

May 25, 1971

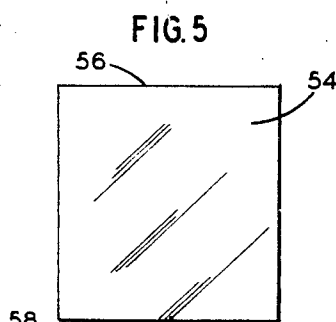
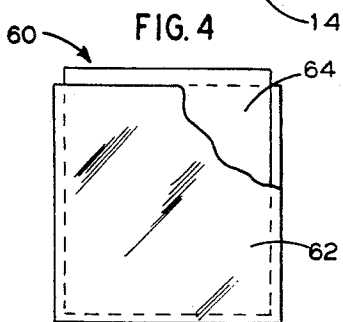
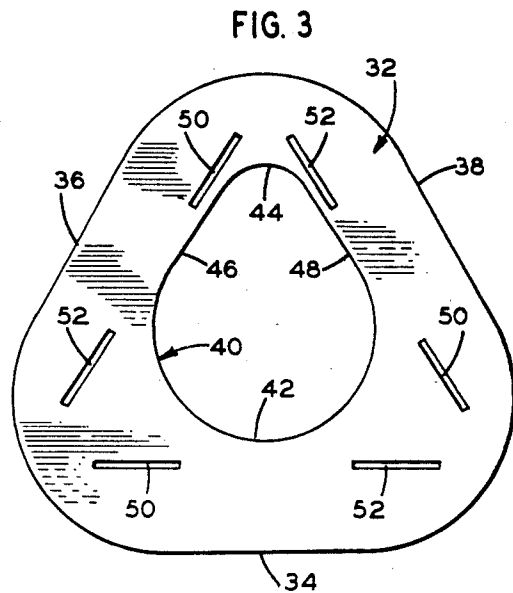
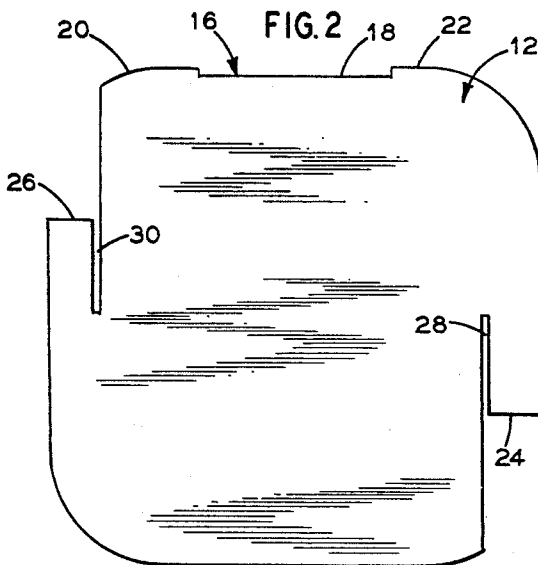
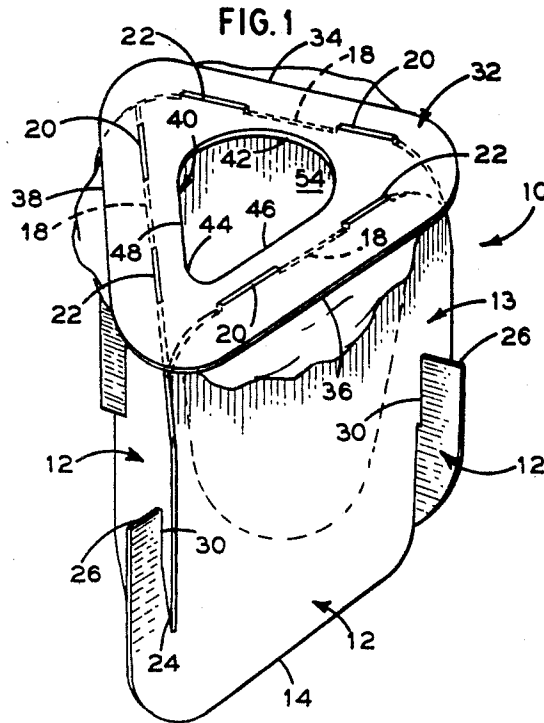
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3,579,655

