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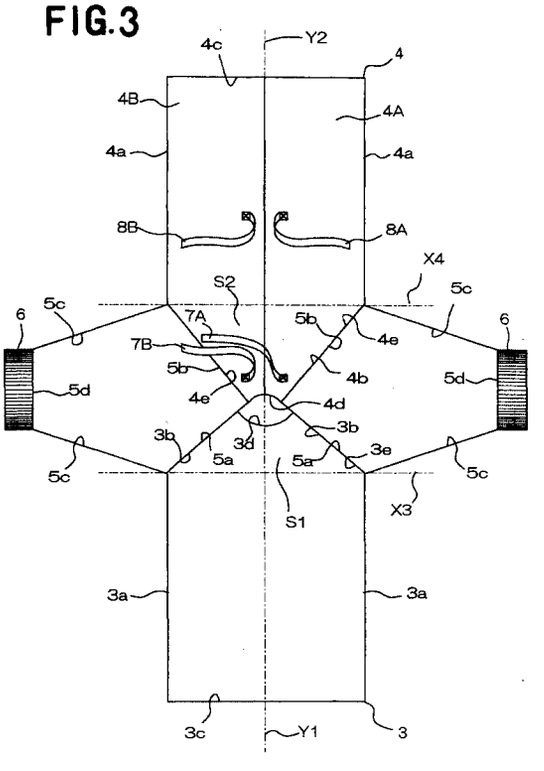
(54) Disposable gown

(57) A disposable gown includes front and rear trunk regions 3, 4. The front trunk region 3 has a first neckline 3d extending transversely and first armhole lines 3e rectilinearly and obliquely extending downward from lateral ends of the first neckline 3d toward respective armpits. The rear trunk region 4 has a second neckline 4d extending transversely and second armhole lines 4e rectilinearly and obliquely extending downward from lateral ends of the second neckline 4d toward the armpits. A crossing angle θ1 between both first extensions X1 generated when the first armhole lines 3e are extended upward from lateral ends of the first neckline 3d is larger than a crossing angle θ2 between the both second extensions X2 generated when the second armhole lines 4e are extended upward from lateral ends of the second neckline 4d. Each of sleeves 5A, 5B is bonded to a basic trunk portion 2 so that each of the first armhole lines 3e of the front trunk region 3 may coincide with a first sleeve bonding line 5a of each of the sleeves 5A, 5B and each of the second armhole lines 4e of the rear trunk region 4 may coincide with a second sleeve bonding line 5b of each of the sleeves 5A, 5B.

FIG.3



EP 1 147 718 A2

Description

[0001] This invention relates to a disposable gown, for example, outerwear for surgical operations, outerwear for patients, sleepwear for patients or the like.

[0002] Japanese Patent Application Publication No. 1994-207301A describes a disposable gown of rear side closable type comprising a basic trunk portion of which a rear trunk region divided into right and left halves and both sleeves attached to the both sides of the upper end of the basic trunk portion and has tying cords for fastening the basic trunk portion to the wearer's body from its outside.

[0003] According to the gown of prior art, the basic trunk portion has a neckline extending transversely in the middle of the upper end of the front and rear trunk regions and armholes obliquely extending downward from both lateral ends of the neckline toward respective armpits of the basic trunk portion. A proximal end of each sleeve is bonded to the armhole of the basic trunk portion along a periphery of the armhole. However, in the case of this gown of prior art, the respective armhole halves of the front and rear trunk regions extend rectilinearly parallel to and in coincidence with each other. Such arrangement makes it difficult for the upper part of the trunk portion to follow a roundness of the wearer's shoulder zone, as compared with a gown in which the armhole respective halves extend to describe circular arcs so that a circular opening may be defined. In the gown of prior art, when the wearer thereof intends to stretch his or her arms forward or to bend his or her elbows, local tension acts on the upper part of the rear trunk region and thereby movement of the arms is restrained by the rear trunk region. Consequently, smooth movement of the operating wearer is remarkably restricted.

