A spray shield to assist individuals, especially males, with the standing use of toilet facilities. The spray shield serves to contain urine overspray from an individual standing in front of a toilet. The device may be placed and positioned on, or removed from, the toilet. The device is a truncated cone of flexible plastic material, with a large U-shaped space formed in one side. The narrow end of the cone is inserted into the toilet and extends into the toilet basin. The device is preferably constructed from a heavy flexible plastic sheet, attached back onto itself at corner tabs near the narrow end of the cone. Holes near the base may be incorporated to allow fluid flow into the cone from the toilet bowl. Handle cutouts may be positioned near the upper perimeter of the cone. Alternate shapes are used for bedside commodes and toilet sheet risers.
TOILET OVERSPRAY SHIELD AND METHOD FOR MANUFACTURE

CROSS REFERENCES TO RELATED APPLICATIONS


BACKGROUND OF THE INVENTION

0002 1. Field of the Invention

0003 The present invention relates generally to devices for assisting individuals with the use of toilet facilities and bedside commodes. The present invention relates more specifically to a spray shield configured to assist male individuals, especially young and elderly male individuals, with the standing (as opposed to seated) use of toilet facilities and bedside commodes.

0004 2. Description of the Related Art

0005 There are many devices designed to assist individuals with using toilet facilities. Most devices in this field have focused on assisting individuals with movement to and from a seated position on a toilet. Other devices provide elevated toilet seats that allow individuals to use the toilet facility without the necessity of moving to a low seated position. While the present invention is concerned with assisting individuals with the use of toilet facilities, its focus is on improving such use by male individuals standing in front of a toilet or a bedside commode.

0006 While most all male individuals must take some care in using a toilet from a standing position, some male individuals, especially young boys and elderly men, often find it quite difficult to fully confine the stream of urine to the narrow opening of the toilet bowl. Some individuals with special needs involving muscle control, stability, and balance may have an even more difficult time directing and confining urine within the perimeter of the toilet bowl.

0007 Efforts that have been made in the past to address the above described problems have fallen short for a number of reasons. Most suffer from cost and complexity issues and are simply too expensive to manufacture and purchase. Others fail because they are difficult to place and position in the toilet bowl or are designed to remain in place to be collapsed or moved to the side to allow seated use of the toilet. There is a need for a simple, easily removable, toilet splash guard that is low in cost, easy to clean, and requires no tools to install or remove. It would be desirable if the splash guard could be easily manufactured from inexpensive (but still rugged) materials. It would be desirable if the splash guard provided a safe and effective means for fully containing urine overspray within the confines of the toilet bowl.

SUMMARY OF THE INVENTION

0008 In fulfillment of the above stated objectives the present invention provides a device configured to assist male individuals, especially young male individuals, with the standing (as opposed to seated) use of toilet facilities. The device of the present invention is a funnel for containing any urine overspray from a male individual standing in front of a toilet, especially a young male child who might have difficulty directing the urine stream into the toilet. Key elements of the device include its simplicity of construction, its large size, and its ease of placement on the toilet. The device comprises a truncated cone of flexible plastic material, such as might be used to construct a heavy duty waste basket or the like, with a large V-shaped space formed in one side of the cone. The narrow end of the truncated cone is inserted into the toilet and is sized so as to extend to some distance into the toilet basin or bowl. The device may preferably be constructed from a large, approximately rectangular sheet of heavy flexible plastic that is formed into a cone and attached back onto itself at a point near the narrow end of the truncated cone.

0009 Additional optional features include the placement of an array of holes near the base of the truncated cone (the lower end of the device) that would allow water to flow into the cone from the toilet bowl in a manner that would facilitate rinsing of the cone after use. A removable cup may also be positioned in the vertex of the V-shaped cutout from the side of the cone to collect any urine that may drip during use. Finally, handle cutouts may be positioned near the upper perimeter of the cone to facilitate placement and removal of the device in the toilet. In the ideal environment, the device may be alternately maintained in the toilet or in an adjacent bathtub or shower where it may be rinsed in between uses. Once again, the goal of the invention is to create a simple, inexpensive to manufacture, structure that is highly functional and effective in containing urine overspray and directing into the toilet bowl.

