



(11) **EP 2 474 244 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication: **11.07.2012 Bulletin 2012/28** (51) Int Cl.: **A41D 27/18^(2006.01) A41D 27/24^(2006.01)**

(21) Application number: **12150789.1**

(22) Date of filing: **11.01.2012**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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(30) Priority: **11.01.2011 IL 21056711**

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(54) **Method of sewing lapel in a suit which prevents shrinking and wrinkless, and lapel produced thereof**

(57) A method for stitching and bonding at least two portions of fabric is provided, that prevents the appearance of puckering around the edges of the garment, when washed in a domestic wet-washing machine even in fabrics containing high percentage of wool, the method comprises stitching two portions of a fabric (21,22) to one another, along the edges (23), to leave free margins; folding the portions of fabric and the margins a first fold, so

that the margins are substantially coplanar with one another and the portions of fabric are substantially coplanar with one another; and folding one portion of fabric (21) a second fold (24), so that the portion overlays the margin and the other portion of fabric, to create an edge of said garment distal (d) from the stitch that attaches the fabric portions. The method can further comprise bonding the margins with a bonding strap (25).

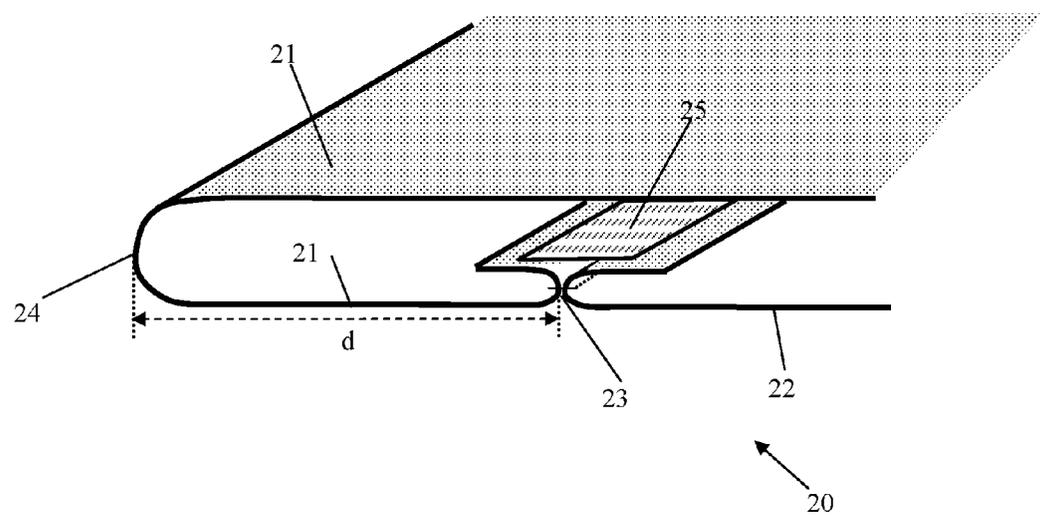


Fig. 3D

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Description**CROSS REFERENCE TO RELATED APPLICATIONS**

[0001] This application claims the benefit of Israeli Patent Application Serial No. 210567 filed January 11, 2011, which is incorporated in its entirety herein by reference.

BACKGROUND OF THE INVENTION

[0002] Conventional suits and other garments made of 100% wool must be dry-cleaned to avoid the puckering of the edges and around the stitches thereof. However, dry-cleaning requires the use of hazardous chemical solvents (typically tetrachloroethylene) which produces hazardous waste and requires special treatment to prevent environmental contamination. Furthermore, while washing machines have become a common home appliance and may be found in almost every household, dry-cleaning can not be done in the convenience of one's home and requires sending the garment to a dry-cleaner to provide the service. Finally, dry-cleaning is relatively expensive as it requires special equipment, solvents and trained personnel.

SUMMARY OF THE INVENTION

[0003] According to one embodiment of the present invention a method for stitching and bonding at least two portions of fabric is provided, that prevents the appearance of puckering around the edges of the garment, when washed in a domestic wet-washing machine even in fabrics containing high percentage of wool and specifically in 100% wool fabrics.

[0004] According to some embodiments of the present invention the method comprising: stitching the first portion of a fabric to the second portion of a fabric, along the edges of said first and second portions, to leave a first free margin of said first portion and a second free margin of said second portion; folding said first and second portions and said first and second margins a first fold, so that said first and second margins are substantially coplanar with one another and said first and second portions are substantially coplanar with one another; folding said first portion a second fold, so that said first portion overlays said first margin, said second margin and said second portion, to create an edge of said garment distal from the stitch that attaches the first portion and the second portion.

[0005] According to some embodiments of the present invention, the method may further comprise the step of bonding said first margin and said second margin with a bonding strap.

