative removable interlocking engagement with a portion of the grooved flange 20 of the inner casing section A. When the two casing sections are so interlocked, a portion of the outer casing section B overlies the stoma receiving opening 19 of the inner casing section in spaced relationship outwardly therefrom for the purpose of protecting this opening and preventing closing of the same by the clothing of the wearer. The two casing sections are securable together by springing the outer casing section B slightly, the material employed for making the casing sections being preferably a translucent or transparent plastic having enough elasticity to permit of sufficient distortion of the outer casing section B to engage and disengage the same from the inner section.

It will be seen that the outer section B closes a portion of the inner casing section A and normally this closed portion is placed uppermost, leaving a slot 24 in the lower portion of the casing and between the lower edge of the outer casing section B and the outer portion of the inner casing section A. The outer casing section B has a circular depression formed in its outer portion with a button 25 projecting outwardly from the

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center of this depression, and this button and depression are for the purpose of permitting attachment of the casing to a belt 26 carrying an adjustable buckle 27 at one end and a buckle engaging hook 28 at its other end. This belt is adapted to fit around the body of the wearer, as around the waist, and it has a buttonhole 29 formed by slotting a portion thereof, whereby the button 25 may be engaged with the belt. The casing section B is depressed adjacent the button 25 so that the belt will fit within this depressed portion to limit the thickness of the combined casing and belt.

For use with the casing thus described, there is provided a bag C of special construction. This bag is preferably formed of flexible transparent or translucent plastic material, and it is either molded or produced by dipping a form into the liquified plastic. The bag C has a circular mouth portion 30 integrally connected with a ring 31 and the ring and mouth portion are adapted to releasably engage the flange 21 of the inner casing section A within the groove of this flange. Assuming that the ring 31 of the bag is disposed in a vertical plane, the bag projects downwardly therefrom in the same general plane as the plane within which the ring is disposed. In other words, the mouth of the bag is at one side of the bag rather than at the top of the bag. The width of the bag is reduced somewhat below the mouth 30 to form a neck 32, which is received within the slit 24 aforementioned. Below the neck 32 the body 33 of the bag is enlarged laterally until the bag is again reduced in width near its lower end to form a reduced outlet portion 34, the lower end of which is open to form an outlet 35 for the bag. The neck 32 and the body 33 are provided with corrugations 36, these corrugations being provided for several important purposes. The corrugations cause the bag to assume small size when not filled or partially filled but yet permit the distention of the bag so that it will have large capacity as the bag is filled. The bag normally hangs from the casing formed by the two casing sections A and B as indicated in Figs. 2 and 10, and of course the bag will rest against a portion of the body of the wearer. The corrugations 36 formed in the bag permit air to work between the bag and the body of the wearer, thereby keeping the body cool at this point and preventing undue sweating and heating of the body. In other words, the ribs of the corrugations 36 are the only part of the bag which come in contact with the body and as a result there is much less discomfort to the wearer than in the case of a smooth surfaced bag.

The ring 31 has sufficient elasticity to permit it to be readily carried over the outer portion of the flange 21 to fit the bag onto this flange and to permit removal of the bag from the flange. In order to permit of ready removal of the mouth of the bag from the flange, a small tab 37 secured at its upper end to the ring 31 is provided whereby the reinforced portion of the bag can be pulled upon to disengage the mouth of the bag from the flange. To close the lower end portion 34 of the bag and yet to permit easy emptying of the bag without danger of soiling the clothes of the wearer and by use of only the two hands of the wearer, I have developed a special construction. A flexible tab 38 has an upper circular portion which is molded into the inner side of the bag near its lower end and this tab carries at its lower end a half snap fastener 39 which engages with another half snap fastener 40 attached to

