

(43) International Publication Date
6 February 2014 (06.02.2014)

(51) International Patent Classification:

A61F 13/56 (2006.01) A61F 13/551 (2006.01)
A61F 13/494 (2006.01) A61F 13/15 (2006.01)

(21) International Application Number:

PCT/IB2012/056006

(22) International Filing Date:

30 October 2012 (30.10.2012)

(25) Filing Language:

Italian

(26) Publication Language:

English

(30) Priority Data:

TO2012A000698 3 August 2012 (03.08.2012)

IT

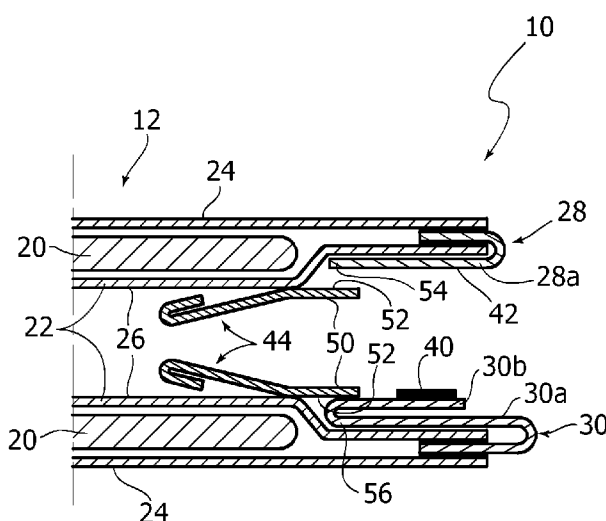
(71) Applicant: FAMECCANICA.DATA S.P.A. [IT/IT]; via
Alessandro Volta, 10, I-65129 Pescara (IT).(72) Inventors: PASQUALONI, Paolo; Via Sgarrone 2, I-
66020 San Giovanni Teatino (Chieti) (IT). SABLONE,
Gabriele; via Sagittario, 6, I-65016 Montesilvano (Pes-
cara) (IT).(74) Agent: MARCHITELLI, Mauro; c/o Buzzi, Notaro &
Antonielli d'Oulx S.r.l., Via Maria Vittoria 18, I-10123
Torino (IT).(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU,
RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW.(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: PRE-FASTED AND REFASTENABLE PANT-TYPE ABSORBENT SANITARY ARTICLE AND METHOD FOR
MANUFACTURING THE SAME

FIG. 2

(57) Abstract: Pre-fastened and refastenable pant-type ab-
sorbent sanitary article, comprising: - a central body (12)
having two opposite side edges (14) and including: a topsheet
(22) having an inner surface (26), a backsheet (24), and an
absorbent core (20) sandwiched between the topsheet (22)
and the backsheet (24), wherein the topsheet (22) and the
backsheet (24) are welded together along a perimeter of the
central body (12), and wherein the central body (12) is folded
along a transverse folding line (A) orthogonal to said side
edges (14), - at least two side panels (28, 30) extending from
respective lateral edges (14) of said central body (12), each
of said side panels (28, 30) having at least one folded portion
(28a, 30a, 30b) which extends inwards from the respective
side edge (14) and a fastening element (40, 42) of an open-
able and refastenable fastening device (38), and - at least one
strip of sheet material (44, 180) fixed on said inner surface
(26) of said topsheet (22), wherein said at least one strip of
sheet material (180) has respective outer side portions (50,
180) detached from the inner surface (26) of the topsheet (22)
and forming laterally outwards-opening pockets (52) that re-
ceive and retain the respective inner edges (54, 56) of the re-
spective folded portions (28a, 30a, 30b) of the side panels
(28, 30).

**"Pre-fastened and refastenable pant-type absorbent
sanitary article and method for manufacturing the same"**

TEXT OF THE DESCRIPTION

5 Technical Field

The present invention relates to an absorbent sanitary article wearable in pant-form of the pre-fastened and refastenable type, normally referred to as "training pant".

10 The invention also relates to a method for the manufacturing of such an article.

Technological background

In recent years, interest has emerged in diapers of the type commonly referred to as "training-pants".
15 When this product is extracted from the packaging it has a conformation essentially similar to that of a pair of pants. It is worn by sliding it on the legs of the user according to criteria essentially similar to those used for wearing pants.

20 Training-pants typically include a central body comprising an absorbent core and side panels which extend laterally from the central body so as to complete the pant-type shape of the product. The side panels are fitted with homologous distal edges designed
25 to be connected (pre-fastened) to one another to form fastening regions.

In the most recent products, the pre-fastened fastening regions are openable and closeable, thus allowing the product -sold in a closed pant condition-
30 to be selectively opened on each side.

A technique for the manufacture of pant-type absorbent products envisages the manufacture of discrete flat products that advance in a continuous manner along a direction parallel to the longitudinal
35 direction of the products. The discrete products are

then subjected to a folding operation about an axis transverse to the longitudinal axis of the products.

The document US6514187 describes a method and an apparatus for the transverse folding of absorbent products. In the solution described in this document the homologous side panels are maintained separate from each other during the folding operation. The mutual coupling of the side fastenings for closing the product is carried out in a subsequent stage of the manufacture cycle, for example as described in the document US6513221.

Other documents such as US7322925, US7335150, US7387148, EP-A-1289465, EP-A-2289466, EP-A-1284700 describe methods and equipment that can be applied for the manufacture of absorbent products with refastenable side fastenings.

A known solution envisages the inward folding of the side panels, arranged with respective fastening elements facing each other. In this way, when the article is folded transversely, the opposing fastening elements are pressed against each other so as to provide the pre-fastened configuration of the absorbent article.

The document US-B-8221378 describes a solution wherein the folded portions of the side panels are held by temporary releasable welds, having a peel strength less than the peel strength of the refastenable fastening elements of the side panels.

This solution suffers from various drawbacks. Indeed, the temporary welding that retains the folded portions of the side panels limits the choice of materials usable for the side panels to easily-weldable materials that are compatible with each other. The temporary welding may also ruin the material and produce lacerations in the case in which it has a peel

strength greater than the peel strength between the refastenable fastening elements of the side panels. In the case in which the temporary welding has too weak a peel strength, the temporary connection between the folded portions of the side panels could open during the manufacturing method, causing release of the side panels and the non-fastening of the side panels during the transverse folding of the articles.

Summary of the invention

10 The object of the present invention is to provide a solution in order to overcome the drawbacks of the prior art.

According to the present invention, this object is achieved by an absorbent sanitary article and a method for its manufacture having the characteristics forming the subject of the claims included.

The claims form an integral part of the teaching provided herein relation to the invention.

Brief description of the drawings

20 The present invention will now be described in detail with reference to the attached drawings, provided purely by way of non-limiting example, wherein:

- Figure 1 is a plan view of a first embodiment of a pant-type sanitary absorbent article according to the invention in its extended configuration,

- Figure 2 is a cross section of a lateral zone of the absorbent product of Figure 1 in a folded configuration,

30 - Figure 3 is a cross section similar to Figure 2 illustrating the side panels in the open configuration,

- Figure 4 is a schematic view illustrating a method for the manufacture of sanitary absorbent articles according to the present invention,

35 - Figure 5 is a schematic view illustrating a

second embodiment of the method according to the invention,

- Figure 6 is a schematic perspective view illustrating some steps of the method of Figure 5,

5 - Figure 7 is a schematic view illustrating a third embodiment of the method according to the invention,

- Figure 8 is a schematic perspective view of a second embodiment of a pant-type absorbent sanitary article according to the invention in its extended
10 configuration and with the side panels folded, and

- Figure 9 is a cross section along the line IX-IX of Figure 8.