[0004] In view of the problem as has been described above, it is a principal object of this invention to provide a disposable gown improved so that, even if the armholes on the side of the basic trunk portion as well as the distal ends of the respective sleeves both rectilinearly extending are bonded together, movement of wearer's arms may be free from restriction by the rear trunk region and thereby a desired smooth movement of the operating wearer may be ensured.

[0005] The object set forth above is achieved, according to this invention, by an improvement in the disposable gown composed of a basic trunk portion having a front trunk region covering the breast and belly of a wearer and a rear trunk region covering the back of the wearer, and both sleeves attached to the both sides of the upper end of the basic trunk portion.

[0006] The improvement according to this invention is in that the front trunk region has a first neckline extending transversely in the middle of the upper end of the front trunk region and first armhole lines rectilinearly and obliquely extending downward from lateral ends of the first neckline toward respective armpits of the basic trunk portion, the rear trunk region has a second neckline extending transversely in the middle of its upper end and second armhole lines rectilinearly and obliquely extending downward from lateral ends of the second neckline toward the armpits, and a crossing angle θ 1 between both first extensions generated when the first armhole lines are extended upward from lateral ends of the first neckline is larger than a crossing angle θ 2 between the both second extensions generated when the second armhole lines are extended upward from lateral ends of the second neckline; and

each of the sleeves has a first sleeve bonding line extending straight parallel to the first armhole line of the front trunk region and a second sleeve bonding line extending straight parallel to the second armhole of the rear trunk region, each of the sleeves being bonded to the basic trunk portion so that each of the first armhole lines of the front trunk region may coincide with the first sleeve bonding line of each of the sleeves and each of the second armhole lines of the rear trunk region may coincide with the second sleeve bonding line of each of the sleeves.

[0007] According to one preferred embodiment of this invention, the crossing angle θ 1 is in the range of 35° - 160° and the crossing angle θ 2 is in the range of 30° - 155°.

[0008] According to another preferred embodiment of this invention, the rear trunk region has a first rear trunk half contiguous to one side edge of the front trunk region and a second rear trunk half contiguous to the other the edge of the front trunk region.

[0009] According to still another preferred embodiment of this invention, the basic trunk portion and each of the sleeves are formed with non-woven fabric or a laminated sheet made of non-woven fabric and a thermoplastic synthetic resin sheet.

Fig. 1 is a perspective view showing the disposable gown constructed according to the principle of this invention as viewed from the front;

Fig. 2 is a exploded plan view of the gown shown in the Fig. 1; and

Fig. 3 is a plan view of the gown showing its basic trunk portion and its both sleeves as bonded each other.

[0010] Details of the disposable gown according to this invention will be more fully understood from the description given hereunder with reference to the accompanying drawings.

[0011] Fig. 1, 2 are a perspective view showing a disposable gown 1 which can be closed at the rear area as viewed from the front, and a exploded plan view of the gown 1 shown in Fig. 1, respectively. Fig. 1 shows a rear trunk region 4 as opened laterally outward and one sleeve 5A as folded onto a front trunk region 3. The gown 1 consists of a basic trunk portion 2 and both sleeves 5A, 5B attached to both sides in the upper end

region of the basic trunk portion 2. When the gown 1 is worn, a neck opening is formed between the both sleeves 5A, 5B in the upper end region of the basic trunk portion 2, and a hem opening is formed in the lower end region of the basic trunk portion 2 (not shown).

[0012] The basic trunk portion 2 consists of the front trunk region 3 covering wearer's breast and belly and the rear trunk region 4 covering wearer's back, each separately prepared. Each of the sleeves 5A, 5B has a trunk facing area 5c, a cuff 5d, and a shoulder covering area 5e, defining, as a whole, a cylindrical form tapered from the shoulder covering area 5e to the cuff 5d. Ribbed member 6 is attached to each cuff 5d of the sleeves 5A, 5B. The ribbed member 6 is elastically stretchable in the circumferential direction.