[0006] According to yet another embodiment of the present invention said first and second layers may be of different shape.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The subject matter regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation, together with objects, features, and advantages thereof, may best be understood by reference to the following detailed description when read with the accompanying drawings in which:

[0008] Figs. 1A-1C are illustrations of prior art method for attaching edges of a first portion of fabric and a second portion of fabric used for stitching the edges of garment articles such as for lapels of suits;

[0009] Fig. 2 is an image of a prior art jacket made of 100% wool after laundry in a conventional washing machine; made according to the prior art method illustrated in Figs. 1A - 1C.

[0010] Figs. 3A-3E are illustrations of 5 stages of creating an edge of a garment such as a lapel in suit according to one embodiment of the present invention;

[0011] Fig. 4 is a flowchart of a method according to one embodiment of the present invention.

[0012] Fig. 5A is an illustration of a garment made according to an embodiment of the present invention;

[0013] Fig. 5B is an illustration of a section of a lapel of the garment illustrated in Fig. 5A; and

[0014] Fig. 6 is an image of a jacket according to the present invention after laundry in a conventional washing machine.

[0015] It will be appreciated that for simplicity and clarity of illustration, elements shown in the figures have not necessarily been drawn to scale. For example, the dimensions of some of the elements may be exaggerated relative to other elements for clarity. Further, where considered appropriate, reference numerals may be repeated among the figures to indicate corresponding or analogous elements.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[0016] In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those skilled in the art that the present invention may be practiced without these specific details. In other instances, well-known methods, procedures, and components have not been described in detail so as not to obscure the present invention.

[0017] Reference is now made to Figs. 1A - 1C which are illustrations of step-by-step creation of a lapel in a suit as known in the art. This method involves attaching edges of a first portion of fabric 11 and a second portion of fabric 12 used for garment article 10. As may be seen in Fig. 1A, first portion 11 and second portion 12 are stitched to one another by stitch 13. Stitch 13 is located substantially proximal and along the edge of first portion

11 and second portion 12. As illustrated in Fig. 1B, after stitching first portion 11 and second portion 12, first portion 11 is folded along stitch 13. Similarly, second portion 12 is folded along stitch 13, in a direction opposite to the direction of folding of portion 11. After folding, and as may be seen in Fig. 1B, stitch 13 is located along edge 14 of the attached portions 11 and 12. In some instances an ornamental stitch (not shown) is added along edge 14 as a decorative or ornamental design, however commonly the ornamental stitch does not have a role in the formation of edge 14.

[0018] After folding, garment 10 may be ironed to reach its final look. As illustrated in Fig. 1C, after folding and ironing stitch 13 is positioned proximal to edge 14 and between first portion of fabric 11 and second portion of fabric 12 of garment 10.

[0019] Prior art garments made of substantially 100% wool may not be wet-washed as the layers of fabric are sensitive to shrinking and swelling (more than other fabrics or fabrics of lower wool content) when introduced into a wet environment. The different layers of fabric are subject to different deformation. Thus, wet-washed garment of a substantially 100% wool would most probably suffer from puckering especially along the contact lines (i.e. along the stitches) of the layers. Wet-wash will be referred in this application as any process of washing, cleaning or similar action involving immersing the washed garment in water.

[0020] Reference is now made to Fig. 2 which is an image of a prior art suit 15 made of 100% wool, after it has been washed in a domestic wet-washing machine. As may be seen in Fig. 2, puckering 16 may be visible along lapel 17 and collar 18.

[0021] Reference is now made to Figs. 3A-3E which are illustrations of 5 stages of creating an edge of a garment such as a lapel in suit, according to one embodiment of the present invention, and to Fig. 4 which is a flowchart of a 5 stages method according one embodiment of the present invention. As may be seen in Fig. 3A and in block 100 of Fig. 4, a first portion 21 made of a first fabric may be stitched to a second portion 22 made of a second fabric by stitch 23. Stitch 23 may be located near the edges of first portion 21 and second portion 22, to leave margins 21A and 22A.

[0022] After first portion 21 and second portion 22 are stitched together by stitch 23, margins 21A and 22A and portion 21 and portion 22 are folded substantially about stitch 23, as illustrated in Fig. 3B and described in block 110 of Fig. 4. Margins 21A and 22A may be folded to be substantially coplanar. Similarly, portion 21 and portion 22 may be folded to be substantially coplanar and parallel and close to margins 21A and 22A, respectively. This is achieved by folding margins 21A and 22A away from each-other and towards portions 21 or 22, respectively, about stitch 23. Portions 21 and 22 may also be folded away from each other towards margins 21A and 22A, respectively, about stitch 23.

[0023] According to one embodiment of the present

invention, and as illustrated in Fig. 3C and described in block 120 in Fig. 4, a bonding strap 25 may be bonded onto margins 21A and 22A, on their faces facing away from portions 21, 22, to retain margins 21A and 22A at place and prevent them from returning to their initial position prior to the folding step described in block 110 of Fig. 4.

