

Dec. 20, 1966

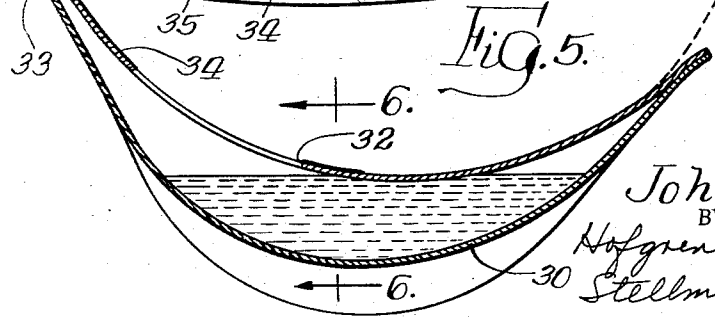
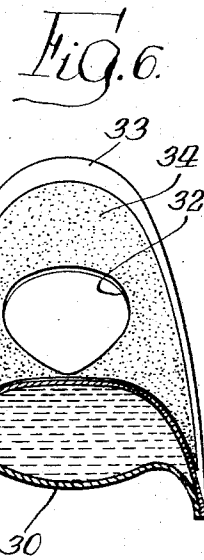
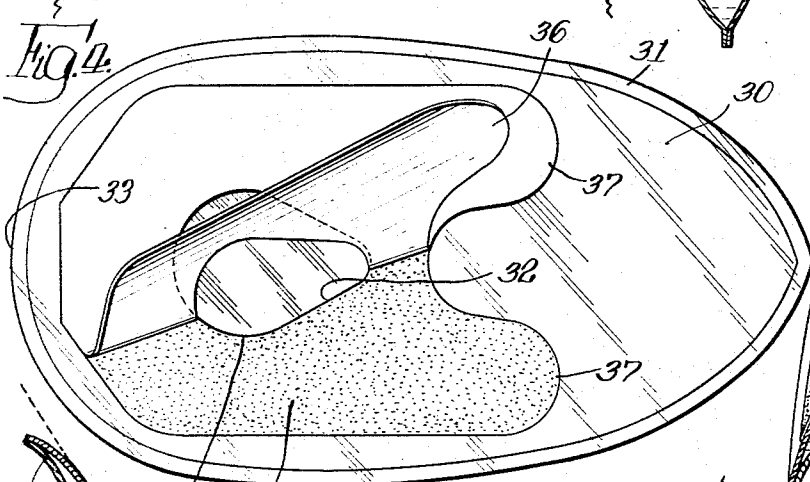
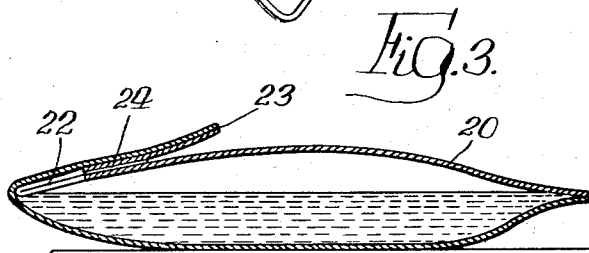
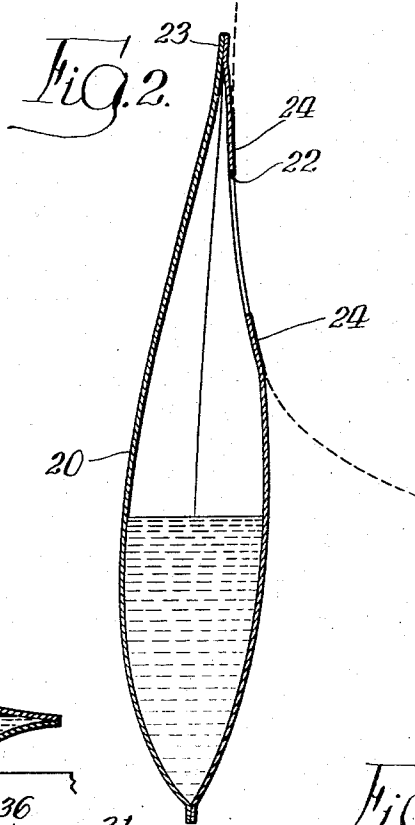
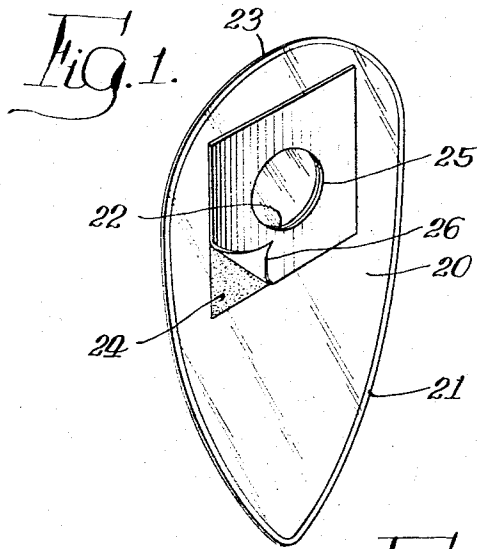
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3,292,626

