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# DESCRIPTION

## Field of Disclosure

[0001] The present invention relates to a garment comprising multiple layers, for example an item of outerwear or a jacket such as a suit jacket.

## Background

[0002] Traditionally, suit jackets were fully canvassed, meaning they were constructed with a layer of canvas stitched between the outer layer and the lining. In a fully canvassed jacket, the internal structure, the canvas, runs from the top of the shoulder to the bottom hem and under the lapel, the purpose of which is to provide the jacket with structure and to prevent deformation and sagging. This form of structuring is expensive both in terms of the materials used and the labour involved to create it. There is also a risk that if the canvas is poorly-inserted or shrinks after insertion the front of the suit will pucker which is almost impossible to fix on a completed garment.

[0003] With the development of fusible materials an increasing number of fused suit jackets have appeared on the commercial market. Fusible fabrics comprise a heat sensitive resin which allows them to be effectively "fused" to the outer layer of the front portion of the jacket without stitching. In fused suit jackets, the fusing replaces the canvas portion of the internal structure. The fusing starts at approximately the top of the shoulder and runs down to the bottom hem and under the lapel. The only canvas that is kept is a chest piece that does not extend to the lapels and stops under the arm to reinforce the shape of the garment. The risk of using fusible materials is that if heat, or steam, is applied to the suit, for example during dry cleaning or in a humid atmosphere, the internal structure, in this case the fusing material, can become detached from the outer layer. This effect is known as "bubbling" and is permanent. The direct attachment of the fusible material to the front of the jacket has a stiffening effect on the material which does not provide the same support as the fully-canvassed suit. Also since there is no canvassing in the lapels this gives them a flat and lifeless look.

[0004] More recently, half-canvassed suit jackets have been developed. In half-canvassed jackets the internal structure comprises a chest piece that starts at approximately the top of the shoulder, extends under the lapel and ends approximately half-way down the length of the front portion of the jacket. It also contains fusing that runs from the top of the shoulder all the way down to the bottom seam without extending under the lapel. Since this form of structuring comprises of fusible material it also causes the front of the jacket to stiffen and runs the risk of bubbling.

[0005] It is desirable to improve the fit and comfort of the suit and to reduce the weight while

also reducing the effects of bubbling in order to increase the longevity of the suit. In the past, research has involved developing new resin for fusible materials which can then be applied to the whole of the suit while reducing its sensitivity to bubbling.

### **Summary of Disclosure**

**[0006]** In the disclosed invention, there is provided a garment according to claim 1.

**[0007]** The lining may be stitched to the outer layer, e.g. at the border or seams of the lining and/or outer layer.

**[0008]** The terms "outer", "inner" and "internal" are intended to refer to sides of garment when worn conventionally, or in use. "Outer" refers to the external or outermost side of the garment when being worn conventionally on a body or model, and "inner" or "internal" refers to an opposing side to the outer side, such as the side which faces the body or model with respect to the outer layer when the garment is worn conventionally on the body or model. The reference to the front part of the garment above is a reference to a section of the garment which may normally be worn on the front of a body, such as a human body, or model, for example extending vertically from a ridge of the shoulder part of the garment to its bottommost part during conventional wearing of the garment, and horizontally from a centreline during conventional wearing which would extend from the centre of the body to a line under the arm. The reference to a "line under the arm" is a reference to a line which would normally sit or be located under an arm extending down vertically towards the ground when the garment is being worn on a standing body or other standing model. The section of the garment reference hereinbefore may simply be one side of the front of the garment, such as one half of the front of the garment.

**[0009]** The term "extend" means that one material part covers or is located on a surface of another material part or parts. Thus, when it is said that chest piece or fusing does not "extend" over the outer layer, this means that a section of the outer layer is not covered by the chest piece or fusing, and that the chest piece or fusing is not located over or against the outer layer, e.g. on its internal surface.

**[0010]** The chest piece may be stitched or fused to the outer layer and/or lining to hold in position against the outer layer. The chest piece may be stitched or fused in one or more discrete locations against the outer layer and/or lining, e.g. in or at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15 or 20 locations.

**[0011]** The garment's internal structure is flatter, lighter and more flexible than conventional garments since the chest piece does not extend across the whole of the garment. As a result of its position in the garment, it is able to mould and adapts to both the fabric lining and outer layer and the wearer of the garment itself. This internal structure thus maintains the shape and holds the structure of the garment while allowing extension and maximum movement across

the front of the garment. This is particularly so because the chest part does not extend to a lapel part of the garment which does not constrain movement and position of the chest part whilst it is being worn.

**[0012]** The chest part may not extend under an arm part of the front part of the garment. This allows for maximum movement of the arm without making the garment rigid when moving the arm. Preferably, the chest piece of the internal structure may comprise or consist of one or more of: wool, a blend of wool, cotton and animal hair, such as horse hair and/or camel hair. This layered structure allows increased flexibility. The arm part may be a section of the garment which would normally sit under an arm extending down vertically towards the ground when the garment is being worn on a standing body or other standing model.

