A throw-away receptacle for collection of urine of those confined to bed comprises a flexible bag of foil material associated with a non-return valve and a holder. Two sides of the bag are welded along two lines converging from the opening end of the bag without intersecting each other to provide a funnel-shaped inlet. The non-return valve is inserted into and connected liquid-tight to the funnel-shaped inlet of the bag.
THROW-AWAY RECEPTACLE FOR COLLECTION OF URINE OF THOSE CONFINED TO BED

The present invention relates to a receptacle for collection of urine of those confined to bed and is of a type comprising a flexible bag of a foil material, a non-return valve and a holder.

It is the object of the invention to provide such a receptacle which is practical in use and, at the same time, so cheap to manufacture that it can be thrown away after use and thus be treated as a throw-away receptacle.

The invention also relates to a non-return valve intended for use with the throw-away receptacle.

The invention will hereinafter be described with reference to an illustrative example shown in the enclosed drawing.

In FIG. 1 of the drawing a cross section of a throw-away receptacle according to the invention is shown, being in a position for the urine to be drawn off into the receptacle.

FIG. 2 depicts the foil bag with the weld joints made therein.

FIG. 3 is a top view of the non-return valve.

FIG. 4 shows a cross section of the non-return valve.

In FIG. 5 the valve is shown as seen from below.

In the drawing a bag of foil material, preferably plastic, is designated by the numeral 11. The bag can preferably be produced from a piece of a plastic hose, one end of which is welded closed, as shown at the numeral 12 in FIG. 2. The opposite sides of the bag 11 are welded along two lines 13, which converge from the opening end 14 of the bag to form a funnel-shaped inlet 16 into the bag. Both weld joints 13 terminate at the same distance from the opening end 14 of the bag and transversal weld joints 15 seal the bag portions located beside the funnel-shaped inlet 16 defined by the converging weld joints 13 so that urine collected in the bag cannot run out at the side of the funnel 16.

The funnel-shaped inlet 16 of the bag 11 is dimensioned to permit insertion of a valve 17 into the innermost portion of the funnel to provide a liquid-tight connection thereof to the inside of the inlet. The valve 17, the circumference of which can be circular, consists of a sleeve 18 one end of which is closed by a cover 19, which has a number of perforations 20 as shown in FIG. 3. Within the sleeve and adjacent to the inside of the cover 19 there is a membrane 22, which is attached to one side only of the sleeve 18, as is shown at 21. The valve has also a bottom 23, which is shown apertured, so that it only consists of three spokes (see FIG. 5) which extend inwardly from the sleeve 18 to a common junction. A pressure disc 24, which preferably consists of a light material, more particularly foam plastic, is enclosed between the bottom 23 and the membrane 22 and can be moved freely in the free interspace between the bottom and the membrane. The disc is so light that if the receptacle happens to be inclined so that the urine runs up to the valve, the disc will rise to force the membrane 22 against the cover 19 of the valve so that the perforations 20 are closed and the urine is thus prevented from running out of the receptacle.

As is evident from FIG. 1 the holder 25 is fabricated of a comparatively rigid plastic material and has the shape of a mug, which can be conical. The open bottom of the holder is surrounded by a support collar 26, which has an extension 27 on one side.

To assemble the throw-away receptacle according to the invention the valve 17 is first inserted into the innermost portion of the funnel-shaped part 16 of the bag, where it is adapted to fit liquid-tight to the wall of the bag. The portions 30 of the bag located outside the weld joints 13 are both folded in the same direction around the valve 17. If it is desired to use the whole receptacle as a throw-away one and thus to throw the whole of it away after use, the valve and the holder can be made with the same conicity. The funnel-shaped part of the foil bag is also given the same conicity. After inserting the valve into its position in the innermost portion of the funnel-shaped inlet part of the bag, the bag is inserted with the welded bottom portion 12 first through the broader opening 28 of the receptacle or holder 25 and pulled through the receptacle so far that the valve is wedged in the holder, with the bag secured liquid-tight between the valve and the holder. The opening end 29 of the bag extends outside the opening 28 of the holder and is preferably folded around the edge of the opening 28.

It is also possible to insert the bag 11 through the open bottom of the holder. In this case the sleeve 18 of the valve 17 is preferably given a cylindrical shape, as shown in the drawing. The bag with the valve can then be retained in the holder only by folding the end 29 of the bag protruding from the opening 28 of the holder around the edge of the opening 28. The holder can also be provided with one or several impressions preventing the valve from being pushed too far into the holder. Alternatively the sleeve 18 of the valve can be provided with one or several projections adapted to be locked into corresponding hollows on the inside of the holder to keep the valve in position. When the bag with the valve is inserted through the open bottom of the holder, the holder can be used several times and only the bag containing the valve and the urine collected in the bag is thrown away to be replaced with a new bag with inserted valve.

The collar 26 around the bottom portion of the holder is intended to maintain the opening end 28 of the holder in a direction obliquely upwards, when the receptacle filled completely or partly is put aside, so that drops of urine which may be remained in the funnel-shaped inlet portion 16 of the bag cannot run out. To assure that this does not happen if the receptacle is placed with the extension 27 of the collar upwards it should be observed on inserting the bag 11 with the valve 17 into the holder 25 that the bag portions 30 located outside the weld joints 13, which are folded around the valve, will be in the same direction as the extension 27 on the collar 26 of the holder.

The holder described above is practical and easy to handle, and all portions thereof can be manufactured from plastic at low cost, so that it will not be too expensive using it as a throw-away receptacle.

The invention is not limited to the throw-away receptacle described above in detail, but amendments and modifications can also be made within the scope of the appended claims.

What is claimed is:

1. A throw-away receptacle for the collection of urine of those confined to bed comprising an elongated flexible bag of tubular foil material one end of which is closed and the other end of which is open, a nonreturn valve for insertion into the open end of said bag, and a comparatively rigid funnel-shaped holder for said bag and valve, said valve including a valve body
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comprising a sleeve having the same conicity as said holder whereby said sleeve may be wedged into said holder to secure said bag in place between the exterior of said sleeve and the interior of said holder, a perforated cover member extending across one end of said sleeve, a thin membrane disposed within said sleeve adjacent the inner surface of said cover member, a limited portion of said membrane being hingedly attached to said sleeve to permit said membrane to move toward and away from the perforations in said cover member thereby to control the passage of urine through said perforations, a disc-shaped member located within said sleeve between said membrane and the other end of said sleeve for free movement relative to said membrane whereby said member is operative to move said membrane toward said cover member to selectively close said perforations, and an apertured bottom structure extending across the other end of said sleeve for retaining said member within said sleeve while permitting the passage of urine past said member

and through said other end of said sleeve into said bag.

2. The structure of claim 1 wherein said bag of foil material is welded along two lines extending partially into said bag from said open end to define a funnel-shaped inlet to said bag, said lines converging from the open end of the bag at an angle such that, when said open end is expanded to a circular cross section, the portion of said bag along said weld lines forms a conical surface having the same conicity as said holder, transverse weld joints in said bag extending from the interior ends of said converging weld lines to the sides of said bag to seal the parts of the bag at the sides of said funnel-shaped inlet, said bag and the valve inserted therein being removably disposed within said holder.

3. The structure of claim 1 wherein said disc-shaped member is fabricated of foam plastic material.

4. The structure of claim 1 wherein said apertured bottom structure comprises a plurality of spokes extending across the other end of said sleeve.