

[54] SAFETY URINAL  
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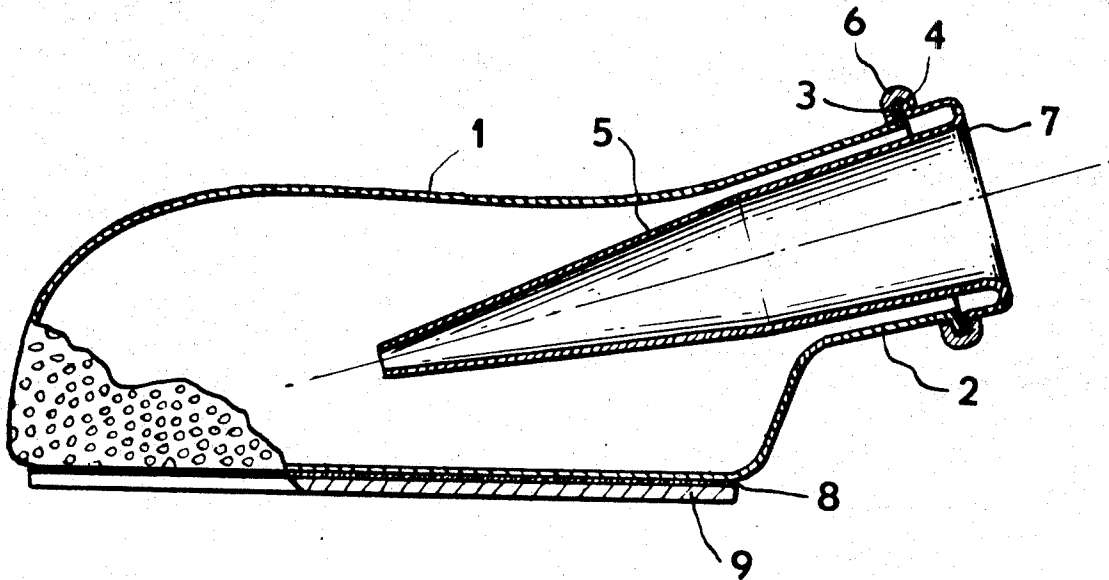
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[57] ABSTRACT  
A urinal comprising a container and a hollow member having one end communicating with an opening in the container and an opposite end within the container. The member provides a passage for urine into the container and the arrangement is such that when the urinal is filled to its normal level it cannot be drained through the hollow member; it can be drained only after at least a portion thereof is appropriately destroyed.

