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BIB

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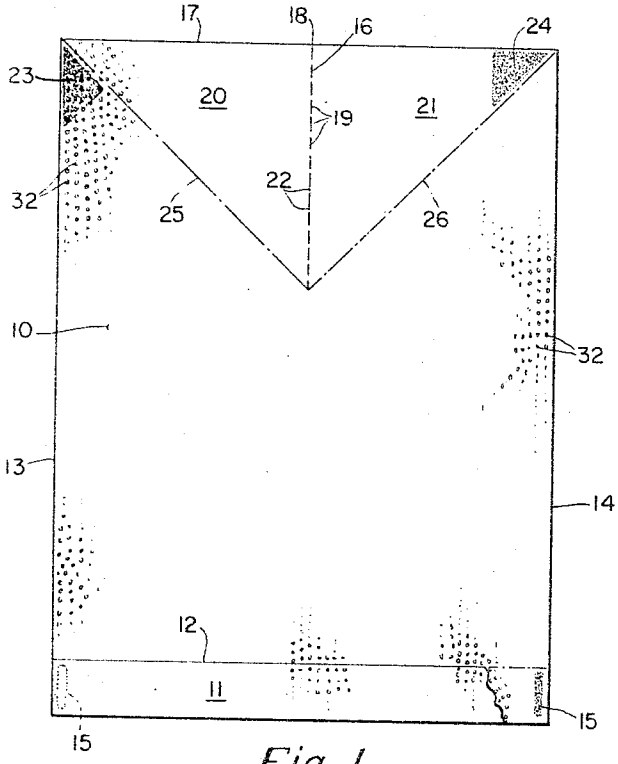


Fig. 1

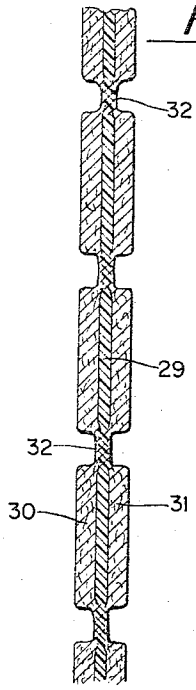


Fig. 4

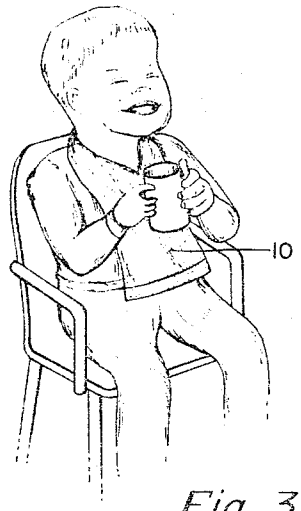


Fig. 3

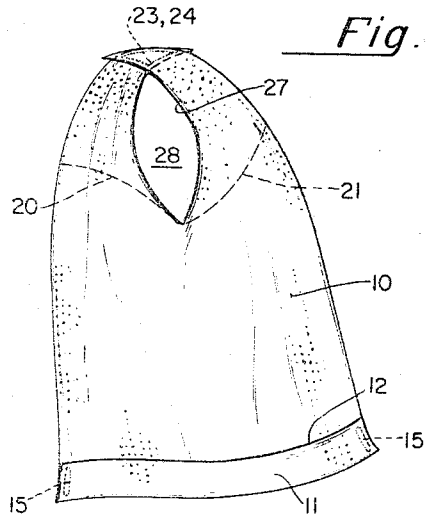


Fig. 2

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9 Claims. (Cl. 2—49)

This invention relates to a bib and, more particularly, to a new and improved type of disposable bib made chiefly of soft, flexible, absorbent material.

The bib of the present invention serves not only to perform the function of a protective covering for the chest portion of an infant during eating, but also as an article for wiping the baby's face after eating. It is constructed of an inexpensive, soft, flexible, absorbent sheet material which is waterproof and strong, yet pleasantly soft and non-irritating to the touch. The increased absorbency of the material used in the bib of the present invention allows a greater amount of spillage to be picked up and retained on the bib. Furthermore, the bib of the present invention can be used as a wiping article or towel to wipe up, absorb and removably retain the excess food from the child's face, chair and general eating area upon completing a meal.