[0013] The front trunk region 3 has both side edges 3a extending parallel each other longitudinally, and upper and lower ends 3b, 3c extending parallel each other transversely. A first neckline 3d extends transversely substantially in the middle of the upper edge 3b of the front trunk region 3. Each of first armhole lines 3e extends straight transversely between both lateral ends of the first neckline 3d and the both side edges 3a, respectively. In the front trunk region 3, the first neckline 3d describes a circular arc so that it is convexly curved in the direction of the lower end 3c, and the first armhole lines 3e obliquely extend downward from the both lateral ends of the first neckline 3d to the both side edges 3a.

[0014] The rear trunk region 4 has both side edge 4a extending parallel to each other longitudinally, and upper and lower end edges 4b, 4c extending parallel to each other transversely. A second neckline 4d extends transversely substantially in the middle of the upper edge 4b of the rear trunk region 4. Each of second armhole lines 4e extends straight transversely between the both lateral ends of the second neckline 4d and the both side edges 4e, respectively. In the rear trunk region 4, the second neckline 4d describes a circular arc so that it is convexly curved in the direction of the lower end 4c, and the second armhole lines 4e obliquely extend downward from the lateral ends of the second neckline 4d to the both side edges 4a. The rear trunk region 4 is cut into a first rear trunk half 4A and a second rear trunk half 4B along a longitudinal centerline Y2 bisecting the width between the both side edges 4a and extending longitudinally.

[0015] The rear trunk region 4 has a pair of tying cords 7A, 7B for neck portion and a pair of tying cords 8A, 8B for waist portion by means of which the rear area may be kept closed. Each of the tying cords 7A, 7B for the neck portion has its one end attached to the outer surfaces of the first and second rear trunk halves 4A, 4B, respectively, in the vicinity of the longitudinal centerline Y2 as well as of the upper end 4b of the rear trunk region 4. Each of the tying cords 8A, 8B for waist portion has its one end attached to the outer surfaces of the first and second rear trunk halves 4A, 4B in the vicinity of the longitudinal centerline Y2 at a level corresponding to the waist line of the rear trunk region 4.

[0016] In the front trunk region 3, assumed that the first armhole lines 3e are extended upward from the both lateral ends of the first neckline 3d, the first extended lines X1 cross at a crossing angle θ 1 each other on a longitudinal centerline Y1 which bisects the width between the both side edges 3a of the front trunk region 3 and extends longitudinally. In the rear trunk region 4, assumed that the second armhole lines 4e are extended upward from the both lateral ends of the second neckline 4d, the second extended lines X2 cross at a crossing angle θ 2 each other on the longitudinal centerline Y2. The crossing angles θ 1 and θ 2 define the relationship of θ 1 > θ 2.

[0017] When the front trunk region 3 and the rear trunk region 4 are put on each other, each first armhole line 3e of the front trunk region 3 is placed inside of each second armhole line 4e of the rear trunk region 4. Therefore, in the basic trunk portion 2, the upper part area S2 of the rear trunk region 4 placed above a transversely extending imaginary line X4 which connects crossing points between each second armhole line 4e and the both side edges 4a is larger than the upper part area S1 of the front trunk region 3 placed above a transversely extending chain line X3 which connects crossing points between each first armhole line 3e and the both side edges 3a.

[0018] It is preferable that the crossing angle θ 1 in the front trunk region 3 is in the range of 35° - 160°, and that the crossing angle θ 2 in the rear trunk region 4 is in the range of 30° - 155°. If the crossing angle θ 1 is less than 35° or more than 160° and the crossing angle θ 2 is less than 30° or more than 155°, local tension might act on upper ends 3b, 4b of the front trunk region 3 and the rear trunk region 4 as the wearer of the gown 1 moves the arms up- and downward, so that up- and downward movement of the wearer's arms might be restricted by the basic trunk portion 2.