**[0013]** Advantageously, the internal structure may comprise, cover or be positioned across or underneath no more than 40%, 50%, 60%, 70% or 80% of the surface area of the outer layer of the front part of the garment. This reduced surface area reduces the weight of the garment and provides greater flexibility in its wearing. The chest piece may comprise, cover or be positioned across or underneath no more than 10%, 20%, 30%, 40% or 50% of the outer layer of the front part of the garment.

**[0014]** Preferably, the fusible material may extend over at least some, or all of a lapel part of the garment. This reinforces the lapel and prevents it from having a flat lifeless appearance, whilst not having the full conventional reinforcement of the chest part. The fusible material may extend to a collar part of the garment.

**[0015]** In one embodiment, the fusible material may extend from the shoulder part of the garment, across the chest part and through a lapel part of the garment without extending under an arm part of the front part of the garment.

**[0016]** Advantageously, the fusible material may cover or be located across or underneath no more than 40%, 50%, 60%, 70% or 80% of the surface area of the outer layer. This reduces the chance that bubbling may occur.

**[0017]** Preferably, the lapel part of the garment may comprise a reinforcement structure between the outer layer and the lining. This also prevents the lapel from appearing flat and lifeless.

**[0018]** Preferably, the shoulder part of the garment may comprise a reinforcement structure between the outer layer and the lining. This shoulder reinforcement adds structure to the garment without adding extra weight.

**[0019]** Preferably, the collar part of the garment may comprise a reinforcement structure between the outer layer and the lining.

**[0020]** In one embodiment of the invention, the reinforcement material of the shoulder part

may comprise or consist of one or more of: wool, a blend of wool, cotton and animal hair, such as horse hair and/or camel hair.

**[0021]** Preferably, the reinforcement structure may be of a different composition to the chest piece. The reinforcement structure may be fused to the lapel part.

**[0022]** In one embodiment of the invention, the garment is an item of outerwear, for example a jacket, such as suit jacket.

### **Brief Description of the Drawings**

**[0023]** The present invention is described in greater detail below in conjunction with the accompanying drawings in which:

Fig. 1 is a plan view of the internal structure of a front panel of a fully canvassed suit of the prior art;

Fig. 2 is a plan view of the internal structure of a front panel of a fully fused suit of the prior art;

Fig. 3 is a plan view of the internal structure of a front panel of a half-canvassed suit of the prior art;

Fig. 4 is a plan view of the internal structure of the front and side panels of a garment according to the invention;

Fig. 5 is a side view of the internal structure of a garment according to the invention showing the canvas part;

Fig. 5a is a sectional view of the chest piece of the internal structure of a garment according to the invention;

Fig. 5b is a plan view of the shoulder part of the internal structure of a garment according to the invention;

Fig. 6 is a further plan view of the internal structure of the front and side panels of a garment according to the invention showing the fusible material part;

Fig. 7 is an enlarged plan view of the lapel part of the internal structure of the front panel of Fig. 6;

Fig. 8 is a plan view of the internal structure of the front and side panels of a garment according to the invention showing the canvas and fusible material parts.

### **Detailed Description**

**[0024]** Figs. 1 to 3 are examples of garments of the prior art described below to aid the understanding of the invention which is described in detail in exemplary embodiments in Figs. 4 to 8.

**[0025]** The term "canvas" used in this example is understood to mean a closely woven fabric which comprises or consists of one or more of: wool, a blend of wool, cotton and animal hair, such as horse hair and/or camel hair.

**[0026]** Fig. 1 is an example of the inside front panel 110 of a fully canvassed suit jacket of the prior art. It can be seen here that the canvas 112 is stitched onto the exterior cloth 114 from the shoulder 102 part of the jacket to the bottom hem 116, through the lapel 106 part without extending under the arm 108 part of the jacket. It can also be seen here that the chest piece 104 extends from the shoulder 102 part of the jacket approximately halfway down the front panel 110 without extending to the lapel 106 part.

**[0027]** Fig. 2 is an example of the inside front panel 110 of a fully fused suit jacket of the prior art. It can be seen here that the fusible material 218 is attached directly to the cloth exterior from the shoulder 102 part of the jacket to the bottom hem 116, through the lapel 106 part without extending under the arm 108 part of the jacket. There is also a chest piece or part 104 which extends from the shoulder 102 part of the jacket approximately halfway down the front panel 110 without extending to the lapel 106 part.