The present invention is related to and constitutes a bib which is formed from a sheet of soft, flexible, absorbent material substantially without any waste material being created. The bib of the invention may be stored flat and quickly folded into position for use. A principal feature of this invention is that the design facilitates the application and use of coacting adhesive as a fastening means and makes it possible to apply the adhesive required by one operation and on one surface or side of the bib. When it is then folded into position for use, the portions of the bib having adhesive thereon will cooperatively match together and adhere the rolled collar ends or neck tab portions to each other in the desired manner. This type of construction reduces the cost of manufacture and results in a useful bib which is simpler, more comfortable and more efficient than previous bibs.

It is an object of the present invention to provide a new and improved type of bib construction.

It is a further object of the invention to provide a bib formed from a single sheet and incorporating a new fastening technique which facilitates application of the bib to a child.

It is a further object of the present invention to provide a bib formed from a single sheet of laminated material and incorporating a new fastening technique and construction which facilitates manufacture, storage, and use of the bib.

Additional objects and advantages of the present invention will be apparent from the following detailed description thereof, taken with reference to the following drawings, in which:

FIGURE 1 is a plan view of a bib embodying the invention,

FIGURE 2 is a perspective view of the bib showing the manner in which fastening is accomplished,

FIGURE 3 is a perspective view of a bib in position upon a wearer, and

FIGURE 4 is a schematic cross-sectional view of one type of sheet material forming the bib in FIGURE 1, illustrating in exaggerated scale the construction of the material.

Referring now to the drawings, FIGURE 1 shows a sheet **10** of surface absorbent material having a rectangular shape, the lower end or margin **11** of which is folded over onto the front side to form a pocket designated as

12. This pocket serves to catch particles of food which are not caught or adhered to the portion of the bib's surface above the pocket. It should be understood that a rectangular or square shape is preferred as this eliminates waste during cutting and is easier to manufacture. However, other shapes might be successfully employed, such as a longitudinally tapered trapezoid. The folded over portion **11** is adhered to side margins **13** and **14** of sheet **10** by adhesive **15**.

The bib construction of the invention provides for alteration of sheet **10** so as to form substantially the complete bib, as by provision for a neck opening and collar portions or flaps to encircle the neck of a wearer. Thus, at the opposite end of sheet **10**, a plurality of aligned perforations extend in a line **16** passing through side margin **17** at a point **18** equidistant between the adjacent side edges **13** and **14** through the centroid of the sheet **10**. The length of line **16** is less than one half of the greatest dimension of sheet **10**. Such perforations are preferably in the form of short slits **19** aligned longitudinally so as to leave adjacent portions **20** and **21** of the sheet **10** attached by narrow expanses **22** of material. The length of individual slits **19** may preferably be from ⅛" to ½", although, of course, a variety of other patterns of perforations may also be employed with success. For example, the line of perforations may be replaced by other forms of severance such as continuous slit without any interconnecting portions **22** remaining along its length. The perforations are preferred since the residual attachment of portions **20** and **21** by narrow expanses **22** of material forming sheet **10** provides support to the bib during subsequent steps of manufacture as well as during storage until use. Such support and stability of the sheet is especially desirable during application of the adhesive fastening means.

Line of perforations **16** serves to provide a neck opening and to form collar portions or flaps for encircling the neck of a wearer in use. Yet for storage and manufacturing purposes, the bib of the invention can be kept flat or in planar form which is one of the objects of the invention.

In accordance with another object of this invention, adhesive is applied at portions **23** and **24**, these portions being substantially within the area of the corners of sheet **10** at the end of sheet **10** having line **16** of perforations.

This construction and the application of adhesive to portions **23** and **24** makes possible a simple manufacturing scheme since the patches or areas of adhesive are created by a single operation and on one side or surface of the sheet **10**. Yet, when the bib is subsequently folded by a simple operation into the form adapted for use by a wearer, the portions **23** and **24** will be in cooperating position.

In the embodiment shown in FIGURE 1, one adhesive area **23** is located within the section of a first circle having its center located at a corner of sheet **10** at the end of sheet **10** having line **16** of perforations and between radii of the circle, one radius being parallel to line **16** and coinciding with side margin **13** and the other radius aligned with a line **25** between the corner comprising the center of the first circle and the innermost extending perforation of line **16**. The other adhesive area **24** is located within the sector of a second circle having its center located at a corner at the end of sheet **10** having line **16** of perforations and between radii of the circle, one radius being perpendicular to line **16** and coinciding with margin **17**, and the other radius aligned with a line **26** between the corner comprising the center of the second circle and the innermost extending perforations of line **16**.

