

May 24, 1960

L. SACHS
URINE RECEPTACLE

2,937,645

Filed Feb. 29, 1956

2 Sheets-Sheet 1

FIG. 1.

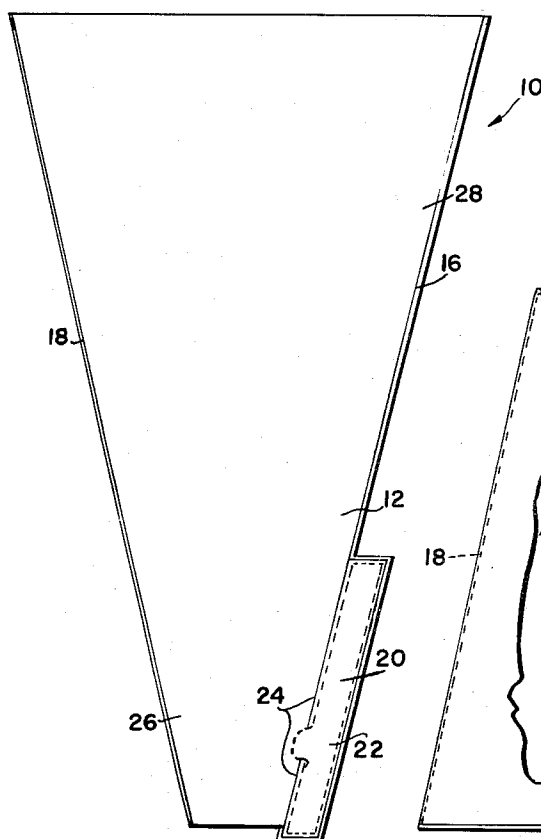


FIG. 2.

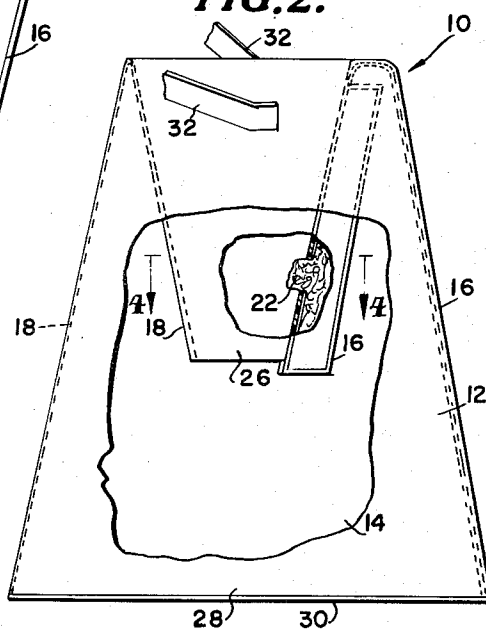


FIG. 3.

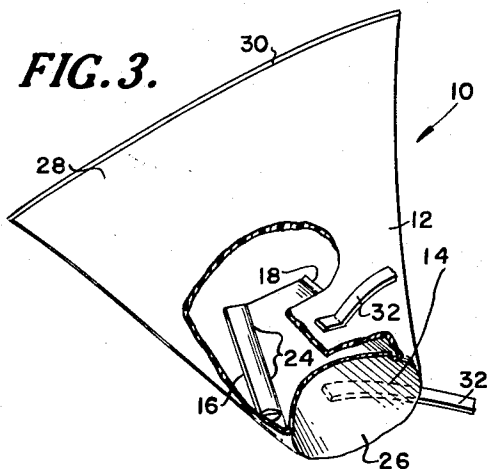
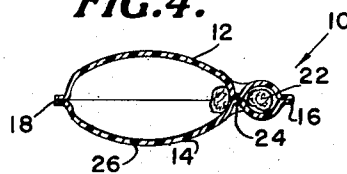


FIG. 4.