**[0028]** Fig. 3 is an example of the inside front panel 110 of a garment of the prior art which is a half-canvassed suit jacket. It can be seen that here that the garment comprises both a canvas 112 and fusible material 218. The fusible material extends from the shoulder 102 part of the jacket to the bottom hem 116 without extending under the arm 108 part or the lapel 106 part of the jacket. The canvas 112 extends from the shoulder 102 part of the jacket to approximately halfway down the front panel 110. There is also a chest piece 104 in this form of structuring.

**[0029]** Fig. 4 is a section of a garment 400 according to an embodiment of the invention viewed internally where the front panel 428 and side panel 426 are visible. It can be seen here that the chest piece or part 418 (which may be a canvas chest piece) extends from the shoulder of the garment 400 down the front panel 428. The chest piece 418 may comprise a shoulder part 402 which extends beyond the shoulder seam 406 of the garment 400. There is also a shoulder reinforcement 408 which extends either side of the shoulder seam 406. The chest piece 418 does not extend into the collar 404 or the lapel 410 of the garment 400 but stops at the edge 412 of the lapel 410 with respect to the main body of the outer layer 430. The chest piece 418 does not reach the bottom hem 432 of the garment 400, but extends to a maximum extent at a point 422 between the end 420 of the lapel 410 and the bottom hem 432 on the front panel 428. In this regard, the border of the chest piece 418 is shaped in a curve 423 which extends from an under arm seam point 416 to the end 420 of the lapel 410. The

chest piece 418 does not extend over or under the arm part of the garment 400, but stops at the arm seam 414 along the front panel 428 and under the arm at a point just after the seam joining the front and side panels 424. The material not covered by the chest piece 418 is the outer layer 430 (which may be cloth) of the garment. Fig. 4 is shown so that the component parts of the garment can be seen for the purposes of illustration. However, it will be appreciated that the chest piece 418 and shoulder pad 408 are arranged such that they are located on an internal side of the garment against an internal side of the outer layer 430. The shoulder pad is located between the chest piece 418 and outer layer 430, but the alternative is also possible such that the chest piece 418 is located between the outer layer 430 and the shoulder pad 408.

**[0030]** Fig. 5 is a section of the garment 400 according to an embodiment of the invention. It is a side view where the front panel 428, side panel 426 and back panel 510 are visible. There is also a gap in the garment where the arm would be encompassed by the arm seam 502. It can be seen here that the chest piece 418 and a shoulder part 402 extends over the shoulder seam 406 of the garment 400 partly onto the back panel 510 of the garment 400. The chest piece 418 extends beyond the seam joining the front and side panel 424 onto the side panel 426 and joins the arm seam 502 at a point 416 before the bottom of the arm seam 506 and the seam joining the back and side panels 504. It can be seen more clearly here also that the chest piece 418 extends down the front panel 428 to a point under the bottom of the arm 506 but above the bottom hem 432. The material not covered by the chest piece 418 is the outer cloth layer 430 of the garment 400.

**[0031]** Fig. 5a is a sectional view of the chest piece or part 418 (which may be of canvas, i.e. form the "canvassing" of the front part of the garment 400) is made up of three layers, a first (e.g. base) layer 530 (which may be camel hair canvas), an second (e.g. intermediary) layer 532 (which may be animal hair (horse hair) canvas) and a third (e.g. top) layer 534 (which may be camel hair canvas).

**[0032]** The material of the first layer 530 and third layer 534 may be the same, and may be KO 250 camel hair canvas (weave: 1/1; weight: 105g/m<sup>2</sup>; total composition: 100% PES; warp: PES; weave: PES). The material of the second animal hair layer 532 may be 18/60 ZN D horse hair canvas (weight: 147g/m<sup>2</sup>; composition: 45% cotton, 55% horse hair; warp content: 100% cotton, NE 60/2 yarn count, 34.5 wires/cm; weft content: 100% horse hair, 18 wires /cm). The first layer 530 may cover or extends over 25% to 45%, 30% to 40%, 32.5% to 37.5% or 35% of the front panel 532. The layers of the chest piece or part 418 may be attached or connected to each other through some limited stitching or fusing through the entire part 418 at one or more discrete locations, for example at specifically, or no more than: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15 or 20 discrete locations. The second layer 532 may cover or extend over at least 5% to 15%, or 7.5% to 12.5% or 10% of the front panel 532. The third layer 534 may cover or extend over at least 20% to 50%, 25% to 35%, 27.5% to 32.5% or 30% of the front panel 532.

**[0033]** Fig 5b is a plan view of the shoulder reinforcement 408 of the garment 400 which is placed over the shoulder seam 406 on top of the shoulder part 402 of the chest piece 418. It is

composed of two layers of canvas, a base layer 562 and a layer small in cross-sectional area to the base layer 562 on top 560. The shoulder reinforcement 408 contains no wadding.