14 Claims, 2 Drawing Figures



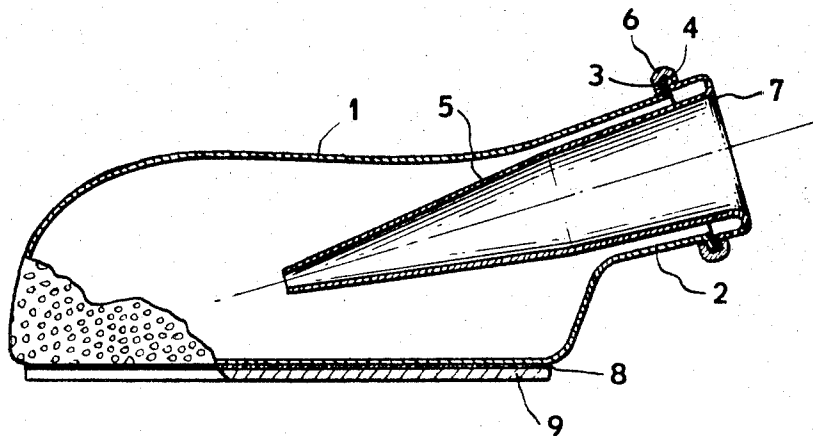


Fig. 1

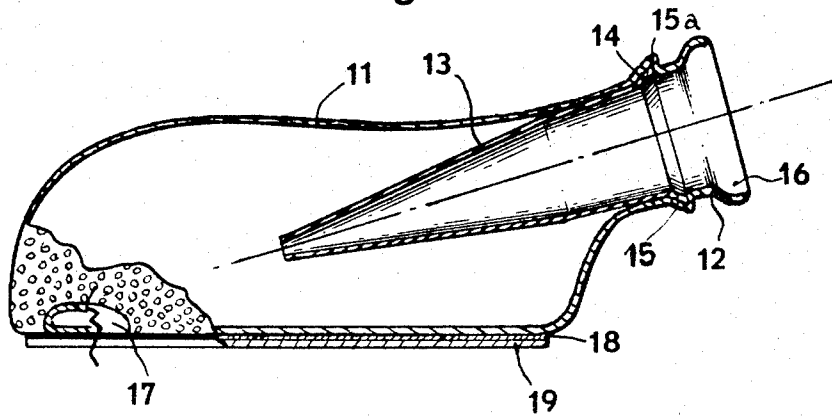


Fig. 2

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## SAFETY URINAL

The present invention relates to urinals for men, women and children, particularly bed urinals.

Known articles of this type include a flat-bottom hollow body on top of which rests an inclined filling neck. The upper end of this neck forms a receiver means adapted for use by males or females. Generally, such urinals are made of heavy brittle transparent glass or of thick translucent plastic material assuming a doubtful shade after some time of use. Others have opaque walls (of stainless steel, and the like) that do not permit visual examination of their contents. They are robust and not cheap. They are designed so that their contents may be emptied out and so that they may be reused. They require careful cleaning each time they are emptied so as to be free from odor and not to constitute a potential contaminating hazard in hospital environment. They tend to slip on the bed sheets. They cannot be seen in the dark.

I have set out to overcome such drawbacks.

According to the present invention there is provided a urinal comprising a container and a hollow member having one end communicating with an opening in the container and an opposite end within the container, said member providing a passage for urine into the container, the arrangement being such that when the urinal is filled to its normal level it cannot be drained through the hollow member.

A disposable safety urinal according to the invention can be emptied of its normal contents only after at least a portion thereof is destroyed so that it is no longer liquid-tight. Thus, the urinal cannot be passed off for new after it has been used once. Whenever it is full, it has to be replaced with a new one.

For the user, a urinal according to the invention guarantees strict hygiene, exhibits an impeccable appearance since it has never been used, is odorless and does not require cleaning after use since it is intended to be disposed of. The urinal will be of light weight and its underneath surface may, if desired, be provided with means for improving the steadiness and stability of the urinal on a bed sheet. For maximum safety, the walls of a urinal according to the invention are designed to prevent the proliferation of bacteriae deposited thereon and to be visible to the users in the dark. The invention contemplates a urinal which is readily found and/or has a readily ascertainable filling level; the urinal walls may be transparent or translucent.

In addition, since they are free from any draining outlet to be re-stoppered by the user, the urinal walls may be brittle or permit only draining outlets impossible to be restoppered by the user or may be at least partly soluble under certain conditions. The container or body of the urinal may have thin walls stiffened by means of ribs, some of which may be used to grip the urinal.

The container or body may be produced in particular by injection and blowing, or by a combined extrusion and blowing, operation using a plastic material such as transparent polyvinyl chloride, whether or not shock-resistant, or a soluble material such as molded collagen.

As is well known, collagen is a complex protein which constitutes the intercellular substance of the connective tissue which, after suitable extraction and processing, may be molded or formed by any other

method. Collagen is typically dissolved in hot water and this is the reason why it may be used most advantageously for the manufacture of a urinal according to the invention. The hollow member, which preferably is a funnel, may be molded.

Alternatively, the urinal may be made of specially sized or coated cardboard, combustible and/or biodegradable for example.

It is apparent that because of such materials and production methods a urinal according to the invention may be constructed at a very reduced cost.

When a reduced thickness is used for the walls of the container or body of the urinal, the urinal is preferably protected by a more rigid container.

The hollow member or funnel referred to above may be attached to an inclined neck of the container or body in any suitable manner. For example, there may be provided flanges around the free edge of the neck and around the enlarged end of the hollow member or funnel, respectively, and a collar may be crimped on to the flanges to hold them tightly against each other.

The collar may be destructible for the purpose of emptying the urinal. In such a case, the hollow member or funnel can be removed, the urinal will cease to be liquid-tight and can be emptied.

According to another embodiment, the hollow member or funnel may be attached to the neck by an irreversible force-fit connection. In this case a groove is preferably provided inside the neck, the profile of the groove being such as to provide an irreversible fit with the hollow member or funnel. Alternatively, there may be provided a groove and corresponding rib on the hollow member or funnel and on the container or body respectively, or vice-versa, said groove and rib cooperating one with the other to provide an irreversible force-fit.

