

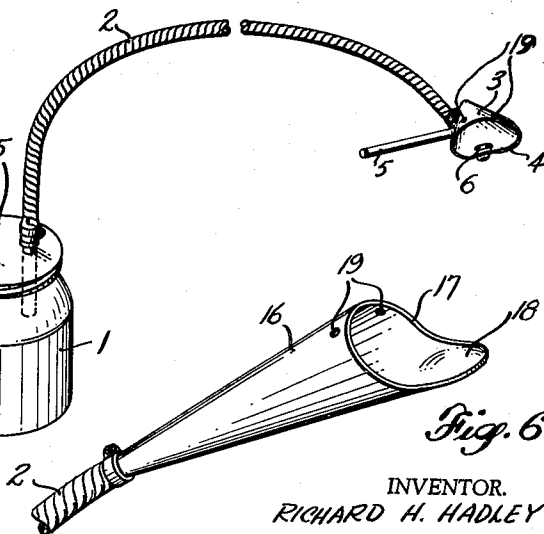
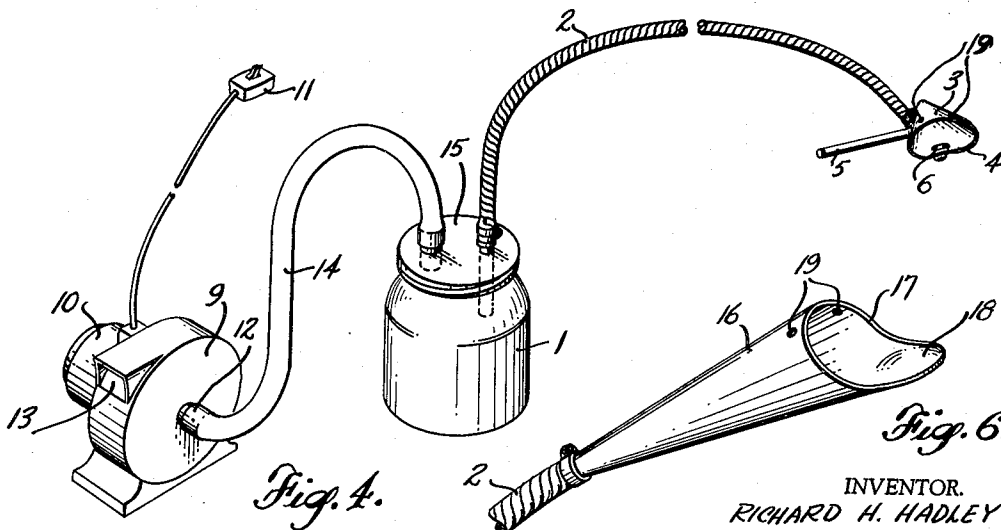
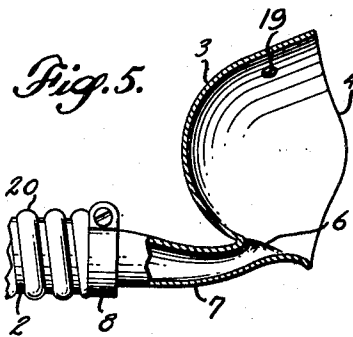
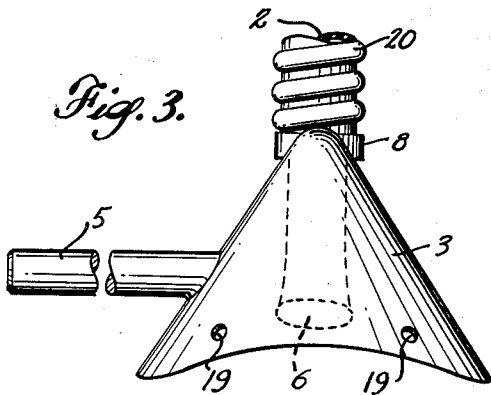
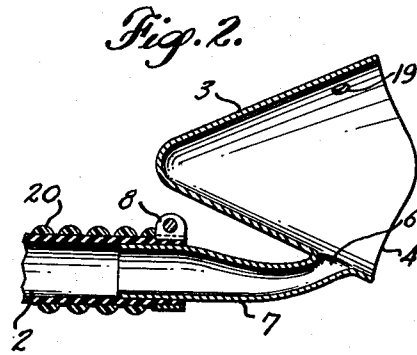
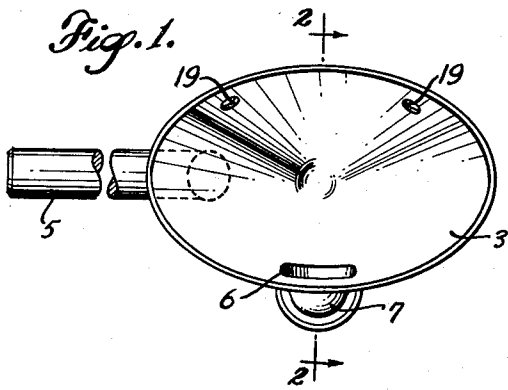
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R. H. HADLEY

