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URINE COLLECTOR FOR INFANTS

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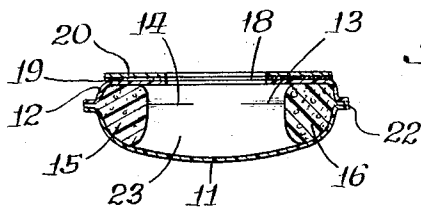
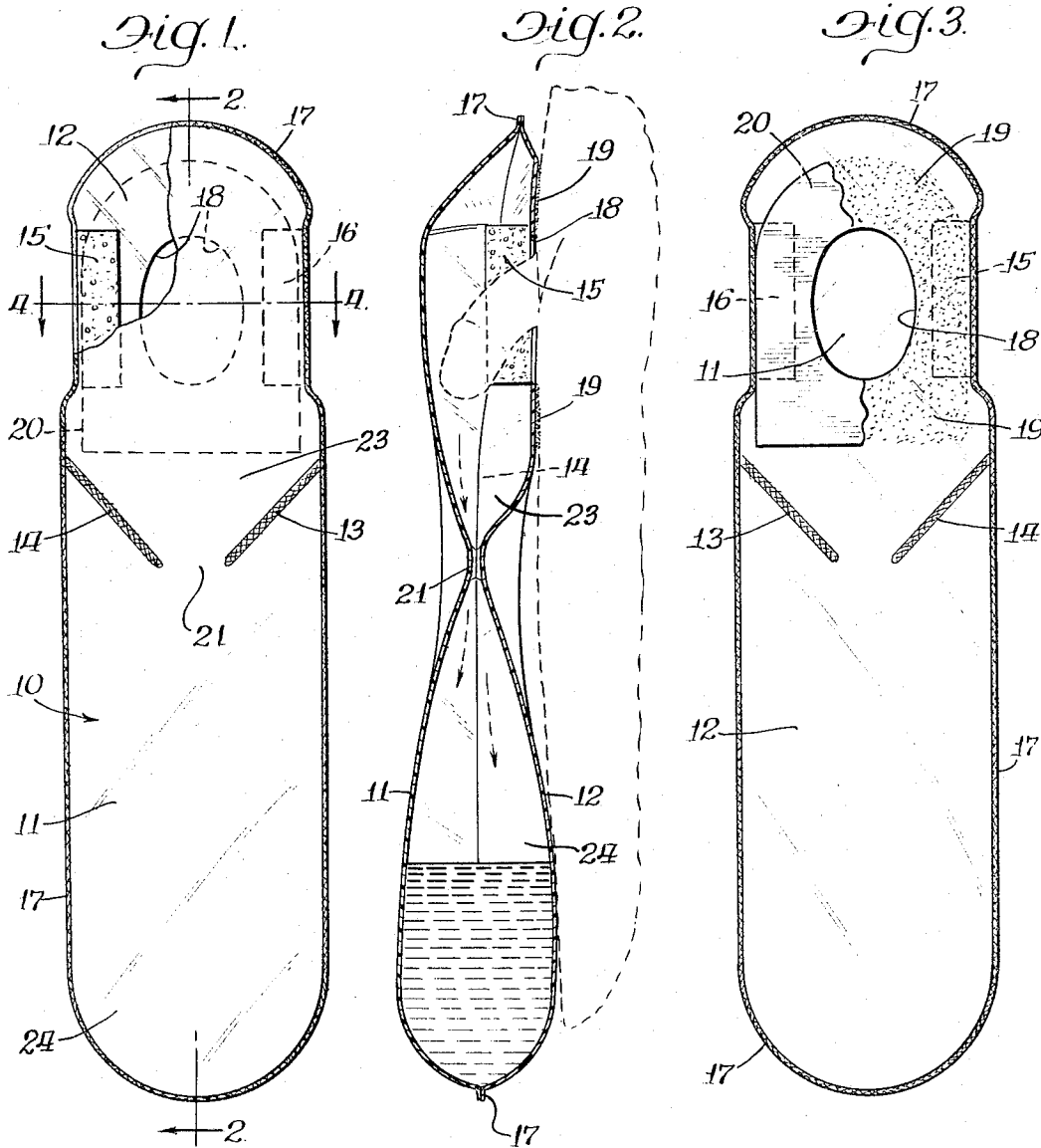


