April 7, 1959 C. E. WHALEN 2,880,727

WEARING APPAREL FOR BABIES

Filed July 25, 1956

Fig. 1

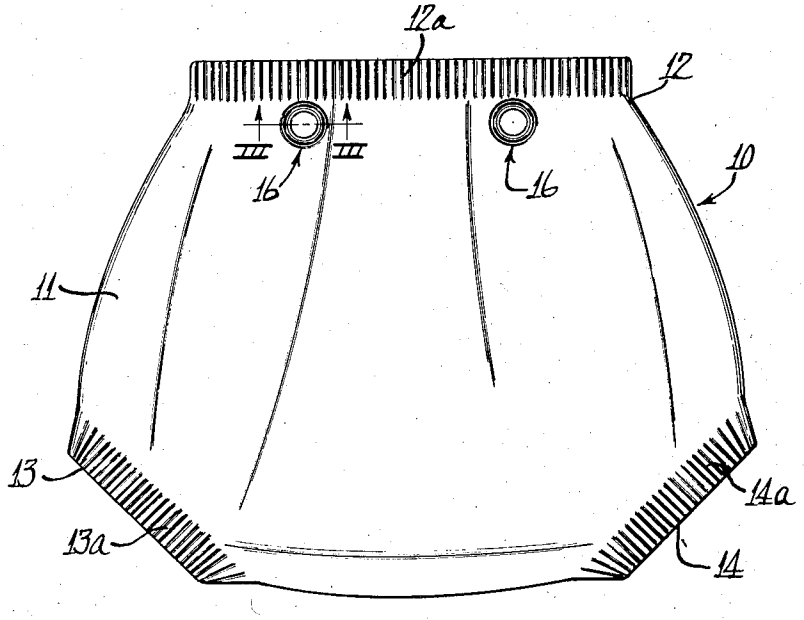


Fig. 2

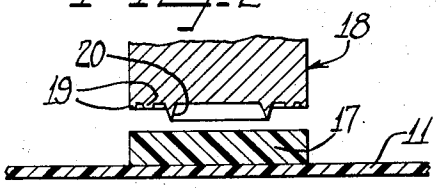


Fig. 3



Fig. 4

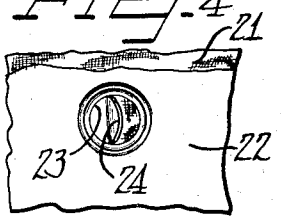
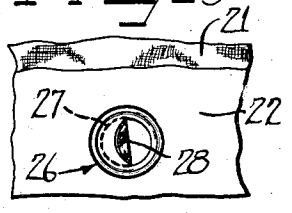


Fig. 5



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WEARING APPAREL FOR BABIES

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2 Claims. (Cl. 128—288)

The present invention is directed to improved articles of wearing apparel, and particularly to baby pants.

One of the most popular types of baby pants presently being sold commercially consists of a sheet of thermoplastic film material such as a polyvinyl resin or the like formed into a waist portion and leg portions. Suitable elastic members are secured to both the waist portion and leg portions to provide a conformable and snug fit for the article. Thermoplastic films employed for this purpose are substantially waterproof and substantially moisture proof. While this type of baby pants represents a distinct improvement over the old fashioned type of pants, prolonged wearing of the baby pants may develop a source of irritation for the child. Since the materials are almost completely resistant to the passage of vapor, there is no air circulation provided except that small amount which may occur at the waist or leg portions between the elastic and the skin. After prolonged wearing, the cessation of normal evaporation from the skin of the child may cause an overheated condition to occur which leads in many cases to the development of an irritating rash on the skin.

Another type of baby pants employs a fabric backing, such as a porous silk, coated with a waterproofing coating. Since the coating is necessarily resistant to the passage of air, the same problem may arise in connection with the use of this type of diaper.

An object of the present invention is to provide an improved baby pants construction with means for selectively increasing the amount of ventilation through the same.

Another object of the invention is to provide wearing apparel of the baby pants type composed of a thermoplastic sheet material and being provided with one or more areas of weakness in the sheet which can be torn off at will to secure adequate ventilation.

Still another object of the invention is to provide an article of wearing apparel of the baby pants type which is relatively simple and economical to manufacture.