Said opposite end of the hollow member or the narrower end of the funnel opens preferably at the center of the container or body of the urinal; when the urinal is substantially horizontal, urine flows by gravity through the hollow member or funnel because of the orientation given thereto for this purpose. In this way, the urinal may be filled up to its maximum normal level which is slightly below the opening of said opposite end of the hollow member or of the narrower end of the funnel. To avoid use of an auxiliary conduit, the cross-sectional area or diameter of this opening is selected so that any excess air in the urinal may escape countercurrently to the direction of flow of the urine. With the urinal filled to its maximum normal level, it is undrainable no matter how it is turned or what position it has, even if it is turned upside down. Consequently, the urinal must be disposed of full or its liquid-tightness impaired to be drained. When the hollow member or funnel is attached to the container or body by a collar, the liquid-tightness can be broken and the urinal drained by tearing off the collar. The hollow member or funnel is then no longer integral with the end of the inclined neck of the container or body and there is then provided a drain-neck on which it is impossible for the user or owner of the urinal to fit a new hollow member or funnel as the user or owner will not possess the necessary manufacturing capability. Another procedure to drain the urinal comprises destroying, such as by tearing, a capsule sealed by sticking or crimping on a drain

aperture in the wall of the urinal. When the urinal is made of cuttable material, a portion bounded by a region or line of weakness, for example, may be cut out from the wall of the container or body with a cutting tool. Said portion may be provided with an integral outwardly directed tongue to facilitate tearing off or removal. It is also possible to provide a wart-like projection extending outwards from the wall of the urinal which projection may be cut to form an opening serving as a drain-neck. When constructed of brittle material, the urinal may be drained by breaking off at least a portion thereof. When constructed of material soluble in hot water, both container and contents may be disposed of by immersion in hot water.

To preclude potential insanitary reuse of the urinal after a hole has been made in it for draining purposes, means may be provided to make it practically impossible for the owner or user to block up the drain hole for reuse. To this end, the outer surface of the wall of the urinal may be grained or irregular. A suggested material for the urinal wall is one which includes no adhesive base; it is contemplated that the wall be not made of an anti-adhesive material but that it may contain anti-adhesive substances such as silicones, camphor, paraffin, waxes, and the like, which will prevent strong tight sealing of a drain hole with, for example, adhesive tape. The capsule-type opening and the wart-like projection have preferably non-circular cross-sections to prevent sealing by means of a common cork. The tongue, wart-like projection and capsule-type opening are advantageously located in the side wall below the maximum filling level.

In another embodiment of the invention, the underneath surface of the base of the urinal is coated with an adhesive material capable of adhering to the bed sheets after removal of a protective paraffin coated sheet. This safety adhesive base may also be adhered to a thin heavy sole-piece (e.g., of lead, etc.) which would impart steadiness and stability to the otherwise lightweight urinal on the bed sheets.

The wall of a safety urinal according to the invention may contain from 0.01 to 15 percent by weight of a bactericidal material such as Thymol (1-methyl-3-hydroxy-4-isopropylbenzene) included during manufacture for the purpose of destroying the bacteriae deposited on the surface of the urinal.

The wall may also contain from 0.01 to 20 percent by weight of a phosphorogeneous material, made radioactive or not, such as calcium or zinc sulphide which restores slowly in the dark, in the form of luminescence, the energy previously imparted thereto. Such a urinal will be visible in the dark and, when its wall is translucent or transparent, the level to which it is filled can be readily ascertained.

The present invention will be more readily understood from the following description given by way of example only, reference being made to the accompanying drawing, in which

FIGS. 1 and 2 are cross-sectional views, partly broken away, of two embodiments of the invention.

FIG. 1 illustrates a first embodiment of a safety urinal, disposable after use, according to the present invention. It comprises a container or body 1 of translucent polyethylene, for example, having an inclined neck 2 ending in a flange 3 against which bears flange 4

of a hollow member in the form of a funnel 5 of transparent polyvinyl chloride, for example. The flanges 3 and 4 are secured together by crimping around their edges, by means for example of a tongue (not shown), a tearable collar 6. Portion 7 of the funnel forms a receiver for male users. It is obvious that this portion could be formed in such a manner that the urinal could be used by females. The lower surface of the urinal is coated with a layer of adhesive material 8 provisionally protected by a removable protective sheet 9.

