

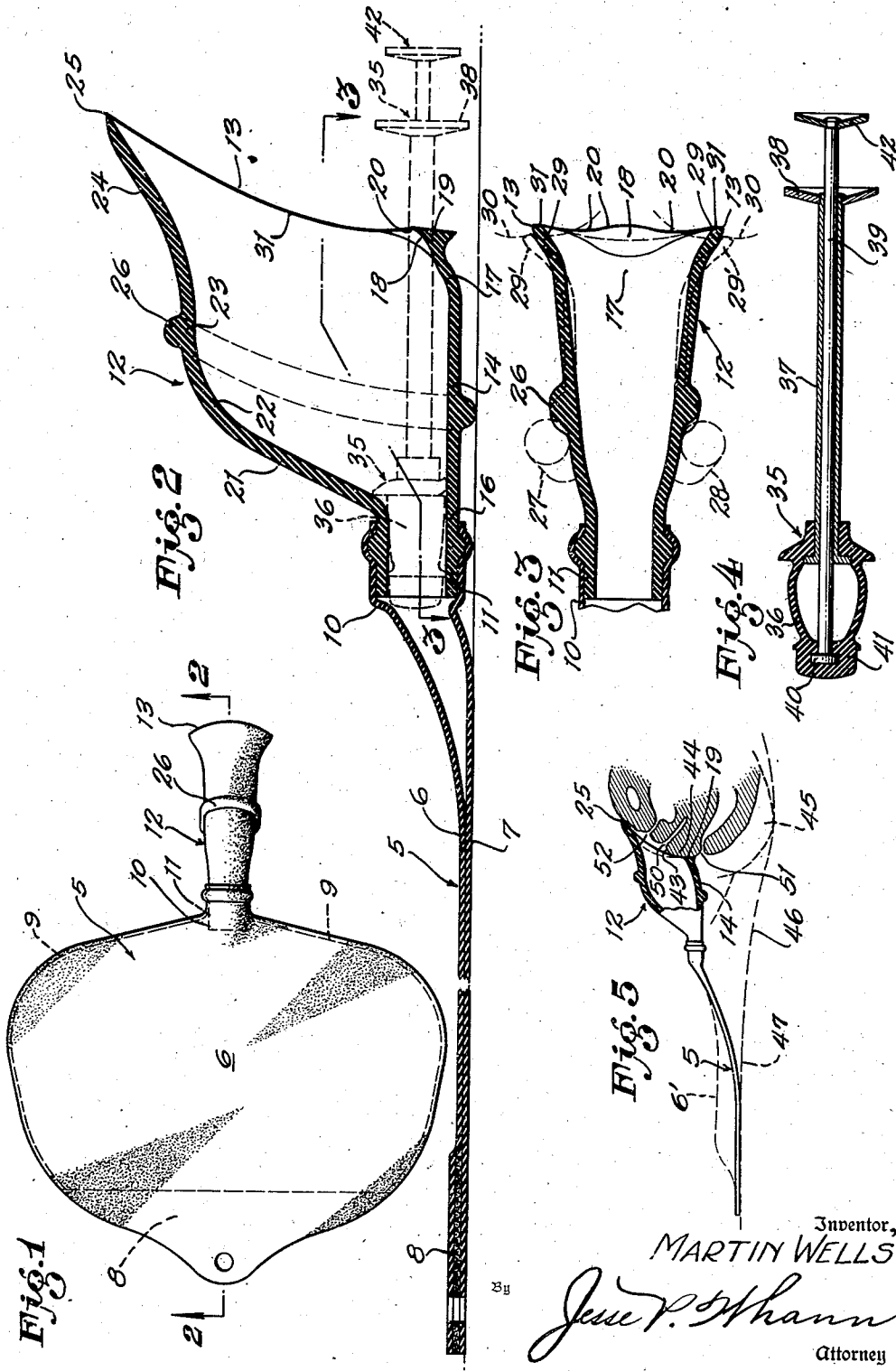
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M. WELLS

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FEMALE URINAL

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Inventor,
MARTIN WELLS
John P. Whann
Attorney

UNITED STATES PATENT OFFICE

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FEMALE URINAL

Martin Wells, Los Angeles, Calif.

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My invention relates to equipment useful at the sick bed, and relates in particular to improvements in female urinals.