The portions **20** and **21** adjacent line **16** are arranged to be folded back along diagonal lines **25** and **26**, extend-

ing from the innermost perforation of line **16** to the corners at the end of sheet **10** having line **16** of perforations and spaced from line **16** and into contact with the back side of sheet **10**. This forms a smooth folded inner edge **27**, shown in FIGURE 2, which, in position, will contact the wearer's neck. The use of a double thickness of material in the critical strength area of the ties or apron portions **20** and **21** provides a rolled collar **27** giving added strength and comforting support which is very important in a disposable item of this nature, especially when used by active yet tender children. It can be seen that, as shown in detail in FIGURE 2, when the bib is folded in this manner, the two adhesive areas **23** and **24** may be joined with one another leaving a cavity **28** between the elongated apron portions **20** and **21**. The manner in which the bib of the present invention is worn is illustrated in FIGURE 3.

As pointed out previously, a significant feature of this invention is the manner in which the adhesive areas **23** and **24** are positioned upon the sheet **10**. The relative positions of areas **23** and **24** are, in accordance with the invention, determined primarily with respect to the fold lines **25** and **26**. Thus, in addition to being located within the corners of sheet **10** at the end having line **16** of perforations, the areas **23** and **24** are located on respectively opposite sides of each respective diagonal fold line **25** and **26** so that at least one area **23** or **24** will be located on one of the portions of apron portions **20** or **21** which is folded back into contact with the back side of sheet **10**. As shown in FIGURE 1, area **24** is positioned on the portion folded back.

This results in adhesive coated areas **23** and **24** which are adjacent and face each other when the tabs or neck flaps are folded around a wearer's neck. The areas **23** and **24** can then be pressed together into adhesive contact as shown in FIGURE 2.

One adhesive successfully employed in areas **23** and **24** is a self-sealing or cohesive type of adhesive such as Paranol F 6399 manufactured by Para-Chem, Inc. of Philadelphia, Pa. It is basically a natural rubber latex self-sealing adhesive. There are many other types of coacting and other adhesive products which may be employed with equal success, however, and some types of adhesives could be applied to only one tab or area **24** if they were of the type which would stick to the outer layer of cellulosic tissue material forming sheet **10**.

FIGURE 4 illustrates in detail the nature of construction of one type of sheet material **10** which is used to form a bib of the invention. There is shown a layer **29** of the thermoplastic material, such as polyethylene, between two adjacent layers **30** and **31** of paper, which is preferably creped cellulosic tissue.

The cellulosic layers **30** and **31** provide a large amount of surface absorbency while the thermoplastic material supplies the necessary moistureproof characteristics for the sheet. Thus, the resulting sheet **10** has absorbent surfaces which serve to catch spilled food and liquid and retain it, yet is waterproof in its interior to prevent such spillage from penetrating sheet **10** and soiling the child or his garments. These materials are bonded together at a plurality of discreet impressed bonding areas **32** which are formed into the layers by a combination of heat and pressure. The thermoplastic material in these discreet areas **32** is slightly melted and pressed into the cellulosic material, forming a solid bond upon cooling. The thermoplastic sheet will locally flow into more than one layer of tissue depending on the thickness of the sheet **10** and the number of layers of tissue **30** or **31** employed. The process is, therefore, capable of being employed to form sheets of material having a plurality of layers of creped tissue on either one or both sides of a sheet of thermoplastic material. Indeed, it has been found that a very good bond is obtained between a plurality of layers of cellulosic tissue without employing any layer of thermoplastic material, when heat and pressure are applied in the manner described below. Furthermore, if two or more layers or thermoplastic material are employed either adjacent each other or distributed throughout the plurality of cellulosic tissue layers, excellent results are obtained and a material having greater bulk, high absorbency, and softness results.

The manner in which bonding occurs between adjacent cellulose layers without any layer of thermoplastic material may be due in part to hydrogen bonding between the fibers of the cellulosic tissue. High flexibility results from bonding such sheets together in patterns of spaced bonded areas. The resulting inexpensive material assumes a cloth-like character and possesses great strength as well as good softness and absorbency.

This material may be formed by running the above superimposed layers of materials between two matching patterned rolls, which are preferably of hardened steel to resist wear and having a plurality of discrete projections from their surface at least one of the rolls being heated to a temperature sufficient to melt the thermoplastic material without creating sufficient flow to form holes or breaks therein. To form the material shown in FIGURE 4, the rolls are arranged so that projections from the surface of one roll are aligned to coincide with and pass adjacent to the respective projections of the other roll, when the rolls are revolved at the same speed and in the same direction. It will be apparent that other materials could be used for sheet **10**. Also, sheet **10** could be constructed differently without losing all of the benefits and advantages of the invention.