[0024] According to an embodiment of the present invention, bonding strap 25 may be of polyester. According to yet another embodiment, strap 25 may be of PU (polyurethane) or polypropylene. It would be appreciated by those skilled in the art that other materials may be used for bonding strap 25.

[0025] Bonding strap 25 may be bonded onto margins 21A and 22A by means of a textile adhesive such as polyester with adhesive nylon dots. Other adhesives may be used as known in the art. According to some embodiments of the present invention bonding strap 25 may be bonded to margins 21A and 22A by applying heat, or by any other known means for bonding textile materials.

[0026] Reference is now made to Fig. 3D which depicts garment 30 after a second folding step and to block 130 of Fig. 4. As illustrated in Fig. 3D first portion of fabric 21 may be folded again to overlay margins 21A and 22A, and second portion of fabric 22, thus creating an edge 24 which is composed of two layers of first portion 21 which, therefore, are of exactly of the same material with exactly the same orientation of weaving. Edge 24 does not require structural stitching and thus it may be stitch-free. According to some embodiments of the present invention an ornamental stitch may be added along edge 24, however such ornamental stitch is not required for structural reasons. According to one embodiment of the present invention, stitch 23 may be shifted from edge 24 and may be covered by first portion 21.

[0027] According to some embodiments of the present invention, stitch 23 may be shifted from edge 24 in a predefined distance d . According to one embodiment distance d may be of at least 2.0 cm centimeter. According to other embodiments of the present invention distance d may be in the range of 0.5 to 2.0 centimeters. It would be appreciated by those skilled in the art that other distances may be used.

[0028] As illustrated in Fig. 3E and block 140 in Fig. 4, after the garment has been folded to its final form, it may be ironed in order to fix edge 24.

[0029] The method described above, with reference to Figs. 3A-3E, may be used for instance for attaching the inner layer and outer layer of lapel 35A in suit 30 which may be made of cloth material with high hygroscopic coefficient such as 100 percent wool cloth. As illustrated in Fig. 5A, lapel 35A is comprised from inner layer 32 and outer layer 31 attached to each other by stitch 33 in accordance with the method detailed above. Stitch 33 is distant from edge 34 of lapel 35A. When lapel 35A is folded, stitch 33 is internal and is not visible, as may be seen in lapel 35B of Fig. 5A. As may be further seen in Fig. 5A, distance d between stitch 33 and edge 34 may

vary along lapel 35A. For instance, according to some embodiments of the present invention, distance d may be 2 centimeters at the upper end 37A of lapel 35A, and may be 0 (zero) centimeters at the lower end 37B of lapel 35A.

[0030] Reference is now made to Fig. 5B which is a sectional view of lapel 35B of Fig. 5A, along line L. As may be seen in Fig. 5B, lapel 35B overlays outer portion 36 of suit 30. Thus, stitch 33 is concealed between lapel 35B and outer portion 36 of suit 30. It would be appreciated by those skilled in the art that since stitch 33 is concealed, even if puckering do occur, it would not be visible from the direction of arrow 38.

[0031] It would be clear to those skilled in the art that in order to allow the shifting of stitch 33 from edge 34 of lapel 35A, inner layer 32 and outer layer 31 should be cut differently from lapel cut known in the art. It would be further appreciated by those skilled in the art that other parts of a jacket or other garments, where the attachment of two or more layers of cloth by stitching would cause in a highly hygroscopic materials puckering and deformation next to the stitch line, may be attached in accordance with methods of the present invention to ensure none or very little, substantially invisible deformation..

[0032] It was found that attaching the edges of fabric layers according to a method of the current invention, prevents the appearance of puckering after wet-cleaning. Reference is now made to Fig. 6 of the present invention, which is an image of 100 % wool garment 40 according to an embodiment of the present invention, after laundry in a conventional wet-washing machine. As may be seen in Fig. 6, there is not visible puckering along the edges 47 of garment 40.

[0033] While certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes, and equivalents will now occur to those of ordinary skill in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention.

Claims

1. A method for attaching at least a first portion of fabric and a second portion of fabric, the method comprising:

stitching said first portion to said second portion, along a first and a second edges of said first and second portions, leaving a first margin of said first portion from said first edge to said stitch and a second margin of said second portion from said second edge to said stitch;

folding said first and said second portions and said first and said second margins, a first fold, so that said first and said second margins are substantially coplanar with one another and said

first and said second portions are substantially coplanar with one another and substantially parallel to said first and said second margins; and folding said first layer a second fold, so that said first portion overlays said first margin, said second margin and said second portion, to create an edge of said garment distal from said stitch.