PORTABLE TOILET AND SINK STRUCTURES AND THE LIKE

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2 Sheets-Sheet 1



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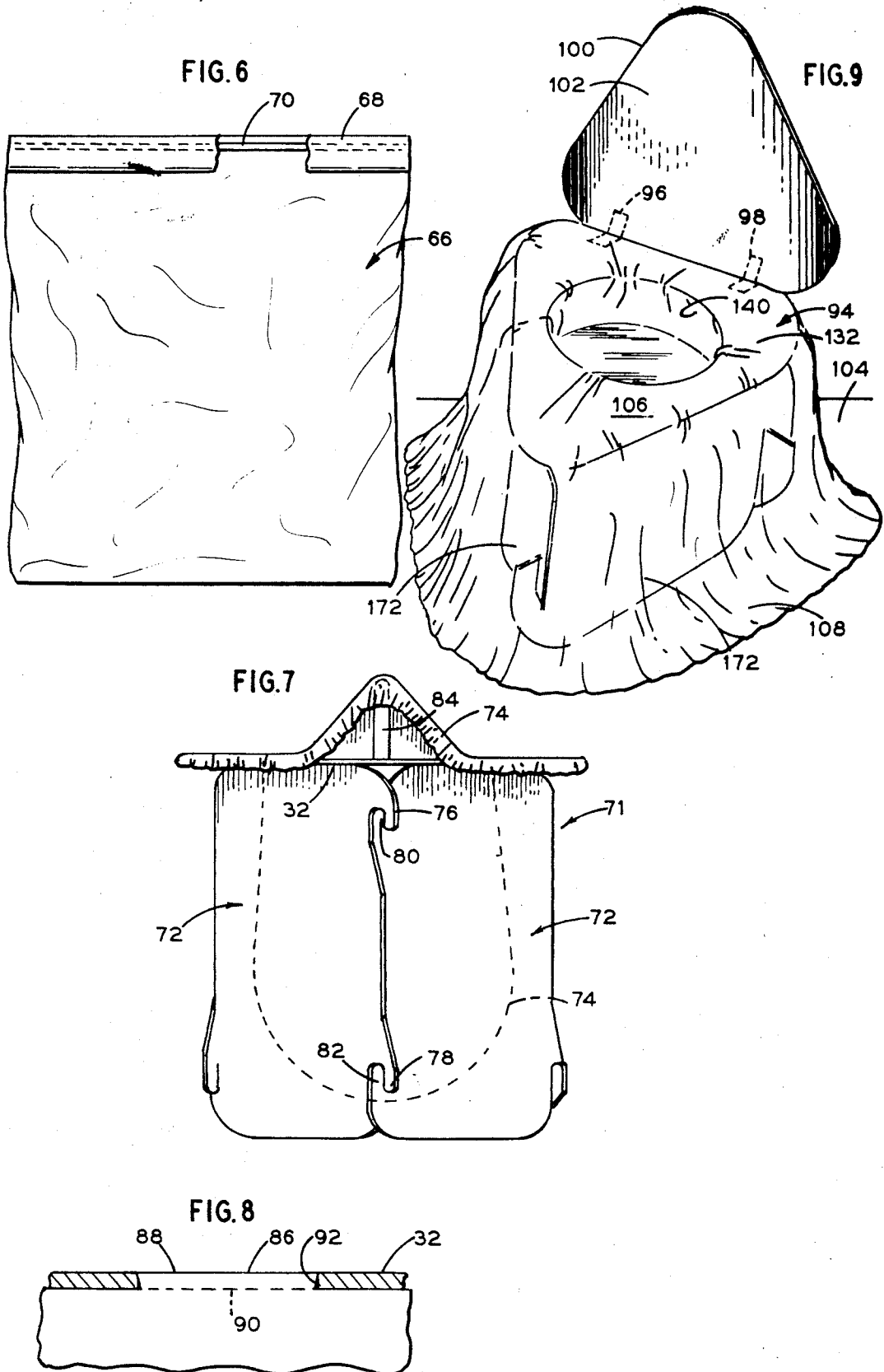
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2 Sheets-Sheet 2