[0019] Each of the sleeves 5A, 5B has a first sleeve bonding line 5a which extends transversely parallel to the first armhole line 3e of the front trunk region 3 and a second sleeve bonding line 5b which extends transversely parallel to the second sleeve line 4e of the rear trunk region 4. The first sleeve bonding line 5a rectilinearly and obliquely extends downward from a center of the shoulder covering area 5f to the trunk facing area 5c. The second sleeve bonding line 5b also rectilinearly and obliquely extends downward from the center of the shoulder covering area 5f to the trunk facing area 5c.

[0020] Fig. 3 is a plan view showing the gown 1 as the basic trunk portion 2 and the both sleeves 5A, 5B having been bonded together from the state shown in the exploded plan view of Fig. 2. As shown, each of the sleeves 5A, 5B and the front and rear trunk region 3, 4 are bonded together, wherein each first armhole line 3e of the front trunk region 3 and the first sleeve bonding line 5a of each sleeve 5A, 5B correspond to each other, and each second armhole line 4e of the rear trunk region

4 and the first sleeve bonding line 5b of each sleeve 5A, 5B correspond to each other.

[0021] In the gown 1, the both lateral ends of the first neckline 3d of the front trunk region 3 are spaced apart from the both lateral ends of the second neckline 4d of the rear trunk region 4 by a desired dimension. Between associated lateral ends of the first and second neckline 3d, 4d, sections of the first sleeve bonding line 5a extends which are not bonded to the first and second armhole lines 3e, 4e of the front and rear trunk regions 3, 4. The gown according to Fig. 1 is obtained from the state of Fig. 3 by placing the front trunk region 3 and the rear trunk region 4 upon each other, bonding the front trunk region 3 and the rear trunk region 4 in the vicinity of their side edges 3a, 4a, bonding the trunk facing areas 5c of each sleeve 5A, 5B to each other, and bonding the both lateral sides of the sleeve ribbed member 6 extending transversely outward from the trunk facing area 5c.

[0022] It is preferable in the gown 1 to bond the outer surface of each sleeve 5A, 5B to the outer surface of the front and rear trunk regions 3, 4 with the first and second armhole lines 3e, 4e of the front and rear trunk regions 3, 4 being folded a little toward inner surfaces of the trunk regions 3, 4. It is also preferable to bond the outer surfaces of the front and rear trunk regions 3, 4 to each other with the both side edges 3a, 4a of the front and rear trunk regions 3, 4 being folded a little toward inside of the trunk regions 3, 4. In order to wear the gown, a wearer puts the both arms through the sleeves 5A, 5B of the gown 1, fastens the tying cords 7A, 7B for neck portion and the tying cords 8A, 8B for waist portion, connects the first and second rear regions 4A, 4B each other, and thereby closes the rear area.

[0023] Nonwoven fabric formed with thermoplastic fiber, for example, spunlace-, needlepunch-, meltblown-, thermalbond-, spunbond-, or chemicalbond-nonwovenfabric or a laminated sheet of nonwoven fabric and a thermoplastic synthetic resin sheet can be used for the front and rear trunk regions 3, 4 and the both sleeves 5A, 5B.

[0024] Polyolefine-, polyester- or polyamide-based fiber or conjugate fiber of thick-and-thin type or side-by-side type etc. formed with polyethylen/polypropylene or polyester can be used as component fiber of nonwoven fabric.

[0025] The nonwoven fabric formed with openings to improve moisture-permeability, the nonwoven fabric embossed to improve cushioning property or the nonwoven fabric provided with a stretchability can be also used. A plastic sheet, for example, polyethylen, polypropylene or polyester can be used as a thermoplastic synthetic resin sheet. It is also possible to use composite nonwoven fabric (SMS nonwoven fabric) in which both sheet surfaces of a meltblown nonwoven fabric sheet having high water resistance are sandwiched between sheet surfaces of spunbond nonwoven fabric sheets having high strength and flexibility.

