Dec. 10, 1957 N. H. FRIEDMAN ET AL 2,815,511

URINAL

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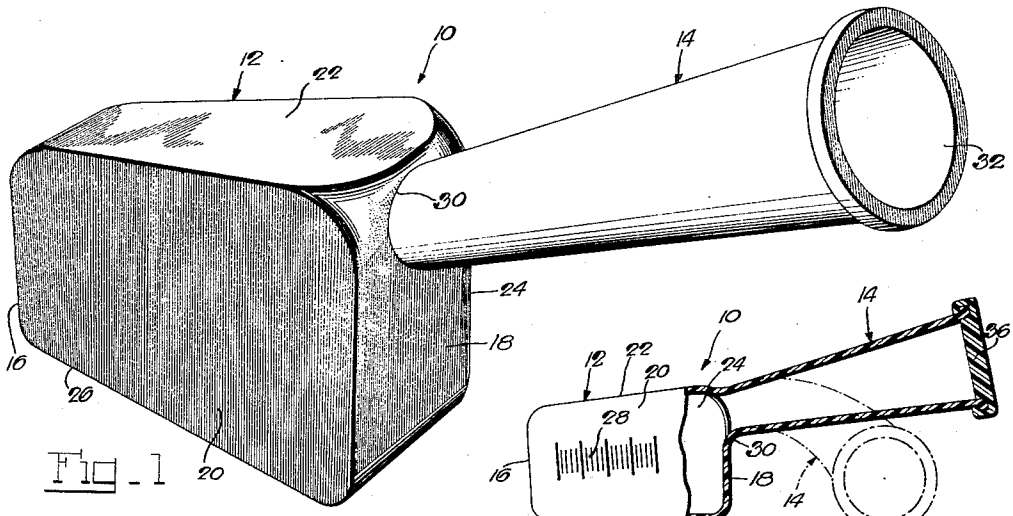


Fig. 1

Fig. 2

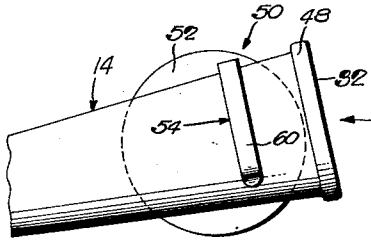


Fig. 6

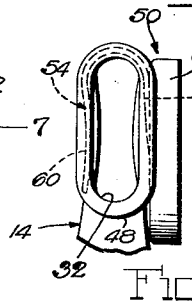


Fig. 7

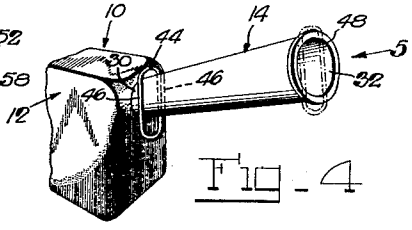


Fig. 4

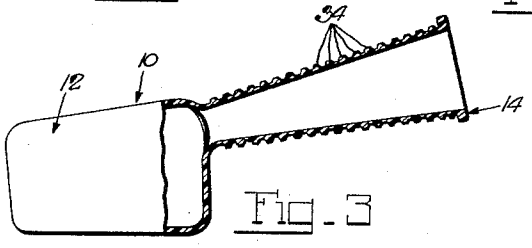


Fig. 3

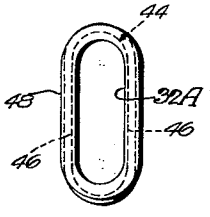


Fig. 5

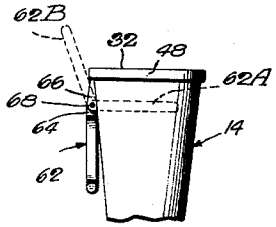


Fig. 8

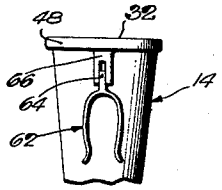


Fig. 9

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2,815,511
URINAL

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3 Claims. (Cl. 4—110)

The present invention relates to urinals in general, and to deformable and self-recoverable urinals in particular.