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PORTABLE TOILET AND SINK STRUCTURES AND THE LIKE

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4 Claims

ABSTRACT OF THE DISCLOSURE

A portable toilet structure or the like which includes a plurality of side panels connected together along their respective adjacent edges. Connected to the side panels is a top panel having a through aperture. Surrounding the aperture and extending downwardly therefrom is a substantially waterproof bag. The bag is adapted to receive waste materials and the like thereby to provide a portable toilet or the like which may be assembled easily and quickly.

A method of fabricating the portable structure also is described.

This invention relates generally to portable structures which may be used as toilets or the like and a method of fabricating the same and, more particularly, pertains to portable structures of the aforementioned type and methods of erecting the same which provide devices which are easily and quickly assembled.

Long trips which have been taken with babies have posed many problems, particularly when the child is in the transition stage from diapers to the use of toilets. Thus, in order to train the child properly, it is essential that the child be placed on a toilet immediately when the need arises or at specified times in accordance with their schedule. However, a toilet may not be available readily, especially during long car trips and the like. While some types of portable toilets have been proposed in the past as possible solutions to the problem by making a toilet continuously available, they have many drawbacks associated with their use.

For example, one primary drawback associated with these prior devices was due to the fact that no means was provided immediately for disposing of the waste materials. As a result, the user was required to wait until a conventional toilet was available before the portable toilet could be cleaned. Another drawback (which is related to the preceding) was the fact that once used, such prior art devices could not be used again until it was cleaned. Hence, their use was curtailed severely.

Accordingly, an object of the present invention is to provide an improved portable toilet.

Another object of the present invention is to provide a portable toilet having a removable and disposable receptacle for receiving waste products which may be replaced quickly and easily so that the device immediately may be reused without the necessity for cleaning the same.

Most so-called portable toilets are quite heavy and bulky and occupy a relatively large volume thereby rendering said devices unsuitable for campers. That is, they cannot easily be packed and carried in a knapsack or the like, wherein space and weight considerations are uppermost.

Thus, another object of the invention is to provide a portable toilet which is light in weight and which occupies a relatively small space, thereby making the same ideally suited for camping or hiking trips and the like.

Additionally, many campers or hostlers or the like require a sink or wash basin which they can carry about easily on their respective trips or outings. However, those

sinks which are presently available suffer from the same drawbacks as does the toilets noted above. In other words, they are either heavy, bulky or both.

Hence, a further object of the invention is the provision of a lightweight sink which may be carried in a disassembled state, thereby occupying a relatively small volume, and which may be assembled easily and quickly.

Another object and feature of the present invention resides in the novel details of construction which provide structures of the types disclosed which are reliable in operation and relatively inexpensive to manufacture.

Accordingly, a portable structure constructed according to the present invention includes a top panel having a through bore. Side panel means is provided for supporting said top panel thereon. A substantially waterproof receiving device is positioned about said aperture and extends therebelow and is adapted to receive liquid or solid materials or the like.

A further object of the present invention is the provision of a method for quickly assembling or disassembling a portable structure of the type described.

Other features and advantages of the invention will become more apparent from a consideration of the following detailed description when taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of a portable toilet constructed in accordance with the present invention;

FIG. 2 is a front elevational view of a side panel of the device shown in FIG. 1;

FIG. 3 is a top plan view of the top panel of the device illustrated in FIG. 1;

FIG. 4 is a front elevational view, with parts broken away and to a reduced scale, of a modified embodiment of a bag adapted to be utilized in the toilet of the present invention;

FIG. 5 is a further modified embodiment of a bag similar to the bag of FIG. 4;

FIG. 6 is a front elevational view of another modified embodiment of a bag construction for use in the present toilet;

FIG. 7 is a front elevational view of a modified embodiment of a toilet constructed according to the present invention;

FIG. 8 is a fragmentary view, partially in section, of a locking arrangement between the side panels and the top panel of the toilet shown in FIG. 1; and

FIG. 9 is a perspective view of a portable sink constructed in accordance with the present invention.

