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L. J. SULLIVAN
DISPOSABLE URINAL

2,855,607

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2 Sheets-Sheet 1

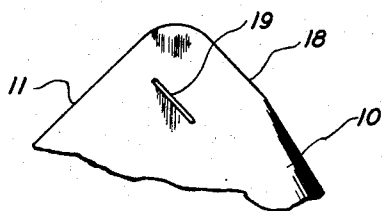


FIG. 3.

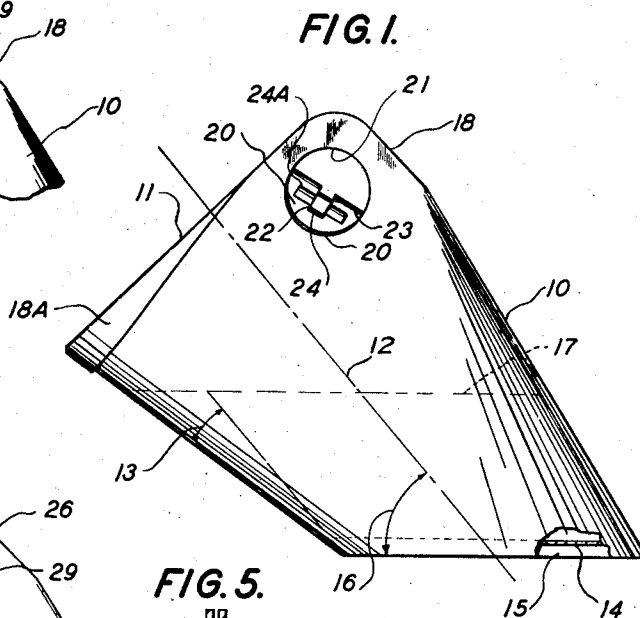


FIG. 1.

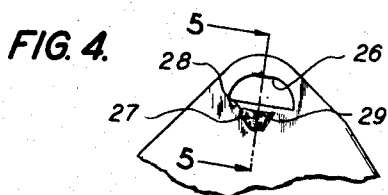


FIG. 4.

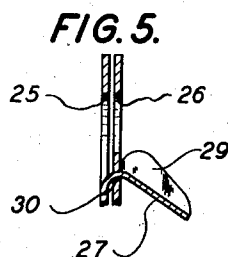


FIG. 5.

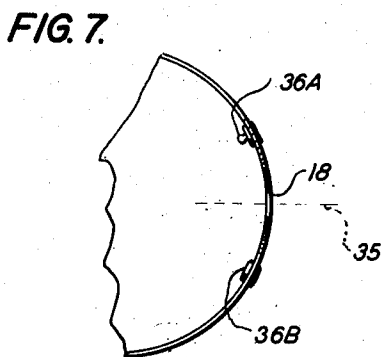


FIG. 7.

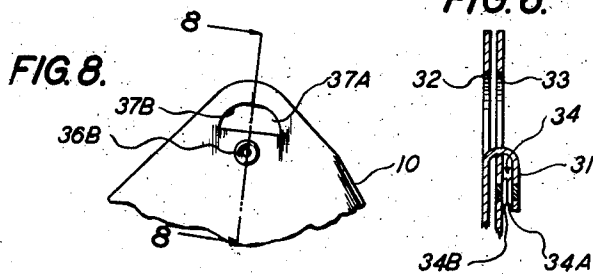
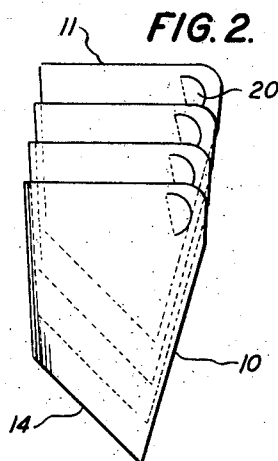


FIG. 8.



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DISPOSABLE URINAL

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5 Claims. (Cl. 4—110)

This invention is concerned with disposable containers, particularly disposable urinals and provides new and improved structures to this end.

This application is a continuation-in-part of my co-pending application Serial No. 492,560, filed March 7, 1955, since matured into Patent No. 2,819,472, dated January 14, 1958.