In FIG. 2, the safety urinal comprises a container or body 11 in transparent polyvinyl chloride for example having a tapered neck 12 in which a hollow member in the form of a funnel 13 made of polystyrene, for example, is introduced by force-fitting. The circular edge 14 of funnel 13 is elastically irreversibly engaged and set in a corresponding circular internal groove 15 of body 11. Thus, the edge of upper end 14 of the funnel rests against shoulder 15a which constitutes the upper wall of groove 15. The tapered neck 12 of the urinal ends in a receiver 16 illustrated for use by males in FIG. 2. The body 11 of the urinal is provided with an oval section wart 17 illustrated partly broken away. The lower surface of the urinal is coated with a layer of adhesive material 18 provisionally protected by a removable protective sheet 19.

The disposable safety urinal according to the invention may be used by any bed-ridden patient. Thus, it offers to them and to hospital personnel the advantage of being always odorless, of having an impeccable appearance and of requiring no cleaning. After use, it is impossible to mistake the urinal for a new apparatus. After it has been drained once, it has no longer the liquid-tightness which it had when new. It is believed to be the only article of this type which offers total sanitary guarantee to bed-ridden patients since, in particular, it is technically impossible for hospital personnel to pass off as new such a urinal which has already been used. It can be made stable. It can be made visible in the dark. One or more components of a urinal according to the invention, for example the container or body and/or the hollow member or funnel and/or the collar, may be made of a material which is destructible, cuttable, frangible, combustible, biodegradable, or soluble under certain conditions.

I claim:

1. A urinal comprising:

- a. A container having a single opening portion therein;
- b. a hollow urine receiving and conducting member having one of its ends connected to said opening portion and its other end located within the container, said member providing a passage for the ingress of urine into the container, said hollow member being positioned with respect to the container such that when the container is filled with urine to a predetermined level, the urine inside the container cannot drain out through the hollow member; and
- c. an easily and permanently destructible means on said urinal for providing a permanent recloseable opening for drainage of the urine collected therein and for preventing the re-use of the container.

2. A urinal according to claim 1, wherein connecting means are provided for assuring connection between

said opening portion of the container and said one end of the hollow member, said connecting means comprising:

- a flange around said opening portion;
- a flange on said end of the hollow member, said flange opposing and abutting the flange provided around said opening portion; and
- a clamping collar holding the flanges against each other.

3. A urinal according to claim 1, wherein connecting means are provided for assuring said connection between said opening portion of the container and said one end of the hollow member, said connecting means being of the force-fit, irreversible type.

4. A urinal according to claim 3, wherein said connecting means comprises:

- a groove on said opening portion; and
- a rib on said end of said hollow member, said rib being force-fitted into said groove.

5. A urinal according to claim 3, wherein said connecting means comprises:

- a groove on said end of said hollow member; and
- a rib on said opening portion, said rib being force-fitted into said groove.

6. A urinal according to claim 3, wherein said connecting means comprises a shoulder formed by a groove made on the container, said shoulder being in engagement with said one end of the hollow member.

7. A urinal according to claim 1, wherein the outer

surface of the said container is granulated to prevent stoppering of a damaged part.

8. A urinal according to claim 1, wherein the outer surface of the said container is irregular to prevent stoppering of a damaged part.

9. A urinal according to claim 1, wherein the outer surface of the said container is provided with a non-adhesive material to prevent stoppering of a damaged part.

10. A urinal according to claim 2, wherein said easily destructible means is formed by said collar which is destructible, said collar once destroyed breaking the connection between said container and said hollow member and preventing the re-use of the urinal.

11. A urinal according to claim 1 wherein said easily and permanently destructible means is an easily removable projection provide on said container.

12. A urinal according to claim 11, wherein said projection is of non-circular cross-section.

13. A urinal according to claim 1, wherein said easily destructible means is located below said predetermined filling level of the urinal.

14. A urinal according to claim 1, wherein said container is provided with a base portion coated with an adhesive material protected by a removable sheet, said adhesive material providing the stability of the urinal on the bed sheet after removal of the protective sheet.

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