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the upper end of a second flexible tab 41, the tab 41 having an enlargement 42 at its lower end. A channel member 43 of spring construction and made of metal or hardened plastic has a projecting flange 44 at one side thereof provided with a keyway slot 45 within which the tab 41 slidably fits. Accordingly the channel member 43 can slide upwardly or downwardly on the tab 41, the enlargement 42 preventing the tab from being pulled out of the keyway slot unintentionally. If it should be desired to detach the channel member from the tab 41, however, this can be readily done by compressing the tab into one portion of the keyway slot 45 and working the tab through the entrance notch of the keyway slot. The tab 41 is made longer than the normal spacing between the lower end of the tab 38 and channel member 43 when the outlet of the channel member is closed to allow for ready securing of the channel member to the lower reduced portion of the bag. The sliding connection between the tab 41 and the channel member permits the channel member 43 to slide up on the tab 41 without bowing the tab and forming a bunch below the clothing of the wearer when the outlet 35 is closed. The channel member 43 has a roller 46 connected to one end thereof by a pivot 47 and this roller carries a handle 48. The flange 44 and the opposing flange of the channel member are curved toward each other slightly to form a spring entrance mouth which will resiliently receive the roller 46. By carrying the lower reduced portion 34 of the bag C around the roller 46 in a bight and then swinging the roller 46 into the channel member 43 through its entrance mouth, the channel member and roller 46 will have a clamping action on the bight of the reduced lower end portion 34 of the bag to tightly secure it and prevent any leakage of the contents of the bag C through the outlet opening 35 while not injuring the lower end portion 34 of the bag. Opening and closing of the lower portion of the bag can be accomplished by one hand of the wearer either while the bag is attached to the casing or when it is detached and held by the other hand of the wearer. Thus the fingers of one hand may grasp the channel member 43 and the thumb of the same hand can be engaged with the handle 48 to swing the roller 46 out of the channel of channel member 43. The strap connection between the channel member 43 and the bag prevents the clamping mechanism being lost when the lower end of the bag has been opened.

In some instances it may be desirable to use with the stoma receiver a valve member D to permit the ingress of matter into the bag C while preventing the back flow of matter through the mouth of the bag. As shown in Figs. 2, 7, 8, and 9, the valve member D comprises a dome-shaped body having a grooved flange at its periphery, the groove being on the external side of this flange and the grooved flange engaging the portion of the inner casing section A surrounding the stoma receiving opening 19. The valve member is made preferably of flexible plastic or rubber and it has a flat discharge spout portion 49 terminating in an outlet 50. The side walls of the spout portion 49 are very narrow so that rather wide lips are formed, the lower portions of which are normally in contact with each other to prevent the re-entrance of matter back into the dome portion of the valve member after this matter has once passed through the spout portion 49. The lips of the valve member are diagonally cut as shown

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in Figs. 7 and 8 inasmuch as with such a construction it is readily possible for material tending to enter the bag through the spout 49 to open the lips by spreading the same apart while the natural resiliency of the lips will prevent back flow upwardly through the spout.

In place of the valve D, the valve E, shown in Fig. 15, may be employed, this valve being similar in all respects to the valve D with the exception that the lower ends of the lips of the valve are provided with rounded contours 51 producing the back-sealing action.

In Figs. 16 and 17 there is shown a bag F similar in all respects to the bag C previously described with the exception that a valve member G is formed integral with the upper portion of the bag. This valve member G is much on the order of the valve member D first described with the exception that it is larger and the edges of the domed portion of the valve member G are integrally formed with the mouth portion of the bag F.

In certain instances where the stoma is located very close to the groin, it may be desirable to provide an inner casing section H, such as that shown in Fig. 18, which is in all respects similar to the inner casing section A previously described with the exception that the stoma receiving opening 52 formed in the casing section H is eccentrically disposed relative to the periphery of the inner casing section instead of concentrically located as in the case of the inner casing section A. The eccentric disposition of the opening 52 makes it possible to fit the casing very close to the groin.

In Figs. 2 and 10 a portion of the skin of the human body is designated by the letter J and attached to this skin is a stoma S, it being understood that the stoma S will connect with either the large or small intestine. In mounting the stoma receiver on the body, a suitable absorbed pad 53, having a central aperture through which any protrusion of the stoma extends, is placed against the skin, and thereupon the receiver in its assembled condition will be applied against this pad at the exterior thereof with the stoma in direct communication with the dome portion of the valve member if a valve member such as D, E, or G is employed, or in direct communication through the stoma receiving opening 19 or 52 with the upper portion of the bag C if no valve member is used. The absorbent pad 53 is preferably made of cellulose material having high absorbent qualities and having numerous plies, preferably backed by crepe moisture repellant material. This pad cushions the effect of the casing against the body and it prevents the spread of the waste matter discharged through the stoma S to the skin adjacent the stoma. After the belt and casing have been applied and the belt 23 has been mounted on the body, the belt can be adjusted so that the button 25 can be conveniently received in the buttonhole 24 whereupon the device is ready for service.

As the major part of the bag does not fit within the casing consisting of the inner and outer sections A and B or H and B, as the case may be, the rigid parts of the receiver can be made quite small and yet the bag will have large capacity. The major part of the receiver will yield with body movements so that the device will be unnoticeable when worn under the clothes and also the receiver can be used in conjunction with a stoma located very close to the groin without inconvenience to the wearer. The material dis-

charged from the stoma can readily flow into the bag and the corrugations of the bag will allow the bag to distend as material flows into it so that, while the bag occupies but small space when not filled, it can expand and a large volume of material may be accommodated within the bag. If one of the valve members D, E, or G is employed, this will prevent the back flow of material through the receiving mouth of the bag while at the same time permitting the free ingress of material emptying from the stoma. When it becomes necessary to empty the bag C, this can be readily accomplished by the two hands of the wearer. The vent 22 will permit the discharge of gas.