The present invention solves in a satisfactory manner the problem of providing a female urinal for use where the patient is in supine position and substantially immobile. The prior art discloses many forms presenting to the public prior inventors' conceptions. Many of these have not gone into use publicly or in hospitals and an analysis of them brings to light the reason for their failure to meet with public acceptance.

It is an object of the present invention to provide a urinal especially adapted for female use, although it will be perceived from a further understanding of the advantages of the urinal that there are many circumstances under which male use thereof will prove advantageous.

It is an object of the invention to provide a female urinal which may be in many instances of its use handled and applied by the user without the assistance of a nurse, which has a mouth or a funnel part with a yieldable edge portion adapted to readily conform to the vulva of the user, which when applied automatically forms a sealing engagement with the body parts engaged so that leakage does not occur, and which is so formed that after completion of the act, adhering liquid will be removed from the mucous membrane and skin exposed within the area of the mouth of the applicator or funnel of the urinal.

It is an object of the invention to provide a female urinal having a funnel provided with a vertically elongated oval mouth defined by a lip which curves inward from top to bottom so as to conform in general to the part of the vulva or adjacent skin engaged by the lip, and which lip is yieldably supported so that when it is applied to the user, the lip will readily conform to the shape of the parts engaged, and provide an efficient sealing engagement of substantially the entire lip with the engaged bodily parts.

It is an object of the invention to provide a urinal with a receiving fitting or funnel and a receptacle of expansible character which, when not in use, remains in contracted condition with substantially all air excluded therefrom. A valuable characteristic of the invention is that when liquid flows into the receptacle, it expands so as to accommodate the same; therefore, the mouth of the funnel may be applied to the body parts in substantially airtight engagement, since the entry of liquid into the receptacle does not involve displacement of air therefrom, but instead

a change in shape of the receptacle whereby its internal volume is increased as liquid flows thereinto.

A further object of the invention is to provide a female urinal of the general character set forth in the foregoing, having a receptacle which is flat and of large horizontal area, the upper and lower walls thereof lying substantially in engagement when the urinal is not in use, thus providing a receptacle having substantially zero volume when empty, and the volume of which increases gradually to maximum as the volume of liquid introduced increases.

A further object of the invention is to provide in a urinal of the general class described a receptacle which is substantially flat when empty and which has in association therewith lateral or horizontal stiffening means which will cause the receptacle to lie flat upon the bed when the funnel thereof is applied for use.

A further object of the invention is to provide a female urinal having an applicator or funnel with lips so formed as to provide a pronounced effective sealing rib in engagement with the body parts, which lip is so supported that the side portions thereof will flex outwardly when the funnel is applied, thereby producing a sealing engagement and separating the labia.

A further object of the invention is to provide in a female urinal a funnel for application to the vulva or adjacent skin, this funnel having in the lower portion thereof a lip facing in upward direction so that by upward movement of the funnel, adhering liquid may be thereby removed from the encompassed area.

An attempted solution of the problem has been through provision of a small nozzle or inlet fitting having an opening but little larger than the mouth of the urethra. It is found, however, that when such device is pressed against the membrane surrounding the meatus urinarius, there is a tendency to constrict the mouth and thereby interfere with a free flow of urine therethrough. Also, it is found that where small nozzles are used, centralization thereof with respect to the meatus urinarius is difficult, and if such device is placed too low so as to overlap the mouth of the vagina, leakage will occur through the introitus vaginae. It is a feature of my invention to provide a urinal having a funnel formed so as to make a leak-proof contact and having a lip of such size as to engage the perineum and to encompass an area including the introitus vaginae, the meatus urinarius and at least a portion of the labium majum.

Further objects and advantages of the invention will be brought out in the following part of the specification.

Referring to the drawing which is for illustrative purposes only,

Fig. 1 is a plan view, to small scale, of a preferred embodiment of my invention.

Fig. 2 is an enlarged cross sectional view taken as indicated by the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary section taken as indicated by the line 3—3 of Fig. 2.

Fig. 4 is a sectional view of the stopper device forming a part of the invention.

Fig. 5 is a sagittal section, to reduced scale, showing a manner of use of the urinal.