Detailed description

15 In the following description, various specific details are illustrated, aimed at a thorough understanding of the embodiments. The embodiments can be implemented without one or more of the specific details, or with other methods, components, materials,
20 etc. In other cases, structures, materials, or known operations are not shown or described in detail to avoid obscuring the various aspects of the embodiments.

The reference to "one embodiment" within the framework of this description is to indicate that a particular configuration, structure or characteristic
25 described in relation to the embodiment is included in at least one embodiment. Therefore, phrases such as "in one embodiment" that may be present in different points of this description, are not necessarily referring to
30 the same embodiment. Furthermore, particular conformations, structures or characteristics may be combined in an appropriate way in one or more embodiments.

The references used herein are for convenience
35 only and therefore do not define the scope of

protection or the scope of the embodiments.

With reference to Figures 1-3, 10 indicates an absorbent sanitary article wearable in pant-form. Figure 1 shows the sanitary article 10 in an extended position, i.e. before being folded around its central transverse axis A to obtain the folded configuration in which the article 10 is packaged and sold. Figures 2 and 3 show side portions of article 10 in the folded configuration. Article 10 comprises a central body 12 having two opposite side edges 14, a front waist portion 16, a back waist portion 18 and a crotch portion 19 located between the front waist portion 16 and the back waist portion 18.

With reference to Figures 2 and 3, according to conventional methods in the field, the central body 12 comprises an absorbent core 20 which is enclosed like a sandwich between a topsheet 22 and a backsheet 24. The topsheet 22 is at least partially permeable to bodily fluids and has an inner surface 26 intended to face towards the user's body. The backsheet 24 is impervious to liquids and is intended to face towards the exterior, or rather towards the user's clothing.

In one embodiment, the article 10 comprises two front side panels 28 and two rear side panels 30 which extend from respective side edges 14 of the central body 12. The front and rear side panels 28, 30 may be permanently attached to the respective front and rear waist portions 16, 18 of the central body 12 or may be part of the lateral extensions of the topsheet 22 or the backsheet 24 or both. Furthermore, said lateral panels 28, 30 may or may not present characteristics of elasticity in the transverse direction.

It is underlined that the connotations "front" and "rear" are used herein only to distinguish the two ends from each other, and therefore has no specific

relevance regarding the manner in which the product is finally worn.

In one embodiment, in the configuration in which the article 10 is produced and sold, the front side panels 28 have respective first folded portions 28a (Figure 2) folded inwardly along their respective fold lines 32 (Figure 1).

In one embodiment, the rear side panels 30 are folded according to an essentially S-shaped configuration and have respective first folded portions 30a, folded inwardly along respective first fold lines 34. The rear side panels 30 also have respective second folded portions 30b, folded along second fold lines 36 on respective first folded portions 30a.

The front and rear side panels 28, 30 are connected together by means of an openable and refastenable fastening device 38. Each openable and refastenable fastening device 38 comprises at least one fastening element 40 fixed on one of the side panels 28, 30 and cooperating with a facing surface 42 of the other side panel 28, 30 or with a complementary fastening element fixed on the other side panel 28, 30.

Each fastening element may comprise a single section or multiple sections of fastening elements. The fastening elements may comprise any refastenable fastening suitable for absorbent articles, such as adhesive fastenings, mechanical fastenings or similar.

In one embodiment, each openable and refastenable fastening device 38 comprises a fastening element 40 with microhooks fixed to the rear side panel 30 and which engages a surface 42 of the front side panel 28 in a separable way. In this embodiment, the surface 42 of the side panel 28 is constituted of a material (e.g. non-woven) suitable for coupling with the microhook fastening element 40 in an openable and refastenable

manner.

The complementary fastening elements 40, 42 of each openable and refastenable fastening device 38 are located on respective opposite surfaces of the respective side panels 28, 30, and are facing each other, as represented in Figure 2. In this way, when the absorbent article 10 is folded in two along the transverse folding line A, the fastening elements 40, 42 will be situated in front of each other, and therefore able to connect to each other by means of a simple contact pressure.

Still with reference to Figures 1-3, the central body 12 of article 10 comprises two barrier leg cuffs 44 fixed to the inner surface 26 of the topsheet 22. The barrier leg cuffs 44 are configured to provide a barrier to the transverse flow of body exudates. The barrier leg cuffs 44 are usually formed of elastic or elasticized material, and extend in the longitudinal direction, parallel to the respective side edges 14 of the central body 12. The barrier leg cuffs 44 are secured to the topsheet 26 by means of welding ends 46 and via longitudinal welding lines 48 (Figure 1). In one embodiment, the longitudinal welds 48 only extend at the front waist portion 16 and the back waist portion 18, whereby the barrier leg cuffs 44 are detached from the topsheet 44 in the crotch area 19. The barrier leg cuffs 44 apply an elastic force between the front waist portion 16 and the back waist portion 18 so that the sanitary article 10 tends to assume the characteristic pant-shape. The barrier leg cuffs 44 are positioned adjacent to respective side edges 14 of the central body 12 and can extend longitudinally along the entire length or just a part of the length of the central body 12.

The construction methods and embodiments of the

barrier leg cuffs 44 are generally well known to those skilled in the art and are described in documents US4695278, US4704116 and US4795454.

With reference to Figures 2 and 3, each barrier
5 leg cuff 44 has an outer side portion 50 detached from the surface 26 of the topsheet 22, so as to form a laterally outwards-opening pocket 52. The pocket 52 is configured to receive and retain a respective inner edge 54, 56 of the folded portions 28a, 30a, 30b of the
10 respective side panels 28, 30.

In one embodiment, each barrier leg cuff 44 retains a front side panel 28 and a rear side panel 30 in a folded position. The article 10 could comprise a single pair of front 28 or rear 30 side panels. In this
15 case, each barrier leg cuff 44 would only retain one side panel 28 or 30 in a folded configuration.

The pockets 52 formed by the laterally projecting portions 50 of the barrier leg cuffs 44 retain the side panels 28, 30 in a folded position and avoid the need
20 to provide temporary welds on the folded portions 28a, 30a, 30b of the side panels designed to break at the act of opening of the sanitary article 10.

As is illustrated in Figure 2, the pockets 52 hold the side panels 28, 30 in a folded position during the
25 method of manufacturing of the sanitary article 10 so as to allow the mutual engagement between the fastening elements 40, 42 as a result of a contact pressure. On the other hand, as shown in Figure 3, the pockets 52 release the side panels 28, 30, without resistance, at
30 the moment of opening of the sanitary article 10.

In Figures 8 and 9, a further preferred embodiment of the absorbent sanitary article 10 according to the present invention is illustrated. The elements corresponding to those previously described are
35 indicated by the same reference numerals.

In this further embodiment, the pockets 52 are formed by directly laminating at least one sheet material 180 on the topsheet 22. In particular, two strips of sheet material 180 may be laminated onto the
5 absorbent article 10, which can be connected directly to the inner surface 26 of the topsheet 22. In the case wherein elasticized barrier leg cuffs 44 are present, the strips of sheet material 180 may be indirectly connected to the inner surface 26 of the topsheet 22
10 through said barrier leg cuffs 44. In this case, the two strips of sheet material 180 may be laminated on the upper surface 45 of the barrier leg cuffs 44 which in use is typically directed toward the user's body.