2. The method according to claim 1 wherein said edge is located in a predefined distance from said stitching of said first portion and of said second portion.
3. The method according to claim 1 further comprising bonding said first margin and said second margin with a bonding strap prior to the folding of said second fold.
4. The method according to claim 3 wherein said bonding strap is made of polyester.
5. The method according to claim 3 wherein said strap is bonded by applying heat to said strap.
6. The method according to claim 1 further comprising a step of ironing said edge to fix said edge.
7. The method of claim 1 wherein said first and said second portions are different in shape.
8. The method according to claim 2 wherein said predefined distance is at least 2 cm.
9. The method according to claim 2 wherein said predefined distance is in the range of 0.5 - 2cm.
10. A garment comprising:
 - a first portion of fabric and a second portion of fabric;
 - wherein said first portion of fabric and said second portion of fabric are stitched to one another, and
 - wherein said first portion of fabric is folded on top of said second portion of fabric to create an edge, wherein said edge is distal to said stitch.
11. The garment according to claim 10 further comprising a bonding strap to bond a first margin of said first portion and a second margin of said second portion.
12. The garment according to claim 10 wherein said edge is located in a predefined distance from said stitch.
13. The garment according to claim 12 wherein said predefined distance from said stitch is at least 2 cm.
14. The garment according to claim 12 wherein said pre-

defined distance is in the range of 0.5-2 cm.

15. The garment according to claim 10 wherein said first portion and said second portion are different in shape.

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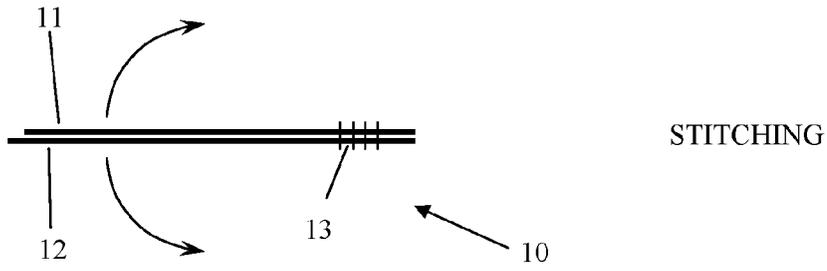
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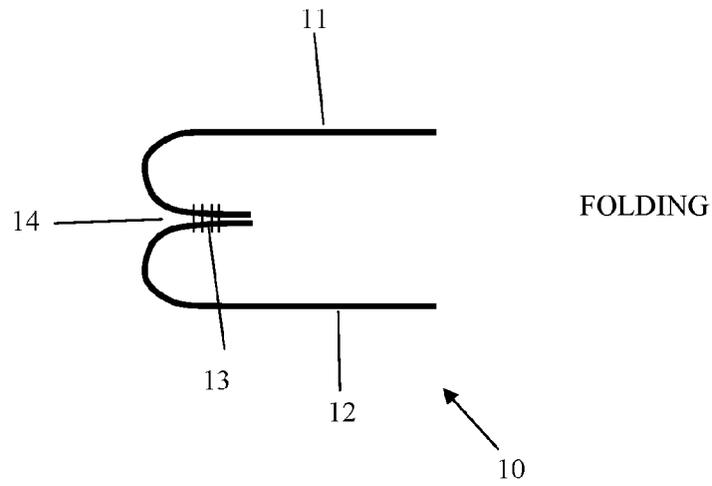
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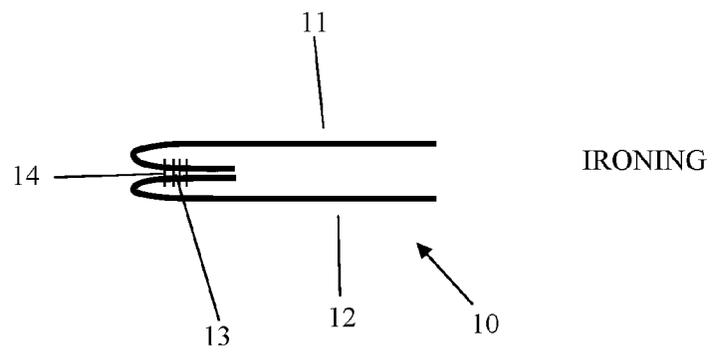
STITCHING