URINE COLLECTOR

Filed May 25, 1965

4 Sheets-Sheet 1



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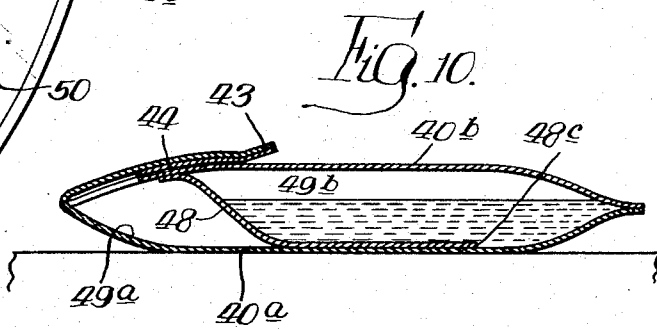
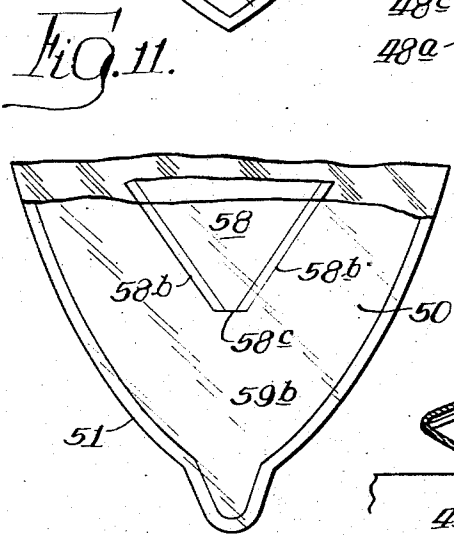
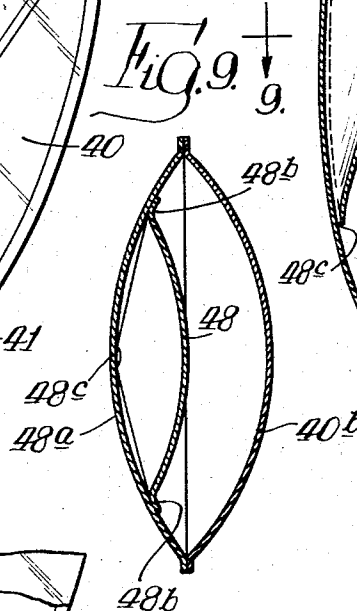
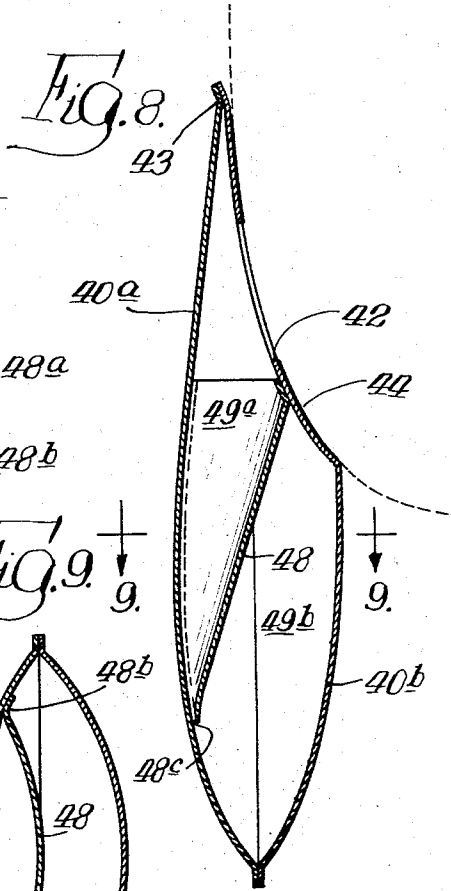
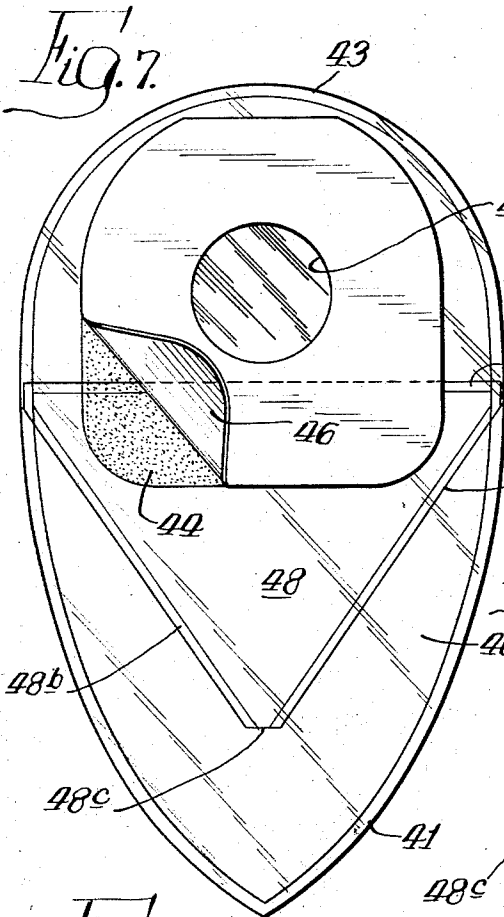
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URINE COLLECTOR