The sheet material 180 has an outer side portion
15 184 partially detached from the surface 26 of the topsheet 22, or, if the barrier leg cuffs 44 are present, as in the embodiment illustrated in Figures 8 and 9, from the upper surface 45 of the respective cuff 44, so as to form laterally outwards-opening pockets
20 52. The pockets 52 are produced by combining the outer side portion 184 of the sheet material 180 respectively to the upper surface 26 of the topsheet 22 or the barrier leg cuff 44 in a discontinuous manner.

In the further embodiment shown in Figures 8 and
25 9, the folded portions 28a, 30a, 30b of the respective side panels 28, 30 are held in the folded position by the pockets 52 which are formed by fixing the two strips of sheet material 180 by means of welds 182 on the respective barrier leg cuffs 44 in a discontinuous
30 manner. The welds 182 may be made using any method normally used in the field (glues, ultrasound, thermal, etc.). The composition of the materials of the absorbent product 10 is not described in detail since it is beyond the scope of the present invention. The
35 absorbent product 10 may be constructed with any form,

components or materials known in the field.

In Figures 4, 5 and 7 three variants of a method for the manufacture of an absorbent sanitary article 10 of the type previously described are illustrated. In all the variants, the method for manufacturing the articles 10 envisages the formation of a continuous composite sheet which advances in a longitudinal direction. The composite sheet is formed by a continuous succession of blanks of articles 10 aligned with each other in the longitudinal direction. In the continuous composite sheet, the articles 10 are oriented parallel to the direction of movement of the belt. The continuous composite sheet is then cut in the transverse direction to form discrete articles 10. This manufacturing technique is known in the field of absorbent products by the term "machine direction".

In Figures 4, 5 and 7, inside the boxes or circles surrounded by dashed and dotted lines, enlarged details are shown of the composite sheet corresponding to the steps of the method indicated by the corresponding dashed and dotted lines.

With reference to Figure 4, a continuous sheet forming the topsheet 22 is advanced along the longitudinal direction. A first applicator 60 applies, on the upper surface of the moving sheet 22, pairs of rear side panels 30 in an extended position and spaced from each other in the longitudinal direction. On the rear side panels 30, fastening elements 40 have previously been applied. A second applicator 62 applies, on the upper surface of the moving sheet 22, pairs of front side panels 28 in an extended position and spaced from each other in the longitudinal direction. Between the applicators 60 and 62 the sheet 22 is supported by a first conveyor 64 with suction box 66.

A first longitudinal folding device 68 folds the second folded portions 30b of the rear side panels 30 about the second fold lines 36. The first longitudinal folding device 68 may be of the type described in the document WO2011/104647.

The first composite sheet including the topsheet 22 and the side panels 28, 30 is supplied by a first welding unit 70.

A continuous sheet forming the backsheet 24 is advanced in a direction opposite to the direction of advancement of the topsheet 22. On the upper surface of the backsheet 24 absorbent cores 20, spaced apart in the longitudinal direction, are applied. The second composite sheet including the backsheet 24 and the absorbent cores 20 is supplied to the first welding unit 70.

The first welding unit 70 reverses the advancing direction of the first composite sheet including the topsheet 22 and the side panels 28, 30 and applies the first composite sheet onto the upper surface of the second composite sheet including the backsheet 24 and absorbent cores 20. At the same time, the first welding unit 70 welds together the topsheet 22 and the backsheet 24 in the longitudinal direction. This welding also welds the side panels 28, 30 to the topsheet 22 and the backsheet 24.

Downstream of the first welding unit 70 the sheet advances by means of a second conveyor 72 with suction box 74. At the output of the second conveyor 72, a third conveyor 76, with suction box 78, is provided, opposite to the second conveyor 72.

Downstream of the third conveyor 76 a second longitudinal folding device 80 is arranged which carries out the folding of the first folded portions 28a of the first front side panels 28 about the folding

line 32 and the folding of the first folded portions 30a of the rear side panels 30 about the folding lines 34. The second longitudinal folding device 80 may also be of the type described in the document WO2011/104647.

5 At the output of the second longitudinal folding device 80, the side panels 28, 30 are folded on the upper surface of the topsheet 22.

Downstream of the second folding longitudinal side 80, the barrier leg cuffs 44 are supplied to the upper
10 surface of the topsheet 22 in the form of two continuous strips. The barrier leg cuffs 44 are applied to the topsheet 22 so that the outer side edges 50 of the barrier leg cuffs 44 partially cover the inner edges of the folded side panels 28, 30.

15 A second welding unit 82 welds the barrier leg cuffs 44 to the topsheet 22. The welding is carried out leaving the outer side edge 50 of the barrier leg cuffs 44 detached from the upper surface of the topsheet 22, so as to form the pockets 52 which retain the side
20 panels 28, 30 in a folded position.

Downstream of the welding unit 82 a continuous chain of blanks of absorbent articles 10 is obtained. The continuous chain of blanks is cut in the transverse direction by means of a transverse cutting unit 84
25 obtaining a continuous succession of discrete absorbent articles 10 in extended form.

The discrete articles 10, initially in the extended form, are then folded about respective transverse folding lines A. In Figure 4 the numeral 86
30 indicates an apparatus for the transverse folding of discrete products 10 initially in the extended condition. The transverse folding apparatus 86 may be of the type described in the international patent application n. PCT/IB2012/000520.

35 As a result of the transverse folding, the front

and rear waist portions 16, 18 of each article 10 are superposed on each other. After folding, the fastening elements 40, 42 are located in a position facing each other and are susceptible to being joined to each other under the action of a contact pressure.

It should be appreciated that as a result of folding about the transverse axis A, and as a result of the mutual connection between the fastening elements 40, 42 the product 10 assumes the conformation of a garment wearable in pant-form.

Figure 5 shows a variant of the method according to the invention. The elements corresponding to those previously described are indicated by the same reference numerals.

With reference to Figure 5, the side panels 28, 30 in an extended position are applied to the moving topsheet 22, as in the method previously described. After application of the side panels 28, 30 in the extended position, the side panels are folded by means of the first longitudinal folding device 68 and the second longitudinal folding device 80.

After folding of the side panels, the barrier leg cuffs 44 are applied and welded on the surface facing towards the bottom of the topsheet 22. The application and welding of the barrier leg cuffs 44 is as described previously, with the formation of the pockets 52 which retain the side panels 28, 30 in a folded position.

Then, the first composite sheet including the topsheet 22, the folded side panels 28, 30 and the barrier leg cuffs 44 is supplied to the welding unit 70 which overturns the first composite sheet.

The second composite sheet formed by the backsheet 24 and the absorbent cores 20 is also fed to the welding unit 70.

The welding unit 70 applies and welds the first

composite sheet including the topsheet 22, the folded side panels 28, 30 and the barrier leg cuffs 44 onto the second composite sheet including the backsheet 24 and absorbent cores 20.

5 At the output of the welding unit 70 a continuous chain of blanks of articles is obtained, which is transversely cut by the transverse cutting unit 84. The individual articles in an extended position are then folded in the transverse direction by the transverse
10 folding apparatus 86, as previously described.

Figure 6 schematically shows in a perspective view the steps of: folding of the side panels 28, 30, application of the barrier leg cuffs 44, overturning of the first composite fabric and application of the first
15 composite sheet onto the second composite sheet.