Fig. 1A PRIOR ART



FOLDING

Fig. 1B PRIOR ART



IRONING

Fig. 1C PRIOR ART

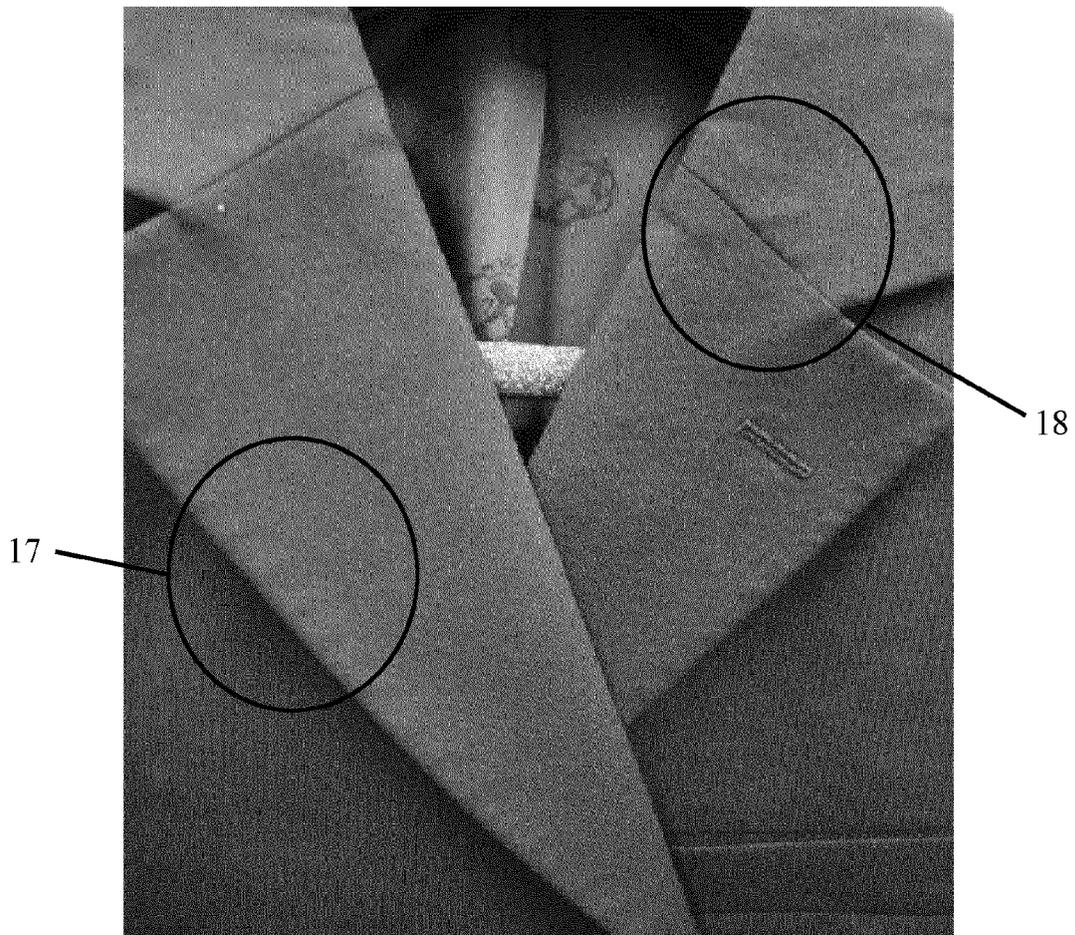


Fig. 2

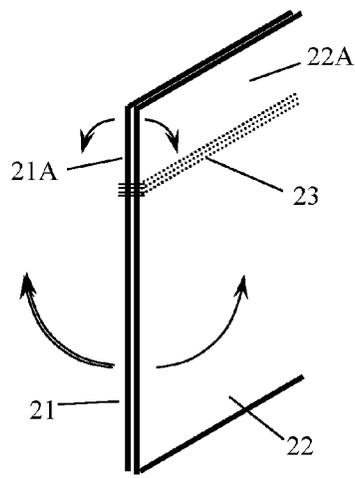


Fig. 3A

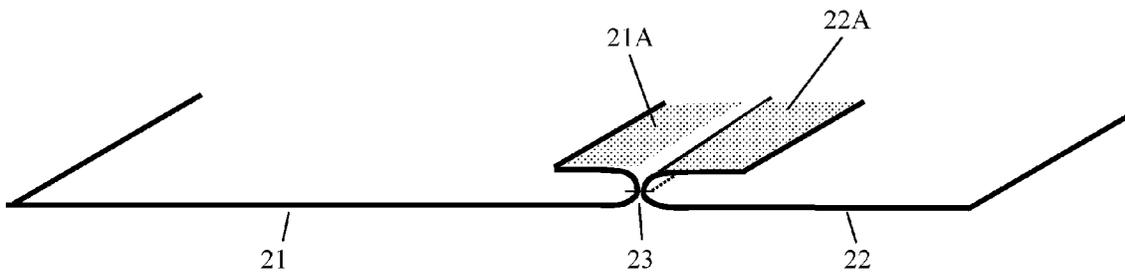


Fig. 3B

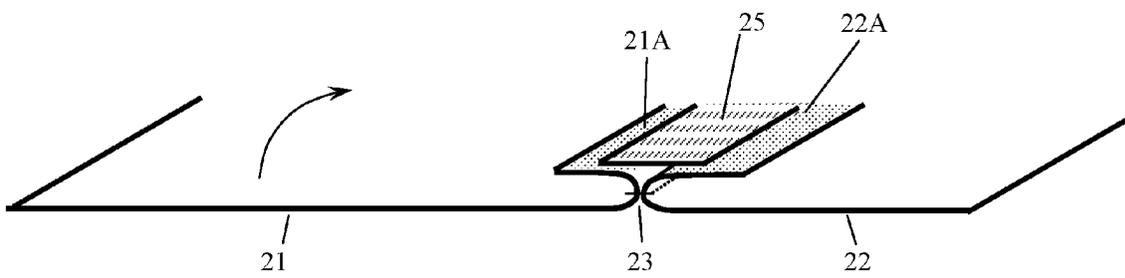