[0026] The gown 1 has been described above, in which the basic trunk portion 2 is formed from the front trunk region 3 and the rear trunk region 4, separately prepared. However, the front trunk region 3 and the rear trunk region 4 can be formed in one-piece, just like the gown 1 disclosed in Japanese Patent Application Publication No. 1994-207301. Hot melt adhesive or technique of heat-sealing can be used for bonding of the front and rear trunk regions 3, 4, bonding of the both trunk regions 3, 4 and the both sleeves 5A, 5B, bonding of cords 7A, 7B, 8A, 8B and bonding of sleeve ribbed members 6.

[0027] The gown 1 is used mainly as outerwear for surgeons and patients or sleepwear for patients. Each size, for example, S, M, L, LL can be provided in consideration of the shape of wearer's body. The gown 1 is sterilized by organic gasifiable chemicals, for example ethyleneoxide, electronic beam, or radiation, after it has been put into a sterilizing bag.

[0028] The disposable gown according to this invention in uniquely configured so that a crossing angle θ 1 between the both first extensions generated when the first armhole lines are extended upward from the lateral ends of the first neckline is larger than an crossed angle θ 2 between the both second extensions generated when the second armhole lines are extended upward from the lateral ends of the second neckline. In other words, the upper part area of the rear trunk region extending above a transversely extending chain line which connects crossing points between each second armhole line and the both side edges is larger than the upper part area of the front trunk region extending above a transversely extending chain line which connects crossing points between each first armhole line and the both side edges. Therefore, in the gown, an enough area for following the movement of wearer's arms is ensured in the rear region covering the wearer's shoulders. Even if the wearer stretches the arms forward or bends the elbows, no local tension acts on the upper end of the rear trunk region. In this way, movement of the wearer's arms is free from restriction by the rear trunk region and smooth movement of the operating wearer is ensured.

Claims

1. A disposable gown composed of a basic trunk portion having a front trunk region covering the breast and belly of a wearer and a rear trunk region covering the back of the wearer, and both sleeves attached to the both sides of the upper end of said basic trunk portion, wherein:

   the front trunk region has a first neckline extending transversely in the middle of the upper end of the front trunk region and first armhole lines rectilinearly and obliquely extending downward from lateral ends of said first neckline toward respective armpits of said basic