Figure 7 shows a second variant of the method according to the invention. The variant of figure 7 envisages, as in the method of Figure 5, the application of the side panels 28, 30 in an extended
20 position on the moving topsheet 22, the folding of the side panels 28, 30 by means of the first longitudinal folding device 68 and the second longitudinal folding device 80 and the application of the barrier leg cuffs 44 on the topsheet 22. The variant of Figure 7 differs
25 from the method of Figure 5 in the fact that between the first longitudinal folding device 68 and the second longitudinal folding device 80, a transfer belt 88 is arranged that does not use suction boxes.

It will be apparent to experts in the field that
30 the same methods described and illustrated schematically in Figures 4, 5 and 7 may be advantageously used for the manufacture of the absorbent article 10 of the embodiment shown in Figures 8 and 9, by simply providing, at the input of the
35 applicators 60 and 62 -responsible for applying

respective rear 30 and front 28 panels- the topsheet 22 which may already be equipped with barrier leg cuffs 44, and applying the two sheet materials 180 immediately after having carried out the folding operations of said rear 30 and front 28 panels, in such a way that the second welding unit 82 can combine the two strips of sheet material 180 onto the inner surface 26 of the topsheet 22 or, if the barrier leg cuffs 44 are present, on the upper surfaces 45 of the respective barrier leg cuffs 44, producing joint (or weld) areas 182, as well illustrated in Figures 8 and 9. The weld 182 is produced by combining each sheet material 180 in a discontinuous manner, leaving the outer side edge 184 of each strip of sheet material 180 detached from the inner surface 26 of the topsheet 22 or, if present, from the upper surfaces 45 of the respective barrier leg cuff 44, so as to form the pockets 52 which retain the side panels 28, 30, in a folded position as represented in Figures 8 and 9.

The method can also be easily modified by experts so as to apply a single sheet material 180 to form the pockets 52.

Of course, without prejudice to the principle of the invention, the details of construction and the embodiments may be varied widely with respect to those described and illustrated without thereby departing from the scope of the invention as defined by the claims that follow.

CLAIMS

1. Pant-type pre-fastened and refastenable absorbent sanitary article, comprising:

- a central body (12) having two opposite side edges (14) and including a topsheet (22) having an inner surface (26), a backsheet (24), and an absorbent core (20) sandwiched between the topsheet (22) and the backsheet (24), wherein the topsheet (22) and the backsheet (24) are welded together along a perimeter of the central body (12), and wherein the central body (12) is folded along a transverse folding line (A) orthogonal to said side edges (14), and

- at least two side panels (28, 30) extending from respective side edges (14) of said central body (12), each of said side panels (28, 30) having at least one folded portion (28a, 30a, 30b) that extends inwardly from the respective side edge (14) and a fastening element (40, 42) of an openable and refastenable fastening device (38),

characterized in that it comprises at least one strip of sheet material (180) fixed on said inner surface (26) of said topsheet (22), wherein said at least one strip of sheet material (180) has respective outer side portions (50, 184) detached from the inner surface (26) of the topsheet (22) and forming laterally outwards-opening pockets (52) that receive and retain respective inner edges (54, 56) of the respective folded portions (28a, 30a, 30b) of the side panels (28, 30).

2. Article according to claim 1, characterized in that it comprises two strips of sheet material (180) fixed on said inner surface (26) of said topsheet (22), wherein said strips of sheet material (44, 180) have respective outer side portions (50, 184) detached from the inner surface (26) of the topsheet (22) and form

laterally outwards-opening pockets (52) that receive and retain the respective inner edges (54, 56) of the respective folded portions (28a, 30a, 30b) of side panels (28, 30).

5 3. Article according to claim 2, characterized in that it comprises a pair of barrier leg cuffs (44) fixed on said inner surface (26) of said topsheet (22).

10 4. Article according to claim 3, characterized in that, each of said strips of sheet material (180) is fixed on an upper surface (45) of a respective barrier leg cuff (44), wherein said strips of sheet material (180) have respective outer side portions (184) detached from the upper surface (45) of the respective cuff (44) and forming laterally outwards-opening
15 pockets (52) that receive and retain the respective inner edges (54, 56) of the respective folded portions (28a, 30a, 30b) of the side panels (28, 30).

20 5. Article according to claim 3, characterized in that said strips of sheet material (180) are constituted by side portions (50) external to said barrier leg cuffs (44), wherein said respective outer side portions (50) are detached from the inner surface (26) of the topsheet (22) and form laterally outwards-opening pockets (52) that receive and retain the
25 respective inner edges (54, 56) of the respective folded portions (28a, 30a, 30b) of the side panels (28, 30).

30 6. Article according to any one of the preceding claims, characterized in that it comprises a first pair of side panels (28) having one folded portion (28a) and a second pair of side panels (30) having a first and a second folded portion (30a, 30b) arranged in an S-shaped configuration, an openable and refastenable fastening device (38) being arranged between mutually
35 facing surfaces of said folded portions (28a, 30b) of

the first and second pair of side panels (28, 30).

7. Article according to claim 6, characterized in that said openable and refastenable fastening device (38) comprises a microhook fastening element (40) fixed to one of said folded portions (30b) and cooperating with a facing surface (42) of the complementary folded portion (28a) or with a fastening element fixed on the folded complementary portion (28a).

8. Method for manufacturing a pre-fastened and refastenable pant-type absorbent sanitary article, comprising the steps of:

- advancing a continuous topsheet (22) along a longitudinal direction,
 - applying pairs of side panels (28, 30) to said moving topsheet (22) in spaced apart positions in the longitudinal direction,
 - folding said side panels (28, 30) in the longitudinal direction of said topsheet (22),
 - applying at least one sheet material (180) in the form of a continuous strip to said topsheet (22),
- characterized in that said sheet material (180) has respective outer side portions (50, 184) detached from the inner surface (26) of the topsheet (22) and forming laterally outwards-opening pockets (52) that receive and retain respective inner edges (54, 56) of the respective folded portions (28a, 30a, 30b) of the side panels (28, 30).

9. Method for manufacturing a pre-fastened and refastenable pant-type absorbent sanitary article, comprising the steps of:

- advancing a continuous topsheet (22) along a longitudinal direction,
- applying pairs of side panels (28, 30) to said moving topsheet (22) in spaced apart positions in the longitudinal direction,

- folding said side panels (28, 30) of said topsheet (22) in the longitudinal direction,
- applying barrier leg cuffs (44) to said topsheet (22) in the form of two continuous strips,
- 5 - characterized in that said barrier leg cuffs (44) have respective outer side portions (50) detached from the inner surface (26) of the topsheet (22) and forming laterally outwards-opening pockets (52) that receive and retain respective inner edges (54, 56) of
- 10 the respective folded portions (28a, 30a, 30b) of the side panels (28, 30).