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2 Sheets-Sheet 2

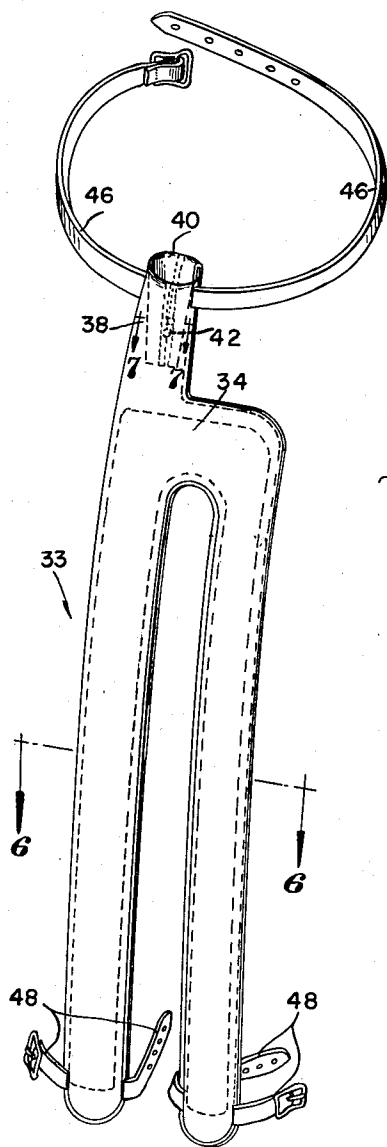


FIG. 5.

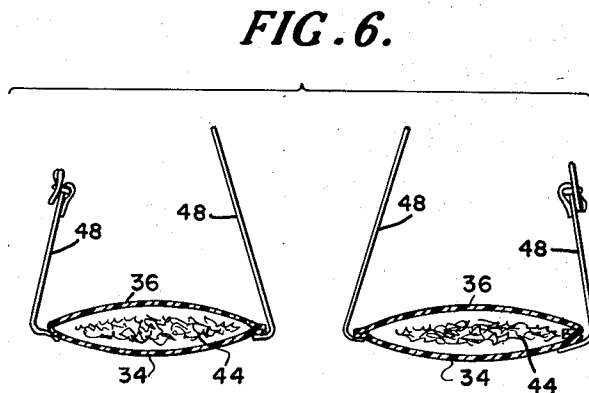


FIG. 6.

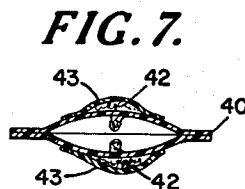


FIG. 7.

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URINE RECEPTACLE

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8 Claims. (Cl. 128—295)

This invention relates to urinals and more particularly to an improved urine receptacle arranged to be worn by the user.

The present invention has particular applicability for airmen, such as jet pilots or the like, who must remain in one position for long periods of time without opportunity to relieve themselves. The problems in providing a urine receptacle for such persons to wear are particularly acute due to rapid acceleration and deceleration to which they are subjected.

Accordingly, it is an object of the present invention to provide a urine receptacle which is particularly adapted to be worn by jet pilots and the like and is effective to retain the urine without leakage under extreme conditions of acceleration and deceleration.

The present invention also has general applicability to male bed patients. While the requirements for such patients are not as exacting as those for airmen, it is highly advantageous in both instances for hygienic reasons to provide a receptacle which can be produced economically enough to permit the same to be disposed after one use, if desired. At the same time, the receptacle must perform its intended function both efficiently and effectively.

It is therefore another object of the present invention to provide a urine receptacle of the type described which may be economically produced to such an extent as to permit disposal after a single use.

Another object of the present invention is the provision of a novel method of making urine receptacles which is more economical than the methods heretofore utilized.

Still another object of the present invention is the provision of a urine receptacle of the type described which embodies an integral inlet check valve of simple construction operable to permit ready entry of the urine, but effective to prevent passage of the urine out of the receptacle.

A further object of the present invention is the provision of a urine receptacle of the type described having improved means incorporated therein for absorbing and retaining the droplets or dribblings which in the male always occur at the end of urination.

A still further object of the present invention is the provision of a urine receptacle of the type described having improved means for rapidly and evenly absorbing the urine discharged therein so as to prevent the same from collecting in pools or the like.

A still further object of the present invention is the provision of a urine receptacle which is readily adjustable to fit the user.

These and other objects of the present invention will become more apparent during the course of the following detailed description and appended claims.

The invention may best be understood with reference to the accompanying drawings wherein an illustrative embodiment is shown.