**[0034]** Fig. 6 is a plan view of the garment 400 in an embodiment of the invention where the front panel 428 and side panel 426 are visible. It can be seen here that the fusible material 608 extends from the shoulder seam 406 of the garment 400 to the bottom hem 432 of the front panel 428. However it does not fully cover the front panel but the fusible material has an edge 610 which is cut away from the point 602 where the fusing meets the arm seam and the front and side panels and tapers beyond the end of the lapel 420 towards the bottom hem 432, narrowing along the way. The rest of the material of the side and front panels is the exterior cloth layer 430. The fusible material 608 also does not extend beyond the arm seam 502 or onto the side panel 426 of the garment 400. It does extend beyond the edge of the lapel 412 through to the lapel 410 and beyond the collar seam 606 into the collar parts of the garment 400. The fusible material 608 may be 8025 US3 Polyfix Multi Elastic (weight 25g/m<sup>2</sup>; composition: 100% texturised polyester; warp: polyester; weft: polyester; weave type: plain; resin type: copolyamide 25, irregular mesh distribution) and it may make up to 60 to 100% of the coverage of the front panel.

**[0035]** Fig. 7 is an enlarged view of the garment 400 in an embodiment of the invention where part of the front panel 428 is visible. It can be seen here in this example that the fusible material 608 extends from the shoulder seam 406 of the garment 400 to the bottom hem 432 of the front panel 428. It also extends through the lapel 410 of the garment 400. It can further be seen that there is fusing reinforcement 702 in the lapel 410 part of the garment 400 which extends from the collar seam 606 to the end of the lapel 420 without going beyond the edge of the lapel 702. The fusing reinforcement 702 may be "Kufner Stretch 2000" fusible elastic weft (weight: approximately 100g/m<sup>2</sup>; total composition: 34% CV, 68% PES; warp: polyester/viscose; weft: polyester; weave type: satin weave 1/3; resin type: doublespot, 17 mesh) and it may make up approximately 5% of the coverage of the front panel.

**[0036]** Fig. 8 is a plan view of the garment 400 in an embodiment of the invention where the front panel 428 and side panel 426 are visible. Here all of the internal structure is visible, the fusible material 608 with the fusing reinforcement 702 in the lapel 410 and the chest piece 418 with the shoulder reinforcement 408 over the shoulder seam 406. The rest of the front and side panels is cloth 430. While the preceding description contains many specifics, these specifics should not be construed as limitations on the scope of the invention, but merely as examples of the preferred embodiments. Those skilled in the art will envision other possible variations that are within the scope of the invention as defined by the following claims.

**[0037]** Glossary of Reference Numerals used in Figures

102:

Shoulder

104:

Chest Piece

106:  
Lapel

108:  
Underarm

110:  
Front Panel

112:  
Canvas

114:  
Cloth

116:  
Bottom Hem

218:  
Fusible Material

400:  
Garment

402:  
Shoulder

404:  
Collar

406:  
Shoulder Seam

408:  
Shoulder Pad

410:  
Lapel

412:  
Lapel Edge

414:  
Edge of front panel / arm seam

416:  
Meeting point of canvas and underarm seam

418:  
Canvas chest piece

420:  
End of Lapel

422:  
Bottom of Canvas

424:  
Seam joining front and side panels

426:  
Side Panel

428:

Front Panel

430: Outer Layer

432: Bottom Hem

502: Arm Seam

506: Bottom of Arm

508: Seam joining Side and Back Panels

510: Back Panel

512: Joint of Front and Side Panel under Arm

530: Camel Hair Base Layer

532: Animal Hair Canvas Intermediary Layer

534: Camel Hair Top Layer

536: Location where Base and Top Layers Overlap to form curved shape

538: Location where Base and Top Layers Overlap to form curved shape

560: Layer2

562: Layer 1

602: Location where fusing meets arm

606: Collar Seam

608: Fusing

702: Lapel reinforcement

**Patentkrav****1.** Klædningsstykke (400) omfattende:

et ydre lag (430) på den udvendige side af et forparti af klædningsstykket (400);

5        en indre struktur anbragt på en indre side af det ydre lag (430),

hvor den indre struktur omfatter:

et bryststykke (418) der strækker sig fra en skulderdel af klædningsstykket (400) på tværs af en brystdel af klædningsstykket (400) uden at strække sig gennem en revers-del (410) af klædningsstykket (400), og

10        et smelteligt materiale (608) smeltet til det ydre lag (430),

hvor det smeltelige materiale (608) er anbragt kun delvist på tværs af det ydre lag (430),

klædningsstykket er kendetegnet ved at det omfatter en foring på det indre af klædningsstykket, hvor den indre struktur er anbragt mellem det ydre

15        lag (430) og foringen.

**2.** Klædningsstykket (400) ifølge krav 1, hvor bryststykket ikke strækker sig under en ærmedel af klædningsstykkets (400) forside.