BRIEF DESCRIPTION OF THE DRAWINGS

0010 FIG. 1 is a front elevational view of the overspray shield and funnel device of the present invention, shown in its assembled configuration.

0011 FIG. 2 is a side elevational view of the overspray shield and funnel device of the present invention, shown in its assembled configuration.

0012 FIG. 3 is a top plan view looking down into the overspray shield and funnel device of the present invention, shown in its assembled configuration.

0013 FIG. 4 is a front elevational view of the overspray shield and funnel device of the present invention, shown positioned into a typical toilet bowl for use.

0014 FIG. 5 is a side elevational view of the overspray shield and funnel device of the present invention, shown positioned into a typical toilet bowl for use.

0015 FIG. 6 is an isometric view of the front of an alternate embodiment of the overspray shield and funnel device of the present invention, shown with an attachable drip cup positioned in the V-shaped access opening.

0016 FIG. 7 is a front elevational view of an alternate embodiment of the overspray shield and funnel device of the present invention, shown with an edge cover in place.

0017 FIG. 8 is a side elevational view of an alternate embodiment of the overspray shield and funnel device of the present invention, shown with an edge cover in place.

0018 FIG. 9 is a front elevational view of a further alternate embodiment of the overspray shield and funnel device of the present invention, shown in an assembled configuration.

0019 FIG. 10 is a side elevational view of the alternate embodiment of the overspray shield and funnel device of the present invention disclosed in FIG. 9.
[0020] FIG. 11 is a plan view of the sheet of material used to construct the alternate embodiment of the overspray shield and funnel device of the present invention disclosed in FIGS. 9 & 10.

[0021] FIG. 12 is a front elevational view of a further alternate embodiment of the overspray shield and funnel device of the present invention, shown in an assembled configuration.

[0022] FIG. 13 is a side elevational view of the alternate embodiment of the overspray shield and funnel device of the present invention disclosed in FIG. 12.

[0023] FIG. 14 is a plan view of the sheet of material used to construct the alternate embodiment of the overspray shield and funnel device of the present invention disclosed in FIGS. 12 & 13.

[0024] FIG. 15 is a perspective view of one application of the alternate embodiment of the overspray shield and funnel device disclosed in FIGS. 12 & 13 positioned within a typical bedside commode.

[0025] FIG. 16 is a perspective view of a further application of the alternate embodiment of the overspray shield and funnel device disclosed in FIGS. 12 & 13 positioned on a toilet seat riser associated with a toilet.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0026] As summarized above, the device of the present invention is a funnel for catching and containing any urine overspray from a male individual standing in front of a toilet, especially a young male child who may have difficulty directing the urine stream into the toilet. FIG. 1 is a front elevational view of the overspray shield and funnel device of the present invention, shown in its assembled configuration.

Overspray shield 10 is a large cone shaped device preferably constructed of a single plastic sheet or panel 12 that is cut according to a predetermined pattern and then rolled into the cone shape shown and attached back onto itself near the lower end of the cone. This construction creates a wide top opening 14 and a narrower bottom opening 16. The base corners of the plastic sheet 12 are overlapped at section 18 and are attached to one another in this position using rivets 20, or some similar means for attachment. This means for attachment to create the cone shape may be permanent (such as with rivets) or removable (such as with snaps). The attachment means is preferably non-corrosive (such as with nylon rivets or snaps) and may comprise chemical adhesive bonding or thermal welding. The cone thus created may preferably be about two to three feet tall, about one to one and a half feet wide at the base, and about two feet wide at the top.

[0027] The material from which the flexible sheet or panel is constructed may vary. In the preferred embodiment a relatively heavy gauge low-density polyethylene (LDPE) plastic, such as is used for the manufacture of plastic waste baskets and the like, is utilized. The key characteristics are liquid impermeability and semi-rigid flexibility. Currently, many plastic compositions are impregnated with antimicrobial compositions and/or deodorizing chemicals. It is anticipated that the present invention lends itself to the utilization of one or more of these types of chemical additives to the plastic panel used to construct the funnel walls of the present invention. The present invention also lends itself to being constructed from various types of recycled plastic materials.