Preferably the bag C and the inner and outer casing members A, B, and H will all be made of transparent or translucent material which can be easily cleaned and sterilized so that the device can be maintained in sanitary condition at all times. The parts can be readily taken apart for cleaning.

It will be seen that a highly satisfactory stoma receiver has been provided having many advantages.

It will of course be understood that various changes may be made in the form, details, arrangement, and proportions of the various parts without departure from the scope of the present invention which, generally stated, consists in the matter shown and described and set forth in the appended claims.

What is claimed is:

1. A stoma receiver comprising an inner casing section of circular shape and having at its outer edge a grooved flange, said inner casing member also having an opening therethrough adapted to be placed in communication with a stoma, an outer casing section of somewhat greater than semi-circular formation in front elevation and having at its arcuate periphery a grooved flange adapted to be releasably interlocked with the grooved flange of said inner casing section, said outer casing section bowing outwardly from said inner casing section in spaced relation from said opening, means surrounding said opening and formed on said inner casing section at its outer side for securing a bag mouth thereto, said outer casing section terminating short of the lower portion of said inner casing section to form a slot into the casing, and a flexible bag projecting from below said casing members through said slot and having a releasable mouth engageable with said bag mouth engaging means.

2. The structure defined in claim 1, said bag mouth securing means comprising a grooved flange and said bag having at its mouth a slightly elastic portion engageable with said grooved flange.

3. The structure defined in claim 1 and a flexible valve member having a peripheral edge releasably engaging said inner casing member at said opening, said valve member having a duct running into the upper portion of the bag, said duct terminating in a slotted outlet, and the material of said valve member being flexible and compressible to prevent back-flow of the matter flowing into said bag while at the same time permitting easy ingress of such matter.

4. A stoma receiver comprising an inner casing section of circular shape and having a grooved flange at its outer edge and also having a receiving opening adapted to be placed in communication with the stoma and centrally dis-

posed relative to said flange, said inner casing member also having a second grooved flange centrally disposed from said outer grooved flange and surrounding said receiving opening, a dished outer casing section of somewhat greater than semi-circular shape in front elevation and having a grooved flange at its edge adapted to releasably interlock with the first mentioned grooved flange of said inner casing section, said outer casing section having a portion adapted to be disposed in spaced relation from said receiving opening to prevent the closing of said opening, said outer casing section terminating short of the lower portion of said inner casing section to form a slot between the two casing sections and a flexible bag projecting from below said two casing sections through said slot and having a mouth releasably engageable with said second mentioned grooved flange.

5. A flexible bag for use in a stoma receiver comprising a mouth portion and a body portion, said body portion terminating in a reduced lower end section having an outlet slot and a closure device for the reduced lower end of said bag comprising a clamping mechanism, said clamping mechanism comprising a channel member and a clamp pivoted to said channel member and over which a bight taken in the reduced lower end of said bag may be carried, said bight and clamp being removably and resiliently receivable in said channel member.

6. A flexible bag for a stoma receiver comprising a substantially vertically disposed flexible ring-like mouth, a flexible body portion molded integrally with said mouth and projecting downwardly therefrom, said body portion having a reduced lower end which is slotted to form an outlet, a tab secured to the lower part of said body portion and projecting downwardly therefrom, a channel member slidably attached to said tab, and a small roller pivoted at one end to one end of said channel member and receivable within the channel thereof whereby the reduced lower portion of the bag can be carried around said roller and forced into said channel to seal the discharge outlet of the bag.

7. A stoma receiver comprising a casing consisting of an outer section and an inner section, quickly releasably cooperating engagement means on said two sections permitting bodily removal of the outer section from the inner section, the inner section having a receiving opening therethrough facing said outer section and adapted to be placed in communication with a stoma and the outer section having a portion spaced from said opening to prevent closing of the opening, there being a slot in the lower portion of said casing between said two sections, bag mouth retaining means surrounding said opening at the outer side of said inner section, and a flexible bag projecting below said casing through said slot and having a mouth portion releasably engageable with said bag mouth retaining means whereby, when said outer section is removed from said inner section, said bag may be readily attached to or removed from said inner section without carrying any portion of the bag through said opening.

8. The structure defined in claim 7 and a back flow check valve interposed between said opening and said bag and preventing back flow of material charged into the bag.

MURLE PERRY.

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