Fig. 4

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3,295,145

**URINE COLLECTOR FOR INFANTS**

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This invention is concerned with urine collectors of the type normally fastened to a patient's body and into which the urine flows from the body naturally. More particularly, this invention is concerned with such urine collectors of the adhesively fastened type for infants and small children.

The diagnosis, treatment and periodic assessment of a patient's condition where various body disorders are suspected or are known to exist is very much simplified and expedited by periodic examination and analysis of urine samples. Collection of samples from infants and small children, however, presents a real problem especially since catheterization is contraindicated, urination control is usually lacking and comprehension and memory retention are minimal or wholly absent. In such cases, the only alternative has been the use of an attached collector. The Fowler Patent No. 2,548,149 and the Hill Patent No. 2,877,769 are representative of the type of collector employed. The collectors of this invention are improvements on these collectors.

It is an object of this invention to provide a urine collector into which an infant may freely urinate, the collector to be such that the infant's tender external genitals may be gently and comfortably accommodated without exposing them to rubbing contact, the collector further to segregate the urine as emitted and provide for detachment without spilling.

Other objects of the invention will be apparent upon an examination of the specification and drawings:

Referring to the drawings:

FIGURE 1 illustrates a typical urine collector of this invention as viewed from the front.

FIGURE 2 illustrates the collector of FIGURE 1 shown in longitudinal section as attached to an infant.

FIGURE 3 illustrates the back or body contacting side of the collector of FIGURE 1, and

FIGURE 4 illustrates a transverse cross section of the collector of FIGURE 1 through the central portion of the genital aperture.

One of the problems associated with body attached urine collectors is that of chaffing, particularly of the very tender external genitals of infants. The collector of this invention is adhesively attached so that in the area of the genitals, it moves with the body. Furthermore, the aperture is designed to accommodate the entire external genitals or alternatively in the case of males, only the penis. Furthermore, that portion of the collector into which the genitals protrude is sufficiently deep as to avoid contact of the front wall of the former with the latter.

In the urine collectors of this invention, the urine is segregated as emitted into a chamber separate from that into which the genitals protrude. The problems associated with prolonged body contact by urine and its products of decomposition are thus avoided in the collectors of this invention. The collector is also constructed to prevent the urine once collected from spilling back or out in volume if it is momentarily up-ended or accidentally dropped.

Referring once more to the drawings:

In the embodiment illustrated in FIGURES 1-4, the collector 10 consists of a front panel 11 and a back panel 12 sealed together by a narrow seal 17 completely around their peripheries. The collector ends are preferably

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rounded as shown but the shape of the ends is not critical. The collector is substantially divided into an upper compartment 23 and a lower compartment 24 by the inclined seals 13 and 14. These seal the panels 11 and 12 together in narrow downwardly converging areas except for the throat 21 which connects the upper and lower compartments. Two elongated pads 15 and 16 preferably of compressible sealable material such as urethane foam is sealed into the peripheral seal 17 in the upper chamber 23 as is shown best in FIGURE 4. The cross sectional shape of these pads is not critical and they may be preformed with a fin edge 22 in which case they need not be highly compressible. They should be fairly soft, however, to prevent injury to the infant.

In back panel 12 there is also an oval aperture 18 with its long axis along the long axis of the collector and centrally disposed with regard to the upper compartment into which it opens. The aperture is of such size as to adequately accommodate the external genitals of a small child. At this point the panel 11 is sufficiently separated from panel 12 by the pads 15 and 16 as to adequately accommodate a child's external genitals in depth also.