[0028] FIG. 2 is a side elevational view of the overspray shield and funnel device of the present invention, again shown in its assembled configuration. In this view (and in the view of FIG. 1) the means for handling the device can be seen. Handle apertures 22a & 22b are positioned near the top edge of the device (removed from the region of overspray) and facilitate the placement and removal of the device into and out of the toilet as described in more detail below. The view of FIG. 2 also shows the manner in which the upper sides of the device extend forward to come close to either side of the user. The manner of overlapping the lower corners in section 18 achieves this funnel shape with upper side panels to create the V-shaped opening best seen in FIG. 1. This arrangement keeps handle 22a & 22b up and out of the way.

[0029] FIG. 3 is a top plan view looking down into the overspray shield and funnel device of the present invention, again shown in its assembled configuration. In this view it can be seen how the upper opening 14 is larger than the lower opening 16 thereby creating the funnel shape. In this interior view it can be seen how the inside corner overlaps in section 18 and the various attachment members (rivets) secure the corners in place.

[0030] FIG. 4 is a front elevational view of the overspray shield and funnel device of the present invention, shown positioned into a typical toilet bowl for use. In this view, overspray shield 10 is positioned in toilet 24 in an orientation appropriate for use. As shown in FIG. 4, the size of the device 10 is such that the vertex of the V-shaped opening is positioned at or just below the top edge of the toilet or the edge of the toilet seat. In this manner, a young boy standing at the toilet would find himself at just the right height to direct the urine flow into the confines of the funnel. The bottom edge of the device sits firmly on the bottom/side surfaces of the bowl of the toilet to support the device in a generally upright position.

[0031] FIG. 5 is a side elevational view of the overspray shield and funnel device of the present invention, again shown positioned into a typical toilet bowl for use. In this view it can be seen how the front edges of the shield extend forward to the front of the bowl while still allowing for the V-shaped opening to allow access by the user. Once again, handles 22a & 22b are positioned up and out of the way during use but are readily reachable for the removal of the overspray shield after use.

[0032] Reference is next made to FIG. 6 which is an isometric view of the front of an alternate preferred embodiment of the overspray shield and funnel device of the present invention, shown with an attachable drip cup positioned in the V-shaped access opening. The alternate or additional features include an array of apertures 44 cut through the flexible plastic sheet material 32 in the area around the base of the funnel. These apertures 44 allow water to flow into the cone from the toilet bowl when the toilet is flushed in a manner that would facilitate rinsing of the cone after use. The same apertures 44 also facilitate the rinsing of the funnel in a shower enclosure or the like to distribute water both inside and outside the walls of the funnel.

[0033] A further ancillary component that may be included with the overspray shield of the present invention is a removable cup 46. This saddle shaped cup may be positioned in the vertex of the V-shaped opening in the front facing side of the cone to collect any urine that may drip during use. The cup also provides the added benefit of covering the vertex of the V-shaped opening. As in the first preferred embodiment, handle cutouts 42a & 42b are positioned near the upper perimeter of the cone 30 to facilitate placement and removal of the device in the toilet.
Reference is next made to FIGS. 7 & 8 which disclose a further embodiment of the present invention wherein some part of the exposed edge of the panel or panel making up the walls of the funnel incorporate an edge cover. Ovsspray shield 10 is again shown as a large cone shaped device preferably constructed of a single plastic sheet 12 that is rolled into the cone shape shown and attached back onto itself near the lower end of the cone. This structure creates a wide top opening 14 and a narrower bottom opening 16 each of which have exposed edges. The edge forming the base is preferably left as is since there is little if any contact between the base and the user or handler of the device. The edge forming the top or upper end of the cone or funnel, however, as well as the edge forming the “V” shaped opening in the side wall of the funnel, is subject to contact by the user and/or the handler of the device. As a means of providing a smoother edge that potentially may come into contact with the user and/or handler of the device, the alternate embodiment shown in FIGS. 7 & 8 incorporates edge cover 48 over much of the edge of the panel that forms the upper portion of the funnel. Handle apertures 22a & 22b, again positioned near the top edge of the device, may also incorporate edge covers, as shown, to provide a smoother edge for the handler of the device to grasp. Each of the various optional features described above in conjunction with the first preferred embodiment may also be utilized and applied in conjunction with the alternate embodiment shown in FIGS. 7 & 8.

In the ideal environment, the device may be alternately maintained in the toilet or in an adjacent bathtub or shower where it may be rinsed in between uses. Once again, the goal of the invention is to create a simple, inexpensive to manufacture, structure that is highly functional and effective in containing urine overspray and directing it into the toilet bowl.