A portable toilet constructed according to the present invention is shown in FIG. 1 and is designated generally by the reference numeral 10. The toilet 10 includes a plurality of side panels 12 which are releasably connected together along their adjacent side edges to form a housing 13 having an open bottom and top. More specifically, in the device shown in FIG. 1, three identical side panels 12 are utilized. However, it is to be noted that this is for illustrative purposes only and is not to be interpreted as being a limitation of the present invention. That is, more or less than three such panels may be used.

Since the side panels 12 are identical in construction, only one panel will be described in detail. Accordingly, a side panel 12 is shown in FIG. 2 and includes a bottom edge 14 and a top edge 16. The top edge 16 is provided with an approximately centrally located recess 18 thereby to define upstanding spaced tabs 20 and 22 at the respective ends. The side edges of the panel 12 are provided with oppositely directed shoulders 24 and 26. That is, the shoulder 24 is spaced from the bottom edge 14 by a distance which is substantially equal to the distance that the shoulder 26 is spaced from the top edge 16. The shoulder 24 terminates at an upwardly extending open-ended elongated

gated slot 28. Similarly, the shoulder 26 terminates at a downwardly extending open-ended elongated slot 30.

Releasably received on the enclosure 13 and extending beyond the boundaries thereof (FIG. 1), is a top panel designated generally by the reference numeral 32. The top panel 32 is shown in detail in FIG. 3 and is of substantially triangular configuration having a rear edge 34, and converging side edges 36 and 38. The edges are connected by rounded corners. It is to be noted that the shape of the top panel 32 is substantially a function of the shape of the enclosure 13. That is, if the enclosure 13 was comprised of four panels and was substantially square, the top panel may be correspondingly square. Alternatively, if the enclosure 13 were comprised of a single panel and were circular, the top panel may be circular also.

Provided in the top panel 32 is a through aperture 40. The aperture 40 includes a rear portion 42 of relatively large radius of curvature, a front portion 44 of relatively small radius of curvature, and interconnecting substantially straight side edges 46 and 48. Positioned adjacent the rear edge 34 of the top panel 32 and parallel thereto are spaced elongated slots 50 and 52. Similarly, positioned adjacent the side edge 36 and parallel thereto are spaced elongated slots 50 and 52. Likewise, a pair of spaced elongated slots 50 and 52 are provided adjacent the side edge 38 which are parallel thereto.

Received between the top panel 32 and the side panels 12 is a substantially waterproof bag 54. In practice, the bag 54 is fabricated from a liquid impervious material such as a flexible plastic or the like. The bag 54 is shown in FIG. 5 and is provided with an open top 56 and a closed bottom 58.

The side panels 12 and the top panel 32 may be fabricated from a paper laminate, a plastic or fiberboard or the like. However, these examples are only illustrative of the materials from which the panels may be made, it being understood that it is desirable to have panels which are substantially impervious to liquids and have a relatively high strength.

In operation, the portable toilet 10 usually is in its disassembled or knocked-down state. That is, when the toilet is not in use the side and top panels are unconnected and may be superposed on each other to present a relatively small package which easily may be packed in a knapsack or the like as it occupies a relatively small volume. Moreover, the panels may be inserted into the bag 54 to maintain the complete package together. Additionally, since the panels are made from a paper laminate or fiberboard or the like, the device is lightweight and may be easily carried.