It has been proposed heretofore to provide disposable urinals, particularly for hospital use. Conventional urinals are not disposable and present a sanitary problem, as well as a labor difficulty, for the cleansing of such equipment is a disagreeable task which most people do not assume willingly. But the structures heretofore proposed have not been successful for a number of reasons. Some have been too complicated and expensive and those within economic reach have been flimsy or have required excessive storage space.

The containers of my invention are not subject to the objections which have ruled out prior proposals. They are adequately rugged and can be mass produced from inexpensive and readily available materials. They are convenient to use and handle both by the patient and the attendant, and require relatively little storage space. They may be made of material having low thermal conductivity so that they are not cold to touch, and when made of non-metallic material are not as noisy as conventional types.

In essence, my invention contemplates a container having an inverted frusto-conical wall of relatively flexible and impermeable material, such as plastic, say polystyrene, or cardboard waterproofed with wax or other water-impermeable coating composition. The bottom of the container is an impermeable disc disposed obliquely to the axis of the frusto-conical side wall, which tapers inwardly toward the bottom. The disc may be made of rigid material such as sheet metal, but preferably is formed of the same sheet stock, say waxed cardboard, which is employed to form the wall. The wall projects forward of the bottom when the latter is level.

Disposable urinals constructed as described above are nestable, so that a large number of them can be stacked one within the other in relatively small space.

When the urinals are put into service a handle is desirable, and this is formed conveniently by bending the side wall longitudinally at the top in line with the deepest portion of the urinal, which may be considered as the back portion. The bending is continued until adjacent portions of the side walls on opposite sides of the bend or crease abut each other. In other words, these portions are squeezed together. If desired, the handle portions thus formed may be secured by stapling or otherwise fastening the two wall portions to each other.

In the preferred form of my invention the upper rim of the urinal is notched at the back to facilitate bending in the proper place, i. e. along a longitudinal rear fold line, and fastening means for the two side portions (which are squeezed together to make the handle) are incorporated in the structure.

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The notch on the upper rim of the urinal at the back serves another purpose. If the notch is lacking, the space between nested urinals tends to become sealed, so that a partial vacuum develops when an attempt is made to separate them. If the urinals are notched, the space between the nested vessels tends to be vented, and this venting can be positively assured if stops are provided on the urinal wall to prevent tight sealing of one urinal within another.

I have found that the bottom of the urinal, in the condition in which it is made and stored, should be non-planar and so shaped that it becomes substantially flat when the vessel is squeezed into shape for use. To this end, the bottom should be in the shape of a rocker with the curve of the rocker extending fore and aft. When a urinal with a bottom of this shape is squeezed at the back and rear to form the handle, the side wall of the vessel is distorted and the rocker-shaped bottom tends to flatten into a plane. This plane bottom makes the urinal more stable.

These and other aspects of the invention will be understood completely in the light of the following detailed description of presently preferred examples. The description is illustrated by the accompanying drawings, in which:

Fig. 1 is a side view of one form of the urinal of the invention, with the handle formed at the back and secured by substantially integral fastening means;

Fig. 2 is a side view of a group of the urinals of Fig. 1 stacked or nested within each other and prior to the bending operation which forms the handles;

Fig. 3 is a fragmentary side view of a urinal of the type of Fig. 1 in which the two wall portions which form the handle are stapled together instead of being held by integral fastening means;

Fig. 4 is a fragmentary side view of a urinal constructed as in Fig. 1, but employing an alternate integral fastening means;

Fig. 5 is a section taken along the line 5—5 of Fig. 4;

Fig. 6 is a section taken through the handle portion of a urinal such as that of Fig. 1, but equipped with still another alternate form of integral fastening means;

Fig. 7 is a fragmentary plan view of a urinal like that of Fig. 1, but employing a snap fastener for the handle portion;

Fig. 8 is a fragmentary side view of the structure of Fig. 7, with the two wall portions bent together and held by the snap fastener;

Fig. 9 is a view of one side of a presently preferred form of the urinal of the invention;

Fig. 10 is a view of the opposite side of the urinal of Fig. 9, illustrating how urinals of this form are nested within each other;

Fig. 11 is a side view of the urinal of Fig. 10 after the handle has been formed on it by squeezing it at the back and rear, the squeezing also serving to flatten out the bottom; and

Fig. 12 is a fragmentary section through the structure of Fig. 11 taken along the line 12—12.