In the drawings:

Figure 1 is a side elevational view of one form of a

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urine receptacle embodying the principles of the present invention and showing the condition of the receptacle after one stage in the making of the same;

Figure 2 is a side elevational view of the receptacle shown in Figure 1 illustrating the finished condition of the same;

Figure 3 is a perspective view of the receptacle with parts broken away for the purpose of clearer illustration;

Figure 4 is a cross-sectional view taken along the line 4—4 of Figure 2;

Figure 5 is a front elevational view of another form of urine receptacle embodying the principles of the present invention;

Figure 6 is a cross-sectional view taken along the line 6—6 of Figure 5; and

Figure 7 is a cross-sectional view taken along the line 7—7 of Figure 5.

Referring now more particularly to the drawings, there is shown in Figures 1—4 one form of a urine receptacle, generally indicated at 10, embodying the principles of the present invention. The receptacle 10 is particularly arranged to be worn by bed patients and comprises a pair of superposed sheets of thin, flexible, water-proof material 12 and 14. Preferably, polyethylene sheets are utilized; however it will be understood additional plastics, rubber or other suitable material may be employed, if desired. Polyethylene is preferred due to its low cost and the readiness with which it may be sealed.

As shown, the two superposed sheets 12 and 14 are cut into a substantial trapezoidal configuration and opposed side edges are fused or otherwise secured along marginal lines 16 and 18. One side edge of each sheet may include an elongated projecting portion 20 which forms a pocket for receiving an elongated strip of absorbent material 22. The two sheets are then fused or otherwise secured together along an interrupted line 24 enclosing the strip of material except at an inner position intermediate its ends. This condition of the receptacle is shown in Figure 1 and it will be understood that while the trapezoidal shape is preferred due to its simplicity, other configurations of the receptacle may be adopted, if desired, as will be hereinafter more fully explained. Likewise, the two sheets need not be initially separate but, may be formed from a single sheet folded over. In such case, the fold line constitutes a line of securement between the two sheets produced. One essential condition however, is that the free ends of the sheets adjacent the piece of absorbent material be fused at both edges so that the ends will tend to remain in abutting relation to each other, for a purpose hereinafter to be more fully explained.

As shown in Figure 1, the portion of the sheets 12 and 14 adjacent the piece of absorbent material 22 constitutes a valve inlet portion 26 while the remainder constitutes a receptacle portion 28. After the receptacle has been formed into the condition illustrated in Figure 1, the receptacle portion 26 is turned inside out with respect to the valve inlet portion 26 so as to embrace the latter, as shown in Figure 2. Next, the free ends of the receptacle portion are fused or otherwise secured together along a marginal edge line 30 so as to enclose the receptacle portion. Finally, suitable polyethylene straps 32 or the like may be fused to the exterior surface of the receptacle so as to provide a means for securing the same on the user.

It can thus be seen that a highly effective urine receptacle has been provided which can be made in a relatively simple and highly economical manner. By making the valve inlet portion 26 and the receptacle portion 28 from integral sheets of polyethylene many advantages

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are obtained. Primarily, this feature effects a substantial saving in the cost of making the article in that the step of fusing together two separately fabricated portions is eliminated. In addition, no such line of fusion or securement comes into contact with the user, since the junction between the two portions is smooth and continuous. Moreover, the possibility of leakage at the juncture is eliminated with the integral construction where failure is most likely to occur; namely, at or along a line of securement. Furthermore, the integral construction renders the receptacle readily adjustable to fit the requirements of the particular user. That is, the length of the inlet valve portion can readily be increased or decreased merely by moving the same further into or out of the receptacle portion. In this regard, the particular trapezoidal shape wherein the side edges converge toward the inlet valve portion free ends not only facilitates the turning inside out of the receptacle portion, but permits adjustment of the width of the inlet opening as well as the length of the inlet.

