Feb. 24, 1959 W. H. JOHNSON 2,874,697

COLOSTOMY DEVICE

Filed June 22, 1954

FIG. 5

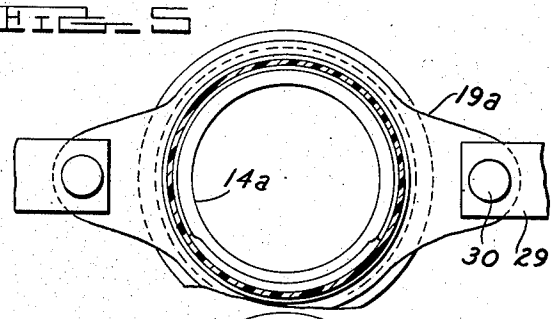
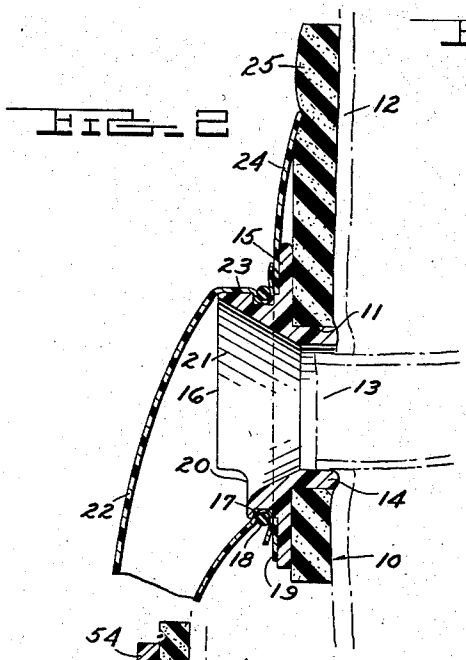


FIG. 2



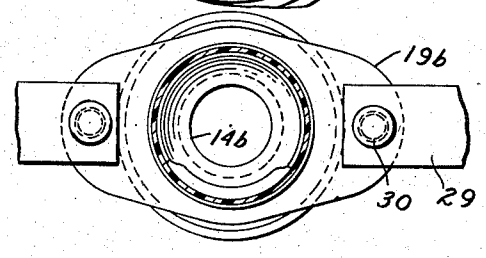


FIG. 4

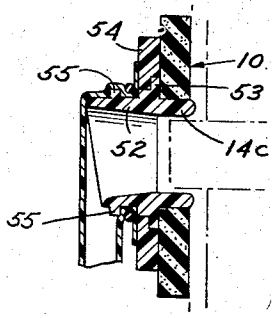


FIG. 7

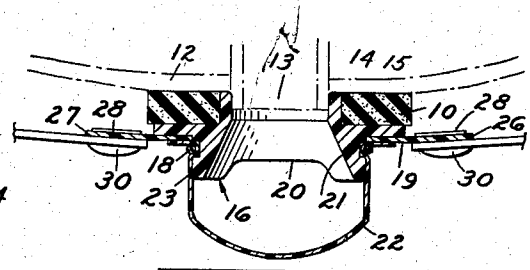


FIG. 3

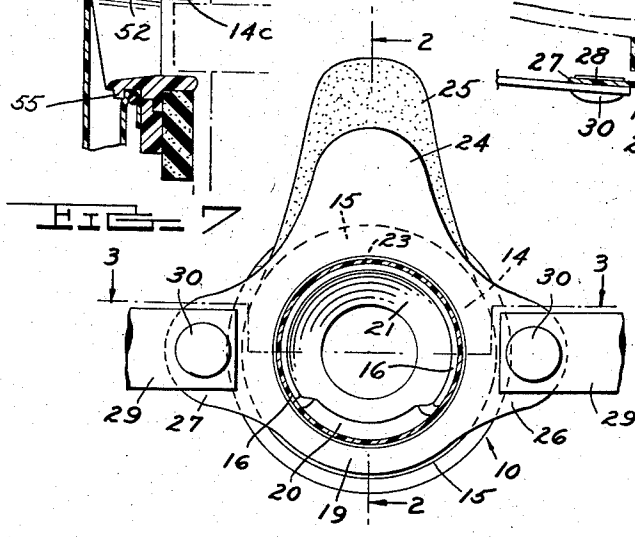


FIG. 1

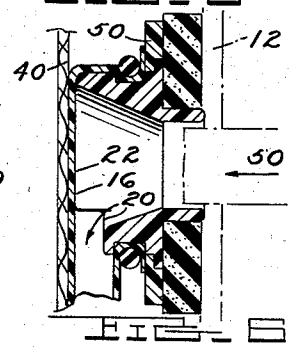


FIG. 6

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COLOSTOMY DEVICE

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This invention relates to a sanitary device for collecting the digestive material discharged through an opening in the body of an animal which is particularly suitable to persons having undergone colostomy or illeostomy surgical operations wherein the normal rectal opening is closed and the person's bowels are vented through an opening in the abdomen wall.

