July 25, 1950 J. H. JOLLY 2,516,391

COLOSTOMY APPLIANCE

Filed Jan. 6, 1949 2 Sheets-Sheet 1

Fig. 1.

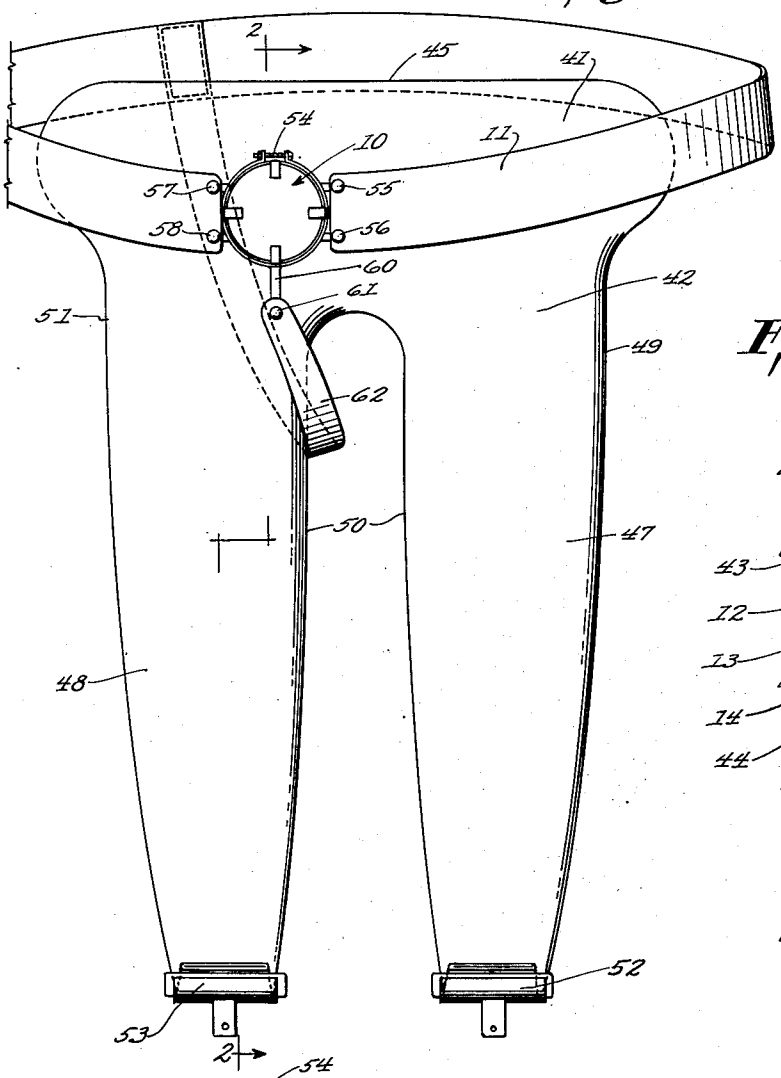


Fig. 2.

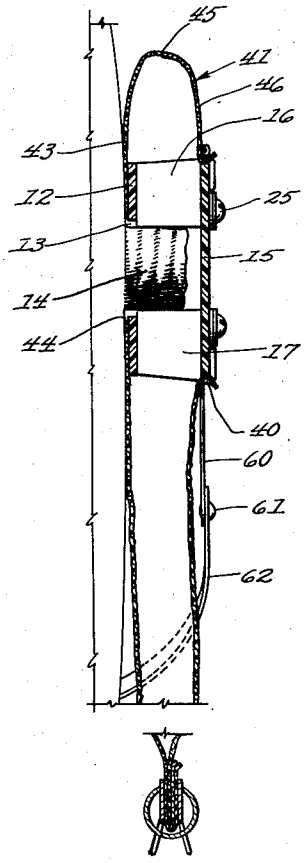
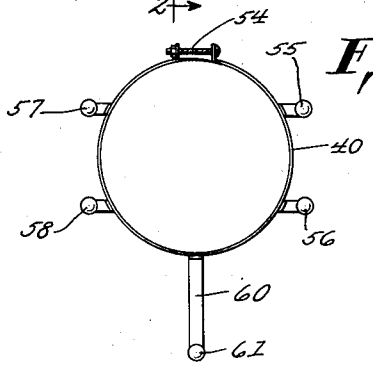


Fig. 6.



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Filed Jan. 6, 1949 2 Sheets-Sheet 2

Fig. 3.