When it is desired to use the toilet 10, the side panels 12 are connected together along their side edges to form the enclosure 13. More particularly, the portion of one panel 12 above the slot 28 is received in the slot 30 of another one of the panels 12 while that portion of the other panel 12 below the slot 30 is received in the slot 28 of the one panel 12. In this manner, the three panels 12 of the illustrative embodiment are so connected and are placed on their respective edges 14 which lie in the same plane when connected together to form a triangular base or support for the top panel 32. The bag 54 then is inserted into the enclosure 13 and the top portion thereof is placed over the respective top edges 16 of the side panels 12, as shown in FIG. 1. The top panel 32 is positioned over the enclosure 13 so that each tab 20 of the respective side panels is aligned with a different one of the slots 50 in the top panel 32. Similarly, each one of the tabs 22 is aligned with a different one of the slots 52 in the top panel, it being understood that the slots 50 and 52 are sized and positioned to receive the respective tabs when the top panel is so oriented. The bag 54 is relatively thin-walled and will not interfere with the reception of the respective tabs into the associated slots albeit the top portion of the bag covers the tabs. The top panel 32 then is moved downwardly until the tabs 20 are received in the respective

slots 50 and the tabs 22 are received in the respective slots 52 and the under surface of the top panel abuts the lower wall of the recess 18. It is to be noted that the height of the tabs 20, 22 are sized so that the top of the tabs are flush with or below the top surface of the top panel, when the top panel is seated on the side panels. Moreover, as shown in FIG. 1, the top panel 32 is sized to overhang the housing 13.

Accordingly, when the toilet 10 is assembled in the manner noted above and as shown in FIG. 1, it is ready for use. After use, the top panel 32 is removed and the top overhanging portion of the bag 54 is grasped so that the bag 54 may be closed and removed. Thereafter, a new bag 54 may be placed in the enclosure 13 and the top panel 32 placed thereon, in the manner noted above, so that the toilet 10 immediately is ready for reuse. The used bag 54 which may contain waste materials or the like, may be disposed of in any conventional manner.

Since the side and top panels of the toilet 10 are releasably connected together, in the manner noted above, the toilet easily may be disassembled simply by reversing the above procedure.

Accordingly, a portable toilet has been described which is simple to assemble, light in weight, and compact, and which may be available for reuse practically immediately. Moreover, since only the disposable bag 54 is contaminated with waste materials, there is never any need to clean the toilet.

In many applications, it may be difficult to dispose of the bag 54 particularly when the bag is fabricated from a plastic since many conventional toilets become stuffed when an attempt is made to flush such plastic materials. Accordingly, the bag designated generally by the reference numeral 60 in FIG. 4 eliminates such problems. Thus, the bag 60 includes a waterproof or liquid impervious outer liner 62 which may be fabricated from a relatively inexpensive plastic or the like. Removably received within the outer liner 62 is an inner liner 64 which is fabricated from an absorbent paper or the like. In practice, the liner 64 is adapted to break into relatively small pieces when subjected to the water pressure of a conventional toilet to facilitate flushing of the same.

In operation, the bag 60 is used in a manner similar to the bag 54. However, when it is desired to dispose of the bag 60 in a conventional toilet, the inner liner (which retains the waste materials) is removed and flushed down the toilet. The plastic outer liner then may be disposed of in any manner since it is substantially clean of waste materials.

FIG. 6 illustrates a further modified embodiment of a bag construction which may be used in place of the bag 54 shown in FIGS. 1 and 5. Thus, the bag 66 shown in FIG. 6 includes a hem 68 adjacent the mouth of the bag. Within the hem 68 is an elasticized thread 70. The normal unstretched length of the thread 70 is smaller than the periphery of the top panel 32 but it is adapted to be stretched to a greater length than the periphery of the top panel. The bag 66 is adapted to cover the entire top surface of the panel 32.

In use, the top panel is placed directly over the side panels 12 in the manner noted above with the respective tabs received in the associated slots. The bag 66 then is placed through the aperture 40 so that it extends downwardly from the top panel within the enclosure 13. The mouth of the bag is stretched outwardly and is placed over the edge of the top panel. The mouth of the bag 66 then is released so that the thread 70 assumes its unstretched length, thereby firmly grasping the underside of the top panel 32. Hence, the bag 66 will be maintained in place with the top of the bag completely covering the top surface of the top panel.