In this type of operation the vent aperture can be in any area of the abdomen depending on where the termination of the intestinal track occurs. Due to the fact that normal intestinal storage capacity is either substantially depleted or eliminated and due to the fact that the natural muscles and nerves preventing uncontrolled secretion are by-passed and/or eliminated, a constant secretion or travel of waste material discharges through the intestinal vent aperture and the person thereof must wear some type of device which collects this discharge in order for him to persue a normal life.

The utility and economy of these collecting devices is well established as it enables the wearer to work and perform his usual duties. However, the devices of the prior art leave much to be desired in that they are cumbersome, expensive, burdensome to wear, require excessive pressures, required cementing of the device to the body of the person, and in spite of all, they leak, causing a contamination of the person and his clothing, and rendering the person unfit to perform his normal duties in society.

With the foregoing in view, the primary object of the instant invention is to provide a device for collecting abdominal discharge material particularly from human beings, which above all does not leak or allow any of the discharge to escape, which is inexpensive to manufacture, easy to wear, does not require cementing to the body, does not require excessive pressures, does not constitute or cause an unseemly burdensome bulge in the person's clothing, which can be easily cleaned, which is simple in construction, and design, which employs a minimum number of parts, and to which the used receptacle bag can be easily removed and a new bag fitted thereon while the wearer has the device attached to his body.

An object of the invention is to provide a cushioned pad, preferably of sponge rubber, having an aperture therein, adapted to fit against the body of the wearer with the aperture in the pad concentrically surrounding in slightly spaced relation the discharge opening in the body.

An object of the invention is to provide a closed looped flange or a cylindrical, ring-like flange edgewise contacting the body immediately surrounding the opening in the body and of a dimension normal to the body substantially equal to the thickness of the pad.

An object of the invention is to provide a pressure plate connected to the flange and overlying the pad so as to press both the pad and the flange into easy pressure contact with the person's body whereby the whole area of the body surrounding the flange adjacent the opening resists the pressure so that the ring like edge of the flange has a solid bearing portion built up in the body so as to sealably press thereagainst to insure sealing contact between the end of the flange and the body.

An object of the invention is to provide a nozzle portion connected to the plate and communicating with the flange in sealing relationship.

An object of the invention is to provide a harness plate overlying the pressure plate surrounding the nozzle portion in free pivotal relationship to both the plate, the flange, and the nozzle so that the attaching straps connected to the harness plate can be arranged as desired by the wearer without rotating the flange pressure plate and pad.

An object of the invention is to provide a fore shortened bottom wall in the nozzle portion so that a discharge channel is provided at the bottom thereof so that the receptacle bag positioned over the nozzle cannot seal off the end of the nozzle under the pressure of the clothing lying thereagainst.

An object of the invention is to provide an outwardly opening interior area in the nozzle portion to aid and facilitate downward gravity feeding of the discharge material into the receptacle bag.

An object of the invention is to provide a groove in the outside wall of the nozzle portion surrounding same and spaced slightly relative to the pressure or harness plate portion for receiving a compression ring therein so that the ring extends radially outwardly of the nozzle area so as to abut and annex the harness plate to the nozzle and pressure plate in free pivotal relationship thereto.

An object of the invention is to provide a receptacle bag whose mouth may be located between the compression ring and the nozzle portion so that pressure ring sealably connects the receptacle bag to the nozzle portion.

An object of the inevntion is to provide a harness belt, preferably elastic, connected to said harness plate by snap fasteners capable of pivotal movement so that the harness belt, harness plate, and pressure plate are all pivotally connected relative to one another so that the person can adjust the angles of the attaching strap as desired.

An object of the invention is to provide a radial or outward extension on the pad or cushion and a radial or outward lever extension on the harness plate adapted to overlie and contact the extending radial portion of the pad at a point adjusted so as to be opposite or substantially opposite the bottom portion of the nozzle to aid in biasing the bottom portion of the nozzle into pressure relationship against the body beneath the body opening to insure correct sealing, especially in areas of the body where contours tend to lift the bottom portion of the nozzle or flange from sealing contact with the body wall at the bottom of the discharge opening.

