

Aug. 17, 1965

L. K. BREECE, JR

3,200,415

PEDIATRIC URINE COLLECTION MEANS

Filed March 1, 1963

FIG. 1.

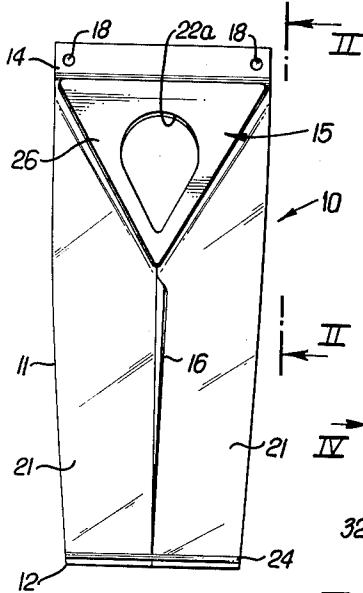


FIG. 2.

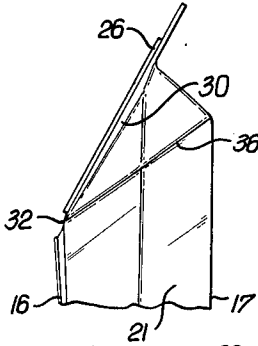


FIG. 3.

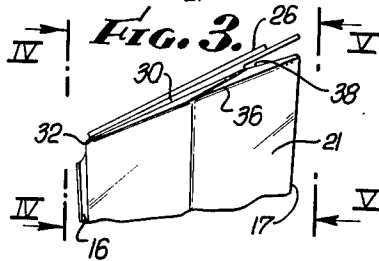


FIG. 6.

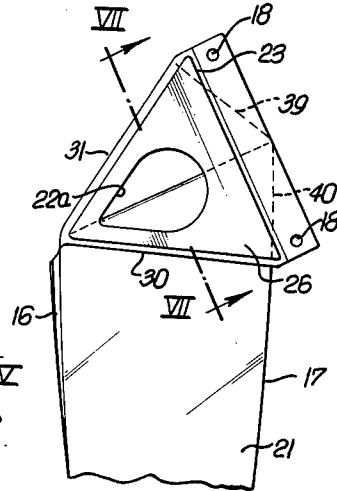


FIG. 8.

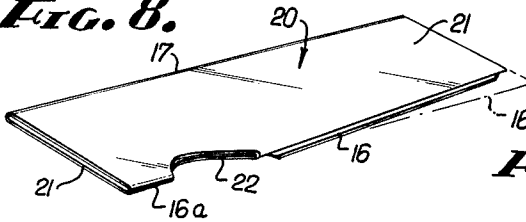


FIG. 4.

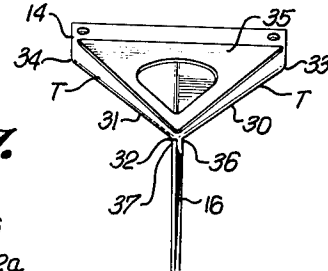


FIG. 9.

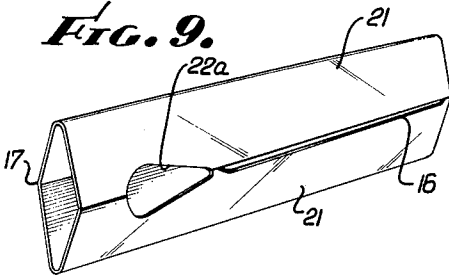


FIG. 7.

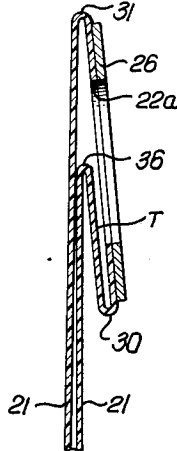


FIG. 5.

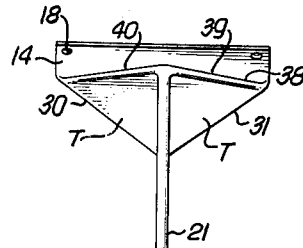
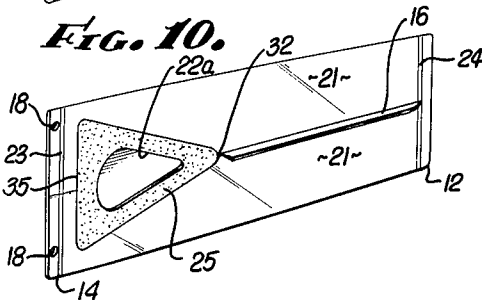


FIG. 10.



INVENTOR.

LEE K. BREECE, JR.

BY

Miketta and Glenney
ATTORNEYS.