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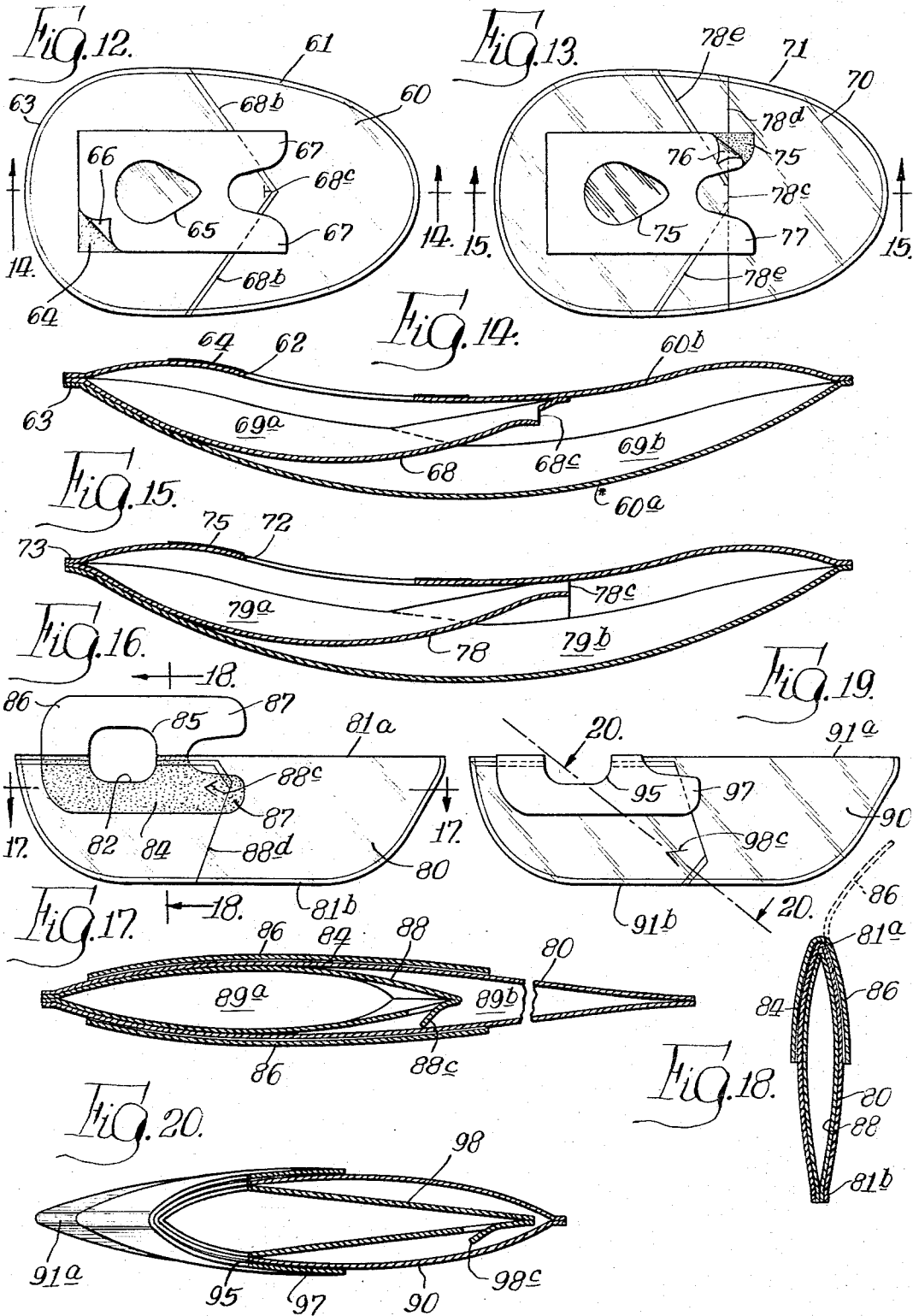
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