These and other objects of the invention will become apparent by reference to the following description of a device for collecting discharge material from an animal body opening embodying the invention, taken in connection with the accompanying drawing, in which:

Fig. 1 is a front elevational view of the inventive device, including the radial arms or pads;

Fig. 2 is a cross-sectional view of Fig. 1 taken on the line 2—2 thereof showing a receptacle bag in addition to that seen in Fig. 1;

Fig. 3 is a horizontal cross-sectional view of the device seen in Fig. 1 taken on the line 3—3 thereof;

Fig. 4 is a view similar to Fig. 1 showing a modified device not entailing the radial arms and lever projections;

Fig. 5 is a view similar to Fig. 4 showing a device with a much larger central opening;

Fig. 6 is a view similar to and a modified form of the device shown in Fig. 2 showing the effect of the pressure of clothing against the receptacle bag; and

Fig. 7 is a view similar to Fig. 2, showing a modified device employing a combined harness and pressure plate.

Referring now to the drawings wherein like numerals refer to like and corresponding parts throughout the several views, the collecting device shown and disclosed therein to illustrate the invention and its environment

comprises a sponge rubber cushion pad **10** having an aperture **11** therein with the pad **10** adapted to lie against the body wall **12** with the pad opening **11** surrounding the aperture or discharge opening in the body wall **13**, and, it is to be noted that the pad opening **11** is concentric with the body opening **13** and spaced slightly away therefrom to allow the inter-positioning of the closed loop or ring like flange **14** in endwise sealing condition against the body within the aperture pad **11** and outside the body opening **13**. Connected to the closed loop flange **14**, and preferably formed integral therewith, is the pressure plate **15** which overlies the cushion pad **10** so that movement of the plate **15** towards the body **10** presses the pad **10** towards the body and also the closed loop flange **14** towards the body, and it is to be noted that the pressure plate **15** is equipped with a central aperture so that the body opening **13** can communicate through the closed loop flange **14** and the pressure plate **15**. Attached to the pressure plate **15** and communicating through the opening therein with the closed loop flange **14** and preferably formed integral therewith is the nozzle portion **16** which extends outwardly of the pressure plate **15** and has a groove **17** formed in its outer wall adapted to receive the compression ring **18** therein. Disposed between the compression ring **18** and the pressure plate **15** is the harness plate **19** which is equipped with a central aperture surrounding the nozzle portion **16** with the pressure plate **19** in free-floating pivotal relationship relative to the rest of the device so that the harness plate **19** or the rest of the device can be rotated relative to each other and to the body to adjust the device as desired on the body. The nozzle portion **16** is preferably formed with a foreshortened wall area **20** at the bottom thereof and with expanding semi-truncated cone like interior walls **21** so that material discharging out of the opening **13** gravity feeds through the nozzle portion downwardly into the receptacle **22**. The bag or receptacle is positioned with its mouth portion **23** over the nozzle portion **16** over the area of the groove **17** so that the compression ring **18** overlying the receptacle bag mouth **23** sealably presses the bag mouth **23** against the nozzle portion **16** as well as holding the harness plate **19** in free floating pivotal relationship relative to the rest of the device.

The harness plate **19** is preferably equipped with a radial or outwardly projecting lever arm portion **24** and the pad **10** is equipped with a radially or outwardly projecting arm portion **25** underlying the harness plate arm **24** so that the arms can be adjusted circumferentially relative to the device so as to position the arms opposite and foreshortened bottom wall **20** of the nozzle so as to bias the bottom portion of the closed loop flange **14** into sealing relationship with the body wall **12** immediately below the body discharge opening **13**. It is to be noted that the harness plate lever arm **24** can be curved inwardly as seen in Fig. 2 to accentuate the pressure as previously described if desired or found necessary.

The pressure plate is equipped with side wings **26** and **27** and has attached thereto snap fastener male-elements **28** and the harness belt or strap **29** is equipped with the snap fastener female counter-part **30**. These snap fasteners embody a pivotal action so that the belt **29** is pivotally mounted relative to the harness plate **19** so that in adjusting the device on the body, the belt **29** and harness plate **19** are pivotally connected and adjustable to each other as well as the harness plate **19** itself being capable of pivotal adjustment relative to the remainder of the device.

Referring to the device as illustrated in Figs. 4 and 5, it is to be noted that the harness plate arm **24** and pad arm **25** of Figs. 1 to 3 are deleted and that the disclosed device is completely operable, especially where the body wall is relatively flat along the vertical axis of the device. It is to be noted in the device of Fig. 5 that the dimension of the closed loop ring **14A** is substantially larger than the other devices illustrated. This large opening is especially suited to a colostomy where a portion of the large colon protrudes through the abdomen wall. In other words, the devices of Figs. 4 and 5 are complete as the auxiliary pad and plate arms **25** and **24**, respectively are supplemental to the main body of the invention.