FIG. 1

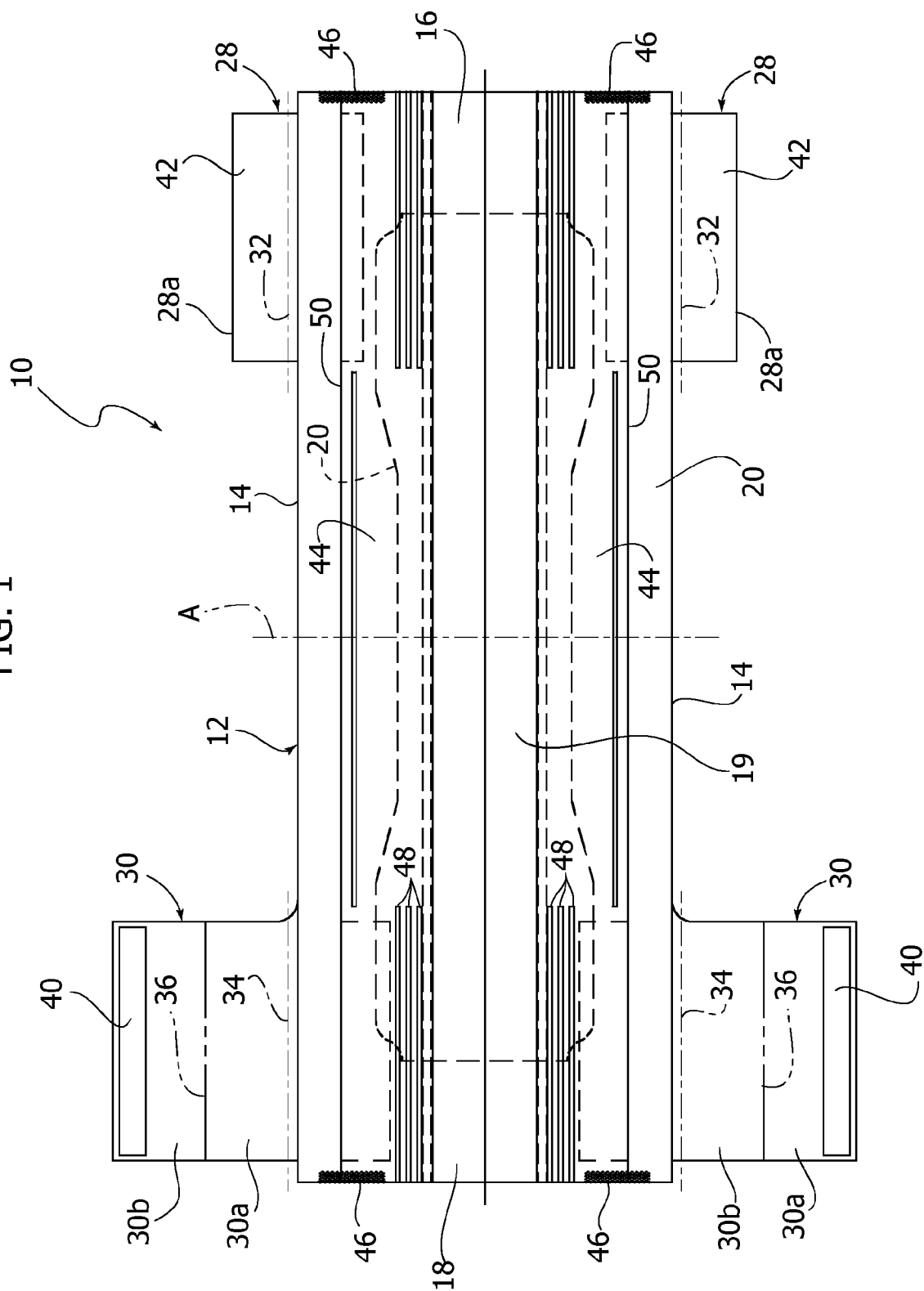


FIG. 3

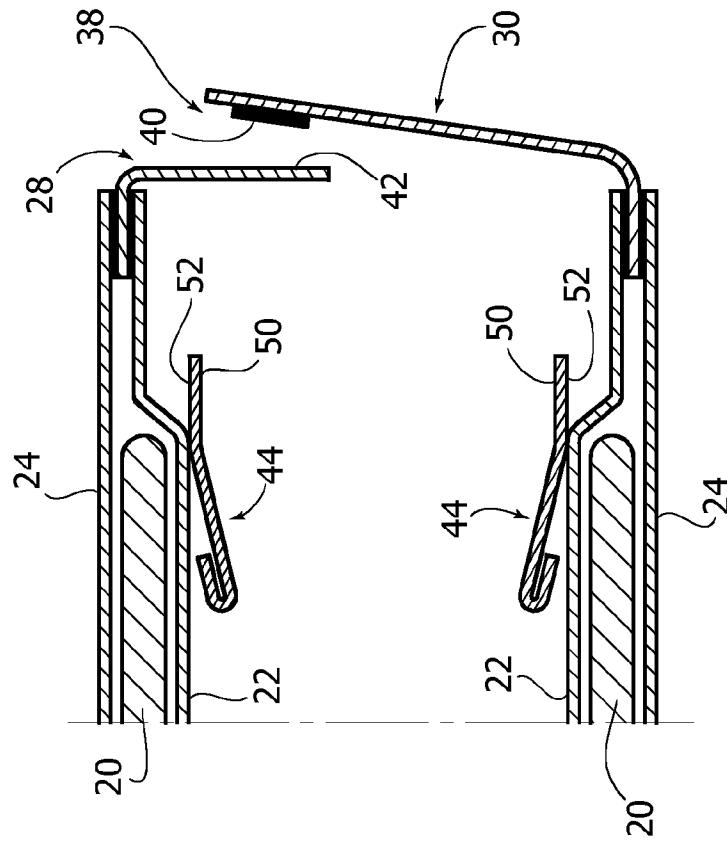


FIG. 2

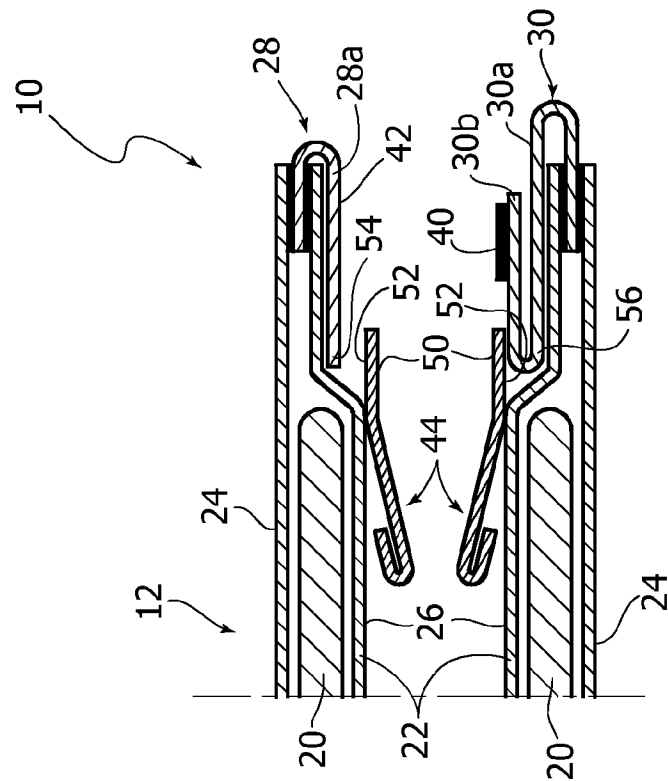