It is an object of the present invention to provide a urinal of a type which is ordinarily rigid and may be handled like conventional urinals, yet may temporarily be deformed to accommodate users even in positions most awkward for the purpose.

It is another object of the present invention to provide a urinal of the aforementioned type which is made of flexible material and has its walls coordinated to form a partially collapsible but self-recoverable receptacle of a definite volume, and a projecting tubular spout which may be bent in all directions, thereby to permit, if necessary, convenient and safe application of the urinal in something like squeeze-on fashion to some part or parts of an immobilized person in just about any sleeping or supine position.

It is a further object of the present invention to provide a urinal of the aforementioned type which has provisions for its ready conversion from most convenient and sanitary male use to most convenient and sanitary female use, and vice versa.

Another object of the present invention is to provide a urinal of the aforementioned type having a plurality of surfaces for selective and most convenient use of either as a stand-on bottom surface in the application of the urinal to supine patients in most any immobilized or enforced position of the patients, or for safe placement of the urinal with any one of these surfaces on a support without spilling the contents thereof.

A further object of the present invention is the provision of a urinal of the aforementioned type having an adjustable dimension so as to accommodate the latter to the physical differences of different patients.

It is another object of the present invention to provide a urinal of the aforementioned type which lends itself to efficient mass production at remarkably low cost, by being molded in one piece from suitable plastic or plastic-like material.

It is a further object of the present invention to provide a urinal of the aforementioned type which may be molded from transparent or at least translucent plastic or plastic-like material, thereby to permit inspection of the urine therein as to its characteristics as well as quantity, for medical purposes.

Other objects and advantages will appear to those skilled in the art from the following, considered in conjunction with the accompanying drawings.

In the accompanying drawings, in which certain modes of carrying out the present invention are shown for illustrative purposes:

Fig. 1 is a perspective view of a urinal pursuant to the present invention;

Fig. 2 is a longitudinal sectional view, partly in elevation, of the same urinal;

Fig. 3 is a longitudinal sectional view, partly in elevation, of a modified urinal;

Fig. 4 is a fragmentary perspective view of a urinal embodying the present invention in a modified manner;

Fig. 5 is an end view taken in the direction of the arrow 5 in Fig. 4, and showing the spout of the urinal converted for female use;

Fig. 6 is a fragmentary side view of the spout end of a urinal embodying a further modification of the male-to-female conversion arrangement;

Fig. 7 is a view taken in the direction of the arrow 7 in Fig. 6;

Fig. 8 is a fragmentary side view of the spout end of a urinal embodying still another modification of the male-to-female conversion arrangement; and

Fig. 9 is another side view of the spout end of the same urinal shown in Fig. 8.

Referring now to the drawings, and more particularly to Figs. 1 and 2 thereof, there is shown a urinal **10** pursuant to the present invention. Said urinal comprises a hollow body or receptacle **12** having an elongated hollow spout or funnel **14** extending therefrom. The spout is preferably integral with the body, the urinal being formed of a flexible self-restoring plastic, such as, for example and not by away of limitation, polyethylene. In making the urinal of such or similar plastic, the same is virtually unbreakable under ordinary accidental conditions, and has the further advantage of never feeling cold to the user.

Pursuant to a feature of the present invention, the body **12** is provided with a plurality of stand-on supporting surfaces whereby the urinal may be positioned in any one of a plurality of different dispositions thereof. In this connection, the body **12** is defined by the opposing planar end walls **16** and **18** which are interconnected by the four planar side walls **20**, **22**, **24** and **26**, respectively. Said side walls preferably taper from the end wall **18** toward the end wall **16**.