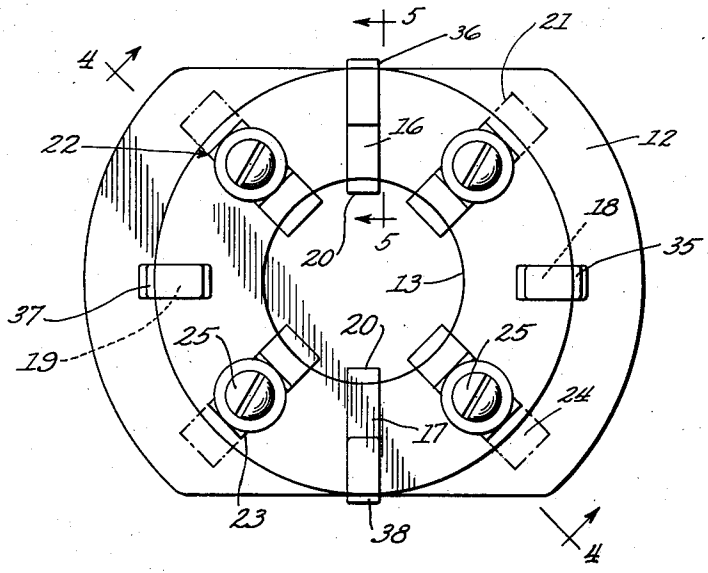


Fig. 4.

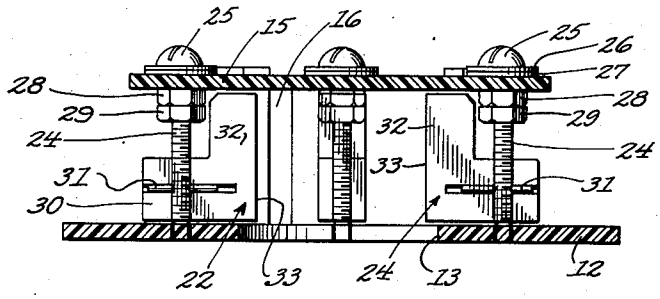
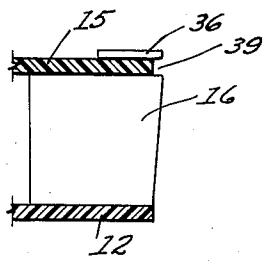


Fig. 5.



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Patented July 25, 1950 2,516,391

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2,516,391

COLOSTOMY APPLIANCE

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Application January 6, 1949, Serial No. 69,498

17 Claims. (Cl. 128—283)

1

The present invention relates to a colostomy appliance, adapted for use by persons who have, of necessity, undergone a colostomy operation, in which the colon has been removed, in whole or in part, and, as a result, the lower end of the small intestine has been left protruding externally through an incision in the lower abdomen. Although such operations have become quite common in recent years, and remarkable recoveries have been made by persons who have undergone the same, considerable discomfort and inconvenience have been suffered by such persons, through the inefficiency and ineffectiveness of the appliances used to cover the above mentioned incision, to enclose and protect the protruding end of the small intestine, and to receive the digested food discharged therefrom. Of course, the patient has substantially no control over such discharge and little or no control over the degree of projection of the end of the small intestine from the incision.

The primary object of the present invention is to provide an improved appliance for covering the incision, and for receiving the protruding end of the small intestine; and, in combination with such an appliance, to provide an improved receptacle for receiving the discharge.

Another object of the invention is to provide such an appliance with adjustable features, which will vary the effective size of the discharge spaces or openings from the device, and will limit the degree of projection of the end of the intestine from the incision, so that, depending upon the activity of the wearer and his position, such as lying prone, sitting, or moving about, the appliance may be adjusted for maximum efficiency and comfort. To this end, the appliance may be adjusted from a fully open position, to permit relatively unrestricted discharge from the device, when the wearer is in bed, to a position somewhat restricting the discharge, for instance when the wearer is moving about, walking, or exercising.

Another object of the invention is to provide an appliance of the kind described in which this adjustment may be readily effected, without removing the appliance from the body.

Other and further objects and advantages of the invention will be apparent from the following description of a preferred embodiment, shown for purposes of illustration in the accompanying drawings, in which:

Figure 1 is a diagrammatic elevational view of the appliance applied to the body of a user;

Figure 2 is a vertical section and partial side elevation of Figure 1, on an enlarged scale;

2

Figure 3 is a front elevation, on an enlarged scale, showing the appliance removed from the body and with the sack removed;

Figure 4 is a section on line 4—4 of Figure 3;

Figure 5 is a fragmentary section on line 5—5 of Figure 3, and

Figure 6 is an elevation of a clamping ring for securing the sack to the appliance.