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SANITARY FEMININE HAND URINALS

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INVENTOR.  
RICHARD H. HADLEY

BY  
*Robert W. Black*  
ATTORNEY

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**SANITARY FEMININE HAND URINALS**

Richard H. Hadley, 807 SW. 207th Place,  
Seattle, Wash.

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5 Claims. (Cl. 4-110)

The present invention relates to a feminine hand urinal, that is one which can be held in the hand for use and is particularly useful for invalids confined to bed or to a chair.

It is the principal object of this invention to provide a sanitary feminine urinal which can be held in proper position by hand easily for use by a patient in bed or in a chair, whether sitting or lying, without the assistance of an attendant, and which cannot be spilled readily.

A further object is to provide such a urinal of large capacity, yet which can be handled easily and kept in a position convenient to the patient without being bulky or obtrusive.

Another object is to provide such a urinal of simple and economical construction which is sanitary in that it can be cleaned and disinfected readily.

A urinal capable of accomplishing these objects is scavenged of urine by an air current and includes a hand-position cup-shaped receiver preferably of elliptically conical shape and having a lip contour which is concave at opposite sides of the receiver to fit the crotch. From the side of such receiver which will be at the bottom when the urinal is in use, or from the apex of the receiver, extends a drain tube to a storage container and mechanism is connected to such drain tube for creating a current of air through it to scavenge the urine from the receiver and the drain tube. Air supply apertures are provided in a portion of the receiver remote from the drain tube through which air can be drawn into the receiver and drain tube to sweep the urine into the drain tube and down into the storage container and scour the walls of the drain tube.

FIGURE 1 is an open end elevation view of a receiver, and FIGURE 2 is an axial section therethrough taken on line 2-2 of FIGURE 1. FIGURE 3 is a plan view of the receiver.

FIGURE 4 is a top perspective view of the hand urinal apparatus in its entirety except that parts are broken away to indicate indeterminate length.

FIGURE 5 is a longitudinal sectional view through an alternate form of hand receiver.

FIGURE 6 is a top perspective view of a different type of hand receiver.

The feminine urinal of the present invention is constructed to be of sanitary character in various respects. If properly used, urine cannot be spilled from the apparatus. Normally, a feminine patient confined to bed, or even to a chair, whether of the stationary or wheel type, cannot conveniently dispose of urine without assistance. By the use of the apparatus of the present invention, however, a feminine patient unassisted can quite easily dispose of urine without any appreciable danger of spillage. The urine is conveyed quickly to a storage container or reservoir 1 shown in FIGURE 4 which is of ample capacity and can be kept on the floor in a protected location so that it will not be kicked or stumbled over. From this storage container extends a drain tube 2 which carries a receiver that can easily be held and positioned by hand.

The hand receiver includes a body 3 having a lip 4 opposite sides of which are of concave contour so as to form a mouth for the receiver of a shape conforming to the feminine crotch to fit such a crotch in sealing fashion. Such shape conformance is improved by making the mouth of the receiver substantially of elliptical shape if the receiver is to be used when the user is lying down.

