PERSONAL SANITARY CONVENIENCES

FIG. 1.

FIG. 5.

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PERSONAL SANITARY CONVENIENCES

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This invention relates to personal sanitary conveniences, and has for its object to provide an expendable device of light and simple construction which, although suitable for wear by invalids as well as by travellers generally, is primarily intended for use by aircrews and other wearers of combination-type outergarments.

Garments of this type (for example, inflatable exposure suits, submarine escape suits, and high-altitude pressure suits) are usually provided at the appropriate position with a sealable aperture for urination purposes, but such an aperture cannot be utilized by the wearer whilst his suit is inflated, and the same problem arises when other garments such as ordinary flying suits are being worn operationally beneath parachute, marine lifesaving, or "anti-G" equipment whose position or body harness makes normal urination highly inconvenient or impossible.

The improved device hereinafter described can be worn unobtrusively beneath a uniform or other normal attire, and enables the wearer to pass water when necessary without subsequent discomfort or embarrassment. Its use, as an expendable item of equipment, thus makes unnecessary the additional cost and complication of providing sealable urination apertures in inflatable suits such as those previously referred to.

According to the present invention, the improved urination device comprises an impervious receiver adapted to make resilient liquid-tight contact with the wearer's person around the urinary duct, means for securing such receiver upon the body against the risk of accidental displacement, at least one flexible impervious pouch or flexible impervious material connected to said receiver and adapted to extend along the inside of the wearer's leg, and a filling of initially-compressed, highly absorbent material within said pouch.

The absorbent material aforesaid conveniently consists of one or more pieces of a highly compressed synthetic sponge such as is capable of swelling to as much as ten times its original volume when wet and of absorbing a proportionate volume of liquid.

The pouch which contains such material may extend down the wearer's leg to the ankle, the absorbent filling being interrupted at knee level or alternatively the pouch may be made shorter but wider. If desired, separate pouches may be applied to both legs, and preferably provided with means for securing them in position.

In the case of a receiver designed for male wear, liquid-tight contact thereof with the person is conveniently maintained by means of two elastic sealing annuli incorporated in such receiver and adapted respectively to engage the person around the penis and around the root of the genitals.

In the accompanying drawings,

Fig. 1 is a rear perspective view of one form of the improved device,

Fig. 2 is a rear view of the upper part of such device, drawn to an enlarged scale,

Fig. 3 is a part-sectional side elevation of the device,

Fig. 4 is a side elevation of the receiver during wear, and

Fig. 5 is a front perspective view of the device in position upon the wearer.

In the embodiment illustrated, which is intended for wear by service personnel either next to the skin or over undergarments, the urine receiver 10 consists of a roughly D-shaped piece 11 of rubberized fabric or other flexible impervious material which has its straight edge 12 folded centrally upon itself and its curved edge 13 cemented around the whole periphery of a sealing assembly comprising two superimposed and marginally-joined discs 14, 15 of latex sheet or its equivalent.

Each of these discs, which may be (say) 6 inches in diameter has a circular aperture therein, the hole 16 in the inner disc 14 being stretchable to admit the wearer's penis, which then protrudes within the fabric front portion of the receiver 10, as shown in Fig. 4, and the hole 17 in the outer disc 15 being of somewhat larger initial diameter so as to accommodate the root portion of the wearer's genitals.

It has been found generally suitable to make the holes 16, 17 of ¾ and 1½ inch diameter respectively, the larger hole being formed centrally of its disc 15 and the smaller hole offset upwardly by some 3/8 inch.

It will be appreciated that, when the receiver 10 is in position, the wearer's scrotum is contained between the two apertured discs 14, 15, the edges of the holes 16, 17 engaging his flesh tightly but not uncomfortably and thus providing a tandem seal which experience has proved to be capable of preventing escape of liquid even if urination be performed when the wearer is upside-down, and whose efficacy is unaffected by any temporary contraction of the penis.

The receiver above described is secured against accidental displacement by means of attachment means comprising a generally triangular panel 18 of rubberized or other fabric having one corner secured to the curved edge 13 of the receiver fabric 11 at the latter's lowest point and its other two corners furnished with tapes 19 intended to be tied to a loop 20 on the upper part of the receiver 10 after the panel 18 has been passed between the wearer's legs and the corner tapes 19 brought round to the front of his body.