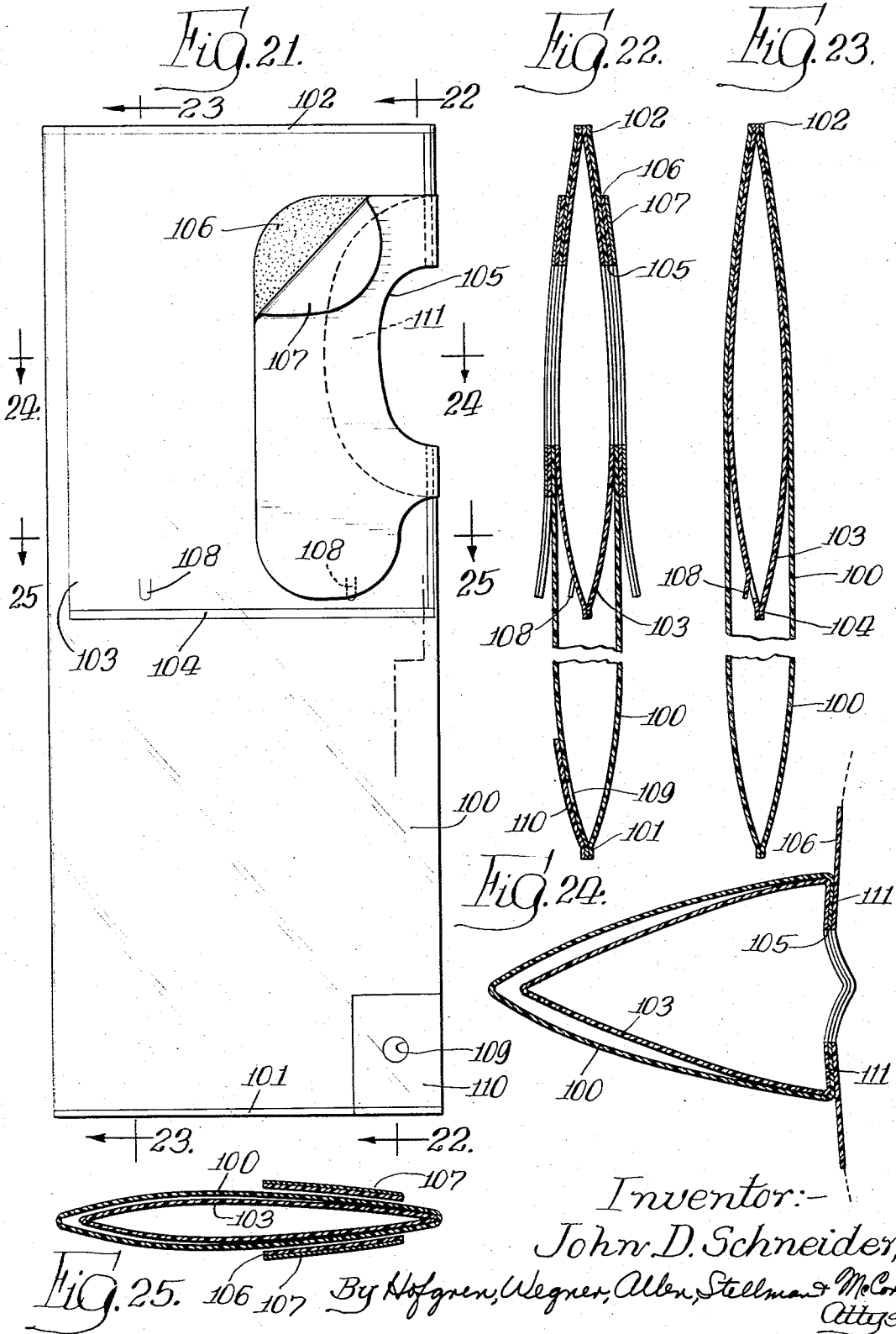
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URINE COLLECTOR