The appliance 10 may be secured to the abdomen of the user, by a belt 11, encircling the hips or waist and connected to the appliance as hereinafter explained. The appliance comprises an inner plate 12, which is preferably made of a transparent plastic, such as a methyl methacrylate resin, having a central aperture 13 therein, through which the protruding end 14 of the small intestine may project, in relatively snugly fitting relation. As best shown in Figures 3–5, the appliance further comprises an outer, imperforate plate 15, of similar material, spaced from the inner plate by a plurality of circumferentially spaced web members 16, 17, 18, and 19, fixedly secured to the plates. As shown in Figure 3, the radially inner edges 20 of the web members 16 and 17 extend inwardly beyond the margin of the central aperture 13 or beyond a cylindrical projection of said margin, while the web members 18 and 19 may be spaced radially outwardly from the margin of the aperture.

Interposed between the fixed web members are a plurality of movable members 21, 22, 23, and 24, which, in the preferred embodiment, takes the form of wings spanning the space between the inner and outer plates and each mounted, off center, on a pin 24, journalled for rotation in the upper and lower plates. The pins may be constituted by screws or bolts, having slotted heads 25, with a metallic washer 26 and a friction producing fluidtight, rubber washer 27 interposed between each head and the outer surface of the plate 15. A clamping nut 28 and a lock nut 29 may be threaded on the shanks of the screws, below the upper plate 15. Each wing may comprise a generally L-shaped element having a leg portion 30, through which the screw 24 extends and to which it is secured, for instance by a locking pin 31. Each wing also comprises an upwardly extending, body portion 32, disposed laterally with respect to the first mentioned portion, and projecting radially outwardly from the pivoting axis of screw 24 a substantial distance.

The wing members and the fixed web members are preferably made of the same material as the inner and outer plates.

By turning the pivot screws 24, for instance,

by inserting a coin in the kerf in the heads 25, the wing members may be swung from the outer position, shown in dotted lines in Figure 3 in which they are spaced outwardly beyond the margin of the aperture 13, to an inner position, shown in full lines, in which their effective end edges 33 project inwardly beyond said margin. When in the former position, the full size of the aperture 13 is effective and the spaces between the wings and fixed members are increased in size, for the free flow of material therethrough. However, the degree of projection of the end of the intestine is limited by the outer plate 15 and, laterally, by the fixed and movable members. When the movable members are in the inner position, however, the effective size of the opening 13 is reduced and the degree of lateral projection of the end of the intestine is materially limited. Similarly, the discharge of matter from the appliance as a whole is unrestricted or restricted, depending upon the position of the movable members.

Upon the outer surface of the plate 15, there are molded or otherwise secured, a plurality of lugs 35, 36, 37, and 38, projecting laterally beyond the outer margin of the plate and providing notches 39, for the reception of a contractible metallic ring 40 (Fig. 2) and the marginal portion of an aperture in the outer ply of the upper, head portion 41 of a sack 42. The head portion of the sack has a rear ply 43 lying behind the inner plate 12 and provided with an aperture 44, registering with the plate aperture 13 and through which the end 14 of the intestine may project.

The sack is preferably formed from a single piece of rubber, rubberized fabric or the like, folded along the upper edge, at 45, to provide the rear ply 43, mentioned above, and a front ply 46. The piece of material is shaped, as indicated, to provide the laterally elongated head portion 41, which may extend along the waistline, below the belt 11, and a pair of depending receptacles 47 and 48, which extend downwardly along the thighs of the user. The margins 49, 50, and 51 are provided with a fluid tight seam, while the lower ends of the depending portions are unsecured, to facilitate cleaning, but are normally closed by spring clips 52 and 53.

