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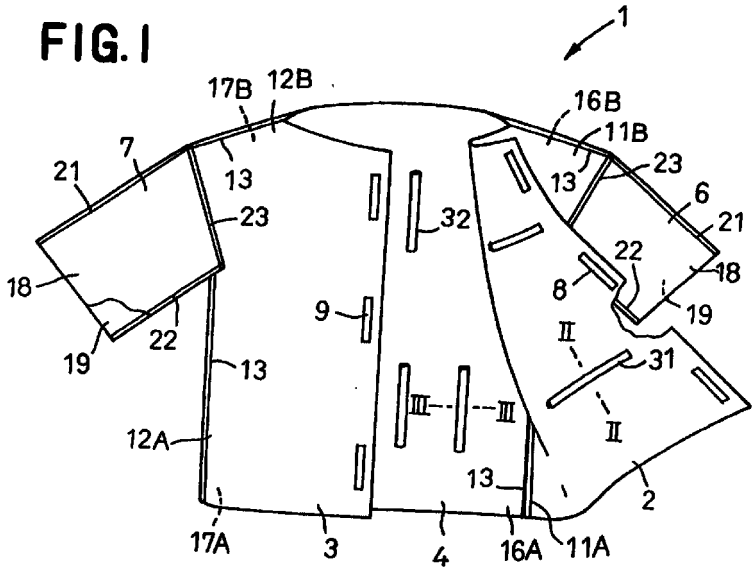
(54) DISPOSABLE WEARING ARTICLE

(57) Elastically deformable spacer members 31, 32 are attached to the inner surface of a garment 1 so that these spacer members 31, 33 extend in arcs from the inner surface of the garment 1 toward the wearer's skin.

FIG. 1



EP 1 092 356 A1

Description

FIELD OF THE INVENTION

[0001] This invention relates to a disposable garment such as a disposable upper garment and more particularly to such a garment having its air permeability improved.

BACKGROUND ART

[0002] Conventionally, disposable garments have been widely used in hospitals and similar facilities. Such disposable garments include operating gown, shirts and shorts for patients and, in many cases, a nonwoven fabric, particularly, made of thermoplastic synthetic fibers is used as stock material for such disposable garments.

[0003] For some of the disposable garments of prior art, the respective pieces of a nonwoven fabric have been bonded together by using hot melt adhesive agent or heat- or ultrasonic sealing technique instead of stitching them together in order to improve an attempt to improve a productivity of such garments. It has also been attempted to improve the productivity by assembling a plurality of pieces of a nonwoven fabric along bonding lines as simple as possible. However, these approaches have often resulted in a flat configuration of the garment with which, for example, the front body and the rear body do not uniformly fit around a wearer's torso but tightly fit only to the wearer's belly and back. In addition, since the nonwoven fabric of synthetic fiber is generally poor in a sweat-absorbency, the garment made of such stock material necessarily apt to cause undesirable stuffiness and may give the user uncomfortable feeling to wear.

[0004] In view of the problem as has been described above, it is a principal object of this invention to improve an air permeability of the disposable garments to be desired when the garment is worn over the air permeability which has conventionally been provided by such garments of prior art.

SUMMARY OF THE INVENTION

[0005] The object set forth above is achieved, according to this invention, by a disposable garment comprising at least front and rear bodies, the disposable garment being characterized by that spacer members formed separately of the garment and attached to the inner surface of the garment extend from the inner surface of the garment toward a wearer's skin so as to describe circular arcs, respectively, and being elastically deformable between the inner surface and said wearer's skin.

[0006] According to one preferred embodiment of this invention, the front and rear bodies are made of a nonwoven fabric or a nonwoven fabric/plastic film laminate sheet.

[0007] According to another preferred embodiment of this invention, the spacer members are made of crimped synthetic fibers.

[0008] According to still another embodiment of this invention, the garment has a pair of sleeves and the spacer members attached to the inner surface of the sleeves.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

Fig. 1 is a front view showing a partially cutaway garment realized according to the principle of this invention particularly in the form of an upper garment;

Fig. 2 is a sectional view taken along a line II-II in Fig. 1; and

Fig. 3 is a sectional view taken along a line III-III in Fig. 1.

DESCRIPTION OF THE BEST MODE FOR WORKING OF THE INVENTION

[0010] Details of a disposable garment according to this invention will be more fully understood from the following description of a specific embodiment of this invention realized in the form of an upper garment given hereunder with reference to the accompanying drawings.