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4 Sheets-Sheet 3





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3,292,626

URINE COLLECTOR

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 Filed May 25, 1965, Ser. No. 472,379
 7 Claims. (Cl. 128—295)

This application is a continuation-in-part of application Ser. No. 292,863, filed July 5, 1963 and now abandoned.

This invention relates to a urine collector and more particularly to a device readily attachable to the body of a human for the purpose of collecting urine and retaining the same without danger of spilling.

It is the general object of the present invention to produce a new and improved urine collector of the character described.

Urine collectors are needed under a large number of circumstances. In some cases a physical incapacity to retain urine has necessitated that a person so afflicted wear some sort of bag to collect and retain the urine for subsequent disposal. While the urine collector of the present invention is useful under such circumstances, it finds its particular advantage in the pediatric field for providing urine specimens of infants who, while capable of retaining urine, are incapable of understanding the necessity of retaining the same until a suitable receptacle can be provided. On the other hand, if a receptacle suitable for collecting urine samples is provided, the infant has no way of knowing what is expected of it and may not cooperate. The urine collectors of the present invention can be used to advantage under such circumstances.

Accordingly, it is another object of the invention to produce a disposable urine collector particularly adaptable for use with male and female infants.

Other and further objects and advantages of the present invention will be readily apparent from the following description and drawings, in which:

FIG. 1 is a perspective view of a form of the invention;

FIG. 2 is a vertical sectional view of the embodiment of FIG. 1 showing the same in place;

FIG. 3 shows the collector of FIG. 2 removed from the body and folded to close the entrance opening;

FIG. 4 is a top plan view of a second embodiment of the invention;

FIG. 5 is a sectional view showing the embodiment of FIG. 4 in place;

FIG. 6 is a sectional view taken along line 6—6 of FIG. 5;

FIG. 7 is a top plan view of a third embodiment of the invention;

FIG. 8 is a vertical sectional view showing the embodiment of FIG. 7 in use;

FIG. 9 is a horizontal section taken along line 9—9 of FIG. 8;

FIG. 10 shows the embodiment of FIG. 7 folded to close the opening thereof;

FIG. 11 is a fragmentary view of the bottom portion of a urine collector similar to that shown in FIG. 7 but differing therefrom so as to constitute an additional embodiment;

FIG. 12 is a top plan view of a fifth embodiment of the invention;

FIG. 13 is a view like FIG. 12 of a sixth embodiment of the invention;

FIG. 14 is an enlarged vertical section taken along line 14—14 of FIG. 12;

FIG. 15 is an enlarged vertical section taken along line 15—15 of FIG. 13;

FIG. 16 is a side elevational view of an additional form of the invention;

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FIG. 17 is a horizontal section taken along line 17—17 of FIG. 16;

FIG. 18 is a vertical section taken along line 18—18 of FIG. 16;

5 FIG. 19 is a view like FIG. 16 of yet another form of the invention;

FIG. 20 is a diagonal sectional view taken along line 20—20 of FIG. 19;

10 FIG. 21 is a side elevational view of a further modified form of the invention;

FIG. 22 is a vertical section taken along line 22—22 of FIG. 21;

FIG. 23 is a vertical section taken along line 23—23 of FIG. 21;

15 FIG. 24 is a horizontal section showing the device in applied position; and

FIG. 25 is a horizontal section taken along line 25—25 of FIG. 21.

20 While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail several embodiments of the invention, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiments illustrated. The scope of the invention will be pointed out in the appended claims.