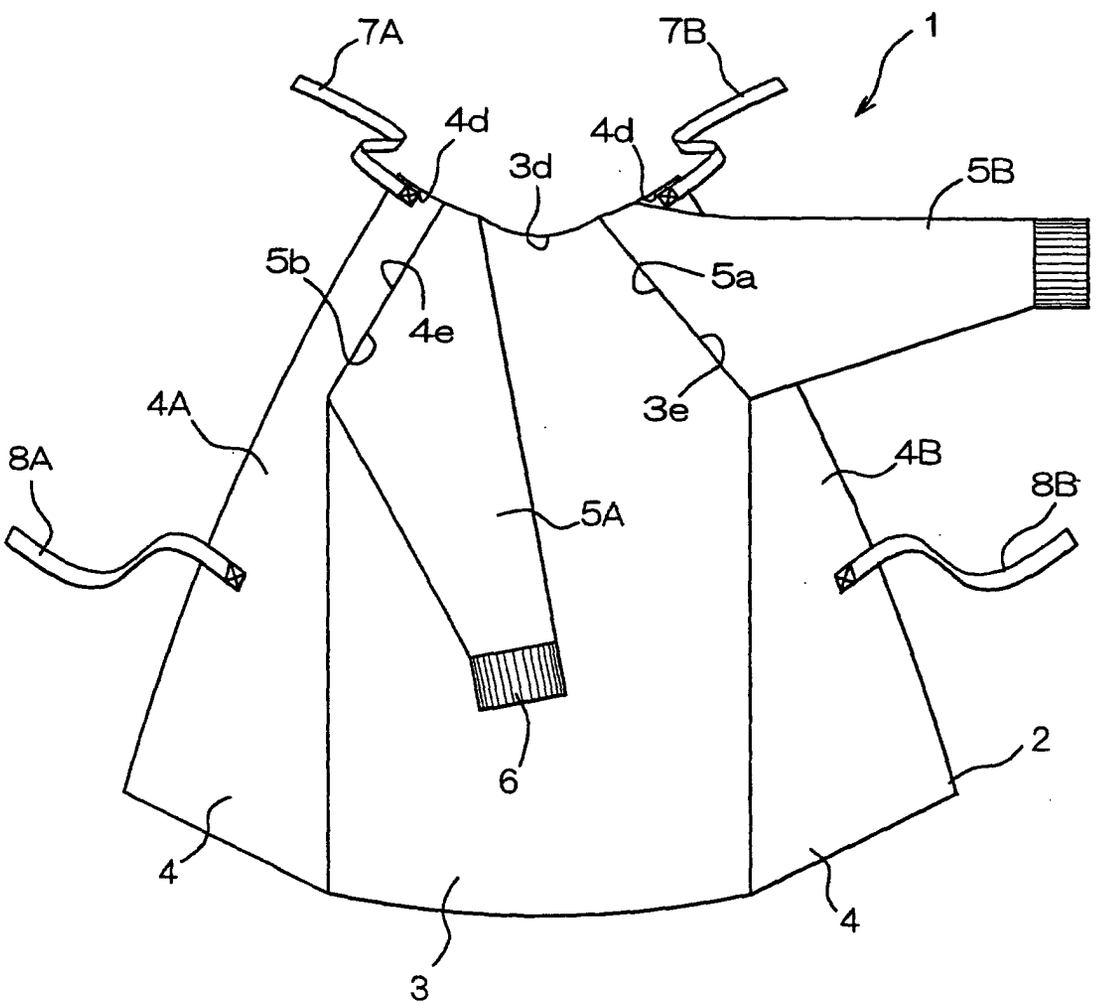
trunk portion, said rear trunk region has a second neckline extending transversely in the middle of its upper end and second armhole lines rectilinearly and obliquely extending downward from lateral ends of said second neckline toward said armpits, and a crossing angle θ 1 between both first extensions generated when said first armhole lines are extended upward from lateral ends of said first neckline is larger than a crossing angle θ 2 between the both second extensions generated when said second armhole lines are extended upward from lateral ends of said second neckline; and
each of said sleeves has a first sleeve bonding line extending straight parallel to the first armhole line of said front trunk region and a second sleeve bonding line extending straight parallel to the second armhole of said rear trunk region, each of said sleeves being bonded to said basic trunk portion so that each of the first armhole lines of said front trunk region may coincide with the first sleeve bonding line of each of said sleeves and each of the second armhole lines of said rear trunk region may coincide with the second sleeve bonding line of each of said sleeves.