In use, the receptacle is secured to the body of the wearer by tying or otherwise fastening the straps 32 around the waist or adjacent area of the body with the penis disposed within the channel provided by the inlet valve portion of the sheets and the absorbent material therebelow. The free ends of the inlet portion 26 are normally urged into abutting relation due to the adjacent side edge lines of securement and thus act as an effective check valve which permits the urine to readily pass therebetween into the receptacle portion, but prevent passage of the urine out of the receptacle portion once it has been received therein. Preferably, the piece of absorbent material is disposed in the lower portion of the inlet channel during use so that after urination any droplets or dribblings will be absorbed thereby. In this manner, the absorbent material of the present invention insures that the portion of the receptacle which contacts the user will remain in a substantially dry condition thus creating a more sanitary condition and preventing possible skin irritation due to a prolonged contact of urine therewith.

There is shown in Figures 5 and 6 a modified form of a urine receptacle, generally indicated at 33, embodying the principles of the present invention which is particularly adapted to be used by jet fliers and the like. This receptacle is made of the same material and in substantially the same manner as the receptacle 10 shown in Figures 1-4. As best shown in Figure 5, the receptacle 33 is illustrated as being made out of a single piece of polyethylene folded over itself to form two superposed sheets 34 and 36. The two superposed sheets are thus secured together along one longitudinal edge by means of the fold line. The sheets are preferably formed in the shape of an inverted U having a projecting portion 38 extending upwardly therefrom in alignment with one of the legs of the U. The upper end of the projecting portion 38 constitutes an inlet valve portion 40 similar to the inlet valve portion 26 of the embodiment disclosed in Figures 1-4 and the remainder of the sheets constitutes the receptacle portion. The free edges of the superposed sheets opposite the fold line are first fused together in the manner previously indicated and then the receptacle portion turned inside out with respect to the inlet valve portion 40. The latter may have opposed strips of absorbent material 42 secured therein, as by strips 43.

A piece of absorbent material 44 of general U-shaped construction is then disposed between the sheets of the receptacle portion and finally the remaining free edges of the latter are fused together to enclose the receptacle portion. While any suitable absorbent material may be utilized within the receptacle portion, the utilization of luffa is preferred. Luffa is a plant of the cucumber family whose fruit is of gourd-like form having an interior structure of interlaced fibers which are light, but strong.

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The pulp may be removed when soft as by washing the same from the over-ripe fruit without damaging the interior fiber structure. When the pulp and core of the fruit are removed, the tubular fibrous wall may be cut longitudinally and flattened into sheet-like form and subsequently compressed, if desired.

The plant having the fruit, as referred to above, has been defined in the prior literature as being of the botanical family of Cucurbitaceae genus Luffa and species *Acutangula cylindrica* or *aegyptica*. It is found in the Antilles and generally throughout the tropics and in the Orient, including the Philippine Islands and Japan. The fibrous structure is of open-like character with the fibers separated and interlaced to provide a structure which is relatively rigid when dry. When wet the material softens somewhat, but retains some rigidity and may be compressed to sheet form and molded to shape, if desired, and when it dries it will retain the molded shape. Dry luffa material has the property of absorbing moisture of 6 to 8 times its own weight without dripping and is self-drying from a completely wet condition within 4 or 5 hours when exposed. The relatively rigid characteristic of the fibrous structure makes the same particularly applicable to the present invention. Of course, the absorbing characteristic of the material is equal, if not greater than other absorbent materials, such as cotton or the like. It also compares favorably in cost. Another favorable characteristic of the material is that its fiber orientation runs generally longitudinally and, hence, a more rapid and given dispersion and diffusion of the urine is possible. This rapid and even dispersion of the liquid and the configuration of the receptacle portion, which follows in the trouser legs mainly behind the limbs, effectively prevents the centrifugal action of any collection of fluid from injuring the wearer as a result of excessive impacts and shocks during jet flight.

