Oct. 2, 1962 K. B. WALKER 3,056,405

INFANTS' WEAR

Filed March 21, 1960

FIG. 1

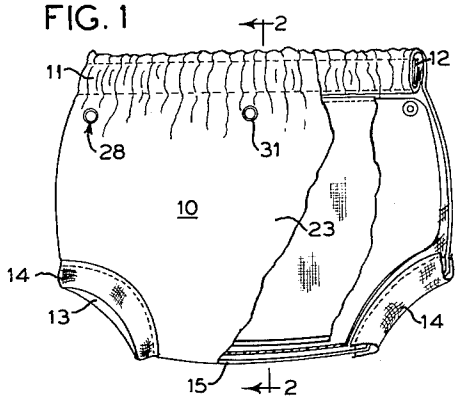


FIG. 2

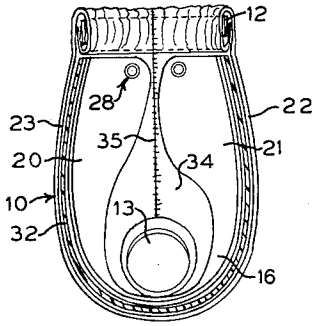


FIG. 3

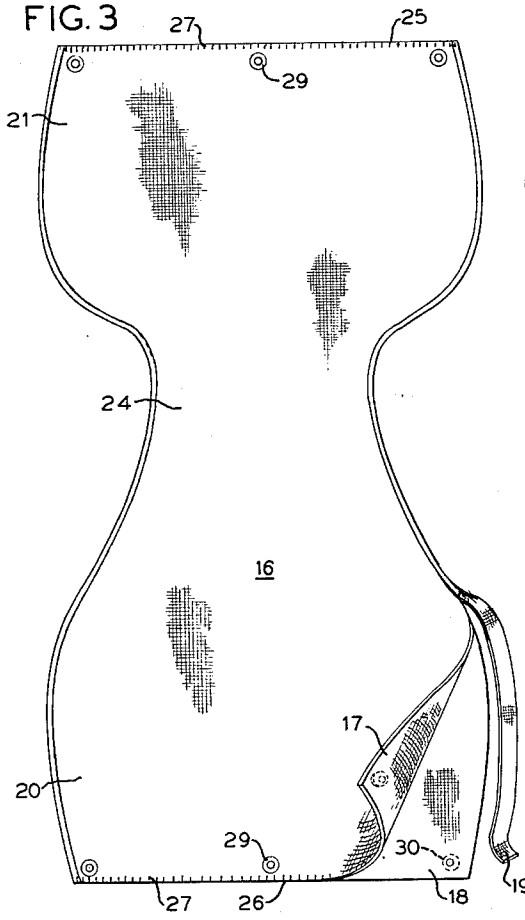


FIG. 4

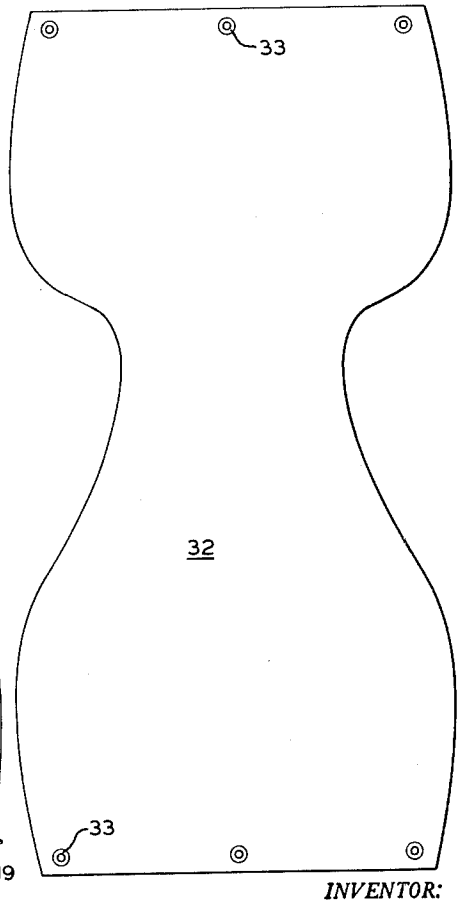
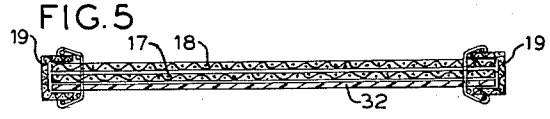