The contractible metal ring 40 is provided with a tightening screw 54, threaded in a nut carried adjacent one end of the ring and free to turn in a non-threaded aperture in the other outwardly turned end. The first mentioned end is extended to a point underlying the outwardly turned end, to prevent pinching of the sack as the ring is contracted. Thus, by tightening the ring, the portion of the outer ply adjacent the margin of the opening therein, is tightly clamped against the circumferential edge of the outer plate 15. The ring 40 has secured to it, two pairs of lugs or buttons 55, 56, 57, 58, which project through appropriate openings in the ends of the belt 11. Also, the ring carries a downwardly projecting arm 60, having a button 61 on its lower end, to which is attached one end of a strap 62, extending below the crotch of the wearer, and connected to the belt at a back portion thereof. This rigid arm and strap are important, to prevent the appliance as a whole from swinging upwardly under the pull of the belt, and to maintain the inner plate 12 firmly in contact with the body of the user. The leverage provided by the arm 60 is quite effective for this purpose.

It is thought that the manner of use of the combination of the present invention will be apparent from a consideration of the foregoing description. When the user is reclining, for instance when he has retired for the night, the movable wings may be shifted to their outermost positions, thereby increasing the size of the spaces between the fixed and movable members, thereby facilitating the discharge of digested food from the appliance, even in the absence of the effect of the force of gravity, which is much more pronounced when the user is standing erect or sitting down. This condition is conducive to comfort when the person is reclining and facilitates the natural discharge of digested food.

On the other hand, when the wearer is active, as when walking about, the pressure of the organs within the body tends to force the end of the intestine outwardly through the incision, to an undue extent. To counteract this tendency, the wings are swung to their inwardly projected positions, in which they limit the extent to which the end of the intestine can project outwardly from the incision, thereby materially contributing to the comfort and well being of the wearer when walking about, while still permitting the discharge from the appliance, through the spaces adjacent the wings, of digested food under the influence of gravity.

The wings may also be shifted to their outer positions when desired, should the appliance become clogged as a result of an excessive discharge or surge of material, which sometimes occurs when food is eaten which is difficult to digest. The shifting of the wings, on these occasions, permits the free passage of material and enables the appliance to flush itself.

The invention is not limited to the details of construction shown in the accompanying drawings and described above, but includes all modifications coming within the scope of the appended claims and their equivalents.

I claim:

1. A colostomy appliance comprising an inner plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of fixed, spaced apart members connected to the inner and outer plates and maintaining the plates in spaced apart relation and a plurality of intermediate members extending between the plates adjacent said aperture, spaced from the fixed members and each movable from a radially outer position in non-obstructing relation to said aperture, to a radially inner position, to vary the effective size of the space between the members, to control the rate of discharge from said appliance.

2. A colostomy appliance comprising an inner plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of fixed, spaced apart members connected to the inner and outer plates and maintaining the plates in spaced apart relation and a plurality of intermediate wing members extending between the plates adjacent said aperture, spaced from the fixed members and each being movable from a radially outer position, spaced outwardly from the margin of the aperture, to a radially inwardly projected position, where it projects inwardly beyond said margin, to decrease the effective size of the aperture and to vary the effective size of the space between the members, to control the rate of discharge from said appliance.

3. A colostomy appliance comprising an inner

plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of fixed, spaced apart members connected to the inner and outer plates and maintaining the plates in spaced apart relation and a plurality of intermediate wing members pivotally mounted adjacent the aperture, between the plates in the spaces between the fixed members, each of said wing members being pivoted off center and being swingable from an outer position to an inwardly projected position, to vary the effective size of the spaces between the members, to control the rate of discharge from said appliance.

4. A colostomy appliance comprising an inner plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of fixed, circumferentially spaced webs connected between the inner and outer plates and spacing the same apart, certain of said webs having their inner edges arranged substantially normal to the inner plate and projecting radially inwardly beyond the margin of said aperture, and a plurality of movable webs disposed adjacent said aperture, between the fixed webs, secured to the inner and outer plates and spanning the space therebetween, said movable webs being movable from an outer position, disposed radially outwardly of the margin of said aperture, to an inner position, projecting radially inwardly beyond said margin, said movable webs in the last mentioned position cooperating with the first mentioned fixed webs to reduce the effective size of the spaces between the webs.

5. An appliance in accordance with claim 3, in which means are provided on the outer surface of the outer plate for moving said wings.

6. A colostomy appliance comprising an inner plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of fixed, circumferentially spaced webs connected between the inner and outer plates and spacing the same apart, certain of said webs having their inner edges arranged substantially normal to the inner plate and projecting radially inwardly beyond the margin of said aperture, and a plurality of wings disposed in spaced relation between the fixed webs and each pivoted off center between the inner and outer plates adjacent said aperture, said wings being swingable from an outer position in which they are disposed outwardly of the margins of the aperture to an inner position in which they project inwardly beyond the margin of said opening to reduce the effective size of the spaces between the webs.