The closed loop ring **14**, the pressure plate **15**, and the nozzle portion **16** can be formed separately and sealably integrated with each other within the purview of the invention, but they are preferably formed integral as seen in the drawings. While the device is preferably made out of synthetic resins and the pad portion **12** made from foam rubber and the receptacle **22** made of Pliofilm or cellophane, any material which is suitable to the use is considered within the scope and purview of the invention. The compression ring **18** is preferably made of rubber, however, it can be made of spring material such as metal or any type of elastic or compression material, such as even a screw type pressure band.

Referring to Figs. 6 and 7, the modified embodiments disclosed therein include the combined pressure and harness plate **50** which interfits with the annular rib and the belt fastenings are made directly to the plate **50**. The tube nozzle **52** is equipped with a flange **53** which cooperates with the combined harness and pressure plate **54** to hold the pad **10** and flange **14C** against the body. The nozzle **16** has a rib **55** for holding the compression ring **18** against the plate **54**. It is to be noted in all instances that the plate is pivotal relative to the flange. However, it is considered within the scope of the invention to make the flange, nozzle, and plate integral.

In operation, the user positions the pad over the closed loop ring **14** against the pressure plate **15**, locates the harness plate **24** adjacent the pressure plate, loops the bag mouth **23** over the nozzle **16** and fits the pressure or compression ring **18** over the bag into the groove **17** so that the device is completely integrated. The user then places the device against his skin with the closed loop ring or flange **14** surrounding the abdomen opening **13** and attaches the belt or strap **29** via the snap fasteners **28** and **30**, and by adjusting the length of the strap, which is preferably elastic, he can obtain the desired pressure on the device. It is to be noted thtat this pressure is not only placed on the body wall adjacent the opening by the abutting edge of the closed loop ring **14**, but also placed on the body wall in a substantial area surrounding the opening by the pad **10** under the pressure of the pressure plate **15** against the pad **10**. This is important due to the fact that the pad compresses a slight amount in its confinement between the body wall and the pressure plate allowing the closed loop ring flange **14** to protrude slightly therefrom into contact with the body wall in a line-type bearing. This line-type bearing on the area of the body wall in contact with the edge of the closed loop ring **14** is enhanced more or less hydraulically due to the fact that the pad is putting pressure on the body wall adjacent this contact so that the body wall or the interior of the body supporting the wall cannot flow to escape the pressure of the edge of the ring **14** due to the fact that it is back pressured by the pad bearing thereagainst, thereby furnishing a firm contact for the edge of the closed ring **14** which lies slightly extended from the area of the pad.

In the event the body opening is adjacent the groin area where the lower abdominal wall is curved along the vertical axis of the device, especially in females, it is found advisable to use the auxiliary radial pressure plate or harness plate arm **24** and the pad arm **25** to outwardly project the upper portion of the harness plate so as to carry the rest of the device outwardly at the top thereof so as to force the bottom of the device into more firm contact with the body wall located beneath the discharge opening so as to bias the bottom portion of the closed loop ring **14** into sealing relationship with the body.

Referring now to the device as seen in Fig. 6 where clothing **40** is superimposed on the device and confines it between the body wall **12** and the clothing **40**, the re-

ceptacle bag **22** is held against the mouth of the nozzle portion **16** normally occasioning a back pressure to the discharge flow. However, due to the fore-shortened bottom wall **20** of the nozzle portion **16**, it can be seen that a channel lies in the direction of gravitational flow as indicated by the arrow **50** between the bottom portion of the nozzle **16** and the pliofilm bag **22** oppositely disposed thereto, thereby insuring that a channel will always be open to receive the material as it is discharged, regardless of the pressure of the clothing there against so as to prevent back pressuring the device thereby stopping the discharge of material and/or causing leakage between the various joints of the device and between the device and the body wall.

Although but a single embodiment of the invention has been shown and described in detail together with a few modifications, it is obvious that many changes may be made in the size, shape, detail, and arrangements of the elements of the invention within the scope of the appended claims, including making the articles separate instead of integral and including the substitution of materials.