Referring now to the simplest form of the invention shown in FIG. 1, there is there illustrated a urine collector comprising a bag 20, preferably made of flexible transparent plastic material, sealed along its edges 21 and having an opening 22 therein positioned adjacent but below the top 23 of the bag. Sealed to an outer surface of the bag around the opening 22 is a piece of adhesive material 24 provided with a hole 25 coincident with the opening 22 and covered when not in use by a peel patch 26. The urine collector of FIG. 1 is adapted primarily for use on male infants and when employed, the peel patch 26 is peeled back from the adhesive material to expose the same and the bag is then adhesively secured to the body as shown in FIG. 2. Urine is collected as illustrated in that figure and upon removal, the bag may be folded across the center of the opening so as to bring opposed adhesive carrying surfaces of the material 24 into contact with each other to seal the bag and the urine therein.

25 The embodiment of FIGS. 4-6 is preferably used with female infants and comprises a bag 30 sealed along its edges 31 and provided with an opening 32 near the top 33. A piece of adhesive material 34 is secured to the outer surface of the bag around the opening 32 with the material 34 having a hole 35 therein coincident with the opening 32. A peel patch 36 is removably applied to the adhesive surface of the material 34 and removed before application. In this embodiment it will be noted that the material 34 is provided with a pair of integral ears 37 spaced on either side of and below the opening 32. The opposite side of these ears is not secured to the outer surface of the bag 30, and these ears serve securely to hold the urine collector in position on the body of the infant.

30 A somewhat more sophisticated version of the urine collector is illustrated in FIG. 7-10. As shown in those figures, the urine collector comprises a bag 40, again of soft transparent plastic material, having a front side 40a and a back side 40b. The sheets forming the front and back sides are sealed together along their edges 41, and the back side 40b is provided with an opening 42 therein with the opening being located adjacent but spaced from the top of the bag. A piece of adhesive material 44 is secured to the outer surface of the back side 40b surrounding the opening 42, with the material being provided with a hole 45 coincident with the opening. A peel patch 46 covers the adhesive material prior to its use.

The device of FIGS. 7-10 is obviously adapted for use with male infants and in order to prevent leakage of urine, means are provided to divide the bag into two compartments, one a receiving compartment which receives the urine from the body of the user, and the other a storage compartment in which the urine is stored, the partition providing a unidirectional flow from one compartment to the other. For this purpose there is provided a partition 48 in the form of a triangular piece of flexible plastic material whose base 48a is sealed to the back side 40b while the two sides 48b of the triangular portion are sealed to the front side 40a. The apex 48c is sealed to neither side and hence provides an opening through which urine may flow from a receiving compartment 49a in communication with the opening 42 to a storage compartment 49b separated from the receiving compartment by the partition. When urine is passed, it flows to the receiving compartment 49a and thence through the passage formed by the apex 48c into the storage compartment 49b. The weight of urine in the storage compartment effectively holds the apex 48c of the partition against the front wall 40a, thereby closing the passage at the apex and preventing urine from flowing from the storage compartment into the receiving compartment. Like the urine collectors of the previous embodiments, the one just described may, after being used, be folded as shown in FIG. 10 to seal the opening 42.

The modification shown in FIG. 11 is very similar to that just described and includes a bag 50 having a front side 50a and a back side 50b formed of flexible plastic sheets sealed together at their edges 51. The partition 53 while sealed along its base to the back side 50b, is also sealed along its sides 53b to the back side. Again, an opening is provided at the apex 53c for flow of urine from a receiving compartment into a storage compartment, the two compartments being separated by the partition as in the previous embodiment.

In FIGS. 12 and 14 there is illustrated yet another form of the invention including a bag 60 having a front side 60a and a back side 60b sealed together along their edges at 61. The back side 60b is provided with an opening 62 to receive urine, with the opening being adjacent the top 63 of the bag. A piece of adhesive material 64 is secured to the back side 60b around the opening 62, with the material being provided with a hole 65. The adhesive material is covered with a peel strip 66 and is provided with integral ears 67 in the same manner as described with reference to FIG. 4. A partition 68 is secured along its sides 68b to the interior surface of the back side 60b, while the apex 68c formed by such sides is unsealed so as to provide a passage from the receiving compartment 69a to the storage compartment 69b. The partition 68, apart from the side 60b and apex 68c, is sealed to the edge 61 of the bag.