A further description of the present invention will be made in connection with the attached sheet of drawings in which:

Figure 1 is a plan view of a pair of baby pants according to the present invention;

Figure 2 is a greatly enlarged cross-sectional view illustrating the method involved in producing the venting means;

Figure 3 is a cross-sectional view taken along the line III—III of Figure 1;

Figure 4 is a partly broken away fragmentary view of a modified form of the invention; and

Figure 5 is a partly broken away fragmentary view of a still further modified form of the invention.

As shown in the drawings:

In Figure 1 reference numeral **10** indicates generally a pair of baby pants including a body portion **11** composed of a thermoplastic sheet material such as a polyvinyl chloride-polyvinyl acetate copolymer or similar thermoplastic sheet materials which are naturally waterproof or can be rendered waterproof by suitable processing. The baby pants **10** include a waist portion **12** and leg portions **13** and **14**. Elastic means are provided at both the waist portion **12** and the leg portions **13** and **14** so that the garment is snugly received against the skin of child. Preferably, these elastic means include an elastomeric strip at each of these portions, the strips being identified at **12***a*, **13***a* and **14***a*. The strips are preferably composed of an elastomeric material which has been modified to make it compatible with the thermoplastic sheet material without destroying its normal elasticity. The material is elastic in the sense that it is capable of being elongated to two times or more its original length without rupture and is capable of returning to its original dimensions without taking a permanent set.

Alternatively, the elastic means may be the ordinary elastic strips which are stitched to the body of the article at the waist portion and at the leg portions.

The baby pants as illustrated in Figure 1 also include a plurality of severable venting means **16** adjacent the waist portion **12** of the garment. These venting means **16** are formed by providing a continuous line of weakness which defines an area in the sheet which is only lightly secured to the remainder of the sheet, and which can be severed therefrom simply by applying a small amount of pressure at the weakened area.

In the manufacture of the article, the sheet **11**, is provided with a reinforcing patch **17** of the same material as the sheet **11**, or composed of a material which is readily heat sealable to the strip **11**. The patch **17** is placed over the strip **11**, as illustrated in Figure 2, and the two thermoplastic materials are heat sealed together by means of a heated sealing die **18**. Formed on the face of the die **18** are a pair of heat sealing annular ribs **19** and a knife edge **20**. The latter has a depth substantially greater than the depth of the ribs **19**, so that the knife edge **20** presses into the base strip **11** to a substantially greater depth than the ribs **11**. In this heat sealing operation, the overall thickness of the strip **11** and the patch **17** is reduced by a factor of about one-half, and the knife edge **20** penetrates into the strip **11** to an extent sufficient to leave a line of weakness **20***a* having a thickness about one-half of the original thickness of the strip **11**.

To sever the resulting areas of weakness from the remainder of the article, it is merely necessary to apply a slight amount of pressure along the area of weakness **20***a* to sever the material enclosed by said line **20***a*. A clean separation is thereby produced without ragged edges resulting.

The improvements of the present invention are applicable to materials other than single layer thermoplastic films. As indicated in Figure 4, the body of the article may consist of a backing **21** of a porous woven fabric such as silk, nylon, etc., the backing **21** being waterproofed by a continuous layer **22** of a waterproofing coating of a synthetic resin or a rubber-like coating bonded to the fabric. In the form of the invention shown, a continuous line of weakness **23** makes it possible to remove a circular patch **24** of the coating only, leaving the normally porous backing **21** remaining for ventilation.

The composition shown in Figure 5 is basically the same as that illustrated in Figure 4, except that the line of weakness **26** is formed by perforations **27** extending through both the coating **22** and the backing **21**, so that as the patch **28** is removed, there will be a void produced through the entire area.

Thus with the articles of present invention, the waterproof and vaporproof intregrity of the sheet is maintained but adequate means are provided for ventilating the in-

terior of the baby pants to prevent an excessive buildup of temperature.

It will also be evident that various modifications can be made to the described embodiments without departing from the scope of the present invention.

I claim as my invention:

1. Baby pants comprising a backing of a relatively porous fabric, a waterproof coating bonded to said fabric, and means defining areas of weakness in said coating, making said areas readily severable from the remainder of said coating while leaving said fabric intact.

2. Baby pants comprising a fabric backing, a waterproof coating bonded to said backing, said fabric having a continuous line of perforations extending therethrough and through said coating to provide an area of weakness therein.

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