As shown in Figs. 1 and 2, the urinal has a receptacle 5 formed almost completely by upper and lower flat walls 6 and 7 of flexible material such as a rubberized fabric or rubber compound. The receptacle 5 is ordinarily referred to as a rubber bag, although it may or may not have cloth or thread reinforcement therein. When the receptacle 5 is empty, the upper and lower walls 6 and 7 lie in engagement as shown in Fig. 2 so that the internal volume of the receptacle is at a value substantially zero. So that it will lie flat upon the bed when in use, the receptacle 5 has lateral reinforcement shown as a layer of stiffening material such as rubberized fabric 8 at the rear end of the receptacle 5. This stiffening member 8 may be conveniently placed between the rearward extremities of the upper and lower walls 6 and 7 and join therewith in the process of molding or curing the material from which the receptacle is formed. As indicated by dotted lines 9, the edges of the upper and lower walls 6 and 7 are joined, and at the front or rightward end of the receptacle 5 an entrance mouth 10 is formed which receives the rearwardly or leftwardly projecting outlet tube 11 of a funnel 12 comprising the entrance fitting for the urinal adapted to be applied to the bodily parts of the user.

When viewed from above, as in Figs. 1 and 3, it will be noted that the funnel 12 expands only a small amount in lateral direction from the outlet tube 11 to the side portions of the continuous lip 13 which defines the mouth of the funnel. As will be noted in Fig. 2, the lower wall portion 14 of the funnel 12 extends forwardly or rightwardly in substantially a straight line from the bottom wall of the tube 11, with which the wall of the funnel 12 is merged. That is to say, the lower wall portion 14 does not drop below the lower wall portion 16 of the outlet tube 11 so that urine deposited on the forward portion of the lower wall portion 14 may flow readily in rearward direction through the outlet tube 11 into the receptacle 5. Also, the front part 17 of the lower wall portion 14 slopes upward as it approaches the lip 13 and at 18 the upward slope of the front part 17 is increased so that it will meet the front face 19 of the lower part of the lip 13 in a manner to form a thin upwardly faced edge 20 providing a squeegee having utility hereinafter described.

As indicated at 21, the upper wall portion 22 of the funnel 12 slopes upward sharply from the upper portion of the outlet tube 11 and then at a point 23 intermediate the ends of the funnel levels off so as to follow a line nearly parallel to the bottom wall portion 14. The upper wall portion 22 then slopes upwardly at 24 to the top 25 of the lip 13. As indicated by the foregoing description, the principal enlargement of the funnel 12 from the outlet tube 11 thereof to the mouth

defined by the lip 13 is in upward direction, and the funnel is thereby given an oval cross section having its major axis vertical.

As shown in Fig. 2, the lip 13 is curved in, or rearward, between its upper and lower extremities so as to conform approximately to the bodily parts to be engaged. The walls of the funnel forming and adjacent the lip are made from a material having the characteristics of rubber, and the entire funnel is preferably molded from rubber compound. The walls are yieldable and flexible so that when the funnel 12 is forced with reasonable pressure against the bodily parts, the lip will readily conform thereto. For reinforcement of the intermediate portion of the funnel 12 and also for use in applying forward pressure in the use of the device, a rib 26 is formed externally in the wall of the funnel 12. In applying the funnel 12, the user will ordinarily place the index and middle fingers of one hand, as indicated by the dotted circles 27 and 28, adjacent and in engagement with the rearward portion of the rib 26. The form of the front portion of the nozzle 12 is such that when forward or rightward pressure is applied from the zone of the rib 26, the side portions 29 of the lip 13 will flex outwardly to or through positions such as indicated at 29' in dotted lines, moving the skin 30 engaged thereby and forthwith separating the labia. Especial means are provided for forming a seal between the lip and the engaged part, the same being a prominent shoulder 31 extending up the sides of the lip from the sharp edge 20 which forms the squeegee in the bottom of the mouth of the funnel 12. As the side portions of the lip flare outwardly, as indicated by dotted lines 29', the shoulder presses into or indents the engaged skin or membrane so that even though hair may lie across the lip, a fluid tight seal will be made.