The modification illustrated in FIGS. 13 and 15 is similar to that just described with reference to FIGS. 12 and 14, and similar reference numerals (plus 10) have been used to designate like parts. The partition 78 of the embodiment of FIG. 13, however, is not trimmed to form an apex but is provided with a free edge 78d. Portions of the partition spaced from the edge 78d are sealed along diagonal lines 78e to the back side 70b and an opening at the apex 78c of said lines is provided to establish communication between the receiving compartment 79a and the storage compartment 79b.

Yet another form of the invention is illustrated in FIGS. 16-18 wherein a single sheet of plastic material is folded to form a bag 80 having a fold line 81a and having opposite edges 81b sealed to each other to form a closed container. As in the previous embodiments, there is provided an opening 82 in the fold edge 81a together with a piece of adhesive-bearing material 84 secured to the outer surface of the bag surrounding the opening. A peel strip 86 may be removed to expose the adhesive, and

the piece 84 being provided with integral ear portions 87 similar to those previously described.

Within the bag 80 there is provided a second bag of plastic material extending only part way from top to bottom of the bag 80 and, in fact, terminating along the line 88d as illustrated. The inner bag or partition 88 is secured to the inner surface of the bag 80 at all points except at point 88c, the latter point forming a passage between the receiving compartment 89a in which the bag 88 is located (which receiving compartment communicates with the opening 82) and the storage compartment 89b.

The modification shown in FIGS. 19 and 20 is similar in most respects to the embodiment just described and similar numerals (plus 10) have been used to describe the same parts. The principal difference is in the location of the passage establishing communication between the receiving compartment and the storage compartment, said passage 98c being located along the edge 91b rather than adjacent the fold line 91a as in the previous embodiment.

Referring now to the further form shown in FIGS. 21-25, the urine collector there illustrated comprises a sheet of tubular plastic 100 sealed along its bottom edge 101 and at its top edge 102. Located within the tube 100 is a second tube 103 sealed at its upper edge along the line 102. The bottom edge of the inner tube 103 is sealed as indicated at 104.

The outer and inner tubes 100 and 103 are each provided with coincident openings 105 with the edge of the opening of the outer tube 100 being sealed to the edge of the inner tube 103. Surrounding the opening is attachment means in the form of adhesive-bearing material 106 having a peel strip 107 normally covering the adhesive but removable therefrom as shown. The material 106 is sealed to the outer bag 100 along an area surrounding the opening 105, such areas being indicated at 111, thus leaving the portion of the adhesive bearing material 106 outwardly of the area 111 free of attachment to the outer tube.

The inner tube 103 is provided with a plurality of U-shaped slits 108 which operate as one-way valves. In use, the peel strip 107 is removed to expose the adhesive on the outer surface of the adhesive-bearing material 106 and the appliance is placed against the body as shown in FIG. 24. Excreted urine is received first in the inner bag 103 and then passes through the valve-forming slits 108 into the lower bag. Backflow of urine is prohibited by the nature of the valves 108 and thus is retained for future study and test.

The outer tube 100 is provided with an opening 109 therein, sealed shut by a plastic patch 110. To empty the bag it is thus merely necessary to peel off the patch 110 thereby exposing the hole 109.

One advantage of this particular form of the invention is the simplicity of construction, the same being made of two pieces of tubular plastic sealed at their tops and bottoms to provide closed containers with the seal along the top of each being coincident so as to secure the inner tube in position with the outer tube. The two tubes are also secured together at their openings to prevent leakage at this point.

In all of the forms described, the adhesive-bearing material need be secured to the bag only around the edges of the opening, and the balance of the material may be free of attachment to the bag. For the female design, it may be advantageous to leave all but that part of the adhesive-bearing material immediately surrounding the opening free of attachment to the bag.

I claim:

1. A urine collector comprising a bag of flexible waterproof material having an opening therein near but spaced from the top thereof, a piece of adhesive material secured to the exterior surface of the bag and surrounding the opening, said material having a hole therein coinciding with the opening in the bag and said material having a pair of integral ears extending therefrom below and on

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either side of the hole, said ears being free of attachment to the bag, a flexible partition sealed to an interior surface of the bag to divide the same into a receiving compartment communicating with the opening and a storage compartment, and a passage formed by said partition establishing communication between said receiving and said storage compartments, said partition being adapted to be flexed by urine in said storage compartment to close said passage.