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If the user is lying on one side or the other, such a concave, substantially elliptical lip will fit the crotch with the major axis of the ellipse extending substantially horizontal and the minor axis of the ellipse extending substantially vertical. One of the sides of the receiver having a curvature of larger radius will thus be at the bottom. The receiver may be held conveniently in this position by the user grasping a handle 5 of straight cantilever type projecting from a side of the receiver having a curvature of smaller radius in a position substantially parallel to the mouth of the receiver.

In the side of the receiver which would be its lower side when in use is a drain aperture 6 preferably of elongated shape circumferentially of the receiver. This drain opening communicates with a discharge tube 7 projecting from and carried by the wall of the receiver in cantilever fashion which has a flattened end adjacent to the receiver conforming to the shape of the drain aperture 6 and a free end of circular cross section which is connected in suitable fashion to the drain tube 2, such as by the hose clamp 8.

Another important sanitary feature of the urinal is that urine passed into the cup-shaped receiver 3 is scavenged from the receiver and through the tube 2 to the storage container 1 by a continual current of air forced through the apparatus. Such air current is developed by a suitable suction source such as the blower 9 driven by electric motor 10, energization of which is controlled by the switch 11. This blower conveniently may be of the centrifugal type having a central inlet aperture 12 and a circumferential discharge aperture 13 for air. The inlet 12 is connected by an air hose 14 to an aperture in the top 15 of the storage container.

When the blower is in operation, suction will be created in the hose 14 and, because the storage reservoir 1 is sealed by the cover 15, suction also will be produced in the tube 2. In this manner, suction will be applied to the receiver 3 which will draw air into the receiver through the mouth 4 when it is not in use. When the lip of the receiver is fitted to the crotch of the user, the external pressure differential resulting from the suction in the receiver will press the receiver against the user's body and the receiver lip of concave contour will provide an effective seal against the flesh for the purpose of preventing spillage from the receiver. Such sealing action of the receiver lip against the body normally would virtually stop flow of air into the receiver. It is desirable, however, for the urine to be removed quickly from the receiver through tube 2 into the receptacle 1.

In order to provide a scavenging current of air of substantial volume through the receiver and the tube 2 for the purpose of conveying the urine from the receiver into the storage receptacle, one or more air supply apertures 19 are provided in the wall of the receiver, preferably at the side of the receiver opposite the drain opening 6. By thus locating the aperture or apertures air entering through them will sweep across the receiver into the drain aperture to scavenge urine from it more effectively and, because the aperture or apertures are on the upper side of the receiver when it is in use, no spillage of urine through such apertures can occur.

In order to prevent tube 2 from being collapsed by exterior pressure on it resulting from suction within the tube, such tube may be reinforced, such as by providing stiffening structure in the tube wall or by encircling the tube throughout its length with a stiff binding 20 which may be a spiral band. Such binding also will reinforce the tube so that it cannot be collapsed by a sharp bend. Thus continual flow of air through the receiver and tube 2 is assured while it is in use. Such an external binding need not be secured to the tube but will be held in place

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simply by the resilience of its material, which may be plastic or metal.

The particular shape of the receiver 3 is to provide a lip having a proper crotch-fitting contour while being compact and, at the same time, large enough to handle effectively the maximum flow or urine which might be expected. In FIGURES 1, 2 and 3 the receptacle is shown as having a mouth of elliptically conical shape, whereas in FIGURE 5 the mouth of the cup-shaped receiver would be of generally similar contour but the closed end of the receptacle is much more blunt. Either of these receivers is suitable for use by a person lying in bed on one side or the other. If the user were lying on her back, the drain opening would preferably be located in a side of the receiver of small radius instead of in a side of large radius.