FIG. 4

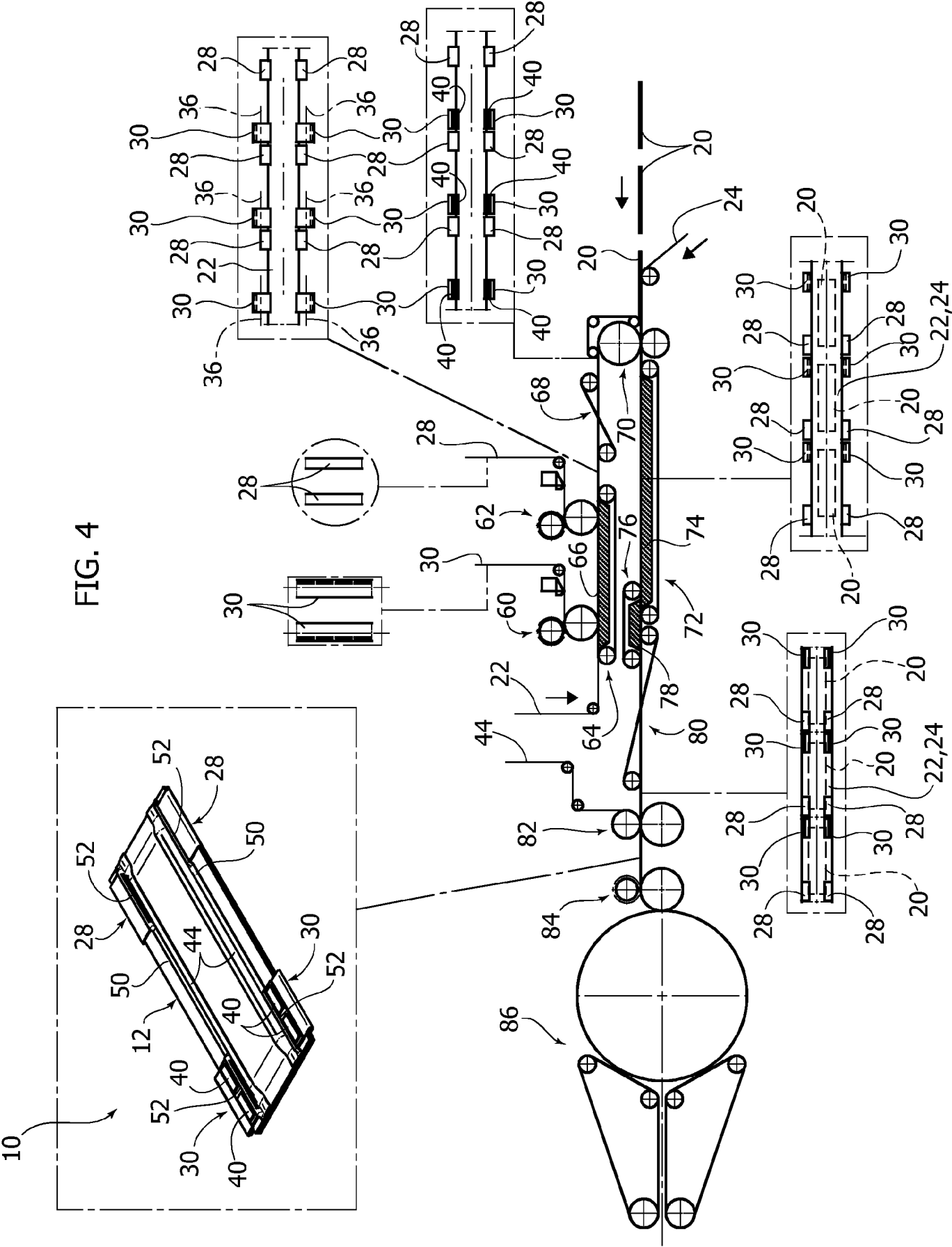


FIG. 5

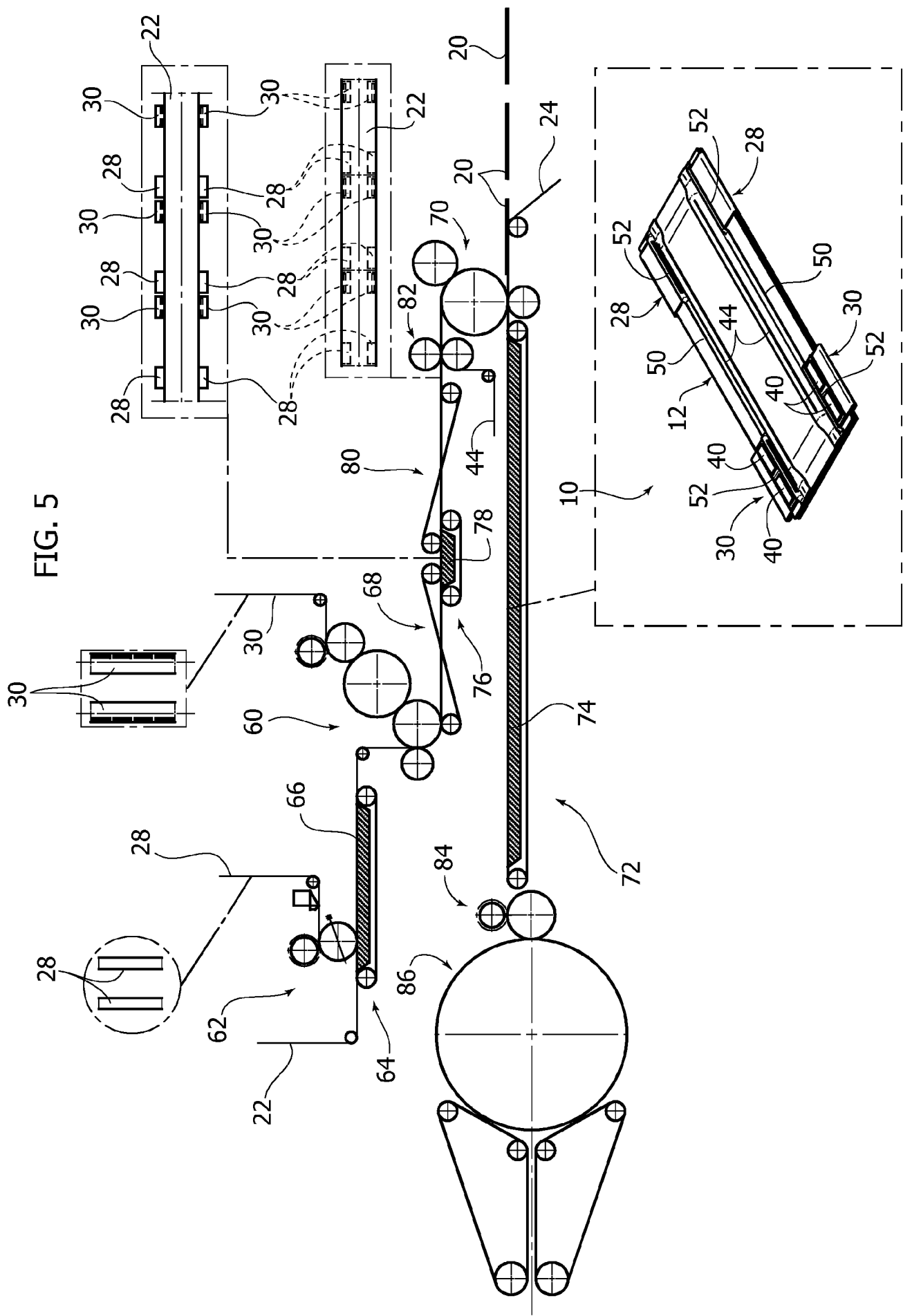


FIG. 6

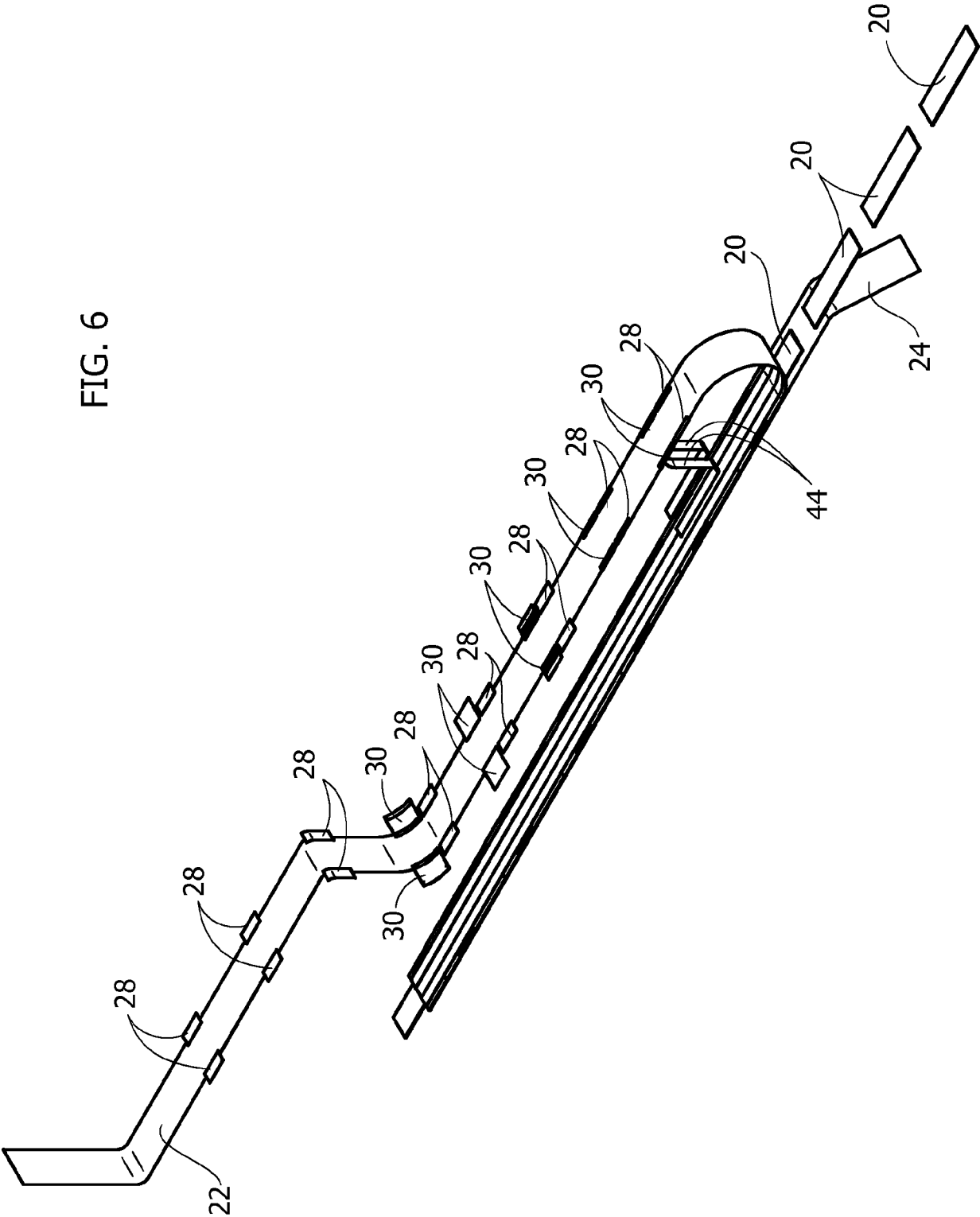