2. A urine collector comprising a flat outer tube of flexible waterproof material sealed at its top and bottom, an inner tube of flexible waterproof material within the outer tube, said inner tube being sealed at its top and bottom with the two tubes being sealed together at their tops, each of said tubes having a coincident opening in an edge thereof with the portions of the tubes surrounding the opening being sealed together, a piece of adhesive-bearing material secured to the outer tube in an area surrounding said opening, said material having an opening therein coinciding with the first mentioned opening and with said material having an extent substantially greater than the area of attachment to the outer tube, and unidirectional valve means providing for flow of urine from the inner bag into the outer bag.

3. A urine collector comprising a bag of flexible waterproof material having an opening therein near but spaced from the top thereof, a piece of adhesive material secured to the exterior surface of the bag and surrounding the opening, said material having a hole therein coinciding with the opening in the bag and said material having a pair of integral ears extending therefrom below and on either side of the hole, said ears being free of attachment to the bag, means forming a flexible partition sealed to an interior surface of the bag to divide the same into a receiving compartment communicating with the opening and a storage compartment, and a passage formed in said partition establishing communication between said receiving and said storage compartments, the portions of said partition adjacent the passage being adapted to be flexed by urine in said storage compartment to close said passage.

4. A urine collector comprising a flat elongated outer bag of flexible waterproof material, an inner bag of flexible waterproof material within the outer bag and secured thereto, said inner bag being smaller than the outer bag and with each of said bags having a coincident opening in an edge thereof with the portions of the bags surrounding the openings being sealed together, a piece of adhesive-bearing material secured to the outer bag in an area surrounding said opening therein and with the material having an opening therein coinciding with the opening in the outer bag, said material being folded back on either side of said edge and having an extent substantially greater than the area of attachment to the outer bag to provide said material with a substantial portion unattached to the outer bag, and a passage formed in the inner bag establishing communication between the inner bag and the outer bag, said passage being provided with means permitting only unidirectional flow of urine from the inner bag to the outer bag.

5. A urine collector comprising a flat elongated outer bag of flexible waterproof material, an inner bag of flexible waterproof material within the outer bag and secured thereto, said inner bag being smaller than the outer bag and with each of said bags having a coincident opening in an edge thereof with the portions of the bags surrounding the openings being sealed together, a piece of adhesive-

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bearing material secured to the outer bag in an area surrounding said opening therein and with the material having an opening therein coinciding with the opening in the outer bag, said material being folded back on either side of said edge and having an extent substantially greater than the area of attachment to the outer bag to provide said material with a substantial portion unattached to the outer bag and including a pair of integral ears extending therefrom below and on either side of the opening therein, said material providing attachment of the collector to the body of an infant with the portion of the adhesive-bearing material between said ears being adhesively secured to the perineum of the infant and with the collector being free to move relative to the material, and unidirectional flow control means providing for flow of urine from the inner bag to the outer bag.

6. A urine collector comprising a flat elongated outer bag of flexible waterproof material, an inner bag of flexible waterproof material within the outer bag and secured thereto, said inner bag being smaller than the outer bag and with each of said bags having a coincident opening in an edge thereof with the portions of the bags surrounding the openings being sealed together, a piece of adhesive-bearing material secured to the outer bag in an area surrounding said opening therein and with the material having an opening therein coinciding with the opening in the outer bag, said material being folded back on either side of said edge and having an extent substantially greater than the area of attachment to the outer bag to provide said material with a substantial portion unattached to the outer bag and including a pair of integral ears extending therefrom below and on either side of the opening therein, said material providing attachment of the collector to the body of an infant with the portion of the adhesive-bearing material between said ears being adhesively secured to the perineum of the infant and with the collector being free to move relative to the material, and a U-shaped slit in the inner bag forming a unidirectional valve permitting flow of urine only from the inner bag to the outer bag.

7. A urine collector comprising a flat first bag of flexible waterproof material having an opening in an edge thereof near but spaced from the top of the bag, a piece of adhesive-bearing material secured to the bag in an area surrounding said opening therein and with the material having an opening therein coinciding with the opening in the bag, said material being folded back on either side of said edge and having an extent substantially greater than the area of attachment to the bag to provide said material with a substantial portion unattached to the bag, a second bag secured to the first bag, and a passage establishing communication between the first bag and the second bag, said passage being provided with means permitting only unidirectional flow of urine from one bag to the other bag.

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