20    **3.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor bryststykket (418) af den indre struktur omfatter eller består af én eller flere af: uld, en blanding af uld, bomuld og dyrehår, såsom hestehår og/eller kamelhår.

**4.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor  
25    den indre struktur omfatter ikke mere end mindst 40%, 50%, 60%, 70%, 80%, 90%, eller 100% af overfladearealet af det ydre lag (430) af klædningsstykkets (400) forside.

**5.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor det smeltelige materiale (608) strækker sig over mindst noget, eller alle revers-delene (410) af klædningsstykket (400).

5 **6.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor det smeltelige materiale (608) strækker sig til en kravedel (404) af klædningsstykket (400).

**7.** Klædningsstykket (400) ifølge krav 6, hvor kravedelen (404) af  
10 klædningsstykket (400) omfatter en forstærkningsstruktur mellem det ydre lag (430) og foringen.

**8.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor det smeltelige materiale (608) strækker sig fra skulderdelen (402) af  
15 klædningsstykket (400), på tværs af bryststykket og gennem revers-delene (410) af klædningsstykket (400) uden at strække sig under en ærmedel af klædningsstykkets (400) forside.

**9.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor  
20 det smeltelige materiale (608) dækker ikke mere end mindst 40%, 50%, 60%, 70%, 80%, 90% eller 100% af det ydre lags (430) overfladeareal.

**10.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor revers-delen (410) af klædningsstykket (400) omfatter en  
25 forstærkningsstruktur mellem det ydre lag (430) og foringen.

**11.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, klædningsstykkets (400) skulderdel (402) omfatter en forstærkningsstruktur mellem det ydre lag (430) og foringen.

30

**12.** Klædningsstykket (400) ifølge et hvilket som helst af kravene 7, 10 eller 11, hvor skulderdelens (402) forstærkningsmateriale omfatter eller består af én eller flere af: uld, en blanding af uld, bomuld og dyrehår, såsom hestehår og/eller kamelhår.

35

**13.** Klædningsstykket (400) ifølge et hvilket som helst af kravene 7, 10, 11 eller 12, hvor forstærkningsstrukturen er af en forskellig sammensætning i forhold til bryststykket (418).

5 **14.** Klædningsstykket (400) ifølge et hvilket som helst af kravene 7, 10, 11 or 12, hvor forstærkningsstrukturen er smeltet til revers-delen (410).

**15.** Klædningsstykket (400) ifølge et hvilket som helst af de foregående krav, hvor klædningsstykket (400) er en artikel af ydertøj, fx en jakke, såsom en habit-  
10 jakke.

# DRAWINGS

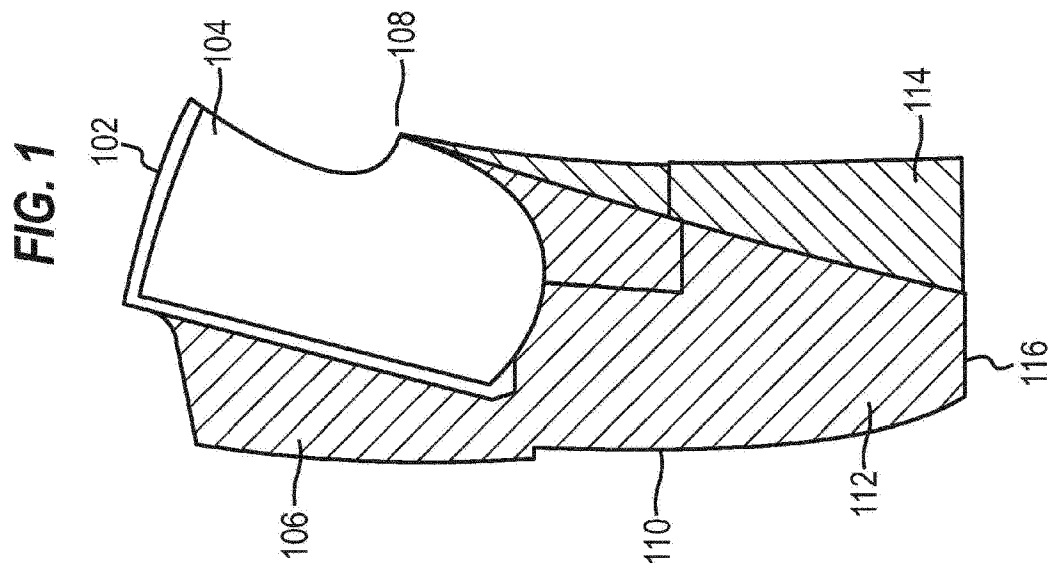
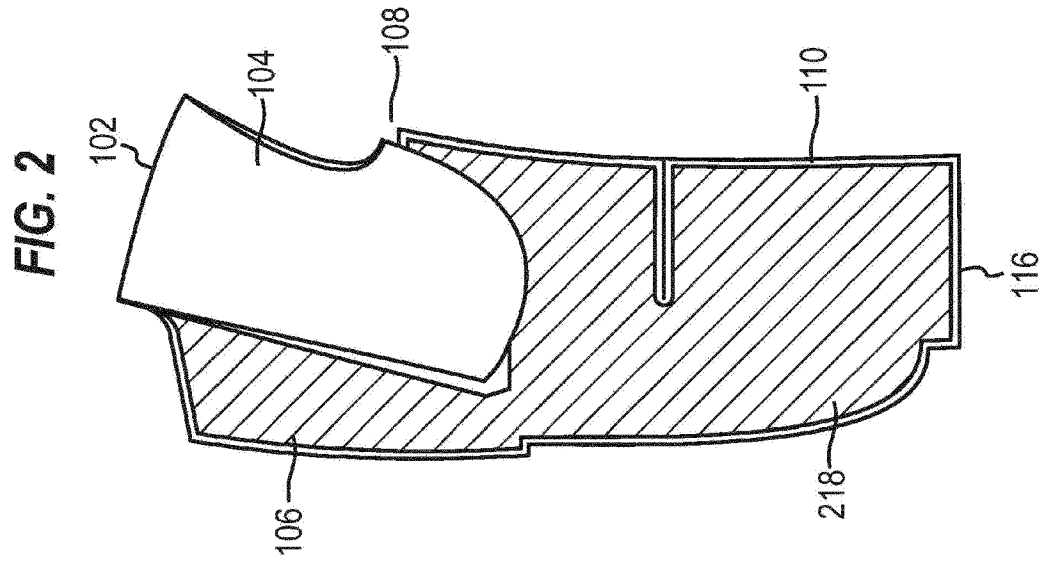