FIG. 7 illustrates a toilet 71 which includes side panels designated generally by the reference numeral 72 and a bag 74. The side panels 72 mount a top panel 32 in the

same manner as does the side panels 12. However, the side panels 72 differ from the side panels 12 by the manner in which the panels are releasably connected together along their adjacent or juxtaposed edges. More specifically, each side panel 72 includes downwardly extending spaced locking lugs 76 and 78 along one side edge. As shown in FIG. 7, the lug 78 is positioned adjacent the bottom edge of the panel and the locking lug 76 is positioned adjacent the top edge of the panel. The opposite side edge of each one of the panels 72 is provided with upwardly directed locking lugs 80 and 82. The lugs 80 and 82 are positioned to engage the locking lugs 76 and 78, respectively, to releasably connect adjacent panels together by positioning the lugs 80 and 82 below the respective lugs 76 and 78 and moving the panels toward each other. When the panels are connected together, they form a housing similar to the housing 13. As noted above, the side panels 72 are provided with a top edge which is similar to the top edge of the panels 12 so that the side panels 72 cooperate with the top panel 32 in the same manner as do the panels 12. Additionally, the locking lugs are positioned so that the bottom edge of each side panel lies in the same plane when the side panels are connected together, thereby to provide a stable device.

The bag 74 is similar in construction to the bag 66 and includes an elasticized thread (not shown) so that the bag may be placed over the entire top surface of the top panel 32 of the toilet 71 with the outer portion of the bag engaging the underside of the panel. Connected to the outer surface of the bag 74 in spaced relation to the mouth thereof, is a substantially rigid elongated member 84. The member 84 has a length of approximately two to three inches. It is to be noted that the bag 74 may be made in layers, in which case the member 84 would be received between adjacent layers of the bag.

The panels comprising the toilet 71 are assembled in a manner similar to the assembly of the toilet 10 as noted above. The bag 74 is placed on the top panel in a manner similar to the placement of the bag 66. However, the bottom end of the member 84 is positioned in engagement with the top surface of the top panel 32 adjacent the front portion 44 of the aperture 40 so that the portion of the bag 74 in the area surrounding the member 84 similarly extends upwardly from the top surface of the panel 32. Hence, the bag 74 has an upwardly extending portion which provides a protective shield for those applications wherein the portable toilet is utilized for male children. The bag 74 may be replaced or the device disassembled by reversing the above procedures.

In many applications, it may be desirable to prevent accidental separation of the top panel from the side panels 12 or the side panels 72. Thus, FIG. 8 illustrates a construction which prevents such accidental separation. More specifically, a tab such as tab 86 is provided in place of the tabs 20 and 22. The tab 86 is in the shape of an inverted trapezoid so that the upper edge 88 of the tab is longer than the bottom edge 90 of the tab. The slot 92 in the top panel 32 is sized to have a length which is intermediate the length of the top edge 88 and the bottom edge 90 of the tab 86.

In operation, the top panel 32 is placed on a side panel with the tabs 86 aligned with the slots 92. The top panel then is forced downwardly so that the tabs 86 are forced into the respective slots. Since the side panels are fabricated from a paper laminate or the like, the ends of the tabs 86 will be compressed as they are received in the slots. When the top panel 32 seats on the upper edge of the side panels, the top portion of the tabs 86 will abut the end walls of the slots in tight frictional engagement therewith. To disassemble the toilet, the user will have to exert a substantial upwardly directed force to remove the top panel from the side panels. Hence, the top panel cannot accidentally be removed from the side panels.

As noted hereinabove, it is desirable to provide a portable sink or wash basin which is light in weight and may

be carried easily. Such a device is shown in assembled condition in FIG. 9 and is designated generally by the reference numeral 94. The sink 94 includes side panels 172 which are similar in construction to the side panels 12 with the exception that they are of smaller height. Each side panel 172 includes locking means which cooperate in the same manner as the locking means associated with the side panels 12 to releasably connect together the side panels. Additionally, a top panel 132 is provided which is connected to the side panels 172 in the same manner that the panel 32 may be connected to the side panels 12 or 72. Provided in the top panel 132 is a substantially circular aperture 140.