It will be understood that the urinal may be positioned or disposed to stand on any of the side wall surfaces **20**, **24** and **26** thereof for use by a supine patient, and that the end wall **16** also provides a convenient stand-on surface after the urinal has been used and removed from the patient. In this connection it will be noted that the polyethylene, used to form the urinal, is light-permeable and the side wall **20** may be provided with indicia or graduations **28** thereon (Fig. 2) so as to measure the contents when the urinal is stood on its end wall **16**. The polyethylene is irradiated by an electron beam generator so that the urinal can withstand the elevated temperatures of a sterilizing device without any change in its shape or flexibility. The irradiated polyethylene is also radiolucent so that, if necessary, a patient's torso can be X-rayed without removing the urinal.

Pursuant to another feature of the present invention, the urinal is readily usable by patients who differ in physical characteristics or bodily dimensions. In this connection, it will be noted from Fig. 1 that the juncture **30** of the spout **14** and the urinal end wall **18** is disposed off-center with respect to the latter. Consequently, the urinal may be adjusted to any one of two different spout heights above the several urinal stand-on surfaces. More specifically, it will be noted that the juncture **30** is closest to the walls **20** and **24** and farther spaced from the wall **26**. Consequently, in order to obtain a maximum height of the mouth **32** of spout **14** above a stand-on wall of the urinal, the latter is adjusted so that the wall **26** is used as the bottom or stand-on wall, as in Figs. 1 and 2. To reduce the height of mouth **32**, the urinal is adjusted to lie on either of its walls **20** and **24**.

Pursuant to another feature of the present invention, a maximum degree of bendability or flexibility is provided for the spout **14** without, however, appreciably deforming the cross-sectional contour or configuration thereof. In this connection it will be noted that the spout **14** is frusto-conical in configuration, as best seen in Figs. 1 and 2. The maximum diameter of the spout occurs at its open mouth **32** and the minimum diameter thereof occurs at its juncture **30** with the body **12**. Consequently, the spout is readily bendable at said juncture,

as indicated, for example, in the dot-and-dash line position thereof in Fig. 2.

The ready bendability of the spout **14**, combined with the ready partial compressibility or collapsibility of the body **12**, permits the entire urinal safely to be squeezed and turned into numerous different positions partially beneath or between parts of sleeping or supine persons, especially patients who are immobilized due to paralysis, ankylosis, arthritis, etc. Thus the ready bendability of the spout **14** and ready partial collapsibility of the body or receptacle **12** form an important aspect of the present invention, since this permits the described safe and reliable squeeze-in application of the urinal to a supine person. For this reason, the present urinal adapts itself to a person even in the most awkward position for the purpose rather than requires the person to adapt himself or herself to the urinal as heretofore.

For increased and better controlled bendability of the urinal's spout, the same may be of the ribbed configuration indicated at **34** in Fig. 3. Also, a cover **36** may be provided for the mouth **32** of the urinal's spout (Fig. 2) so as to prevent spilling of the urinal's contents as well as entrap the odors therein. The cover **36** may be fairly rigid and snapped on and off the mouth end of the urinal's spout.

Pursuant to another aspect of the present invention, the urinal **10** may be used by both male and female patients. Since the mouth **32** is circular, it is readily adapted to receive a male genital for use by a male person. In order to convert the urinal for female use, the mouth **32** is elongated into substantially oval or elliptical configuration, as illustrated in Fig. 5, so as to accommodate the female vulva.

Fig. 4 illustrates the presently preferred means to provide the conversion of the urinal from male to female use. In the present embodiment, a flattened or elliptical ring or clamp **44** is provided on the spout **14**. The ring is formed of suitable material having a greater degree of rigidity than that of the flexibile spout **14**. For example, the ring may be formed of metal or of a plastic which is more rigid than the plastic material of which the urinal is formed. The ring is dimensioned so that the distance between the opposite sides **46—46** exceeds the minimum diameter of the frusto-conical spout but is less than the maximum diameter thereof. Consequently when the ring is disposed at the juncture **30**, as shown in full lines in Fig. 4, it applies no clamping pressure to the spout and the latter is available for male use. However, when the slidable ring is slid to a position adiacent the mouth **32**, as shown in dot-and-dash lines in Fig. 4, the ring applies a clamping pressure to the spout to compress the opposite surfaces thereof so as to elongate the mouth into an oval or elliptical configuration, as shown at **32A** in Fig. 5. In order to prevent the deformation of the month from said oval configuration, a thickened lip **48** is preferably provided at the mouth. Said oval configuration adapts the mouth of the spout to accommodate the female vulva. When the ring is moved back to the inoperative position thereof, as illustrated in full lines in Fig. 4, the self-restoring spout returns to its circular configuration. While the ring **44** is in Fig. 4 shown slidably arranged on the exemplary smooth-walled frusto-conical spout **14**, the same may be arranged on the peripherally ribbed spout **14** of the urinal shown in Fig. 3, with the further advantage that the ribs **34** near the mouth of the spout will releasably lock the ring against sliding back on the spout when the urinal is used by a female.