[0011] An upper garment 1 shown by Fig. 1 in a front view as partially broken away is made from a nonwoven fabric of thermoplastic synthetic fibers and configurationally comprises left-half and right-half front bodies 2, 3, a rear body, and left and right sleeves 6, 7. The left-half and right-half front bodies 2, 3 are respectively provided with a hook member 8 and a loop member 9 making cooperating parts of a mechanical fastener which has been known by the various trade names such as Velcro and Magic Tape. These hook and loop members 8, 9 may be engaged with or disengaged from each other to close or open the front body. The left-half and right-half front bodies 2, 3 respectively have their side edges 11A, 12A and shoulder edges 11B, 12B which are respective heat-sealed with the associated side edges 16A, 17A and the associated shoulder edges 16B, 17B of the rear body 4. Each of the left and right sleeves 6, 7 comprises two nonwoven fabric sheets 18, 19 placed one upon another in a direction orthogonal to the plane of Fig. 1 and heat-sealed with each other along lines 21, 22. The nonwoven fabric sheet 18 is sealed with any one of the left-half and the right-half front bodies 2, 3 along the associated line 23 while the nonwoven fabric sheet 19 is heat-sealed with the rear body 4 along a line (now shown).

[0012] The upper garment 1 is provided on the inner surface of the left-half and right half front bodies 2, 3 with first spacer members 31 and on the inner surface

of the rear body 4 with second spacer members 32. The first spacer members 31 extend circumferentially of the upper garment 1 and the second spacer members 32 extend vertically of the upper garment 1.

[0013] Fig. 2 is a sectional view taken along a line II-II in Fig. 1. Each of the first spacer members 31 is provided separately of the upper garment 1 and formed by curving a nonwoven fabric made of thermoplastic synthetic fibers under heating into an inverse U- or V-shape. The member 31 is bonded at its region 33 onto the inner surface of the upper garment 1 so as to describe a circular arc from the inner surface toward a wearer's skin. These first spacer members 31 function to keep the upper garment 1 spaced from the wearer's skin and thereby to improve an air permeability of the garment, i.e., a ventilation between the wearer's skin. In this manner, undesirable stuffiness that might otherwise occur and suffer the wearer when the upper garment is actually worn can be effectively avoided. The member 31 is elastically deformed to take a position indicated by an imaginary line as the garment is worn and brought in contact with the wearer's skin so as to be thereby forced in a direction as indicated by an arrow X. The member 31 can be flattened as further pressure is exerted thereon so that the wearer substantially does not feel a thickness of the member 31. Accordingly, the presence of these first spacer members 31 do not adversely affect a feeling to wear the upper garment 1 although they really protrude from the inner surface of the garment 1 toward the wearer's skin. To improve an elasticity of the member 31, a nonwoven fabric made from crimped synthetic fibers, more preferably, of crimped synthetic conjugated fibers may be used as stock material for the member 31. It is particularly preferred to use a nonwoven fabric in which the individual synthetic fibers are crimped to describe loops as stock material for the member 31 for the reason that such a nonwoven fabric provides both a high elasticity and a comfortable touch. Although a length of the member 31 as measured circumferentially of the upper garment 1 is not critical, it is generally preferred for the member 31 to have a length in a range from 10 to 300 mm.

[0014] Fig. 3 is a sectional view taken along a line III-III in Fig. 1. Each of the second spacer members 32 is made of a nonwoven fabric similar to that of the first spacer member 31 and has its laterally opposite edges bonded together at its region 36 so as to present an annular cross-section. The member 32 having its opposite edges bonded together in this manner is then bonded to the inner surface of the rear body 4 at a region 37. Similarly to the first spacer member 31, the second spacer member 32 is also elastically deformed to take a position indicated by an imaginary line as the garment is worn and brought in contact with the wearer's skin so as to be forced in the direction as indicated by the arrow X. The second spacer members 32 function, similarly to the first spacer members 31, to ensure a desired ventilation between the garment 1 and the wearer's skin. Although no limitation is imposed on an inner diameter, therefore, a length of this member, it is generally preferred, similarly to the first spacer member 31, to have a length in a range from 10 to 300 mm.