Referring to Fig. 4, a stopper 35 is provided for the receptacle 5 of the urinal. This stopper 35 comprises a hollow rubber body 36 normally larger in diameter than the opening through the outlet tube 11 of the funnel 12. From the end of the body 36 a tube 37 extends, this tube being of a length at least as great as the distance from the front end of the outlet tube 11 to the lower portion of the lip 13, and having on its forward end an engageable member, preferably a disc 38. A plunger or pin 39 extends through the tube 37 and has on its rearward end a head 40 which engages the rear end 41 of the hollow body 36. By placing the thumb against a head 42 on the front end of the plunger 39, with the index and middle fingers straddling the tube 37 adjacent the disc 38, the plunger 39 may be forced inwardly within the tube 37, thereby elongating the hollow body 36 and decreasing its external diameter. The hollow body 36 of the stopper 35 may be then inserted in the outlet tube 11 of the funnel 12, and upon release of pressure against the plunger 39, the body 36 will be allowed to expand within the outlet tube 11 and effectively close the same. The urinal, with its individual stopper, may be used by a patient without assistance from a nurse. The urinal may be conveniently placed by the bedside, may be applied and used by the patient, who may then insert the stopper and place the partly filled urinal to one side without calling a nurse from other duties.

The manner of use of the urinal is shown in the sagittal section, Fig. 5. It will be noted that the vertical dimension of the funnel 12 is such that the lower part 19 of the lip 13 may be positioned so as to engage the area between the

introitus vaginae 50 and the anus 51, with the upper extremity of the lip positioned well above the meatus urinarius 52. This lower portion 19 of the lip may be positioned to engage the fossa navicularis 43 or the perineum 44. With the funnel 12 so positioned, the lower and side parts of the lip 13 will be in engagement with continuous relatively smooth skin or membrane, and will not traverse the mouth of an aperture. Therefore, an effective seal will be made between the funnel 12 and the engaged bodily part to avoid the possibility of escape of liquid or subsequent to voidance.

The invention takes into consideration the fact that the buttocks 45 of the patient normally depress the engaged portion 46 of the bed so that there is a lowering of the mouth of the urethra with relation to the more remote portion 47 of the bed or mattress, this being especially so when the legs are raised. Even under these conditions, the lower wall portion 14 of the funnel 12 is disposed above the normal mattress level and there is a continuous downward slope of the forward portion of the receptacle 5 so that liquid may flow readily therein. The receptacle 5 is of large horizontal area so that a large volume of liquid may be received therein without the level of the same reaching the funnel 22. As liquid flows into the receptacle 5, the upper wall 6 thereof will rise as indicated by the dotted line 6' in Fig. 5 and the internal volume of the receptacle 5 will increase in accordance with the volume of liquid introduced. After voidance is completed, pressure of the funnel 12 against the bodily parts of the user may be reduced, and the funnel 12 may be moved upwardly with the lip 31 still in engagement so that the squeegee 20 will upwardly traverse the patient and accomplish its intended function, leaving the parts reasonably dry. Such liquid as may be removed by the squeegee 20 will flow through the funnel 12 into the receptacle 5.

I claim as my invention:

1. In a female urinal for supine use, the combination of: a receptacle of yieldable material adapted to lie flat upon the bed, said receptacle comprising upper and lower horizontal walls of readily flexible material and of relatively large area joined at their edges and lying close together when the receptacle is empty, whereby said receptacle will lie flat upon a bed and be substantially devoid of air; stiffening means to make said walls lie substantially flat; a funnel connected to the front end of said receptacle, said funnel being of vertically elongated oval cross section and having a resilient lip forming an oval mouth of such size that the lower part will engage the bodily part below the introitus vaginae and the upper part of said lip will engage above the meatus urinarius and preferably in the zone of the mons veneris, the side walls of said lip being so formed that they will move outwardly when said funnel is pressed against the bodily parts and thereby separate the labia, the lower part of said lip having an upwardly faced edge to form a squeegee and the side portions of said lip having a pronounced shoulder for sealing engagement with the bodily parts of the user; and expansible closure means applicable to the throat portion of the funnel where it joins the receptacle, said closure means having elongated parts extending to the exterior of the lip of said funnel for actuation of the closure means.

2. In a female urinal for supine use, the combination of: a receptacle of yieldable material

adapted to lie flat upon the bed, said receptacle comprising upper and lower horizontal walls of readily flexible material and of relatively large area joined at their edges and lying close together when the receptacle is empty; stiffening means to make said walls lie substantially flat; a funnel connected to the front end of said receptacle, said funnel being of vertically elongated oval cross section and having a resilient lip forming an oval mouth of such size that the lower part will engage the bodily part below the introitus vaginae and the upper part of said lip will engage above the meatus urinarius and preferably in the zone of the mons veneris, the side walls of said lip being so formed that they will move apart when said funnel is pressed against the bodily parts and thereby separate the labia, the lower part of said lip having an upwardly faced edge to form a squeegee and the side portions of said lip having a pronounced shoulder for sealing engagement with the bodily parts of the user; and means forming shoulders spaced from said lip on the side walls of said funnel by which manual pressure may be applied to the funnel to force the same against the bodily parts without restricting outward movement of the side walls of said lip as the lip is pressed against the bodily parts.

