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(54) **METHOD FOR MAKING UNDERPANTS, PANTIES AND THE LIKE**

VERFAHREN ZUR HERSTELLUNG VON UNTERHOSEN, HÖSCHEN UND DERGLEICHEN

PROCEDE DE PRODUCTION DE CULOTTES ET D'ARTICLES SIMILAIRES

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a method for making underpants, panties and the like, as well as the underpants, panties or briefs and the like obtained thereby.

[0002] As is known, for making underpants, panties, briefs and the like, in particular for a woman use, the fabric portions provided for forming said articles of manufacture are conventionally assembled, said fabric portions comprising fabric elements of different types, such as laces, resilient fabrics, strips and the like, which are joined by seaming operations, thereby providing underpants having a desired configuration.

[0003] As it should be apparent, such a method is affected by several problems, the main of which is its high operating cost, since the seaming operations are mainly manually carried out.

[0004] Another problem is that the seams would inevitably provide a projecting region, which can irritate the user skin, mainly at the top portion of the leg and at the thigh inner region.

[0005] A further problem affecting the prior art solutions is that possible reinforcement or stiffening elements, which are typically arranged at the inguinal regions, require a further processing step which negatively affects the end cost of the article of manufacture.

[0006] The document EP 1 033 084 discloses an article of manufacture and a method for making it according to the preambles of claims 15 and 1 respectively.

SUMMARY OF THE INVENTION

[0007] Accordingly, the aim of the present invention is to overcome the above mentioned drawbacks, by providing a method for making underpants, panties, briefs and the like which allows to fully eliminate the seaming operations or steps, while providing an article of manufacture perfectly fitting the user body.

[0008] Within the scope of the above mentioned aim, a main object of the present invention is to provide such underpants, or briefs, allowing to form reinforcement or stiffening regions, thereby meeting the requirements of the user.

[0009] The above mentioned results are achieved by performing high frequency seaming operations or thermosealing operation, to connect to one another synthetic material fabric portions, or portions of fabrics preliminarily coated or spread upon to which a thermofusible material is applied.

[0010] Alternatively, between the fabric portions or flaps, are arranged thermofusible material flaps or strips, allowing, by a thermosealing or high frequency sealing operation, to stabilize the fabric peripheral portions or flaps, and/or connect them without the need of performing seaming operations.

[0011] Yet another object of the present invention is to provide such an underpants, panty or brief article which, owing to its specifically designed constructional features, provides a very high reliability and safety in operation.

[0012] Yet another object of the present invention is to provide such a method allowing to make underpants, briefs, panties and the like, by using easily available elements and materials, and at a very reduced cost.

[0013] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a method for making underpants, panties, briefs and the like, according to claim 1.

[0014] The edging of the peripheral portions of the subject article of manufacture, and the connection of the edges to be connected are performed by a high frequency thermosealing method.

[0015] The above mentioned high frequency thermosealing method causes a thermomelting of the fabric fibers in synthetic and/or resin coated fibers, which must be stabilized at their peripheral edges or which must be mutually connected.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of a method for making underpants, panties and the like, which is illustrated, by way of an indicative but not limitative example, in the accompanying drawings, where:

Figure 1 schematically illustrates the subject semi-finished article of manufacture, and further represents, in an exploded form, a reinforcement element therefor;

Figure 2 is a further schematic view illustrating a made underpants article of manufacture;

Figure 3 illustrates, on an enlarged scale, the connection of the cross portions of the opposite base edges which are arranged at a side region.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0017] With reference to the number references of the above mentioned figures, the method for making underpants, panties, briefs and the like, according to the present invention, comprises a step of providing a semi-finished article of manufacture 1, which is made of an elasticized fabric, and which has preferably a substantially hourglass configuration.

[0018] The layer 1 is advantageously made by die-cutting a fabric piece or by manually or mechanically cutting through said fabric piece.

[0019] The layer 1, which has substantially a hourglass configuration, comprises a front portion 2 tapering toward a central region 3, and then widening again toward a rear

region.