Fig. 3C

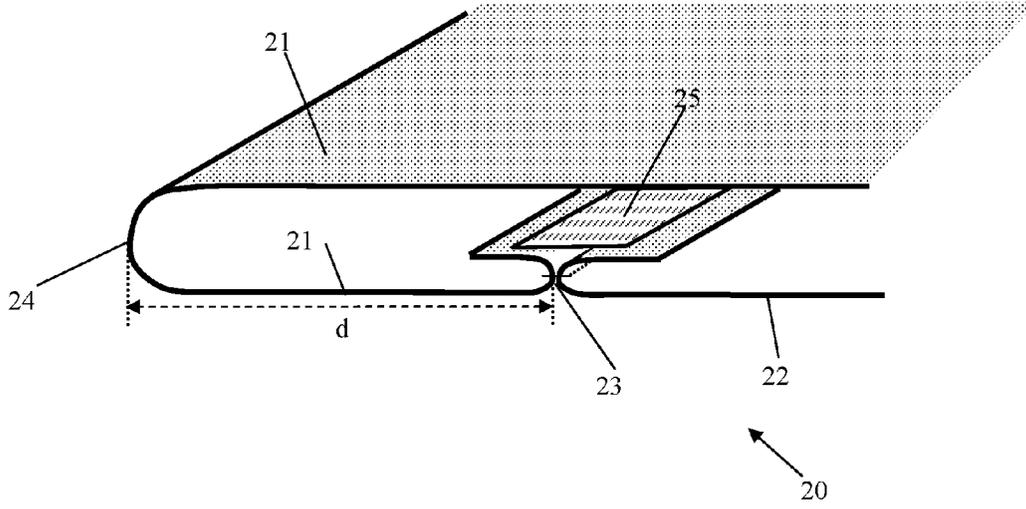


Fig. 3D

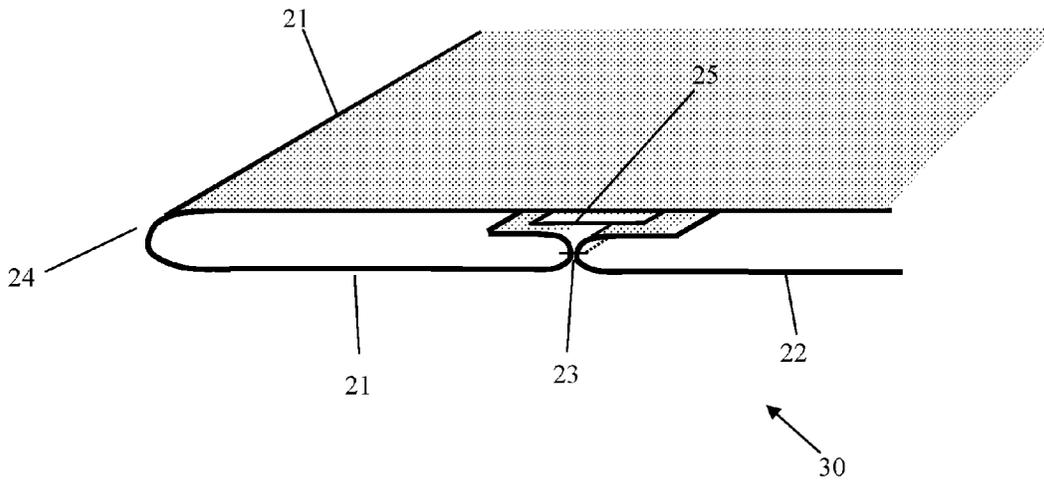


Fig. 3E

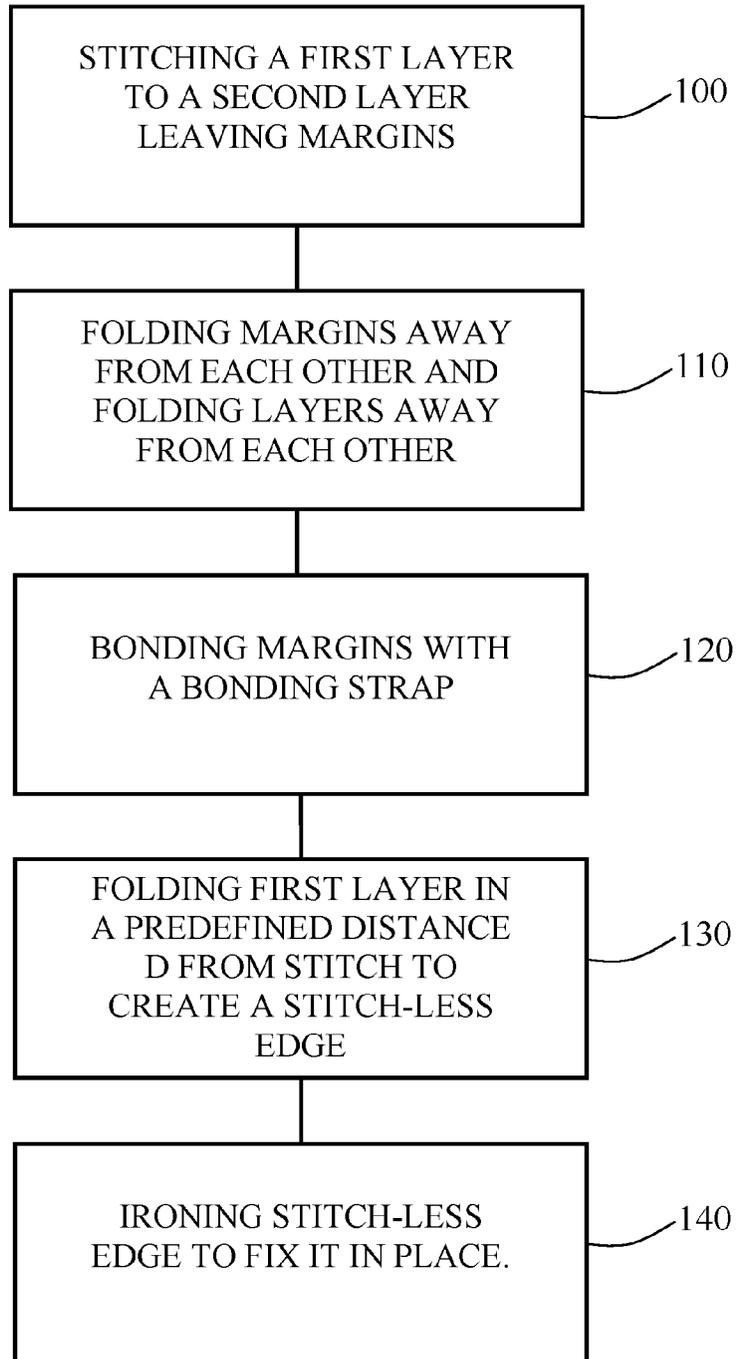


Fig. 4

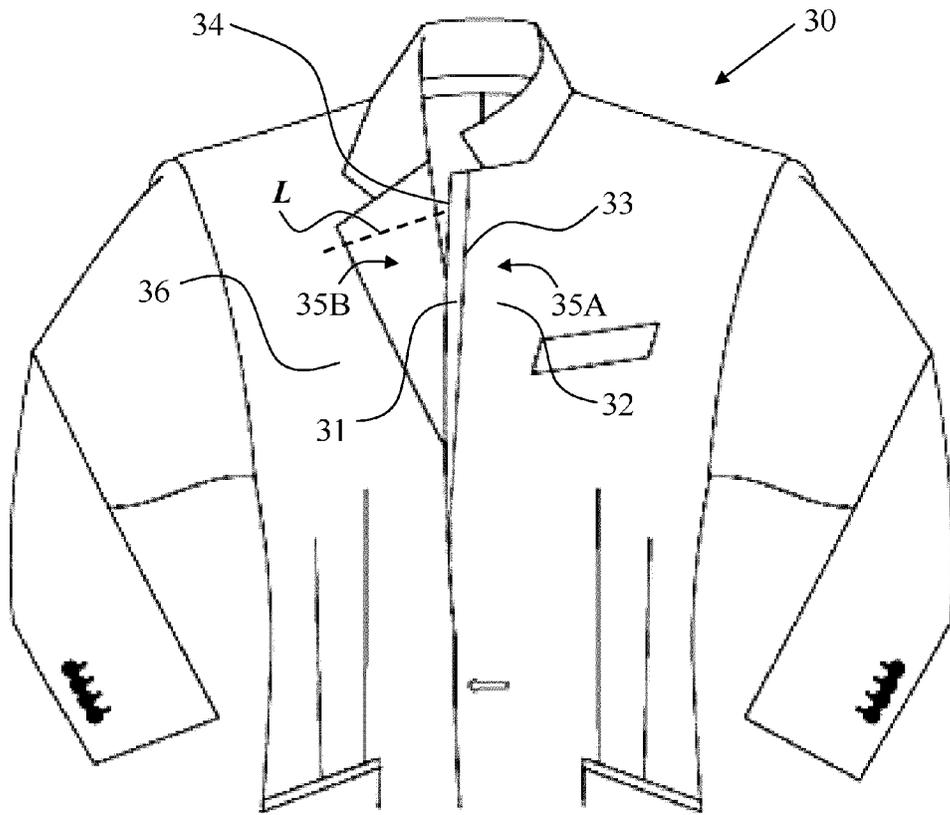


Fig. 5A

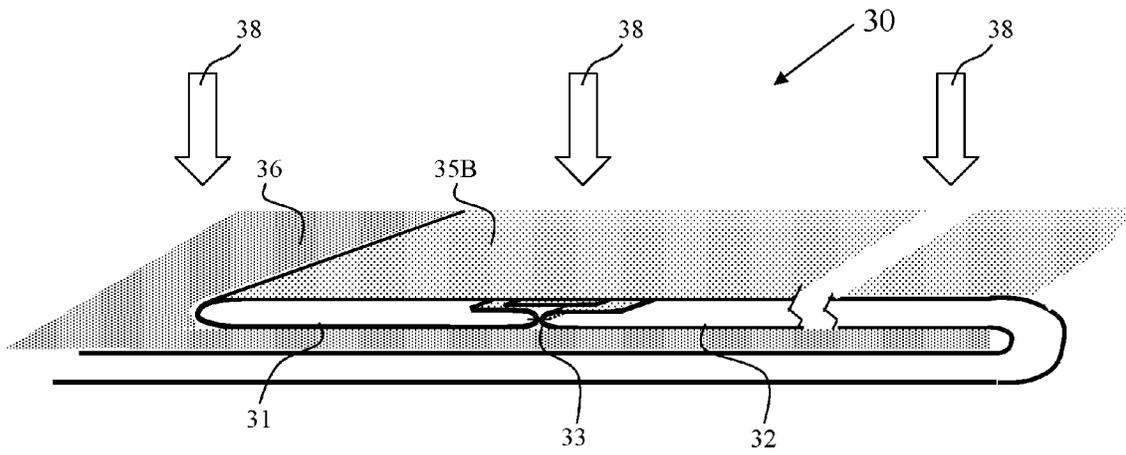