Hingedly connected to the top panel 132 by hinges 96 and 98 is a lid 100 which is adapted to be moved between an aperture-open and an aperture-closed position. The hinges 96 and 98 are conventional in construction and are of the type which limit the movement of the lid 100 when in the aperture-open position to a position wherein the lid is upstanding, as shown in FIG. 9. The inner surface of the lid is coated with a reflective material 102 such as aluminum or the like to provide a mirrored surface. The sink or wash basin 94 is adapted to be supported by a surface 104.

A substantially waterproof bag 106 is provided which is adapted to be received through the aperture 140. The bag 106 extends downwardly from the top panel 132 and the bottom of the bag rests on the supporting surface 104. Additionally, the bag is provided with a skirt portion 108 which overlies the top surface of the top panel and extends down the sides of the sink, and outwardly over the supporting surface 104 to provide a protective cover for these surfaces to protect them from the liquid in the bag.

In operation, the sink or basin 94 is assembled in the manner noted above with respect to the toilet 71 and the bag 106 is filled with a liquid such as water. Since the bottom of the bag rests on the supporting surface 104, the bag receives additional support thereby. After the sink has been used, the bag may be emptied or disposed of and replaced with another bag. Alternatively, the cover or lid 100 may be moved to the aperture-closed position while a liquid such as water remains in the bag. When it is desired to repack or disassemble the sink 94, the bag 106 is removed, the top panel 132 is removed and the side panels 172 disconnected. The panels then may be superposed on each other to provide a relatively compact package.

Accordingly, a sink or wash basin has been disclosed which is easy to assemble and occupies a minimum of space.

While preferred embodiments and methods of the invention have been shown and described herein it will be obvious that many omissions, changes and additions may be made in such embodiments and methods without departing from the spirit and scope of the present invention.

What is claimed is:

1. A lightweight portable structure including a plurality of identical separate and individual flat planar side panels, interconnecting means on each of said plurality of side panels and in the plane of said side panels for releasably connecting together juxtaposed panels along their adjacent edges, a separate and individual flat planar top panel received on said plurality of side panels, an aperture in said top panel, connecting means between at least preselected ones of said plurality of side panels and said top panel for connecting said top panel with said preselected side panels, said connecting means comprising upstanding tabs on said preselected panels having a top edge larger than the bottom edge thereof, and complementary slots in said top panel positioned to receive said tabs, said slots being sized slightly smaller than said top edges and slightly larger than said bottom so that said top panel is firmly fixed in place, the height of said tabs being substantially equal to the width of said top panel whereby the top surface of said tabs is substantially coplanar with

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the top surface of said top panel, and a substantially waterproof bag surrounding said aperture and extending downwardly therefrom.

2. A portable structure as in claim 1, in which said top panel includes a horizontally extending lip portion which extends outwardly from said side panels, said bag including a portion which extends upwardly through said aperture and over said top panel, and elastic means adjacent the mouth of said bag for normally constricting said mouth, whereby the mouth of said bag is received over the edge of said top panel and said elastic means being sized to constrict said mouth so that said mouth is smaller than said top panel whereby said bag engages the underside of said lip portion of said top panel to maintain said bag in place.

3. A lightweight portable structure including a plurality of separate and individual flat planar side panels, interconnecting means on each of said plurality of side panels for releasably connecting together juxtaposed panels along their adjacent edges, a separate and individual flat planar top panel received on said plurality of side panels, an aperture in said top panel, and a substantially waterproof bag surrounding said aperture and extending downwardly therefrom, said bag including a portion which extends upwardly through said aperture and over said top panel, and elastic means adjacent the mouth of said bag for normally constricting said mouth, whereby the mouth of said bag is received over the edge of said top panel and said elastic means being sized to constrict said mouth so that said mouth is smaller than said top panel whereby

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said bag engages the underside of said top panel to maintain said bag in place, and a substantially rigid member in said bag having an end positioned to engage said top panel, whereby the portion of said bag adjacent said member extends upwardly from said top panel.

4. A portable structure as in claim 1, including a lid hingedly connected to said top panel and movable between an aperture-open and an aperture-closed position, and a reflecting surface connected to said lid.

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