[0020] The front region 2 and rear region 4 end with base edges 5 and 6 which, at their ends, are coupled to respective cross portions 7 and 8 practically delimiting the saddle region formed at the central portion of the layer 1.

[0021] On the semi-finished article of manufacture comprising the layer 1, at the edge thereof, is overlapped a plastics material finishing strip 10, which can be made of polyurethane or other synthetic materials, and is provided to be intimely coupled to the half finished article of manufacture.

[0022] In this connection it should be pointed out that it would be also possible to cut the layer 1 after having applied the finishing layer comprising said strip 10.

[0023] Moreover, the finishing strip 10 can be made by spreading a hot-melt adhesive materials, or by other analogous methods suitable to cause the plastic material layer to adhere to the fabric material.

[0024] The plastic material to be specifically used, and its specific characteristics, will depend on the need of providing stable edges, which, however, would be provided with a desired softness property.

[0025] In order to finish the underpants article, it is necessary to connect to one another the cross portions 7 and 8 which are practically sealed to one another by directly using the finishing layer 10 or, possibly, by interposing a thermofusible material strip, allowing to perform the sealing operation.

[0026] With the underpants article in a finished condition, before performing the connecting step for mutually connecting the cross portions 7 and 8, a reinforcement layer 20 is applied, which is overlapped on the narrowed region 3 to practically correspond to the inguinal region, thereby allowing to easily apply a reinforcement element without the need of performing seaming operations.

[0027] In this connection it should be apparent that the subject underpants article, in addition to being made of a single piece and by thermosealing the edges and flaps to be connected, can also be made starting from two portions, separated by a dashed line (a) as shown in figure 1.

[0028] In this case, the adjoining portions or flaps arranged near said dashed line (a) will be sealed by thermomelting.

[0029] The subject article of manufacture can also be made starting from a fabric material having a hourglass configuration, as shown in figure 1.

[0030] Alternatively, the body of the subject article of manufacture can be made starting from several flat flaps separated and connected to one another by a high frequency sealing or thermosealing operation.

[0031] Said article of manufacture can also be made by suitably cutting, edging and sealing a tubular resilient fabric portion.

[0032] The thus obtained article of manufacture provides the great advantage that it can perfectly fit to the user body and that it is provided with very soft edges, practically free of thickness, which, consequently, do not irritate the user skin.

[0033] Another important aspect of the invention is that it is possible to provide a very good comfort level, together with a very good supporting of the user body owing to the capability of the subject article of manufacture to perfectly self-fitting to the user body.

[0034] The invention, as disclosed, is susceptible to several modifications and variations, all of which will come within the inventive idea scope.

[0035] Moreover, all the constructional details can be replaced by other technically equivalent elements.

[0036] In practicing the invention, the used materials, as well as the contingent size and shapes, can be any, depending on requirements.

Claims

1. A method for making underpants, panties, briefs and the like, wherein said method comprises the steps of providing a semi-finished article of manufacture (3), comprising a flat layer (1) of an elasticized fabric, overlapping on the edges of said elasticized fabric flat layer, a plastic material finishing strip (10), and joining to one another the cross portions (7, 8) arranged at the ends of the opposite base edges, **characterized in that** said method further comprises, before the step of connecting said cross portions (7, 8), the step of applying a reinforcement layer (20) at a narrowed middle region (3) of the fabric flat layer, said reinforcement layer (20) being coupled to said fabric flat layer (1) by said finishing strip (10).

2. A method, according to claim 1, **characterized in that** said elasticized fabric flat layer (1) is obtained by a die-cutting step from a fabric piece.

3. A method, according to claim 2, **characterized in that** said die-cutting step is carried out after having applied said plastic material finishing strip (10).

4. A method, according to claim 1, **characterized in that** said finishing strip (10) comprises a polyurethane layer, coupled to said elasticized fabric.

5. A method, according to one or more of the preceding claims, **characterized in that** said finishing strip (10) is obtained from a spread-upon layer.

6. A method, according to one or more of the preceding claims, **characterized in that** between said cross portions (7, 8) a thermofusible material layer can be arranged, in order to connect said cross portions.