The urinal of Fig. 1 has a frusto-conical wall 10 which flares upwardly to a rim 11 defined by a plane approximately perpendicular to the longitudinal axis 12 of the wall section. The angle 13 of flare may vary considerably, but should be relatively slight, say 10° to 15°.

If the flare angle is substantially less than this, the nesting is insufficient. If the flare angle is much greater than 15°, the urinal is difficult to use and handle.

The urinal of Fig. 1 has an elliptical bottom 14 set obliquely to the longitudinal axis of the wall and joined to the wall by a downwardly extending annular flange 15. The bottom may be fastened to the side wall by cementing

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or crimping, or both. The angle 16 which the plane of the bottom makes with the longitudinal axis of the wall may vary, but I have found that an angle of about 50° is satisfactory and tends to lend stability to the structure when it is filled with the usual amount of liquid, say to the level 17. If the angle 16 is too great, the urinal tends to tip forward when filled, because the center of gravity is too far forward and beyond the vertical projection of the bottom.

The wall of the urinal of Fig. 1 has a notched portion 18 on its rim at the back. This notch facilitates folding adjacent portions of the side wall together, so that they form a handle, this bending operation being conducted after the urinal has been removed from the stack and prior to use.

The upper rim of the urinal is reinforced at the front by an integrally formed folded portion 18A. This not only reinforces the front of the urinal but avoids a sharp edge at this point.

It is not essential that the two portions of the wall which are folded to form the handle be secured to each other, for the fingers in grasping the handle, tend to hold them together. However, it is sometimes convenient to secure them to each other. One simple means of securing them together is by means of a staple 19 as illustrated in Fig. 3. Such a staple is easily inserted with a convenient office-type stapling machine. Another simple fastening means comprises a layer or layers of adhesive on the inside of the vessel. A number of coating compositions are available which adhere firmly to a backing upon which they are applied as a liquid film. But these films, when dry, do not adhere firmly to a piece of uncoated backing material but do adhere firmly to another of the dried film. If the inside wall of the urinal is coated on both sides of the rear notch with such a coating composition, the urinals may be nested without sticking. However, if the two coatings are pressed together after the urinal is separated, they adhere to each other and hold the two sides together just as firmly as the staple. I prefer, however, to incorporate fastening means such as those illustrated in Figs. 1, 4, 5, 6, 7 and 8. Such fastening means make the fastening operation independent of a stapling machine or the like, which may not be available when and where it is needed.

As shown in Figs. 1, 4, 5, 6, 7 and 8, it is desirable to provide an aperture through the handle for the fingers, as in the handle of a teacup, and this adds to the convenience and security of handling and reduces the danger of dropping or tipping, with resultant spillage.

In the urinal of Fig. 1, the handle portion is provided with matching flaps 20, which are bent downwardly over each other, after the two side portions have been bent together, leaving a finger aperture 21. If desired, each flap may be provided with parallel slits 22, 23, so that the portion 24 of the flaps between the slits may be bent outwardly to receive a key 24A, such as a match stick. The key is inserted through the keyway thus formed and anchors the two flaps together.

In the structure illustrated in Figs. 4 and 5, the two wall portions which form the handle are again provided with matching finger apertures 25, 26, but only one of the apertures has a flap 27. This flap is shaped like a blunt spear head. The curved side portions of the flap are bent to form ears 28, 29. When the ears are folded over the flap will pass through a slit 30, which is not as long as the flap (including the ears) is wide. After the flap has been inserted in the slit, the ears are bent out again and hold the flap in the slit.

In the structure of Fig. 6, a flap 31 is joined to the lower edge of an aperture 32 on one side of the fold line (not shown) of the handle. This flap is folded down, passed through a matching aperture 33 on the other side of the fold line and held in place by a snap fastener 34, consisting of two parts, one 34A fastened to the flap,

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the other 34B embedded in the side of the container immediately below the matching aperture 33.

A practical and convenient means of holding the handle portions of the container wall together is illustrated in Figs. 7 and 8. In this modification, the wall portions on the two sides of the fold line 35 defined by the notch are provided respectively with the male and female members 36A, 36B of a snap fastener. The members are firmly affixed to the wall portions and since they are disposed symmetrically with respect to the fold line they come together when the container is folded. Then the male member snaps into the female member and the two wall portions are held together. If desired, matching orifices 37A, 37B may be provided in the respective wall portions between the snap members and the fold line, so that the fingers of the user may be inserted after the handle is formed.