7. A colostomy appliance comprising an inner plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of fixed, circumferentially spaced webs connected between the inner and outer plates and spacing the same apart, certain of said webs having their inner edges arranged substantially normal to the inner plate and projecting radially inwardly beyond the margin of said aperture, a plurality of wings disposed adajacent said aperture in spaced relation between the fixed webs, a corresponding plurality of pivot pins to which the wings are attached, extending through the outer plate, means on the outer ends of said pins for swinging the wings from an outer position in which they are disposed outwardly of the margins of the aperture to an inner position in which they project inwardly beyond the margin of said opening to reduce the effective size of the spaces between the webs.

8. A colostomy appliance comprising an inner plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of movable members arranged circumferentially in spaced relation adjacent to said aperture and extending between the plates, and means disposed on the outer surface of the outer plate for moving said members from a radially outer position, in which they are disposed outwardly of the margin of said aperture, to a radially inwardly projecting position, in which they extend radially inwardly beyond the margin of the aperture.

9. A colostomy appliance comprising an inner plate having a central aperture adapted to receive the projecting end of the small intestine, an imperforate outer plate, a plurality of pivotally mounted members arranged circumferentially in spaced relation adjacent to said aperture and extending between the plates, and means disposed on the outer surface of the outer plate for swinging said members from a radially outer position, in which they are disposed outwardly of the margin of said aperture, to a radially inwardly projecting position, in which they extend radially inwardly beyond the margin of the aperture.

10. In combination a colostomy appliance adapted to limit the degree of projection of the protruding end of the small intestine and to receive the discharge therefrom and a sack for receiving said discharge from the appliance, said appliance comprising an inner plate having a central aperture to receive said end, an imperforate outer plate, a plurality of circumferentially spaced, fixed members connecting the inner and outer plates and spacing the same apart, and a plurality of movable, intermediate members adjacent said aperture, spaced from the fixed members and each being movable from a radially outer position to a radially inner position, without closing the spaces between the members and the fixed members and leaving the peripheral space between the plates unobstructed, said members in the inner position serving to reduce the effective size of said aperture and said spaces to reduce the discharge therefrom, said sack comprising a depending portion and a head portion circumferentially embracing said peripheral space between the plates, to receive discharge therefrom, and means for securing said head portion to the inner and outer plates in fluid tight relation.

11. The combination of claim 10, characterized in that the head portion of said sack has an apertured part lying behind the inner plate with the aperture therein registering with the central aperture in the inner plate.

12. The combination of claim 10 characterized in that the head portion of the sack fitted upon the appliance leaves the central portion of the outer plate exposed to view, and in that the outer plate is made of transparent plastic material.

13. The combination of claim 10 characterized in that the head portion of the sack has a rear ply provided with an aperture registering with the aperture in the inner plate and has an outer ply provided with an enlarged aperture, the marginal portion of which is clamped to the edge of the outer plate.

14. In combination, a colostomy appliance and

a sack for receiving the discharge therefrom, said appliance comprising an inner plate having an opening adapted to receive the projecting end of the small intestine, an outer imperforate plate, means spaced circumferentially about said opening, spacing the plates apart and permitting substantially free discharge of material circumferentially through the space between the plates, while limiting the extent of projection of said end through the opening, a sack having a folded upper portion providing an inner ply disposed behind the inner plate, having an aperture therein registering with said opening in the inner plate, and an outer ply having an opening therein with the margin thereof secured to a marginal portion of the outer plate, and a pair of depending portions communicating interiorly with said upper portion and being adapted to lie against the thighs of the wearer.

15. The combination of claim 14 characterized in that the margin of the aperture in the outer ply of the upper portion of the sack is

clamped upon the edge of the outer plate by a contractible ring.

16. The combination of claim 14 characterized in that the margin of the aperture in the outer ply of the upper portion of the sack is clamped upon the edge of the outer plate by a contractible ring, and in that the ring carries means for attaching the same to a waist encircling belt.

17. The combination of claim 14 characterized in that the margin of the aperture in the outer ply of the upper portion of the sack is clamped upon the edge of the outer plate by a contractible ring, in that the ring carries means for attaching the same to a waist encircling belt, and in that the ring carries a rigid, downwardly extending arm for attachment to a strap adapted to extend below the crotch of the wearer for securement to said belt at the rear thereof.

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No references cited.