7. A method, according to one or more of the preceding claims, **characterized in that** the ending of the peripheral portions of the article of manufacture and

the connection of the edges to be coupled are performed by a high frequency thermosealing method.

8. A method, according to one or more of the preceding claims, **characterized in that** said fabric flat layer (1) of synthetic fibers and/or resin coated fibers is edged by a high frequency thermomelting method designed for thermomelting the perimetrical edges (5, 6) of said fabric flat layer (1).

9. A method, according to one or more of the preceding claims, **characterized in that** the portions or flaps of said fabric flat layer (1), to be connected to provide a desired article of manufacture, are coupled by subjecting said flat fabric layer (1) of synthetic fibers and/or resin coated fibers to a high frequency thermomelting process.

10. A method according to one or more of the preceeding claims for making underpants, panties, briefs and the like, **characterized in that** said method comprises the step of making said article of manufacture starting from two separated portions.

11. A method, according to claim 10, **characterized in that** said method comprises the step of performing a sealing operation by thermomelting adjacent portions or flaps arranged near a dashed line (a).

12. A method, according to one or more of the preceding claims, **characterized in that** said method provides to form said article of manufacture by using an elasticized fabric having a hourglass configuration in plan.

13. A method, according to one or more of the preceding claims, **characterized in that** the body of said article of manufacture is made starting from several elasticized fabric flat portions, separated and connected to one another by high frequency sealing or thermosealing processes.

14. A method, according to one or more of the preceding claims, **characterized in that** said method provides that said article of manufacture are made by suitably cutting, edging and sealing a portion of a resilient tubular fabric.

15. An underpants, brief and panty article of manufacture (1) made by a method according to claim 1, comprising a flat layer (1) of an elasticized fabric having a substantially hourglass configuration with a front region (2) coupled, by a narrowed central region (3), to a rear region (4), at the edges of said article of manufacture being applied a plastic material finishing strip (10), the cross portions, defined at the ends of the opposite edges of said flat layer being adapted to be connected to one another for closing said article of manufacture at the side portions thereof, **characterized in that** said article of manufacture comprises a reinforcement layer which can be arranged at said central narrowed region (3) and coupled to said finishing strip (10).

Patentansprüche

1. Verfahren zur Herstellung von Unterhosen, Damenschlüpfern, Herrenslips und dergleichen, wobei das Verfahren folgende Schritte umfasst: Bereitstellen eines Halbfertigprodukts (3), umfassend eine flache Schicht (1) eines elastischen Gewebes, die an den Kanten der flachen Schicht aus elastischem Gewebe überlappt, einen Appreturstreifen (10) aus einem Kunststoffmaterial, und Zusammenfügen der Kreuzabschnitte (7, 8), die an den Enden der einander gegenüberliegenden Basiskanten angeordnet sind, **dadurch gekennzeichnet, dass** das Verfahren des Weiteren vor dem Schritt des Zusammenfügens der Kreuzabschnitte (7, 8) den Schritt des Anbringens einer Verstärkungsschicht (20) an einer schmaler gestalteten mittleren Region (3) der flachen Gewebeschicht umfasst, wobei die Verstärkungsschicht (20) über den Appreturstreifen (10) mit der flachen Gewebeschicht (1) verbunden ist.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** die flache Schicht (1) aus elastischem Gewebe durch einen Schritt des Ausstanzens aus einem Gewebestück erhalten wird.

3. Verfahren nach Anspruch 2, **dadurch gekennzeichnet, dass** der Ausstanzschritt ausgeführt wird, nachdem der Appreturstreifen (10) aus einem Kunststoffmaterial angebracht wurde.

4. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** der Appreturstreifen (10) eine Polyurethanschicht umfasst, die mit dem elastischen Gewebe verbunden ist.

5. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der Appreturstreifen (10) aus einer aufgestrichenen Schicht erhalten wird.

6. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** zwischen den Kreuzabschnitten (7, 8) eine Schicht aus einem wärmeschmelzbaren Material angeordnet sein kann, um die Kreuzabschnitte miteinander zu verbinden.

7. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der Abschluss der Randabschnitte des Pro-

duktionsartikels und die Verbindung der zu verbindenden Kanten mittels eines Hochfrequenz-Wärmeschweißverfahrens hergestellt werden.

8. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die flache Gewebeschicht (1) aus Synthesefasern und/oder harzbeschichteten Fasern mittels eines Hochfrequenz-Wärmeschmelzverfahrens gesäumt wird, das zum Wärmeschmelzen der Umfangskanten (5, 6) der flachen Gewebeschicht (1) ausgelegt ist.

9. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die Abschnitte oder Klappen der flachen Gewebeschicht (1), die verbunden werden sollen, um einen gewünschten Produktionsartikel zu erhalten, in der Weise miteinander verbunden werden, dass man die flache Gewebeschicht (1) aus Synthesefasern und/oder harzbeschichteten Fasern einem Hochfrequenz-Wärmeschmelzverfahren unterzieht.

10. Verfahren nach einem oder mehreren der vorangehenden Ansprüche zur Herstellung von Unterhosen, Damenschlüpfern, Herrenslips und dergleichen, **dadurch gekennzeichnet, dass** das Verfahren den Schritt der Herstellung des Produktionsartikels ausgehend von zwei getrennten Abschnitten umfasst.

11. Verfahren nach Anspruch 10, **dadurch gekennzeichnet, dass** das Verfahren den Schritt des Ausführens einer Schweißoperation mittels Wärmeschmelzen benachbarter Abschnitte oder Klappen umfasst, die nahe einer Strichlinie (a) angeordnet sind.

12. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Verfahren vorsieht, den Produktionsartikel unter Verwendung eines elastischen Gewebes herzustellen, das - in Draufsicht gesehen - eine Sanduhrform aufweist.

13. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der Körper des Produktionsartikels ausgehend von verschiedenen flachen Abschnitten eines elastischen Gewebes hergestellt wird, die voneinander getrennt sind und durch Hochfrequenzschweiß- oder Wärmeschweißverfahren miteinander verbunden werden.

14. Verfahren nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Verfahren vorsieht, den Produktionsartikel durch Schneiden, Säumen und Verschweißen eines Abschnitts eines elastischen röhrenförmigen Gewebes herzustellen.

15. Unterhosen-, Männerslip- oder Damenschlüpfer-Produktionsartikel (1), der mittels eines Verfahrens nach Anspruch 1 hergestellt ist, umfassend eine flache Schicht (1) eines elastischen Gewebes, das im Wesentlichen eine Sanduhrform aufweist, wobei eine vordere Region (2) über eine schmal gestaltete mittige Region (3) mit einer hinteren Region (4) verbunden ist, wobei an den Kanten des Produktionsartikels ein Appreturstreifen (10) aus einem Kunststoffmaterial angebracht ist, wobei die Kreuzabschnitte, die an den Enden der einander gegenüberliegenden Kanten der flachen Schicht ausgebildet sind, dafür konfiguriert sind, miteinander verbunden zu werden, um den Produktionsartikel an seinen Seitenabschnitten zu schließen, **dadurch gekennzeichnet, dass** der Produktionsartikel eine Verstärkungsschicht umfasst, die an der mittigen, schmaler gestalteten Region (3) angeordnet werden kann und mit dem Appreturstreifen (10) verbunden werden kann.

Revendications

1. Procédé de fabrication de sous-vêtements, de culottes, de caleçons et similaires, dans lequel ledit procédé comprend les étapes consistant à produire un article de confection semi-fini (3), comprenant une couche plate (1) d'un tissu élastique, recouvrant les bords de ladite couche plate de tissu élastique, une bande de finition de matière plastique (10), et à joindre les unes aux autres les parties transversales (7, 8) agencées au niveau des extrémités des bords de base opposés, **caractérisé en ce que** ledit procédé comprend en outre, avant l'étape consistant à raccorder lesdites parties transversales (7, 8), l'étape consistant à appliquer une couche de renforcement (20) au niveau d'une zone centrale rétrécie (3) de la couche plate de tissu, ladite couche de renforcement (20) étant couplée à ladite couche plate de tissu (1) par ladite bande de finition (10).