FIG. 3

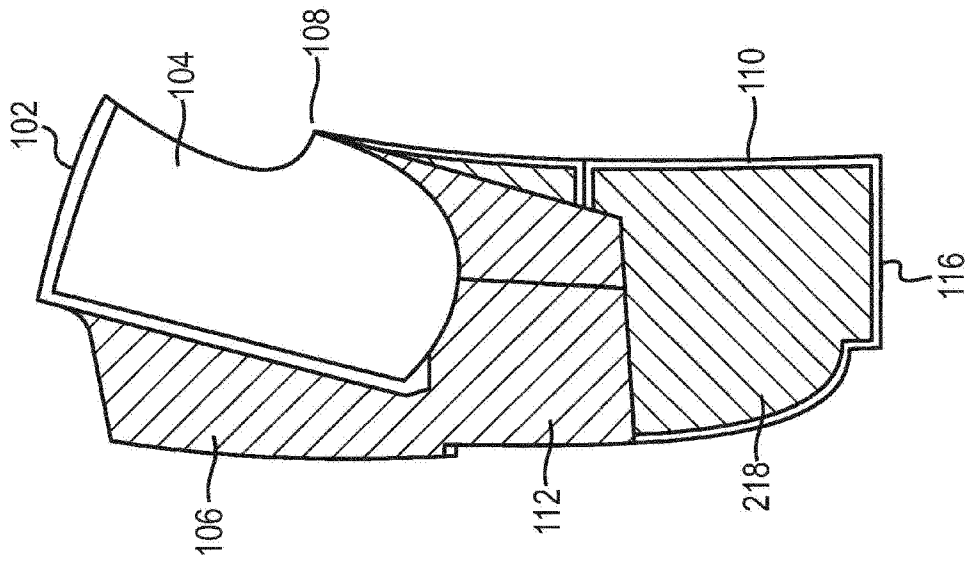
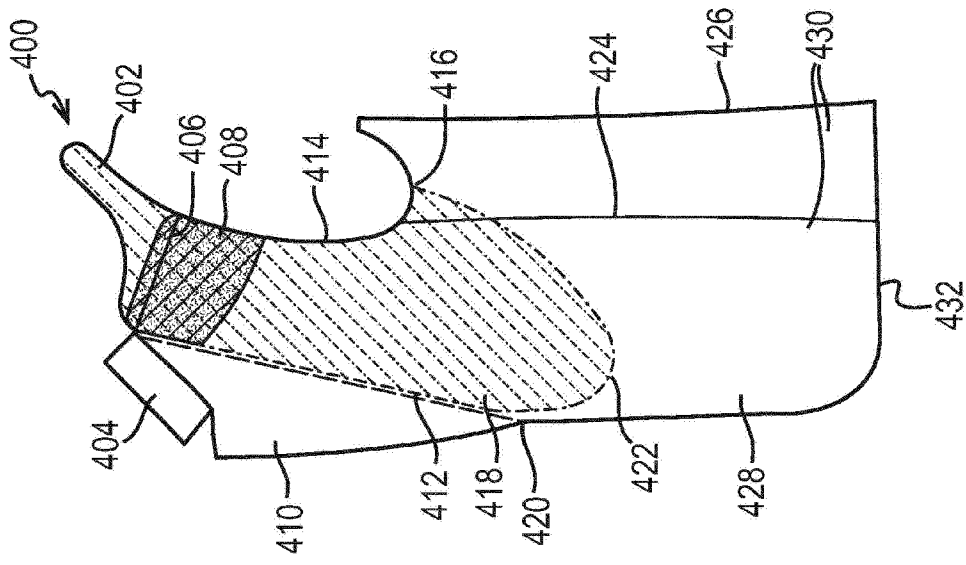