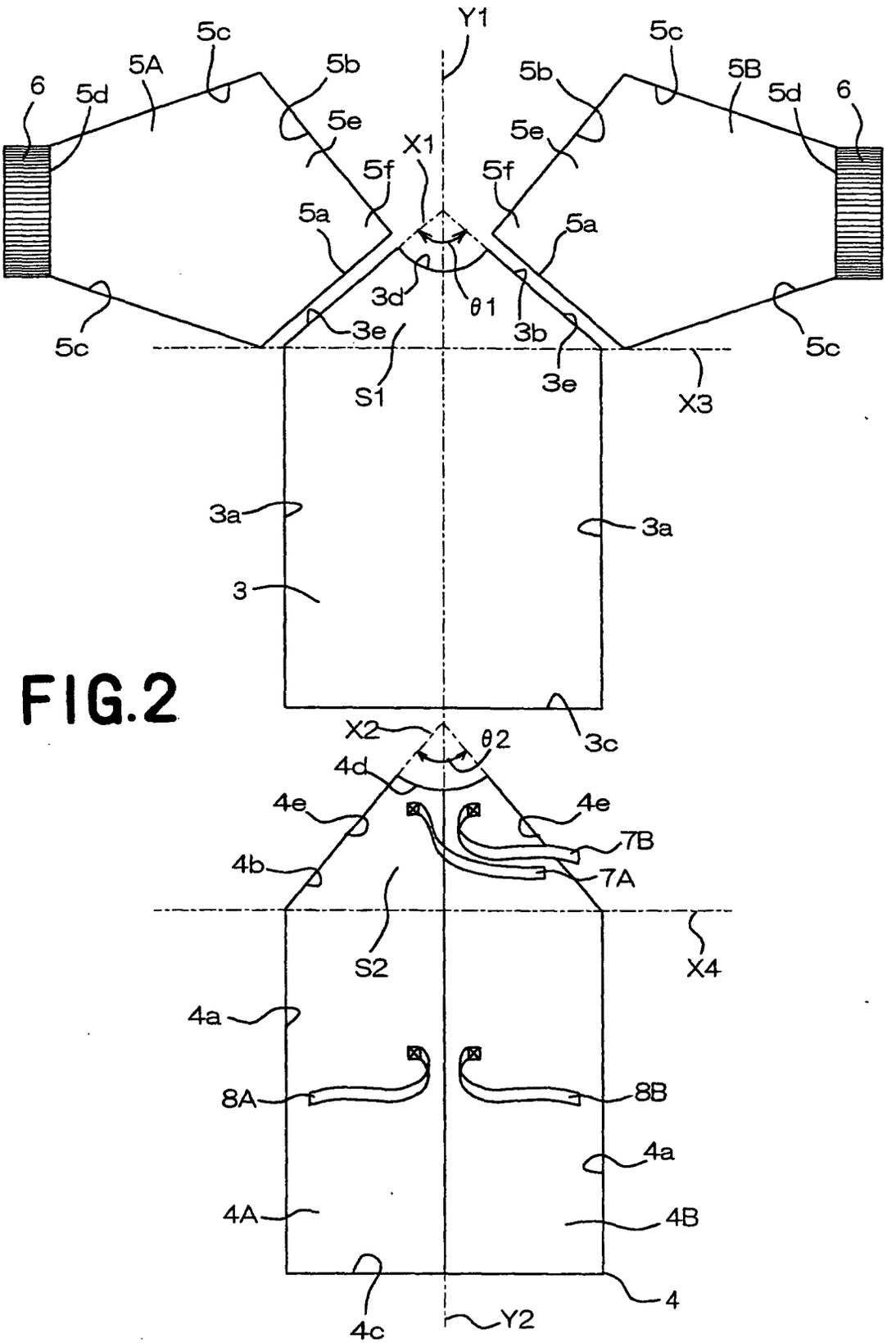
2. The gown according to Claim 1, wherein said crossing angle θ 1 is in the range of 35° - 160° and said crossing angle θ 2 is in the range of 30° - 155°.

3. The gown according to Claim 1, wherein said rear trunk region has a first rear trunk half contiguous to one side edge of said front trunk region and a second rear trunk half contiguous to the other said edge of said front trunk region.

4. The gown according to Claim 1, wherein said basic trunk portion and each of said sleeves are formed with a non-woven fabric or a laminated sheet made of a non-woven fabric and a thermoplastic synthetic resin sheet.