2. Procédé selon la revendication 1, **caractérisé en ce que** ladite couche plate de tissu élastique (1) est obtenue par une étape de découpage à l'emporte-pièce à partir d'une pièce de tissu.

3. Procédé selon la revendication 2, **caractérisé en ce que** ladite étape de découpage à l'emporte-pièce est réalisée après avoir appliqué ladite bande de finition de matière plastique (10).

4. Procédé selon la revendication 1, **caractérisé en ce que** ladite bande de finition (10) comprend une couche de polyuréthanne, couplée audit tissu élastique.

5. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ladite bande de finition (10) est obtenue à partir d'une couche de recouvrement.

6. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que**, entre lesdites parties transversales (7, 8), une couche de matière thermofusible peut être agencée afin de raccorder lesdites parties transversales.

7. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** la finition des parties périphériques de l'article de confection et le raccordement des bords qui doivent être couplés sont réalisés suivant un procédé de thermoscellage haute fréquence.

8. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ladite couche plate de tissu (1) en fibres synthétiques et/ou en fibres enduites de résine est bordée suivant un procédé de thermofusion haute fréquence conçu pour joindre par thermofusion les bords périphériques (5, 6) de ladite couche plate de tissu (1).

9. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** les parties ou les rabats de ladite couche plate de tissu (1) qui doivent être raccordé(e)s de manière à fournir un article de confection souhaité sont couplé(e)s en soumettant ladite couche plate de tissu (1) en fibres synthétiques et/ou en fibres enduites de résine à un processus de thermofusion haute fréquence.

10. Procédé selon une ou plusieurs des revendications précédentes pour fabriquer des sous-vêtements, des culottes, des caleçons et similaires, **caractérisé en ce que** ledit procédé comprend l'étape consistant à fabriquer ledit article de confection à partir de deux parties séparées.

11. Procédé selon la revendication 10, **caractérisé en ce que** ledit procédé comprend l'étape consistant à réaliser une opération de scellage en procédant à la thermofusion des parties adjacentes ou rabats agencé(e)s à proximité d'une ligne pointillée (a).

12. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit procédé permet de former ledit article de confection en utilisant un tissu élastique présentant une configuration en plan en sablier.

13. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** le corps dudit article de confection est fabriqué à partir de plusieurs parties plates de tissu élastique, séparées et raccordées les unes aux autres par des processus de scellage ou de thermofusion haute fréquence.

14. Procédé selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit procédé assure que ledit article de confection soit fabriqué en coupant, en bordant et en scellant de manière appropriée une partie d'un tissu tubulaire souple.

15. Article de confection (1) formant sous-vêtement, caleçon et culotte fabriqué suivant un procédé selon la revendication 1, comprenant une couche plate (1) d'un tissu élastique présentant une configuration sensiblement en sablier avec une partie avant (2) couplée par une zone centrale rétrécie (3) à une zone arrière (4), une bande de finition de matière plastique (10) étant appliquée au niveau des bords dudit article de confection, les parties transversales, définies au niveau des extrémités des bords opposés de ladite couche plate, étant adaptées pour être raccordées les unes aux autres pour fermer ledit article de confection au niveau des parties latérales de celui-ci, **caractérisé en ce que** ledit article de confection comprend une couche de renforcement qui peut être agencée au niveau de ladite zone centrale rétrécie (3) et couplée à ladite bande de finition (10).