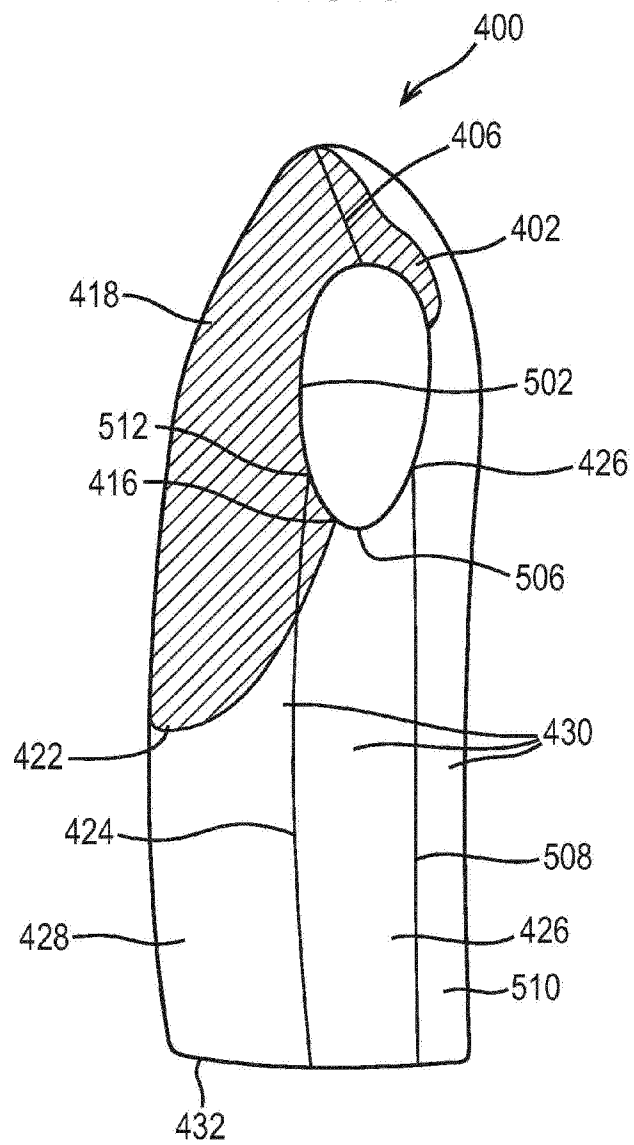
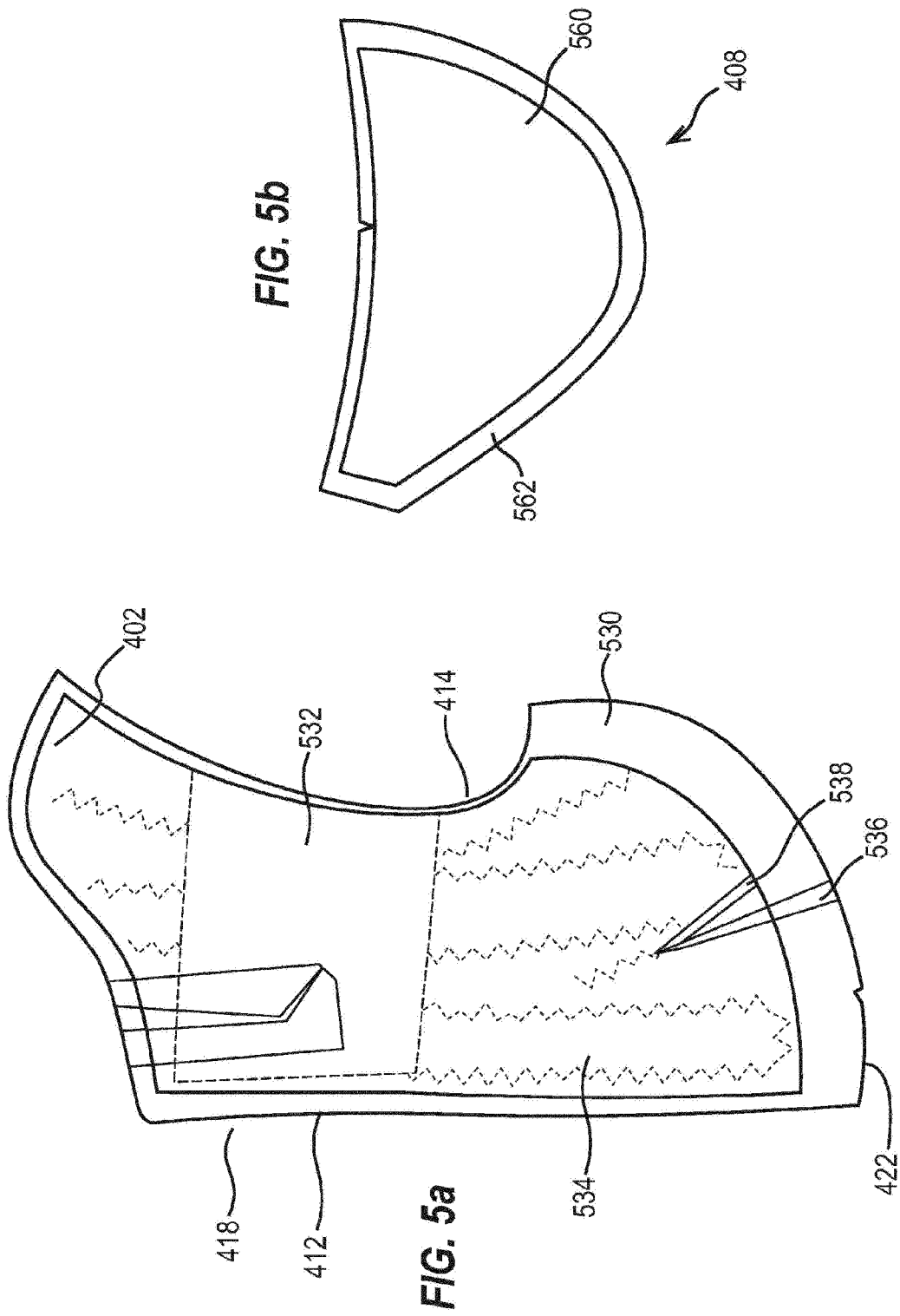