Fig. 5B

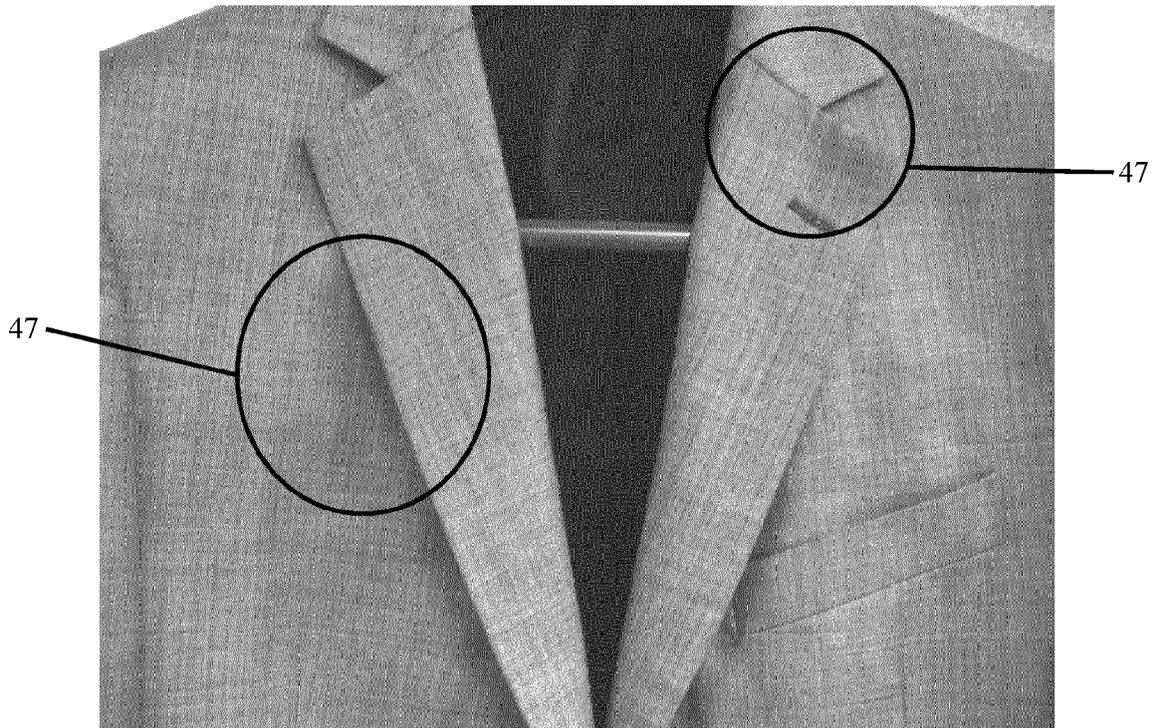


Fig. 6



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 Application Number
 EP 12 15 0789

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		17 April 2012	Simpson, Estelle
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone		T : theory or principle underlying the invention	
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 12 15 0789

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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