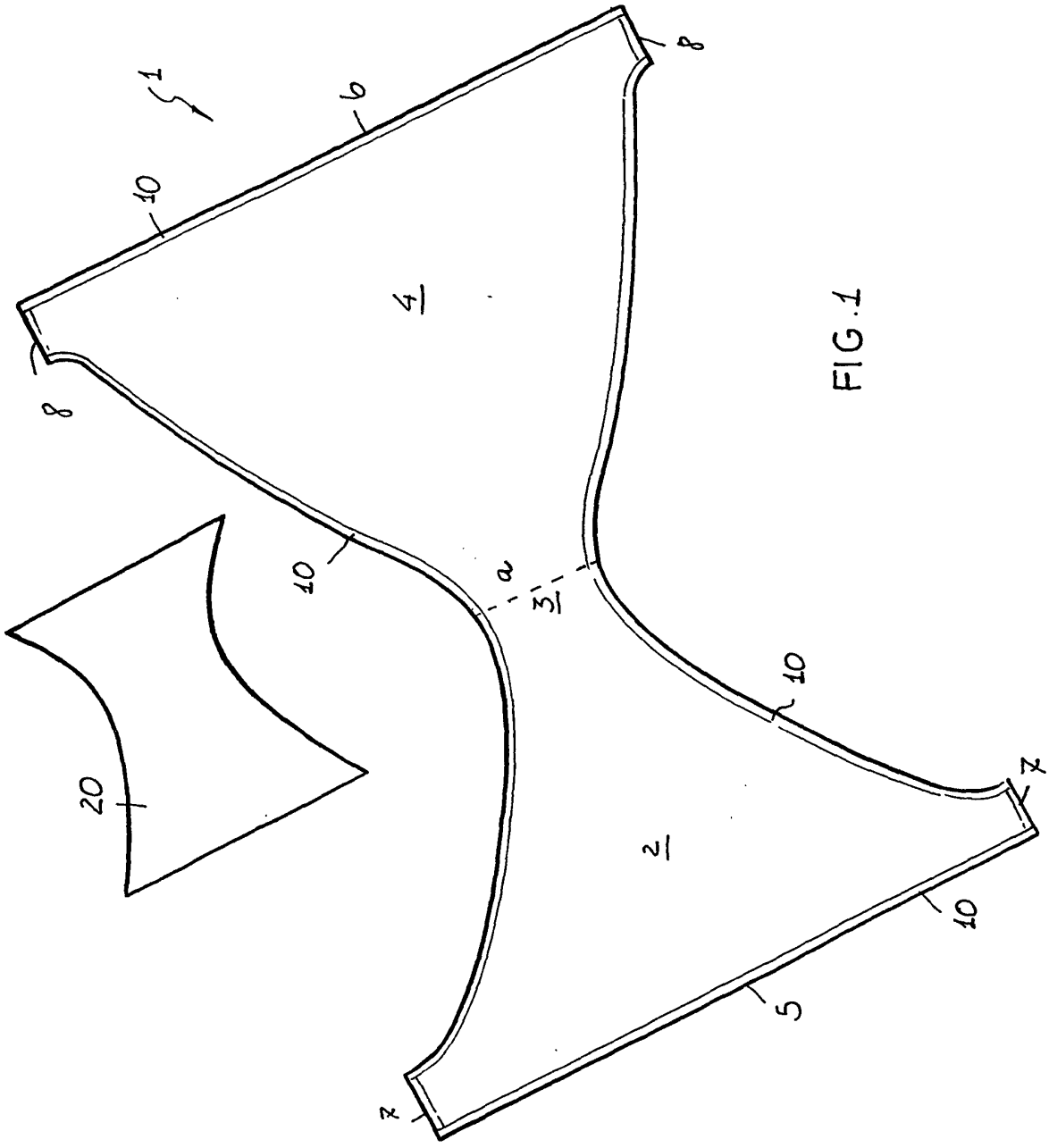

FIG.1

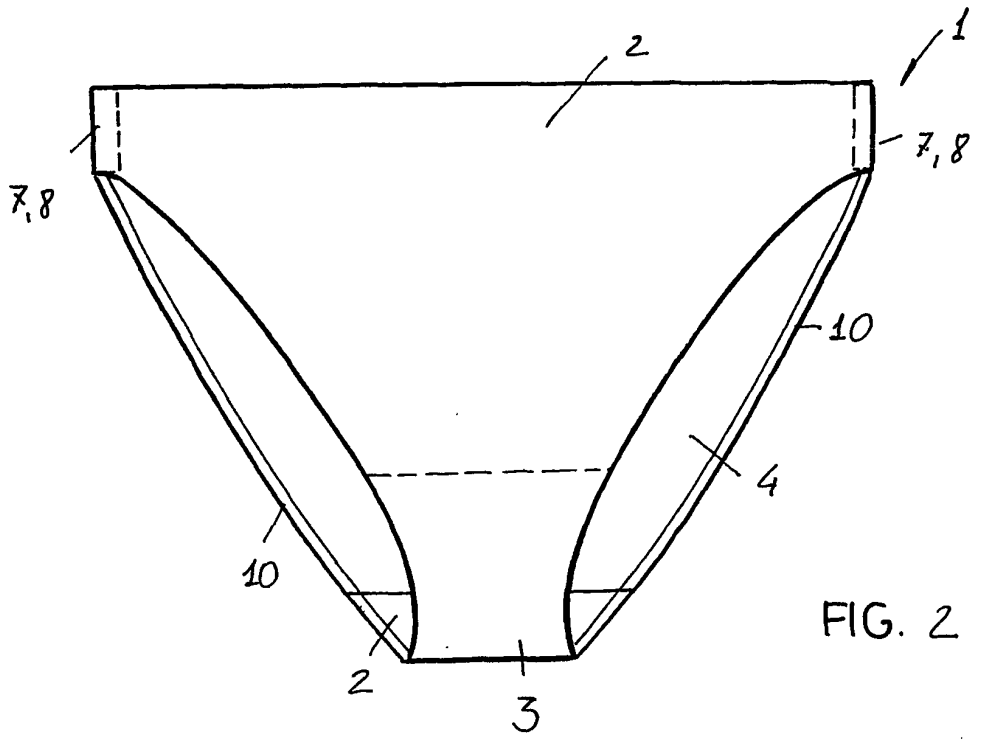