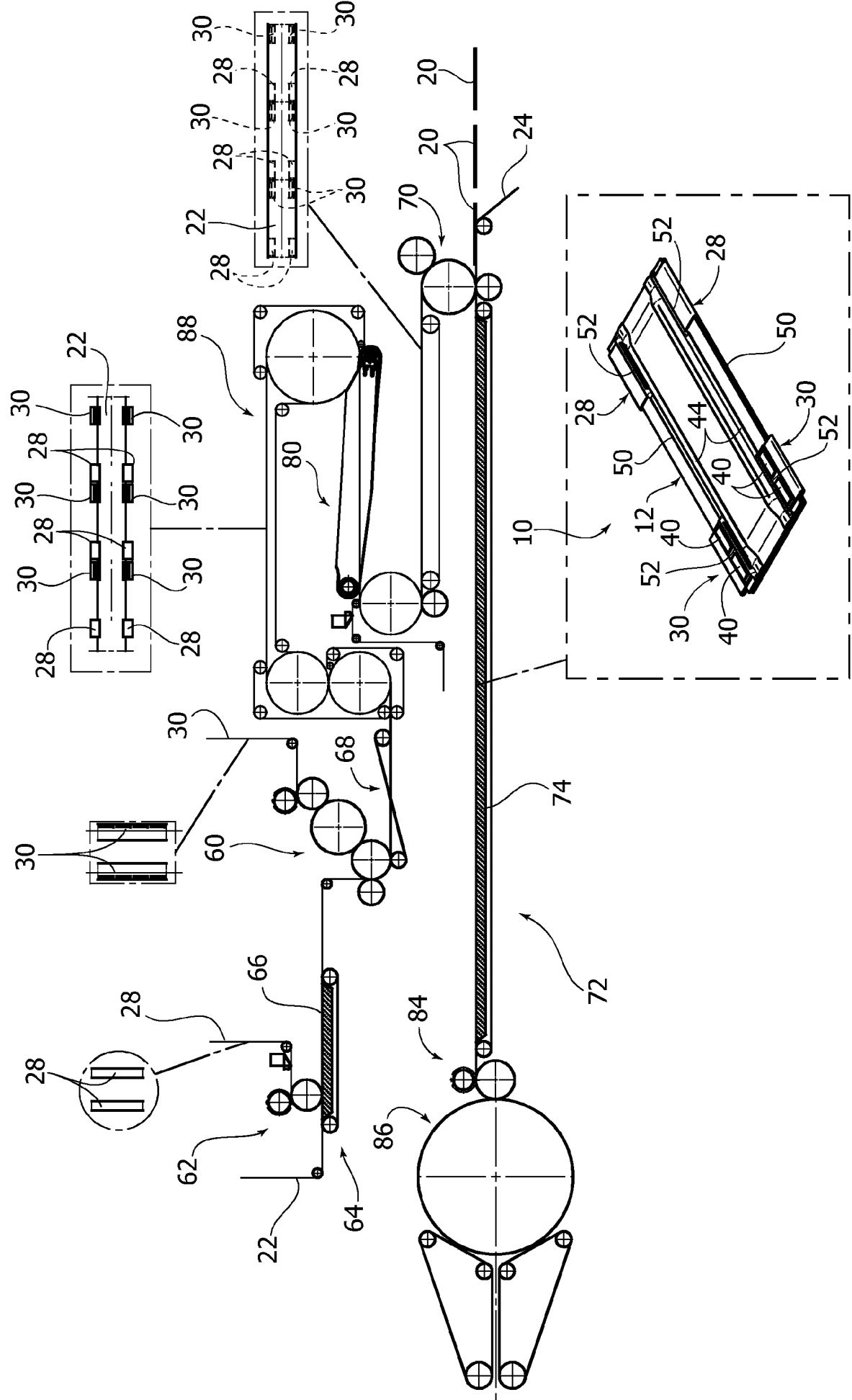
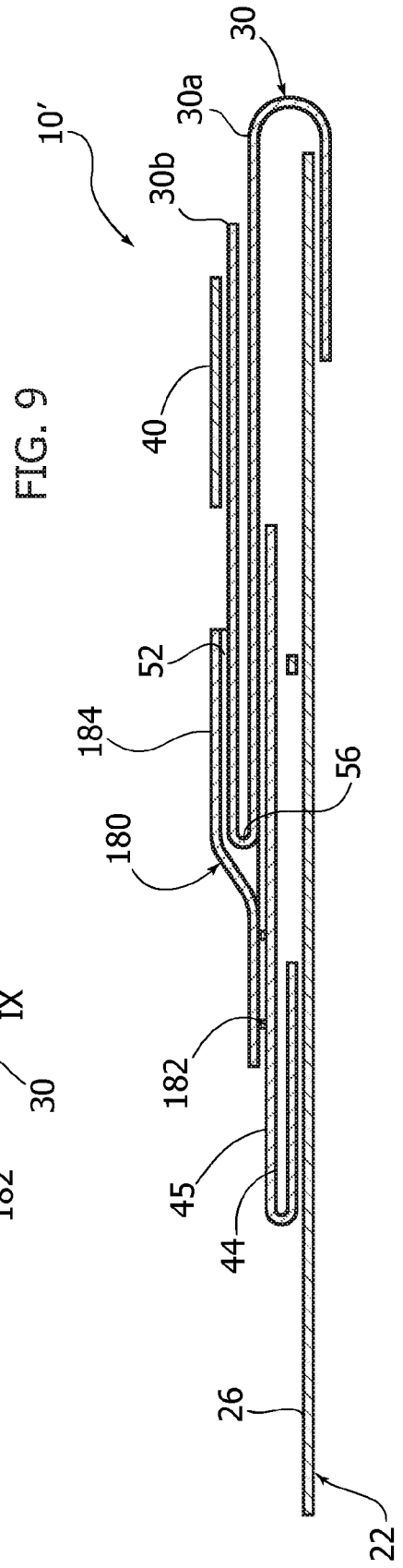
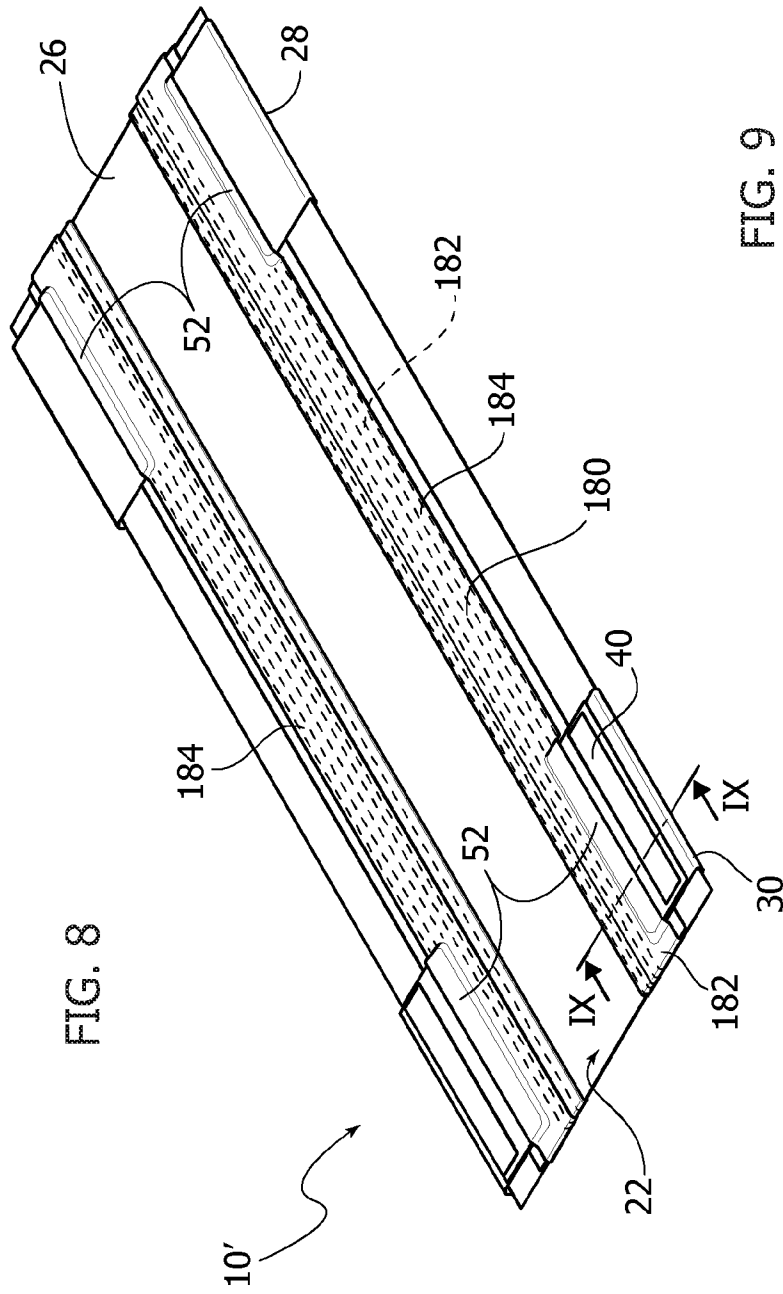