The doubled edge 12 of the receiver's front piece 11 has the two halves thereof cemented respectively to the outer edges of two flat elongated pouches 21 also formed of rubberized fabric or other flexible impervious material and having their inner edges hingedly connected at 22.

In wear these pouches extend alongside opposite thighs of the user, and each may have sewn to its lower end a tape 23 whose ends can be secured around the adjacent leg at knee-level as shown in Fig. 5.

Each pouch 21 conveniently measures 17 inches long by 6 inches wide, is tapered at its upper end for attachment to the mouth of the receiver 10, and is formed by cementing two generally rectangular panels of the flexible material together at their lateral and lower edges as well as along a medial line.

The pouch is thus divided into two parallel pockets 24 each of which contains a loose strip 25 of compressed synthetic sponge, say, 1¼ inches long by ½ inch wide by ½ inch thick.

In this connection, it has been found convenient to employ the methyl cellulose sponge sold under the trade name Sponcel, in the grade known as "M pore compressed."

A strip of such material having the dimensions quoted when dry will swell to approximately 16¼ inches long, 1½ inches wide and 1 inch when fully saturated and is hence capable of absorbing at least 25 cubic inches of
urine, so that the total capacity of the device is adequate for a full day's use under normal conditions. To guard against reverse flow of urine from the pouches 21 to the receiver 10, whether due to momentary regurgitation during use of the device or to subsequent expression of urine from the soaked sponge material the outlet of such receiver is preferably closed by means of a V-section gusset 26 of rubberized fabric or the equivalent having small apertures 27 in its side walls only, and if desired the adjacent side walls of the two pouches may each be folded over the tops of the associated sponge strips 25 so as to extend down between the latter and those side walls of the pouches which lie next to the wearer's legs.

As an alternative to placing the two sponge strips 25 side-by-side in each pouch 21, the latter may be made narrower but long enough to accommodate the two strips end-to-end, preferably with a gap between them at knee-level, and in such a case the pouch may have further attachment tapes for tying around the upper thigh and ankle as well as adjacent the knee.

We claim:

1. A urination device comprising an impervious liquid-tight pouch adapted to contact the wearer's person around the urinary tract, a first disk of impervious material attached to and closing the upper end of said pouch, said first disk having a central opening of a size sufficient to admit the penis, a second disk of impervious material adjacent to the outer face of said first disk and having an opening therein in substantial alignment with the opening in said first disk, said disks being secured to each other around their peripheries, said second disk being adjacent to the body of the wearer, the opening in said first disk being insufficiently large to admit the genitals, the opening in said second disk being sufficiently large to admit the genitals so that the wall of said opening grips around the root of the genitals, whereby the genitals are held between said disks and the penis is held beyond said disks against contraction of the penis.

2. A urination device according to claim 1 further characterized in that said disks are of elastic sheets.

3. A urination device according to claim 1, further characterized in that one corner of a substantially triangular panel of flexible material adapted to be passed between the wearer's legs is attached to the rear part of the pouch, the other two corners of such panel having waist tapes thereon for connection to a loop on the upper part of said receiver.

4. A urination device according to claim 1, further characterized in that the pouch aforesaid is made of knee-length, with at least one tape for attaching it to the wearer's legs, and contains at least two strips of sponge material in side-by-side relation.

5. A urination device according to claim 1, further characterized in that the pouch aforesaid is made of ankle length, with tapes for attaching it to the wearer's leg at spaced positions, and contains at least two strips of sponge material in end-to-end relation.

6. A personal sanitary convenience comprising an impervious receiver adapted to make resilient liquid-tight contact with the wearer's person around the urinary duct, means for securing such receiver upon the body against the risk of accidental displacement, at least one relatively elongated pouch of flexible impervious material connected to said receiver and adapted to extend along the inside of the wearer's leg, and a filling of initially-compressed, highly-absorbent material within said pouch, characterized in that the receiver incorporates elastic sealing annuli adapted respectively to engage the person of a male wearer around the penis and around the root of the genitals, and further characterized in that the peripheries of said sealing annuli are united in superimposed relation to one another and to part of the periphery of a flexible front panel, the remaining marginal portions of which are disposed side-by-side to form a flat outlet.

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