Materials other than polyethylene could be employed for the thermoplastic material layer, such as heat sealable vinyl resin film. Also, additional types of fibrous webs could be employed other than the creped cellulosic tissue layers. Furthermore, bonding could be achieved in a different manner between the adjacent sheets themselves or with an interpositioned layer of thermoplastic material, such as by adhesive, either entirely over the surface or in a pattern.

It should also be clearly understood that various patterns might be employed for the layout of the discrete impressed areas of heat sealing upon the sheet. However, it has been found that a material constructed as shown in the drawings and having a pattern similar to that shown in FIGURE 1, that is, of small randomly positioned discreet dots, has increased flexibly and retains its softness and absorbency while providing a relatively large amount of strength. It has been found that impressed areas **32**, as shown in FIGURE 1, comprising not more than about 25% of the area of the sheet **10** provide excellent absorbency and flexibility while retaining the required strength.

From the above description, it will be apparent that numerous modifications can be made in the preferred embodiment by one skilled without departing from the spirit of the invention.

What is claimed is:

1. A disposable bib comprising a substantially rectangular sheet of soft, flexible, absorbent material having a front side and a back side, said sheet having a line of severance along a line passing through one short side margin thereof at a point substantially equidistant from adjacent side margins and passing substantially through the centroid of said sheet, said line of severance extending inwardly from said one side margin and having a length equal to less than one half of the long side dimension of said sheet, portions of said sheet adjacent said line of severance being arranged to be folded into contact with the back of said sheet along fold lines diverging outwardly from the innermost extension of said line of severance to each respective corner at the end of said sheet containing said line of severance so as to form substantially triangular portions having a double thickness of sheet material, cooperative fastening means disposed

adjacent the end of said sheet containing said line of severance and located on respectively opposite sides of each respective fold line so that after folding one fastening means will be located on said front side and the other fastening means will be located on said back side, whereby said bib may be retained about the neck of a wearer by attachment of said triangular portions adjacent their ends.

2. A disposable bib according to claim 1, in which said sheet is impermeable.

3. A disposable bib according to claim 1, in which said sheet comprises two layers of creped cellulosic tissue, one layer being separated from the other layer by a single layer of polyethylene.

4. A disposable bib according to claim 1, in which said line of severance comprises a plurality of aligned perforations.

5. A disposable bib according to claim 4, in which said aligned perforations comprise short slits from about 1/16" to 1/2", in length.

6. A disposable bib according to claim 1, in which said cooperating fastening means comprise an adhesive.

7. A disposable bib according to claim 1, in which the end of said sheet opposite said slit has the margin upturned and folded back on the front side, said margin being adhered to the side margins of said sheet so as to form a narrow pocket having a broad upwardly directed opening.

8. A disposable bib according to claim 7, in which said cooperating fastening means comprise areas of said sectors treated with a self-sealing adhesive.

9. A disposable bib comprising an impermeable rectangular sheet of soft, flexible, absorbent material having a front side and a back side, said sheet having a plurality of spaced perforations cut through said sheet and arranged

in a line passing through one short side margin of said sheet at a point substantially equidistant from adjacent side margins and passing substantially through the centroid of said sheet, said line of perforations extending inwardly from said one side margin and having a length equal to less than one half of the long side dimension of said sheet and a pair of cooperating fastening means, said fastening means being located substantially within a respective sector in each one of first and second circles having their centers located at opposite corners of said sheet side margins which said line of perforations intersects and a radius of less than the distance between each of said corners and said line of perforations, one of said sectors comprising the area bounded by two radii of said first circle, one radius parallel to said line of perforations and the other radius aligned with a line between the corner comprising the center of said first circle and the innermost extending of said perforations, the other sector comprising the area bounded by two radii of said second circuit, one radius perpendicular to said line of perforations and the other radius aligned with a line between said corner and the innermost extending of said perforations.

References Cited

UNITED STATES PATENTS

1,201,701	10/1916	Crane	2—49 X
1,991,025	2/1935	Medalis	2—48 X
2,016,079	10/1935	Dauel et al.	2—50
2,029,417	2/1936	Forster	2—50
2,425,961	8/1947	Shattuck	2—49
2,900,640	8/1959	Haydu	2—49

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