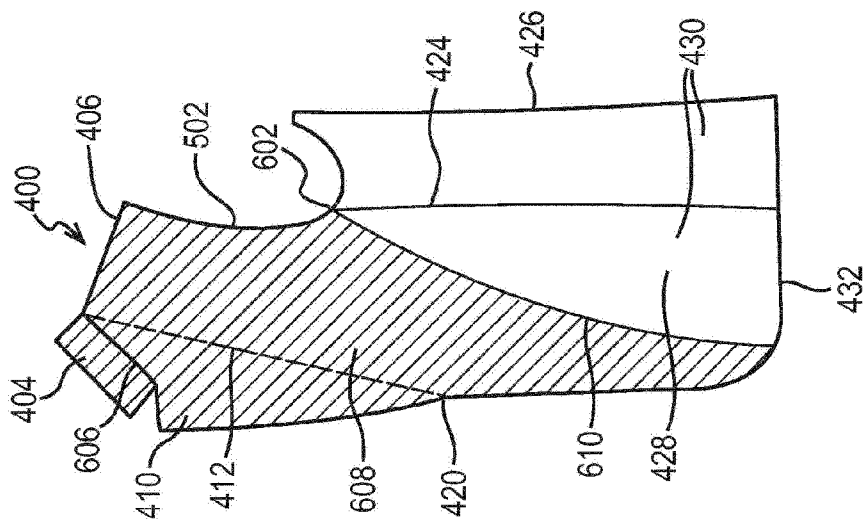
FIG. 4



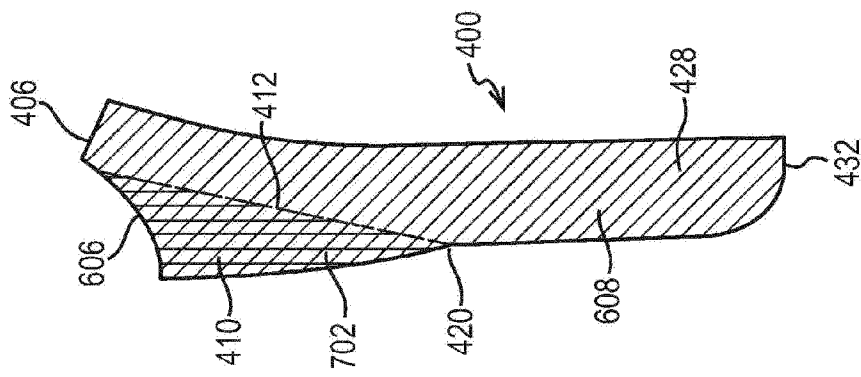
**FIG. 5**



**FIG. 6**



**FIG. 7**



**FIG. 8**