Figs. 6 and 7 illustrate a modified spout-clamping means **50**. As here shown, the clamping means **50** comprises a cover or plug **52** for the mouth **32** of the urinal's spout, of which the cover is provided with a substantially U-shaped clamp **54**. The cover may be formed of a suitable material, for example and not by way of limitation, plastic or rubber which is more rigid than the material of which the urinal is fabricated. The cover or plug **52** may be like the snap-on cover **36** in Fig. 2. The clamp **54** may be formed of rigid plastic or metal with one arm **58** suitably secured on the cover **52**. The other arm **60** extends from the cover and serves as a hand-grip or carrier for readily carrying the urinal when the cover is attached to and closes the mouth of the urinal's spout.

The clamping device **50** carried by the spout is readily removed from the latter, whereupon the urinal is available for male use. To convert the spout for female use, the clamp **54** is engaged on the spout below the lip **48** as best illustrated in Fig. 6, to elongate the mouth **32** to the oval configuration thereof, illustrated in Fig. 7, to adapt the spout for female use. Upon removal of the clamp **54**, the compressed spout returns to its circular configuration.

Figs. 8 and 9 illustrate a further modification of the clamping means. As here shown provision is made for a substantially U-shaped clamp **62** having a finger **64** which is pivotally mounted on the yoke **66**, provided on the spout **14**, as by the pivot pin **68**. The clamp **62** is formed of suitable material, for example and not by way of illustration, rigid plastic or metal. The clamp is illustrated in the inoperative position thereof in Fig. 9 and in full lines in Fig. 8. From said position, the clamp may be rotated counterclockwise, viewing Fig. 8, to the broken line position **62A** thereof in which it compresses the spout below the lip **48** to elongate the mouth **32** and thereby convert the urinal for female use. Upon return of the clamp to its full line position, the spout is self-restored for male use. The clamp may also be pivoted in a clockwise direction to the broken line position **62B** thereof. In said position the clamp may be used as a hand-grip or carrier for the urinal.

While we have shown and described the preferred embodiment of our invention, it will be understood that various changes may be made in the present invention without departing from the underlying idea or principles of the invention within the scope of the appended claims.

What is claimed is:

1. A urinal for use by both males and females, said urinal comprising a closed hollow body, and an elongated tube-like spout extending therefrom and terminating in a normally substantially circular mouth to accommodate a male genital, said spout being substantially frusto-conical with the minimum diameter substantially at its juncture with said body and the maximum diameter at said mouth, said spout being formed of a flexible self-restoring material so that the confronting inner surfaces thereof move together under external pressure and return to their original condition upon release of the pressure, and a clamping member slidably mounted on said spout, said member being dimensioned to release the pressure from said spout when at said junction and being operable, when slid to a position adjacent said mouth, to compress the spout so as to elongate the mouth thereof into a substantially oval configuration, whereby to accommodate a female vulva.

2. A urinal, as defined in claim 1, further characterized in that the clamping member is an oblong ring, the distance between the nearest opposing sides of said ring being greater than said minimum diameter and smaller than said maximum diameter.

3. A urinal as set forth in claim 1, in which said spout is of longitudinally corrugated cross-section throughout.

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