FIG. 5



INVENTOR:
KENNETH B. WALKER

BY

ATTORNEY

United States Patent Office

3,056,405

Patented Oct. 2, 1962

3,056,405

INFANTS' WEAR

Kenneth B. Walker, 529 Bartow St., St. Simons Island, Ga.

Filed Mar. 21, 1960, Ser. No. 16,268

1 Claim. (Cl. 128—287)

This invention relates to infants' wear in the class of diaper-pants and training pants.

An object of the invention is to provide pants of this class which may be worn by an infant of almost any age, and particularly including the training period, affording comfort to the infant and freedom from anxiety on the part of parents or attendants before the infant has been trained.

Another object is to provide such pants which may be worn by the infant until they become outgrown and yet may be more easily washed after the training period has passed.

Still another object is to provide such pants which may be washed with a minimum of difficulty before and during the training period.

The objects mentioned are realized in training pants according to the invention which, briefly stated, include conventionally knitted pants generally conforming to the contours of the infant and having a belt portion, an absorbent lining insert within the pants having front, rear and crotch portions and detachably fastened to the belt portion at the front and rear of the pants, and a discrete layer of substantially impervious flexible material between the pants and the insert.

In the accompanying drawing showing, by way of example, two of many possible embodiments of the invention:

FIG. 1 is a front view of the invention, partly broken away.

FIG. 2 is a vertical cross section taken along line 2—2 in FIG. 1.

FIG. 3 is a plan view of the insert showing constructional details thereof.

FIG. 4 is a plan view of the impervious material.

FIG. 5 is a cross sectional view of one modification of the present invention.

The invention comprises a substantially conventional knitted infant pants as a body **10** having a gathered belt portion **11** fitted with an interior elastic band **12**. The body has also normal leg holes **13**, preferably provided with stretchable knitted binding, as at **14**, at each side of the crotch **15**.

Within the body **10** there is disposed, as somewhat of a partial lining, an insert, generally designated **16** of absorbent, stretchable, cotton, textile material. The insert or liner **16** is preferably made up of two thicknesses of more or less flat layers or plies **17** and **18** of knitted goods bound at their lateral edges with a binding strip **19**. In order to conform generally to the appropriate portions of the interior of the pants and yet provide ventilation at the sides, the insert is shaped with wide end portions **20** and **21**, for disposition against the rear and frontal portions **22** and **23**, respectively, of the body **10**, and an isthmian portion **24** to extend substantially across the crotch **15** from one leg hole to the other. One end portion **20** is longer than the other since the buttock area is greater than that of the abdomen. The end portions are squared off, as at **25** and **26**, for their edges normally to terminate just below the body belt portion **11** and are provided with binding stitching **27**.

The liner insert is detachably fastened to the inside of body **10** by means of suitable snap fasteners generally designated as numeral **28** which comprise a male member **29** mounted to the insert by mounting washer **30**. Mounted on the body **10** is a mating female member **31** which allows the insert to be removably attached to the body **10**.

A barrier in the form of impervious sheet or layer **32** of yieldable material such as a vinyl or polyethylene plastic, rubber, "Pliofilm," and the like is usually employed in combination with the insert, having generally the same shape thereof but slightly longer, disposed between the insert and the body **10**. The barrier or layer **32** may be permanently attached to the insert **16** (FIG. 5) by means of the edge binding **19**, and the stitching **27** so as to leave the intramarginal portions of insert liner and barrier free for appreciable movement relative to each other.

In such a case, the mounting stud member **29** passes through the barrier **32** at the holes in grommets **33**, being disposed on the barrier layer as in FIG. 4, and thence through the two thicknesses **17** and **18** of the absorbent material. This construction is often preferable during late phases of, or after, the training period when the pants are to be used largely as a safeguard, and convenience of use rather than ease of washing is desirable.