1

2

3,200,415

PEDIATRIC URINE COLLECTION MEANS

Lee K. Breece, Jr., San Pedro, Calif., assignor, by mesne assignments, to Resiflex Laboratory, Los Angeles, Calif., a corporation of California

Filed Mar. 1, 1963, Ser. No. 261,984

4 Claims. (Cl. 4—110)

This invention relates to a pediatric urine collector means and more particularly to a pediatric urine collector bag having novel attachment means to facilitate positioning, opening, and affixing of the bag in operative position with respect to uro-genital organs of an infant.

In the treatment of infants and small children it is often necessary to obtain urine samples. Discharge of urine from infants and babies is usually involuntary and various devices have been proposed for collecting such urine. In general such prior proposed devices for collecting urine from infants have included bags or pouches adapted to be adhesively associated with or attached to the infant's body. One of the problems of such prior proposed collector devices includes the secure attachment of the bag to the skin surfaces surrounding the uro-genital organs. Usually this has been accomplished by providing a square or rectangular adhesive covered areas on the bag and pressing the adhesive against the skin surfaces. The bag supported by such adhesive bonding may then lie either within or without a diaper or other cloth retaining means. Because of the various configurations of the skin surfaces surrounding infant uro-genital organs, such prior proposed adhesive areas for attaching the bag in sealed relation to the body have not been entirely satisfactory.

The present invention contemplates a pediatric urine collection device which obviates the disadvantages of prior proposed infant urine collection devices and provides numerous advantages in manufacture of the bag, in positioning and attaching the bag on a body and in the proper functioning of the bag such as unfolding, self-opening, sufficient capacity, and response when being filled with fluid.

Generally speaking, the present invention contemplates an elongated foldable transparent urine collector bag having side wall portions folded to form longitudinal front and back fold lines extending for at least an upper major intermediate portion of the bag. At one end of such bag, ported attachment means includes folded upper side wall portions lying in a planar zone and forming a triangular shaped ported attachment area which extends diagonally between the front and back fold lines. The triangular shaped ported attachment area is movable to a position non-parallel to the plane of the side walls as defined by the front and back fold lines and provides triangular wings or finger pressure areas which together may generally conform to the configuration of the pubic region and which permit the pressure areas to be readily positioned and pressed into adhesive bonding contact with skin surfaces surrounding uro-genital organs of an infant. Attachment of the bag of the present invention is facilitated by the novel disposition of the side wall portions in a generally vertical plane and the virtually automatic self-opening of the bag at the upper end thereof when the attachment means are pressed into bonding engagement with skin surfaces. The present invention contemplates such a collector device wherein the collected fluid produces a load force which is primarily resisted by an enlarged transverse adhesive area of the attachment means, the likelihood of detachment of the collector bag during use being substantially eliminated.

The primary object of the present invention is to provide a pediatric urine collector means having novel ported self-opening attachment means for operably associating the bag with a patient.

Another object of the invention is to provide a self opening fluid collection device wherein ported inlet means at the upper end of a bag are folded and the bag is so shaped that when the bag is extended at least the upper portion of the bag is automatically opened and ready to receive fluid.

An object of the present invention is to provide a pediatric urine collector means having a construction and arrangement which facilitates attachment of the collector means to the body of an infant.

A further object of the invention is to design and provide a pediatric urine collection means having a construction adapted to automatically open the upper portion of the bag as the bag is attached to the body.

A still further object of the invention is to disclose and provide a pediatric urine collection device wherein the collection bag is provided with a triangular shaped ported attachment area adapted to facilitate supporting the bag on both male and female patients and when the bag contains fluid.

Many other advantages of the present invention will be readily apparent from the following description of the drawings in which exemplary embodiments of the invention are shown.

In the drawings:

FIG. 1 is a plan view looking at the back wall of a pediatric urine collector device embodying this invention, the device being in extended position.

FIG. 2 is a side view of an upper portion of FIG. 1, the view being taken from the plane indicated by line II—II of FIG. 1.

FIG. 3 is a fragmentary side view taken from the same plane as FIG. 2 and showing folding of the top portion of the device.

FIG. 4 is a fragmentary view taken from the plane indicated by line IV—IV of FIG. 3.

FIG. 5 is a fragmentary view taken from the plane indicated by line V—V of FIG. 3.

FIG. 6 is a fragmentary side view showing the upper attachment means of the device folded parallel to the remainder of the device.

FIG. 7 is a sectional view taken in the plane indicated by line VII—VII of FIG. 6.

FIG. 8 is a perspective view of tubular stock precut, stamped and partially sealed showing an intermediate step in making of the device.

FIG. 9 is a perspective view of the device shown in FIG. 8 illustrating refolding of the tubular stock.

FIG. 10 is a perspective view of the device shown in FIG. 9 with sealing and the attachment means of the bag completed.