Alternate Preferred Embodiments

Reference is next made to FIGS. 9-11 for a detailed description of a further alternate preferred embodiment of the overspray shield of the present invention. FIG. 9 is a front elevational view of an alternate structure for the overspray shield and funnel device shown in an assembled configuration. Ovsspray shield 50 is a large, generally open sided, cone-shaped device, preferably constructed of a single plastic sheet or panel 52 that is cut according to a predetermined pattern (see FIG. 11) and then attached back onto itself at two specifically configured lower corners. Flexible panel 52 is folded back on itself at these lower corners and secured using press rivets 60 to form bottom opening 56. Press rivets 60 are preferably nylon or plastic rivets that may be pressed through from the outside through the corresponding apertures to secure one lower corner of flexible panel 52 to the other. Insofar as the overspray shield 50 is to be generally packaged and shipped in a flat, unassembled condition, these press rivets 60 are structured to be single use attachment devices that are secured by the consumer in the assembly process.

The overlap of bottom corners that creates bottom opening 56 and the pattern structure of flexible panel 52, as described in more detail below, provide for a larger side access trough 56 formed just above the overlapping area of the panel. The average height of side access trough 56, once overspray shield 50 is positioned within a standard toilet bowl, is such to allow the user to stand and approach the device and still generally be surrounded by the walls of the shield on all sides and to a significant height. This alternate embodiment structure shown in FIGS. 9 & 10 provides greater access to the user and still maintains a fully encompassing overspray shield. In addition, this pattern structure of flexible panel 52 establishes a smoother U-shaped curve to side access trough 56 that reduces the possibility of direct contact between the user and the edge of flexible panel 52.

FIG. 10 is a side elevational view of the alternate preferred embodiment disclosed in FIG. 9 showing the manner in which overspray shield 50 extends toward the user through curved upper section wings of flexible panel 52. The attachment region 54 angles outward so as to provide an upwardly extending portion of the shield panel on either side of the user during use. Handle apertures 62a & 62b are shown in FIGS. 9 & 10 as well as their pattern placement in FIG. 11. Optional fluid flow slots 64 are shown in FIGS. 10 & 11 positioned along the lower region of the panel adjacent bottom opening 56. These fluid flow slots achieve the same function as the apertures previously described and facilitate the movement of fluid through the lower wall section of overspray shield 50. In the case of a flushing toilet, these fluid flow slots serve in part to allow a rinsing of the lower section of overspray shield 50 adjacent the bottom opening 56.

Ovsspray shield 50 shown in FIGS. 9 & 10 is designed and structured to fit within the standard geometry of typical toilets having elliptical, or elongated elliptical, toilet bowl openings. Base diameter, D1, shown in FIG. 10 is sized to allow insertion into the toilet bowl opening (with the lid and toilet seat raised) and to remain secure therein during use. Further embodiments described below reduce this base diameter to accommodate bedside commodes and toilet seat risers.

FIG. 11 discloses in detail the structure and shape of the flexible panel 52 that is used to assemble the overspray shield 50 of this alternate preferred embodiment. Although still generally formed from a rectangular flexible panel, specific alterations are made to the shape to facilitate not only its assembly, but the resultant three dimensional structure that forms the side access trough 56 shown in FIG. 9. Flexible panel 52, cut as shown in FIG. 11, specifically incorporates crossover tabs 58a & 58b that extend as pointed arrow shaped tabs from the lower corners of flexible panel 52. Each crossover tab 58a & 58b incorporates an array (four apertures in each array in the preferred embodiment) of rivet apertures 66a & 66b as shown. The arrangement of rivet apertures 66a & 66b is such that when crossover tabs 58a & 58b are directed towards each other and overlapped as shown in FIG. 9, press rivets 60 may be secured through the aligned rivet apertures.

Although the lower and upper edges of flexible panel 52 may generally be straight and parallel, the side edges are curved in the manner shown in FIG. 11 so as to direct curved wing extensions of the panel towards the user in a manner best seen in FIG. 10. These side curves define the formation of side access trough 56 (see FIG. 9) and thereby allow the user to more closely move into side access trough 56 for best use of overspray shield 50.