While washing of the above form of the invention is not excessively difficult, there are some disadvantages. Washing liquid reaches between the barrier only through the insert thicknesses **17** and **18**, at the crotch or isthmian zone **24**, which especially requires attention even into the longer end portion **20**, is more difficult to clean.

During the early phases of the infant's use of pants, ease of washing pants is often more important than ease of dressing him. In such cases it is desirable that the barrier and insert be readily separable. It has been found that generally satisfactory results can be obtained by omitting the barrier from the permanent construction of the insert liner, or in other words, mounting the fastener to secure only the two thicknesses **17** and **18** of the liner together, and the barrier can be hold in place between the liner and body **10** by fasteners **29**.

The absence of the barrier from the integral construction of the insert permits more rapid drying after washing; moreover, after the training period is nearly over, the barrier may be omitted in order to permit better ventilation to prevent rash and other skin troubles. Finally, use of the insert and barrier both may be dispensed with and the body **10** used as conventional pants.

It is contemplated that in the earlier stages of training the integral form of the invention, wherein the insert and barrier are permanently connected, will be used. The infant or child then begins to learn that the pants can be pulled down due to the yieldability of the elastic band **12** in the gathered portion. During this period of training the soiling of the insert will of course be greater than that of the body **10**, so that the insert becomes the worse worn from cleaning. As the training progresses, the child may then use the separate liner and barrier.

In any event it is preferable that the barrier be transparent in either form of the invention, so as to determine the extent of soiling of either the pants body **10** or the absorbent insert without removal of the barrier. Transparent vinyl plastics are suitable material for this purpose.

Normally a child who has so progressed is more active and tends to perspire more freely. If the barrier **32** be of normally comfortable loose fit and plastic film such as of the vinyl types that do not cling excessively, there will be during the child's activity a certain amount of bellows-like action tending to effect a movement of air between the insert and barrier. While this movement is not biased to any given direction, nevertheless there is a tendency for air to enter in and be expelled from between the liner and barrier at the marginal portions thereof in the more or less open zone **34** above the leg where the end portions **21** and **22** do not meet in the zone of the body side seams **35**. Similar movement may take place at the edge portions **25** and **26** between the fasteners. With a continued all-over movement of air, perspira-

tion vapor will tend to diffuse to regions of lower concentration and out past from between the liner and barrier. Vapors, as opposed to liquids, are of comparatively no great concern and in fact their emission is often desirable as an indication that the pants have been soiled.

The present constructions do not impose any extra demands over the prior art in general on the part of the child. He is not generally concerned with the readying of the pants for wear but the mere learning to draw them down at the appropriate occasions. His attendant will have a minimum of inconvenience in readying the pants, and it is contemplated that spare liners with or without barriers will be at hand so that a great versatility of use will be possible according to the demands of widely varying occasions.

The invention claimed is:

Training pants comprising an outer knitted pants body having a gathered belt portion around the upper end of said body and a belt member therefor, the body being shaped to conform generally to and extend continuously around and substantially cover a child from the waistline as far as the crotch and having leg holes defined by continuous portions of said body, an absorbent knitted insert liner within the body and conforming to the general shape of the pants, said insert liner having wide end portions disposed adjacent the rear and frontal portions of said body and an isthmian portion extending across the crotch portion of said body from one leg hole to the other, the edges of said liner terminating near the belt portion of said body, snap fastening members having cooperating male and female elements connected to the corner portions of said liner and on said body near the belt portion thereof, and a sheet of liquid-impervious yieldable material between the liner and body secured therebetween, said sheet being at least as large in area as and having substantially the same shape as the liner, said sheet being provided with holes adjacent its corner portions for the male elements to pass through, the male elements including mounting washers thereon in contact with the liner for contacting said sheet, said sheet and said liner defining with respect to said body upwardly and laterally open continuous spaces from the belt portion to the leg holes of said body, said snap fastening means providing the sole connection of said liner and said sheet to said pants body.

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