FIG.1

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5b
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5d
5e
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θ2
3c
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4e
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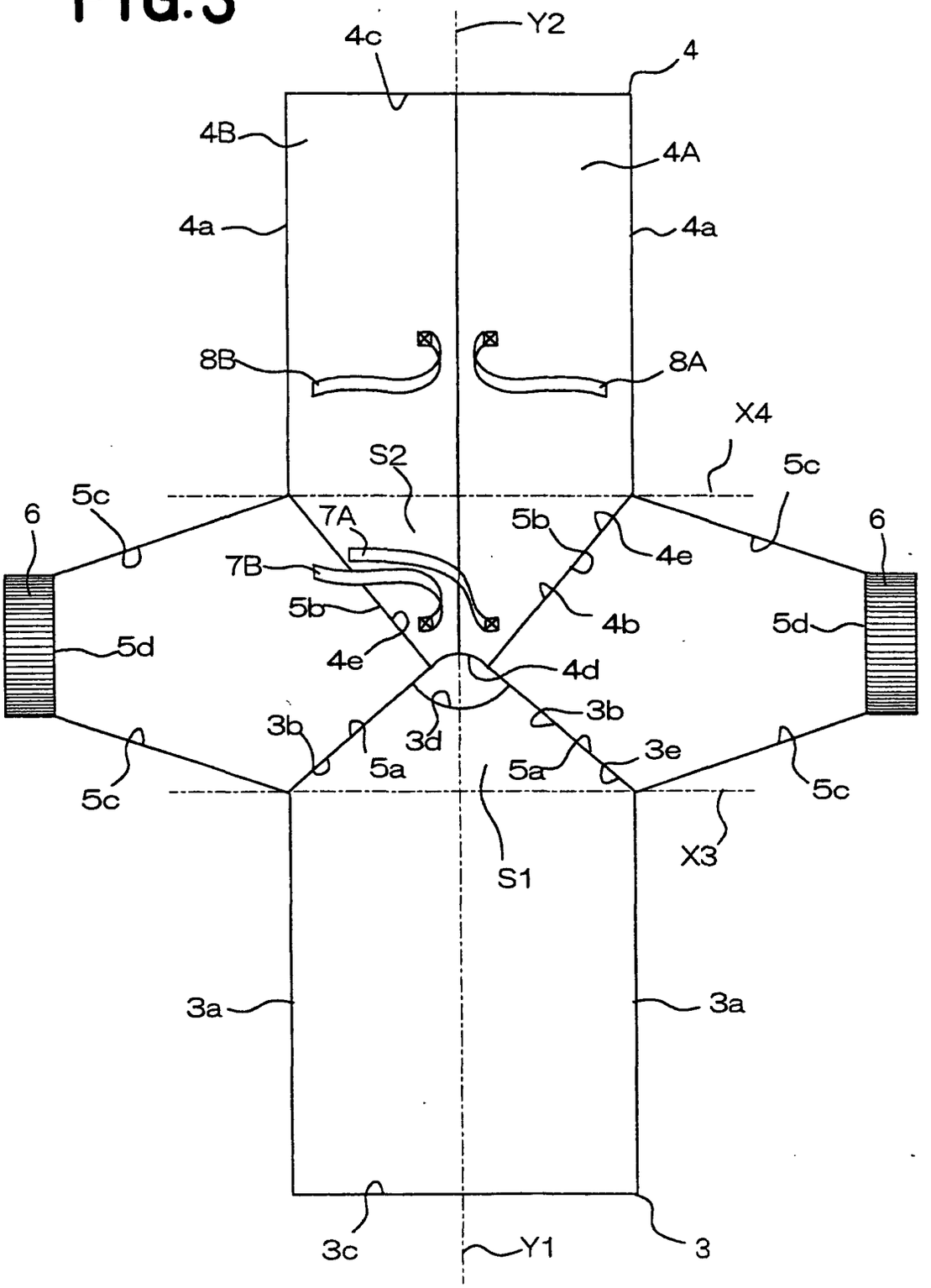
FIG.2

FIG.3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3b
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3d
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5a
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5c
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Y1
3