In FIGURE 6, a type of hand cup-shaped receiver is shown which is better adapted for use by a person in sitting position. In this instance, the receiver again is of generally cup shape but more specifically is of funnel shape. The tube 2 in this instance is connected to a drain opening at the apex of the conical receiver and the concave lip 17 includes the edge of a rounded projection 18 forming a mouth for the receiver of generally scoop shape. The air inlet openings 19 are located in the wall of the receiver adjacent to the lip 17 at the side opposite the projection 18 and also remote from the drain tube 2. Suction created in the drain tube will draw air through the openings 19 to scavenge urine from the receiver 16 in the manner previously described and the air current will scour the walls of the receiver.

As mentioned above, it is desired to provide a receiver having a lip which is of a contour to engage the crotch effectively while at the same time the receiver is compact. All of the receivers shown in FIGURES 2, 5 and 6 are of a shape such that the width of the body at the lip is the maximum width of the body, and such body preferably tapers away from the lip by being of generally conical or cup shape.

A further sanitary feature of the urinal is that all the parts with which urine comes into contact, namely, the receiver, the drain tube and the storage container, may be made of heat-resistant material such as high-softening point plastic, tempered glass or noncorrodible metal, so that they may be heat sterilized. Alternatively some or all of the parts can be made of inexpensive material so that they can be discarded after brief use. As indicated in FIGURE 4, the end of the drain tube 2 extends a substantial distance down into the container 1 so that no urine will be carried into the tube 14 by air passing from the container into it. Alternatively baffles may be provided to precipitate all urine from the air stream. The switch 11, which is readily accessible to the user, can be actuated at will to energize the motor 10 for driving the blower 9 while the urinal is in use. While the individual blower 9 is shown as a representative suction source, suction could be produced by the aspirating action of a stream of water instead, or the suction hose 14 could be connected to a suction duct system as provided in some hospitals, for example, if desired.

I claim as my invention:

1. A sanitary feminine hand urinal comprising a cup-shaped receiver having its wall terminating in a continuous crotch-engaging lip, a drain opening in the receiver wall and an air supply aperture through the receiver side wall closer to said lip than to the closed end of said cup-

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shaped receiver, drain tube means connected to such receiver drain opening for discharge of urine from said receiver, and suction means communicating with said drain tube means and operable to produce a suction therein and in said cup-shaped receiver to draw air into said receiver at a location closely adjacent to said lip through such air supply aperture for scavenging urine from said receiver and said drain tube.

2. A sanitary feminine hand urinal comprising a cup-shaped receiver having its wall terminating in a continuous crotch-engaging lip and a drain opening in the receiver wall, a storage container remote from said receiver, flexible drain tube means connected between such receiver drain opening and said storage container for discharge of urine from said receiver to said storage container, suction means communicating with said drain tube means and operable to produce a suction therein and in said cup-shaped receiver for scavenging urine from said receiver and said drain tube to said storage container, and a handle rod projecting from said receiver generally parallel to the receiver mouth for manipulating said receiver independently of said storage container.

3. A sanitary feminine hand urinal comprising a cup-shaped receiver having its walls terminating in a continuous crotch-engaging lip with opposite sides of concave contour, a drain opening in the side wall of said receiver closer to said lip than to the closed end of said cup-shaped receiver and an air supply aperture through the receiver side wall opposite that in which said drain opening is located and disposed closer to said lip than to the closed end of said cup-shaped receiver, drain tube means connected to such receiver drain opening, and suction means communicating with said drain tube means and operable to produce a suction therein and in said cup-shaped receiver to draw air into said receiver through said air supply aperture closely adjacent to said lip for scavenging urine from said receiver and said drain tube means.

4. The sanitary feminine hand urinal defined in claim 3, and a handle rod projecting from the receiver wall in a direction generally parallel to the mouth of the receiver and spaced from the receiver mouth for manipulating the receiver.

5. A sanitary feminine hand urinal comprising a cup-shaped receiver body to be held by the user's hand in the user's crotch, having its wall terminating in a continuous crotch-engaging lip and the width of said body at such lip being the maximum width of said body, a drain tube connected to said receiver body, said receiver body having an air supply opening through its wall at the side of said receiver body opposite said drain tube, and suction means communicating with said drain tube and operable to produce a suction therein and in said receiver body for scavenging urine from said receiver body and said drain tube.

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