FIG. 7





INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/056006

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61F13/56 A61F13/494 A61F13/551 A61F13/15
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 2012/095739 A1 (FAMECCANICA DATA SPA [IT]; SABLONE GABRIELE [IT]; PASQUALONI PAOLO [IT]) 19 July 2012 (2012-07-19) page 10, lines 3-10 page 18, line 30 - page 19, line 24 page 21, lines 17-24 page 22, lines 1-31 page 24, line 19 - page 25, line 30 page 27, line 31 - page 28, line 31 page 33, line 8 - page 34, line 32 page 43, line 17 - page 47, line 2; claims 1, 18-22, 35, 45-48, 55-56, 68-72; figures 1-15</p> <p style="text-align: center;">----- -/--</p>	1-9



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

14 March 2013

Date of mailing of the international search report

21/03/2013

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Joly, Florence

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/056006

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2012/184937 A1 (SABLONE GABRIELE [IT] ET AL) 19 July 2012 (2012-07-19) paragraphs [0038], [0056] - [0058], [0051], [0053], [0083] - [0084], [0093] - [0101], [0106] - [0113], [0117] - [0120]; claims 124,125; figures 1-15 paragraphs [0123], [0125], [0147] - [0158], [0194] - [0209]; claims 6, 7, 11-12, 21-22, 25-26, 45-48, 68-72, 115-116, -----	1-9
A	WO 95/01768 A2 (PEAUDOUCHE [FR]; MARTIN FRANCOISE [FR]) 19 January 1995 (1995-01-19) figures 1-5 -----	4

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/056006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012095739	A1	19-07-2012	NONE
US 2012184937	A1	19-07-2012	NONE
WO 9501768	A2	19-01-1995	AT 162942 T 15-02-1998
		AU 682885 B2 23-10-1997	
		AU 7264794 A 06-02-1995	
		CA 2166481 A1 19-01-1995	
		CZ 9600058 A3 15-05-1996	
		DE 69408458 D1 12-03-1998	
		DE 69408458 T2 20-05-1998	
		DK 707466 T3 04-05-1998	
		EP 0707466 A1 24-04-1996	
		ES 2114210 T3 16-05-1998	
		FR 2707159 A1 13-01-1995	
		GB 2280593 A 08-02-1995	
		GR 3026440 T3 30-06-1998	
		JP H08512224 A 24-12-1996	
		NZ 269157 A 26-11-1996	
		PL 312460 A1 29-04-1996	
		SK 2596 A3 01-10-1996	
		US 6186996 B1 13-02-2001	
		WO 9501768 A2 19-01-1995	
		ZA 9404938 A 08-01-1996	