I claim:

1. A device for collecting material discharged through an opening in the body of an animal comprising a cushion pad portion adapted to lie against the body wall adjacent the discharge opening having an aperture therein for exposing the body opening and a ring of body wall about the periphery of the body opening to permit communication with the body opening through said pad, a tube-like flange lying in the aperture of said pad adapted to contact the body wall immediately surrounding the periphery of the body opening, a pressure plate surrounding said flange and connected thereto and adapted to overlie said pad, a receptacle nozzle mounted on said plate in communication with said flange; said nozzle having an annular groove in its outer surface, a harness plate surrounding said nozzle and overlying said pressure plate, a receptacle disposed over said nozzle, a clamping ring over said receptacle lying in the area of said nozzle and confining said harness plate against said pressure plate, and means connected to said attaching plate for securing the device to the body.

2. A device for collecting material discharged through a body opening comprising a cushion pad adapted to lie against the body having an aperture therein for concentrically surrounding the body opening with the pad walls defining the pad aperture spaced slightly radially away from the periphery of the body opening, a cylindrical flange lying in said pad opening adapted to contact the body wall adjacent the periphery of the body opening in surrounding communicating relationship therewith, a pressure plate contacting said flange and overlying said pad in the area surrounding said flange adapted to press the pad and end of said flange against the body in sealing relationship; said plate having an aperture therein concentric with said cylindrical flange; a nozzle leading from said cylindrical flange through said plate having a groove in its outer wall, a harness plate overlying said pressure plate having an opening for receiving said nozzle therethrough, a receptacle having a mouth surrounding said nozzle, and an elastic ring over said receptacle in the area of said nozzle groove clamping said receptacle into said nozzle groove and adapted to abut said harness plate to confine said harness plate against said pressure plate, and an elastic harness belt attached to said harness plate adapted to hold the device against the body under pressure.

3. In a device as set forth in claim 2, said nozzle having an outwardly opening interior wall foreshortened in its bottom area to provide gravity drainage downwardly into said receptacle and to provide an open channel into said receptacle against the pressure of clothing tending to occlude said nozzle with said receptacle wall.

4. In a device as set forth in claim 2, said harness plate being freely pivotally mounted relative to the other elements of the device.

5. A colostomy and illeostomy device comprising an apertured pad adapted to lie against the body wall surrounding the body opening, an apertured pressure plate overlying said pad; the apertures of said pad and plate being concentrically aligned; a closed looped flange connected to said plate adjacent said opening projecting bodyward of said plate through said pad opening a distance substantially equal to the thickness dimension of said pad to endwise sealingly contact the body in communication with the body opening, a conical nozzle portion connected to said plate communicating with said flange opening outwardly of the body to provide outward downward gravity flow from said flange; and means connected to said plate for pressing said plate against said pad and flange to press said pad and flange against the body.

6. In a device as set forth in claim 5, a radial projection arm on said pad and a radial projection arm on said means contacting said pad projection to bias the bottom of said flange against a body just below the body opening.

7. In a device as set forth in claim 5, said means comprising a harness plate overlying said pressure plate in free pivotal relationship and a harness strap connected to said harness plate.

8. In a device as set forth in claim 5, a nozzle extending outwardly from said flange having a foreshortened bottom area for establishing an open channel into a receptacle against the force of clothing pressure tending to seal a receptacle wall against said nozzle.

9. In a device as set forth in claim 8, a groove in the outer wall of said nozzle and a compression ring adapted to surround said nozzle and press into said groove so as to prevent said means moving away from said plate.

10. In a device as set forth in claim 9, a receptacle bag mouth overlying said nozzle and secured thereto by lying between said nozzle and said compression ring.

11. A body discharge collecting device comprising an outwardly opening conical nozzle providing downwardly outwardly gravity flow for body discharge, an annular flange integrated in said nozzle for surrounding the body opening in endwise sealing contact with the body, a compressible pad surrounding said flange, and a pressure plate adapted to contact both said nozzle and said pad to exert pressure thereagainst to force said pad and said flange against the body wall.

12. A body discharge collecting device comprising a pressure plate having a central opening, a conical nozzle supported by said plate providing downwardly outwardly gravity flow for body discharge, an annular flange normal to said plate surrounding said opening and axially extending from said plate, and a cushion pad surrounding said flange and lying against said nozzle.

13. In a device as set forth in claim 12, a belt connected to said plate adapted to press said flange into sealing relationship surrounding a body aperture and to press said pad against said body to prevent the body from flowing out of sealing relationship with said flange.

14. A body discharge collecting device comprising an annular flange for endwise pressure bearing against a body in surrounding sealing relationship to a body opening a conical nozzle attached to said flange providing downwardly outwardly gravity flow for body discharge and a pressure plate surrounding said nozzle for contacting the body under pressure to prevent the body flowing away from said flange and to force the body into sealing relationship with said flange.

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