In the drawings a pediatric urine collection device embodying the present invention is indicated at 10. Generally speaking device 10 comprises an elongated bag or pouch 11 having a bottom sealed end 12, a top sealed end 14 and ported attachment means generally indicated at 15 at the upper end of the bag. The width of the upper end of the bag provides sufficient material to cover and surround the uro-genital organs of an infant. The length of the bag is sufficient to provide for the collection of a desired amount of urine for purposes of testing and analysis. A back fold line or seam 16 extends from the attachment means 15 to the sealed bottom end 12 and a front fold line 17 may define with front fold line 16 a plane bisecting the extended bag shown in FIG. 1. The upper sealed end 14 may be provided with spaced ports 18 for cooperation with suitable supporting hooks or rods for suspending the bag for storage during testing.

The device 10 may be readily formed from suitable transparent heat sealable waterproof impervious plastic material such as various copolymers of vinyl resins and other well known plastic materials. Preferably the plas-

tic material should be of a very thin gage or thickness, pliant, foldable, and of inexpensive material since a bag after one use is discarded.

The embodiment of the invention shown in FIG. 1 may be readily produced by obtaining the selected plastic material in tubular stock form. Such tubular stock is available in collapsed form on reels. The tubular stock may be cut to pre-selected length as shown in FIG. 8. The tubular stock 20 includes side wall portions 21, front fold line 17, and back fold line 16a including the portion shown in phantom lines in FIG. 8. The back fold line 16a of the tubular stock is interrupted by a cutout 22 adjacent one end of the pre-cut stock material, cutout 22 providing a port or aperture 22a. In production the step of cutting to length, stamping out cutout 22, stamping out material adjacent phantom line 16a and heat sealing along back fold line or seam 16 extending from cutout 22 to the lower end of the bag may be performed in essentially one operation. The tubular stock 20 may then be opened and refolded so that the front fold line 17 and back fold line or seam 16 are placed adjacent and opposite each other (FIG. 9). The pressed or flattened bag of FIG. 9 may then be heat sealed at 23 at its upper end, and heat sealed at 24 at its lower end. In successive operations the ports 18 may be stamped out of the upper sealed end and a triangularly shaped band or area 25 of adhesive material may be placed upon areas of upper portions of side walls 21 around the edges of cutout 22 or port 22a. A strippable protective triangularly shaped cover 26 (not shown in FIG. 10) is provided for the adhesive area 25. Any suitable type of adhesive or bonding material may be used which is capable of tightly adhering to the material of the bag and to skin surfaces of an infant. Such adhesive material should be non-irritating to the skin of the infant and should cling to the skin with a strength sufficient to retain the bag in proper relationship to uro-genital organs but yet permit removal of the bag and breaking of the adhesive bond without damaging or aggravating the skin surfaces. Such adhesive material is well known.

Attachment means 15 includes the adhesive area 25, the cover 26, and a novel manner of folding the material of the bag at the upper end whereby the bag becomes self opening, provides finger tabs or wings for pressing the bag onto the skin, and provides a novel arrangement for the support of the bag when filled with liquid. The attachment means 15 includes fold lines 30 and 31 extending from the apex 32 of the triangularly shaped area to opposite ends 33 and 34 respectively of the transverse base 35 of the triangular area. Upwardly and forwardly extending fold lines 36 and 37 join the attachment means to the side walls 21 of the main bag portion. A transverse pleat 38 is provided behind the base portion 35 of the triangular area so that when the attachment means 15 is folded the fold lines 31, 37 and fold line 39 define a triangularly shaped area and fold lines 30, 36 and 40 define a like triangularly shaped area. Both of said areas provide a pair of tabs, wings or pressure means which may be readily grasped between the thumbs and forefingers of the attendant's hands so as to readily place the triangularly shaped attachment area over and surrounding the uro-genital organs of the infant. The tabs thus defined above are identified by the letters T as best seen in FIG. 5.

The device 10 is prepared for packaging by turning the triangular attachment area defined as above about the fold lines 36 and 37 so that one of the tabs will lie against a side wall 21 (FIG. 6) and the other tab T will extend from such fold lines in a plane substantially parallel to the plane of the remaining body of the bag. The lower portion of the bag may be folded in any suitable manner so that a small compact flat package is provided. Such a package may then be enclosed in a suitable sterile container not shown.

It will be noted that the provision of the seam 16 from

the apex of the attachment area to the bottom sealed end of the bag provides a bag slightly inwardly tapering toward the bottom end of the bag as seen in FIG. 1. Such taper together with the slightly stiffer characteristics of seam 16 because of the sealed flange formed by heat sealing and the particular folding of the triangular shaped attachment area serves to provide a bag which automatically opens when applied to an infant. This will be apparent from the more detailed description hereafter of application of the bag to an infant.