[0015] It is possible without departing from the scope of this invention to provide the garment with the first and/or the second spacer members 31, 32 at regions other than those in the illustrated embodiment, for example, on the inner surface of the respective sleeves 6, 7. It is also possible to use only the first spacer members 31 or second spacer members 32. In view of the fact that the first spacer members 31 as well as the second spacer members 32 are provided separately of the upper garment 1, it is allowed to make the upper garment 1 itself and the spacer members 31, 32 by use of rationally selected stock materials which are most appropriate for the respective components. Specifically, the upper garment 1 itself may be made of relatively inexpensive stock material such as an inelastic nonwoven fabric or a plastic film, or a nonwoven fabric/plastic film laminate sheet while the first and second spacer members may be made of a relatively expensive but sufficiently elastic nonwoven fabric. In this manner, the upper garment 1 inclusive of the first and second spacer members can be made at a cost as limited as possibly while its function can be improved. It is also possible to use an appropriate woven fabric as stock material for the upper garment 1. While bonding of the respective members constituting the upper garment 1 may be preferably carried out by heat-sealing or ultrasonic sealing, such sealing techniques may be replaced by adhesion using various adhesive agents such as hot melt adhesive agent.

[0016] This invention is applicable also not only to the upper garment as has been described above with reference to the accompanying drawings but also to the other various types of disposable garment such as a sleeveless upper garment or disposable shorts. Even with the garment made of the sheet material being poor in its air permeability such as plastic film, incorporation of the first and second spacer members 31, 32 can significantly improve the air permeability of the garment as a whole.

[0017] The disposable garment according to this invention is provided on its inner surface with the elastically deformable spacer members extending from the inner surface toward the wearer's skin so as to describe the circular arcs and thereby can achieve a desired air permeability of the garment, i.e., a good ventilation ensured between the garment and the wearer's skin.

Claims

1. A disposable garment comprising at least front and rear bodies, said disposable garment being characterized by that:

   spacer members formed separately of said

garment and attached to the inner surface of said garment extend from the inner surface of said garment toward a wearer's skin so as to describe circular arcs, respectively, and being elastically deformable between said inner surface and said wearer's skin.

2. The garment according to Claim 1, wherein said front and rear bodies are made of a nonwoven fabric or a nonwoven fabric/plastic film laminate sheet.

3. The garment according to Claim 1 or 2, wherein said spacer members are made of crimped synthetic fibers.

4. The garment according to any one of Claims 1 - 3, wherein said garment has a pair of sleeves and said spacer members attached to the inner surface of said sleeves.