Ovsspray shield 50 is preferably constructed from a 0.080 inch sheet of high impact polystyrene. The embodiment shown in FIGS. 9 & 10 is preferably constructed in large (32 inches high), medium (28 inches high), and small (24 inches high). The method of manufacture includes the steps of cutting the core rectangle for the pattern shown in FIG. 11, followed by cutting the side curved edges and the lower corner tabs. The handle apertures and the array of fluid apertures are then cut or punched through the material. Finally, the
two aligned sets of rivet aperture, which are mirrored across a centerline of the panel, are cut or punched in the corner tab regions of the panel.

Although the upper edge of flexible panel 72 may generally be straight, the lower edges and the side edges are each curved in the manner shown in FIG. 14. The side edges are curved to direct curved extensions of the panel towards the user in a manner best seen in FIG. 13. These side curves allow the formation of side access trough 76 (FIG. 12) and thereby allow the user to more closely approach side access trough 76 for use of overspray shield 70. The lower edge curve seen in FIG. 14 produces a generally flat base (seen best in FIG. 13) as preferable for the bedside commode or the toilet seat riser applications of the device.

Overspray shield 70 is preferably constructed from a 0.060 inch sheet of high impact polystyrene. The embodiment shown in FIGS. 12 & 13 is preferably constructed with a smaller (24 inch) height and may be cut and/or configured to have one of two different base diameters D2 depending upon the intended use of the device. The bedside commode device will generally have a base diameter 2 inches greater than the base diameter for the toilet seat riser device. The method of manufacture also includes the steps of cutting the core rectangle for the pattern shown in FIG. 14, followed by cutting the side curved edges, the lower curved edge, and the lower corner tabs. The handle apertures are then cut or punched through the material. Finally, the two aligned sets of rivet aperture, which are mirrored across a centerline of the panel, are cut or punched in the corner tab regions of the panel.

Reference is finally made to FIGS. 15 & 16 for perspective views showing two applications or intended uses of the smaller overspray shield device 70 shown in FIGS. 12 & 13. Ovrspray shield 70 in FIG. 15 is shown positioned in bedside commode device 90 secured within the generally smaller toilet seat 92 typical of a bedside commode. Overspray shield 70 shown in FIG. 13, having a flat base and a small base diameter D2, is not only better suited for placement within bedside commode seat 91 but is securely elevated and upright for purposes of use in the smaller bedside commode configuration.

FIG. 16 utilizes the similarly sized overspray shield 70 in connection with a toilet seat riser 96 positioned on a standard toilet 94. Here again, the opening associated with toilet seat riser 96 is typically smaller even than the bedside commode (for structural support) and requires an even smaller diameter D2.

Although the present invention has been described in terms of the foregoing preferred embodiments, this description has been provided by way of explanation only, and is not intended to be construed as a limitation of the invention. Those skilled in the art will recognize modifications of the present invention that might accommodate specific individual needs (based on the individual user’s abilities) or specific toilet configurations. While the device is flexible enough to accommodate toilet bowls (and/or toilet seats), as well as bedside commodes and toilet seat risers, that might vary in diameter and shape, it may be desirable to alter the geometry of the flat panel from which the cone shape is constructed so as to better fit certain toilet designs. Toilets are known, for example, to come in designs with oval seat opening having a long diameter only slightly larger than the short diameter, as well as designs with greatly elongated openings where the long diameter (typically front to back on the toilet seat) is significantly longer than the width diameter (side to side). Such modifications, where they are coincidental to the
needs of the individual or the specific configuration of the toilet being used, do not necessarily depart from the spirit and scope of the invention. We claim:

1. A toilet overspray shield for use with a toilet for standing urination, the toilet having a bowl and/or seat presenting an open, generally elliptical rim, in a plane generally parallel with a support surface on which the toilet is positioned, the toilet overspray shield comprising:
   a curved shield comprising a single wall funnel shaped panel defining a partially open side, an open discontinuous upper rim defining an inlet opening, and a closed continuous lower rim defining an outlet opening;
   wherein the lower rim of the funnel may be removably positioned within the generally elliptical rim of the toilet bowl to support the funnel upright with the outlet opening directed into the toilet bowl, and wherein the funnel may be oriented to position the partially open side to receive standing urination into the funnel.

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