When device 10 is taken in folded condition from its sterile receptacle, the lower portion of the bag may be unfolded and the upper portion of the bag may be prepared by removing the cover 26 simply by stripping the same from the adhesive material at the triangular area. It is understood, of course, that the adhesive material will remain bonded to the bag material to permit such stripping. With the cover 26 removed the tabs T and the adjacent corners of the top transverse sealed end may be grasped in the thumbs and forefingers of the hands of an attendant and the port 22a oriented with respect to the uro-genital organs of the infant. The adhesive area is placed in contact with skin surfaces surrounding the uro-genital organs with the apex of the triangular area adjacent the perineum of the infant and the transverse base of the triangular area above a portion of the pubic region. The thumbs and fingers may then press the sides of the adhesive area into firm bonding contact with the skin of the infant and pressure may be applied also to the transverse base portion of the adhesive area. While the adhesive areas are being pressed into contact with the skin surfaces the upper portion of the bag has a tendency to expand or open because of the material provided by the top transverse pleat 38. A slight pull on the bottom of the bag will cause the remainder of the bag to open because of the construction of the seam 16. Since the triangular attachment area is normally disposed in a plane which lies at an angle to the long axis of the bag and extends upwardly from the apex of the triangular attachment area, the normal position of the bag will lie generally along and between the legs of the infant. If a diaper or other fabric cover is to be used, then such diaper should be loosely applied to the infant so that transverse folding of the lower or middle portion of the bag will be avoided. In this respect it should be noted that the more stiff characteristics of the seam 16 at this portion of the bag will tend to prevent any sharp folds which might restrict passage of fluid to lower portions of the bag.

Since the bag is self-opening and space is initially provided for reception of fluid at the upper end of the bag, fluid discharged into the bag will readily find its way to the lower sealed end of the bag. It is important to note that the initial weight of such fluid will first cause further unfolding of the pleat 38 and in the event the front wall of the bag should become taut from the weight of the fluid it will be further apparent that maximum adhesive area provided at the transverse base of the triangle is effective to retain the bag in the selected position. Thus the arrangement of a triangular attachment area provides for the effective support of a bag containing fluid while at the same time maintaining sealed relation with the skin surrounding the uro-genital organs of the infant.

It will be understood that the attachment means of the present invention may be employed on other configurations of pediatric urine collector bags. For example, the tapered construction of the bag described above may be omitted and the lower end portion of the bag may have the same width as the upper end portion of the bag. In other words the tubular stock of FIG. 8 may not be tapered by removing a small elongated triangular portion as described above but may simply be either pressed at fold line 16 to provide the slightly stiffer seam extending from the apex to the bottom end of the bag or such stiffer seam may be omitted. While the fold lines 16 and 17 facilitate the automatic opening of the bag, it will be

5

understood that the attachment means may be located entirely on a side wall 21 and the upper portion of the bag folded as described above to provide the triangular attachment area. It will be apparent that such triangular attachment area will be readily defined and folding will be facilitated by the generally triangular cover 26 which will normally be of somewhat stiffer material than the material of the bag.

It will be understood by those skilled in the art that various modifications in the shape of the bag, arrangement of the triangular attachment area, shape and size of the triangular attachment area and the port provided thereat may come within the spirit of this invention and all such changes and modifications coming within the scope of the appended claims are embraced thereby.

I claim:

1. In a pediatric urine collection means, the combination of: an elongated bag having side wall portions folded to form longitudinal front and back fold lines; and ported attachment means at one end of said bag and including folded upper side wall portions lying in a planar zone and forming a triangular shaped attachment area extending diagonally between said front and back fold lines whereby said triangular area is attachable to surfaces surrounding uro-genital organs while said elongated bag lies longitudinally of the body.

2. A means as stated in claim 1 wherein the base of said triangular area is offset from the longitudinal axis

6

of said elongated bag, said upper side wall portions having a transverse pleat of triangular shape extending between said base and the top of said front fold line.

3. A means as stated in claim 1 wherein said folded upper side wall portions provide an attachment pressure area of triangular shape when said attachment means is positioned normal to the plane of said fold lines for pressing said pressure areas against surfaces surrounding uro-genital organs.

4. A pediatric urine collection bag comprising an elongated pouch having at one end a triangular attachment area with an apex of the triangle spaced from the end of the pouch, said attachment area being provided with a port; a back fold line extending from said apex to a sealed bottom end of the pouch; the wall portion of the triangular area between said apex and said port lying at an angle to said back fold line extending from said apex to said bottom end when said pouch is in extended position.

References Cited by the Examiner

UNITED STATES PATENTS

2,737,263	3/56	Anderson	229—53
2,752,002	6/56	Wied	229—53
2,877,769	3/59	Hill	128—295
3,077,883	2/63	Hill	128—295

LEWIS J. LENNY, *Primary Examiner*.

EDWARD V. BENHAM, *Examiner*.