FIG. 1

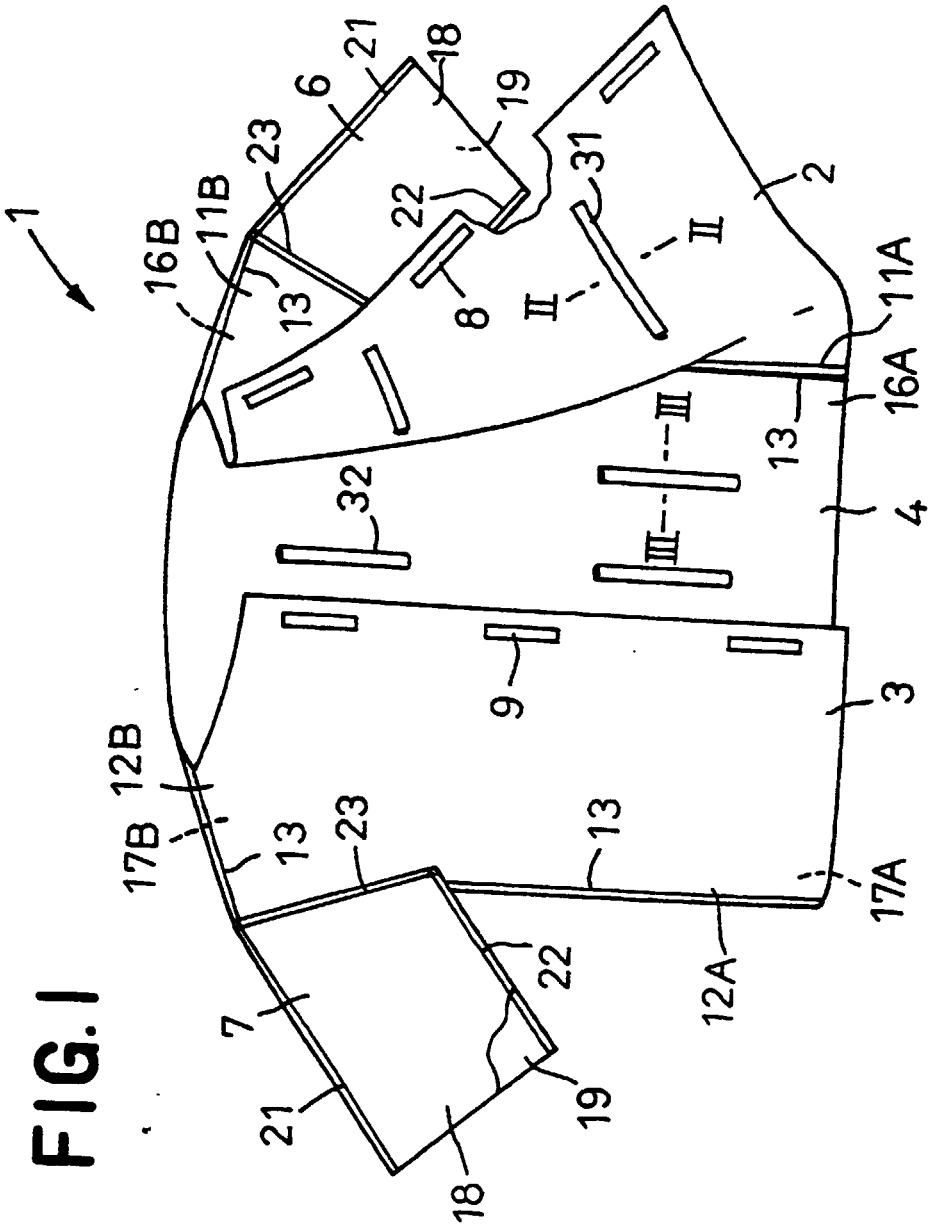

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FIG.2

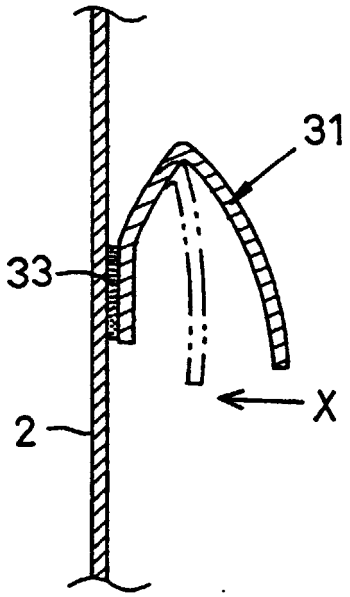
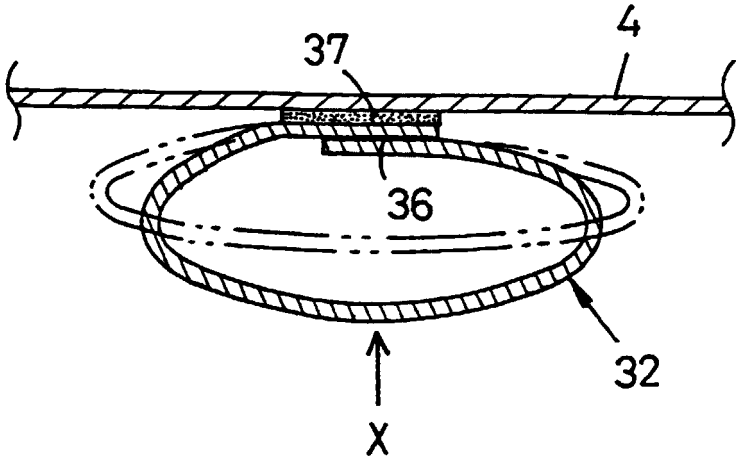


FIG.3



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP99/06886

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] A41D13/12, 31/00, 27/28

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)
Int.Cl[7] A41D13/12, 31/00, 27/28, 1/00 D04H1/42

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1929-1996 Jitsuyo Shinan Toroku Koho 1996-1999
Kokai Jitsuyo Shinan Koho 1971-1999 Toroku Jitsuyo Shinan Koho 1994-1999

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP, 4-185702, A (Noboru Kato), 02 July, 1992 (02.07.92)	1-4
Y	JP, CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model Application No.35149/1992 (Laid-open No.85817/1993), (Hideo Tsubokura, Yoshinobu Higashino), 19 November, 1993 (19.11.93)	1-4
Y	JP, 8-226018, A (Kanebo, LTD.), 03 September, 1996 (03.09.96)	3,4

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
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"E" earlier document but published on or after the international filing date
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 February, 2000 (21.02.00)	29 February, 2000 (29.02.00)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)