3. In a female urinal for supine use, the combination of: a flat receptacle; a funnel connected to the front end of said receptacle, said funnel being elongated in a plane substantially perpendicular to the plane of said receptacle and of oval cross section and having a resilient lip forming an oval mouth of such size that the lower part will engage the bodily part below the introitus vaginae and the upper part of said lip will engage above the meatus urinarius and preferably in the zone of the mons veneris, the side walls of said lip being so formed that they will move outwardly when said funnel is pressed against the bodily parts and thereby separate the labia, the lower part of said lip having an upwardly faced edge to form a squeegee and the side portions of said lip having a pronounced shoulder for sealing engagement with the bodily parts of the user; and means forming shoulders spaced from said lip on the side walls of said funnel by which manual pressure may be applied to the funnel to force the same against the bodily parts without restricting outward movement of the side walls of said lip as the lip is pressed against the bodily parts.

4. In a female urinal for supine use, the combination of: a flattened in a horizontal plane receptacle; a funnel connected to the front end of said receptacle, said funnel being of vertically elongated oval cross section and having a resilient lip forming an oval mouth of such size that the lower part will engage the bodily part below the introitus vaginae and the upper part of said lip will engage above the meatus urinarius and preferably in the zone of the mons veneris, the side portions of said lip being flared and the side walls of the funnel adjacent thereto being so formed that they will flex inwardly and cause the side portions of said lip to move outwardly when said funnel is pressed against the bodily parts and thereby separate the labia; and means forming shoulders spaced from said lip on the side walls of said funnel by which manual pressure may be applied to the funnel to force the same against the bodily parts without restricting outward movement of the side walls of said lip as the lip is pressed against the bodily parts.

5. In a female urinal for supine use, the combination of: a receptacle of yieldable material horizontally flattened and adapted to lie flat upon the bed, said receptacle comprising upper and lower horizontal walls of readily flexible material and of relatively large area joined at their edges and lying in face to face contact when the receptacle is empty so that the interior of the receptacle will be substantially devoid of air; and a funnel connected to the front end of said receptacle, said funnel being of vertically elongated oval cross section and having a flared resilient lip forming an oval mouth which faces away from the front end of the receptacle and is of such size that the lower part will engage the bodily part below the introitus vaginae and the upper part of said lip will engage above the meatus urinarius, said funnel having side walls leading from said lip toward said receptacle at an angle to a vertical plane less than the angle of the side portions of said lip so that said lip will move outwardly when said funnel is pressed against the bodily parts and thereby separate the labia.

6. In a female urinal for supine use, the combination of: a receptacle of yieldable material adapted to lie flat upon the bed; and a funnel connected to the front end of said receptacle, said funnel comprising a hollow body with a mouth at the front end thereof elongated in a plane substantially perpendicular to the plane of said receptacle and a throat at the lower rear end thereof connected to said receptacle, the lower wall of said throat and the lower wall of

said receptacle forming a substantially straight line, said mouth defining a lip lying in a plane disposed at an angle of at least about 90° to a longitudinal line inscribed along the lower wall of said hollow body.

7. In a female urinal, the combination of: a flat receptacle adapted to lie in a substantially horizontal plane; and a funnel connected to the front end of said receptacle, said funnel having a vertically elongated hollow body with a mouth at the front end thereof and a throat at the lower rear end thereof connected to said receptacle, the side walls of said hollow body being flexible and having the front edge portions thereof flared so that when the funnel is pressed against the bodily parts, the edge portions of said side walls will spread and thereby separate the labia.

8. In a urinal, the combination of: a receptacle of yieldable material adapted to lie flat upon the bed, said receptacle comprising upper and lower horizontal walls of readily flexible material and of relatively large area joined at their edges and lying substantially in contact when the receptacle is empty; stiffening means comprising a sheet of stiffening material applied to the receptacle so as to extend from side to side of the rear part of the receptacle to make said walls lie substantially flat; and a funnel connected to the front end of said receptacle.

MARTIN WELLS.