As I have already indicated, the urinal of Figs. 9, 10 and 11 is a presently preferred form and has a number of desirable features. Like the previous examples, it has (as made, shipped and stored) an inverted frusto-conical wall 40. The bottom 41, however, instead of being flat, is rocker-shaped (as seen in Figs. 9 and 10) with the curve of the rocker extending from front to back. The bottom, although rocker-shaped, is still disposed oblique to the central axis of the frusto-conical wall, so that the front of the wall extends beyond the bottom. Preferably the bottom is an oval disc with the long axis of the oval extending from front to back. It may be integral with the side wall if desired.

The front edge rim portion of the urinal has a front flap 42, defined by notches 43, 44. This flap is folded down when the urinal is prepared for use. In this fashion the front of the urinal is reinforced and doubled and the exposed edge becomes a rounded fold 45 (see Fig. 11) which adds to comfort during use.

A deep V-shaped rear notch 46 is formed at the top and rear of the urinal of Figs. 9 and 10. The apex of the notch is on a fold line 47 extending up the back of the vessel from the bottom. As shown in Fig. 9 there is a first aperture 48 at the back of the urinal on one side near the top. This first notch contains an integrally formed first locking flap 49 adapted to be bent inwardly along a fold line 50 at the bottom of the aperture. The other side of the urinal, as shown in Fig. 10, has a slit 51 disposed symmetrically with the fold line 50, so that when the two sides are squeezed together the flap 49 may be slipped through the slit 51, thus fastening the two sides of the urinal together. The side of the urinal containing the slit has a second aperture 52, which is disposed approximately symmetrically to the aperture 48 on the other side. When the flap 49 is placed in the slit 51, the two apertures come together in matching relationship. Then a second locking flap 53 formed integrally with side wall (and joining it at an upper fold line 54 at the top of the second aperture) may be bent to pass through the first aperture, providing an additional fastening means between the two sides when they are forced together to form the handle 55 (see Fig. 11).

As shown in Fig. 10, when one urinal is nested within another the second flap 53 catches over the rim 57 of the lower urinal and forms a stop that prevents the upper urinal from seating completely in the lower. Preferably the rim is provided with a side notch 57A in which the second flap is caught. This side notch helps to prevent complete seating and also keeps the vessels from twisting with respect to their longitudinal axis. In consequence, air can enter the space 58 between the nested urinals via the rear notch 46, which serves as a vent for this space and facilitates pulling the nested urinals apart, since there is no air-tight seal between the two bottoms.

To prepare the nested urinals for use, they are first separated. Next the front flap of each urinal is bent down. Then the first locking flap 49 on each urinal is bent inward toward the slit 51 in the opposite side

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and the two sides are squeezed together along the rear fold line at the same time that the first locking flap is inserted in the slit, the squeezing being continued until the two sides are forced together approximately down to another line 59. The first locking flap is then bent down to lock the two sides together, and the second locking flap 53 is bent to pass through the second aperture and then upward to form a second lock (see Figs. 11 and 12). When these operations are completed the rocker-shaped bottom will assume a substantially flat form (as shown in Fig. 11). At the same time the handle is formed and the front wall of the vessel is projected forward and re-shaped into a spout, while the rear wall is forced backward below the handle, the net result being to produce a convenient and stable vessel.

I claim:

1. A container having an impermeable flexible inverted frusto-conical wall and an impermeable flexible bottom disposed obliquely to the longitudinal axis of the frusto-conical wall, so that the front of the wall projects beyond the bottom, the latter being rocker-shaped from front to back so that it tends to become flat when adjacent

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wall portions are squeezed together at the top and rear of the container.

2. Apparatus according to claim 1 in which the upper rim of the container is notched deeply at the back.

3. Apparatus according to claim 1 in which the upper rim of the container is deeply notched at the back and the wall of the container is provided with a stop to keep one of the containers from nesting completely in the other.

4. Apparatus according to claim 1 in which the upper rim of the container is deeply notched at the back and mating fastening means are disposed respectively on the two wall portions of the container on opposite sides of the notch.

5. Apparatus according to claim 1 provided with a flap on the front rim portion of the container, which flap may be folded down to reinforce this part of the container wall.

References Cited in the file of this patent

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