FIG. 2

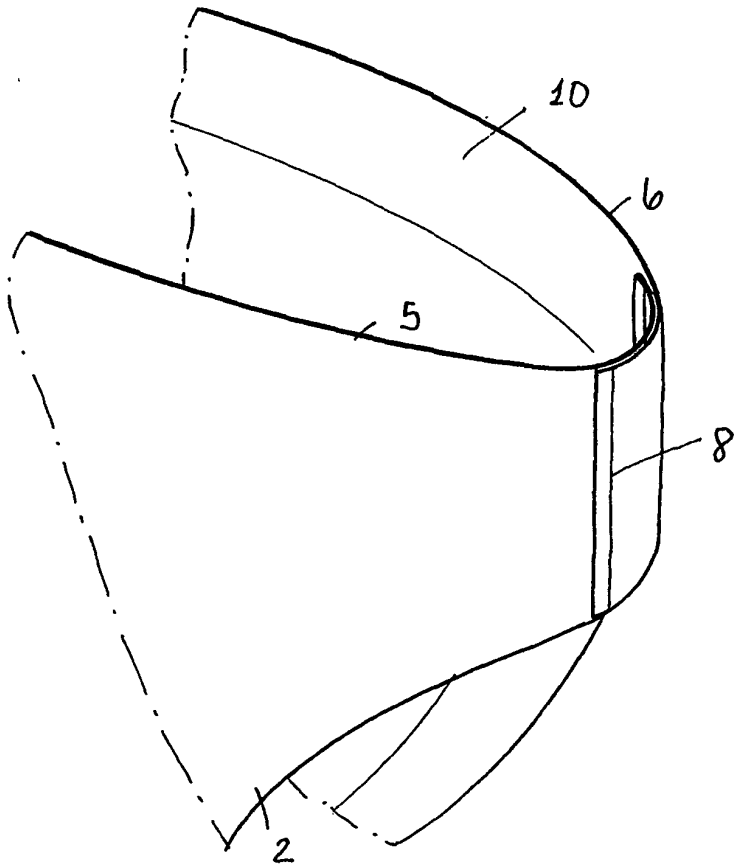

FIG. 3