In order to support the receptacle on the user, upper straps 46 are suitably secured to the upper end of the projecting portion 38 and straps 48 are suitably fused or otherwise secured to each leg of the receptacle portion. In use, the receptacle 33 shown in Figures 5 and 6 is worn in the same manner as the receptacle 10, previously described. However, the U-shaped configuration of the receptacle portion is arranged to be attached to the legs of the user by means of the straps 48 which may be secured around the ankles or legs. It will be understood that button snaps, clips or the like may be utilized in lieu of the straps 48. These may be attached to cooperating snaps on the lower portion of the wearer's pants. The receptacle 33 is thus specifically suited for use by jet pilots and others who must remain in one position for considerable periods of time without the opportunity to relieve themselves. The need for an effective urine receptacle in the case of jet pilots is particularly acute. The requirements of long non-stop flights, which are becoming increasingly more frequent, make the provision of an effective urine receptacle of great importance. It will be understood that due to the many rapid changes in speed, the possibility of leakage in the case of the ordinary urinals is quite prevalent. However, with the present invention this consideration is effectively overcome. In addition, the present receptacle obtains all of the advantages set forth in regard to the receptacle disclosed in Figures 1-4.

The provision of a place of luffa material within the receptacle portion to absorb the urine is particularly effective in that the same is operable to rapidly and evenly absorb as much as a quart of urine without the formation of any pools in the receptacle portion. This latter amount is generally sufficient to take care of the normal flow of urine within a 24-hour period. The economical production of the present receptacle renders the same susceptible to being disposed of after one use and it is contemplated that a flier can apply the receptacle before

a long flight and wear the same throughout the flight and after landing. The particular shape of the receptacle cakes the same easy to wear under the pilot's flight suit. Moreover, when urine is contained within the receptacle portion, the luffa serves to retain the same so that it is possible to move around and walk without danger of leakage. In this regard, it will be noted that the projecting portion 38 is aligned with one of the legs of the U-shaped receptacle portion and, hence, offset from the central axis of the receptacle. By reversing the receptacle the projecting portion, within which the inlet valve portion is disposed, may be made to fit on either side of the longitudinal seam of the flight suit or other apparel to suit the particular requirements of the wearer, depending upon which side of his trousers he dresses or carries his penis and testicles. In this regard, the provision of opposed absorbent strips makes the receptacle truly reversible in that a piece of absorbent material will be disposed below the penis in either position.

It thus will be seen that the objects of this invention have been fully and effectively accomplished. It will be realized, however, that the foregoing specific embodiment has been shown and described only for the purpose of illustrating the principles of this invention and is subject to extensive change without departure from such principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the following claims.

I claim:

1. A urine receptacle comprising a pair of superposed sheets of thin flexible water-proof material shaped to define a receptacle portion and a narrow inlet valve portion extending therefrom and integral therewith, the receptacle portion of said sheets being secured together along their edges and the inlet valve portion of said sheets being secured together along converging spaced edge lines extending from said receptacle portion toward the end of said inlet valve portion so as to provide abutting free ends, said inlet valve portion extending inwardly between the sheets of said receptacle portion with said free ends acting as a check valve permitting urine to pass therebetween into the receptacle portion but effectively preventing the passage of urine out of said receptacle portion, the flexibility of said material and the convergence of the lines of securement of said inlet valve portion being such that the extent of the inlet valve portion between the sheets of said receptacle portion varies in response to the requirements of the particular user.

2. A urine receptacle as defined in claim 1, wherein

said receptacle portion is of inverted U-shaped configuration.

3. A urine receptacle as defined in claim 2, wherein an inverted U-shaped sheet of luffa is disposed between the receptacle portion of said sheets.

4. A urine receptacle as defined in claim 1, wherein said receptacle portion is trapezoidal in shape.

5. A device of the type described comprising an elongated flexible water-proof receptacle having an inlet opening at its upper end, a pair of superposed sheets of thin flexible material secured at one end to said inlet opening and extending within said receptacle, said sheets having their side edges secured together so as to provide an inlet channel having a pair of free ends operable to permit passage of urine into said receptacle but effectively prevent passage of the same out of said receptacle, flexible sheet means defining a pocket adjacent said inlet channel and communicating with the lower portion thereof, and a piece of absorbent material disposed in said pockets in a position to communicate the same with the lower portion of said channel.

6. A device as defined in claim 5, wherein said sheets are integral with said receptacle.

7. A device as defined in claim 5, wherein said receptacle is of inverted U-shaped configuration having a portion extending upwardly from one of its legs for receiving said inlet channel defining sheets.

8. A device as defined in claim 7, wherein an inverted U-shaped sheet of luffa is disposed in said receptacle.

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