A zone of pressure sensitive adhesive 19 surrounds the aperture 18 preferably in an area substantially as indicated in FIGURES 1 and 3. This pressure sensitive adhesive preferably is applied directly to the panel 12 by means of transfer tape. That is, the adhesive is coated onto a material such as paper or film 20 coated with a silicone resin. The silicone resin has so little affinity for the adhesive that when the latter is adhered to a surface, its original silicone resin coated backing acts as a facing and may be peeled from the adhesive in the same way leaving the adhesive as a continuous coating on the surface. If desired, however, the pressure sensitive adhesive may be one of the two adhesive surfaces on a double coated tape. That is, one adhesive side will adhere the tape to the panel 12 and the other adhesive side of the tape will be covered with the facing 20.

In applying the collector of this invention to the infant, the facing sheet 20 is removed exposing the pressure sensitive adhesive. The infant's external genitals are then inserted into the aperture 18. With males it may be preferred to insert only the penis. At any rate, after the genitals are accommodated, the adhesive is pressed against the infant's skin where the latter is contacted by the adhesive 19 surrounding the aperture.

The collector 10 may hang suspended from the baby's body in the event the child is able to stand erect or move about on all fours. Otherwise the infant should preferably be on his back or side. In all of these situations when urination occurs the urine will be funneled downwardly along one or both of the sealed areas 13 and 14 and through the throat 21 into the lower compartment 24. The lower compartment tends to be pendant due to the urine and as long as the infant's genital area to which the collector is adhered, is above the lower compartment, no back leakage of urine will occur. If, for some reason, the lower compartment is raised momentarily above the opening 18, however, the narrow throat 21 will prevent urine from spilling in volume back into the upper compartment.

The preferred material for the panels of the collectors of this invention is substantially transparent thermoplastic film such as polyethylene, vinyl copolymers and the like preferably about 1/2 to 3 mils in thickness. Opaque film and films of other thickness may be used but obviously are less desirable. Coated impervious papers may also be used, wax, silicone resins and thermoplastic resins being generally suitable coating materials.

It is preferred that the seals of the collectors of the invention be electronic heat seals since such seals are

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very narrow and strong. But other heat seals and seals made with water insoluble glue or solvent cements are satisfactory.

I claim:

1. A urine collector for infants comprising a front panel and a back panel of water impervious material, said panels being joined into a flat tubular structure, seals joining the ends of said panels providing end-closures for said tubular structure, two sealed areas intermediate said end-closures sealing said panels together and converging downwardly from the sides of said flat tubular structure, said sealed areas terminating short of juncture and substantially dividing said tubular structure into an upper and a lower compartment, a slit-like unsealed throat between said panels and joining said compartments, said throat being defined by closely adjacent portions of said two sealed areas, longitudinally aligned oval aperture in said back panel centrally disposed with regard to said upper compartment and forming an opening thereinto, a layer of pressure sensitive adhesive attached to said back panel presenting an outwardly disposed adhesive surface surrounding said aperture, and two longitudinally disposed elongated pads flanking said aperture one on each side, attached within said upper compartment, said pads separating said front and back panels whereby said upper compartment is maintained in three-dimensional conformation.

2. The urine collector of claim 1 wherein at least one of the panels is made of transparent film.

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3. The urine collector of claim 1 wherein the elongated pads are of polyurethane foam.

4. The urine collector of claim 1 wherein the pressure sensitive adhesive is directly adherent to said back panel.

5. The urine collector of claim 1 wherein at least one of the panels is made of water impervious coated paper.

6. The urine collector of claim 1 wherein the seals are heat-seals.

7. The urine collector of claim 1 wherein the outwardly disposed adhesive surface is covered by a peelable facing sheet.

8. The urine collector of claim 1 wherein the panels are joined into a flat tubular structure by heat-sealing.

9. The urine collector of claim 8 wherein the pads are heat-sealable, are shaped with a thin edge fin and are heat-sealed by their fin edges into the seals joining the panels.

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