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(72) Inventors:
• **FUJIHARA, Nobutoshi**
Osaka-shi
Osaka 530-8222 (JP)
• **MURAKAMI, Yasuharu**
Osaka-shi
Osaka 530-8222 (JP)
• **ISHIKAWA, Emiko**
Osaka-shi
Osaka 530-8222 (JP)

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(74) Representative: **Mewburn Ellis LLP**
City Tower
40 Basinghall Street
London EC2V 5DE (GB)

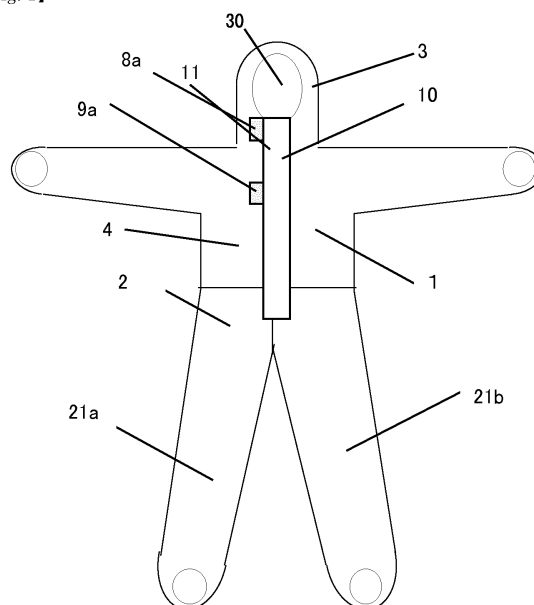
(71) Applicant: **Toray Industries, Inc.**
Tokyo 103-8666 (JP)

(54) **GARMENT**

(57) The present invention provides a garment which can be quickly taken off while contaminants stuck on a hand of a wearer are inhibited from getting to the inside of the garment and a body during undressing.

The garment of the present invention is a garment having an opening and closing portion for putting on and taking off the garment on a front body. In the garment, a tab is placed at any position on each of the left and the right outside the opening and closing portion, an upper end portion of the tab is attached to an upper end of the opening and closing portion in conformity to the opening and closing portion, and a distance from the upper end of the opening and closing portion to a position at which the zipper is attached to the opening and closing portion is at least 1 cm.

[Fig. 1]



Description

TECHNICAL FIELD

5 **[0001]** The present invention relates to a garment having an opening and closing portion on the front face.

BACKGROUND ART

10 **[0002]** Among garments having an opening and closing portion on the front face as described above, garments are known in which a zipper is provided on the opening and closing portion, a slider of the zipper is held, and the slider is moved downward to open the opening and closing portion, so that the garment is taken off.

15 **[0003]** On the other hand, as prior arts, there have been proposed a protective garment provided with an openable and closable front face opening and closing portion extending from a lower edge portion of a hood opening portion on the front face to a waist portion on the front face side (see Patent Document 1); a garment which has an inclination from a neck bottom portion to a waist portion and in which the right half is drawn rightward to move a slider portion downward (see Patent Document 2); and a dust-free garment in which a zipper is provided to extend obliquely from a portion covering a neck portion to a portion covering a waist portion, and the garment is put on or taken off while a grip attached inside is held (see Patent Document 3) .

20 PRIOR ART DOCUMENTS

PATENT DOCUMENTS

25 **[0004]**
Patent Document 1: Japanese Patent Publication No. 5560066
Patent Document 2: Japanese Patent Publication No. 5409249
Patent Document 3: Japanese Patent Publication No. 3912060

30 SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

35 **[0005]** However, a protective garment as in Patent Document 1 has the problem that when a slider of a zipper is held, and the zipper is moved downward during undressing, the slider portion cannot be held, and thus much time is taken for undressing, so that the garment cannot be quickly taken off in case of emergency.

[0006] In addition, when a slider has a lock as in Patent Document 2, there is the problem that since the slider is touched with an unclean hand, contaminants likely stick to a body.

40 **[0007]** In addition, when with a grip attached inside, a zipper is opened to put on or take off a garment as in Patent Document 3, there is the problem that since it is necessary to touch the inside of the opening portion, contaminants stuck on a hand likely get to the inside of the garment.

[0008] Thus, for solving the above-described problems of prior art, an object of the present invention is to provide a garment which can be quickly taken off while contaminants stuck on a hand of a wearer are inhibited from getting to the inside of the garment and a body during undressing.

45 SOLUTIONS TO THE PROBLEMS

[0009] For achieving the above-described object, the present invention employs the following constitutions.

50 **[0010]** A garment of the present invention is a garment having an opening and closing portion for putting on and taking off the garment on the front body, in which a tab is placed at any position on each of the left and the right outside the opening and closing portion.

[0011] According to a preferred aspect of the garment of the present invention, an upper end portion of the tab is attached to an upper end of the opening and closing portion in conformity to the opening and closing portion, and a distance from the upper end of the opening and closing portion to a position at which the zipper is attached to the opening and closing portion is at least 1 cm.

[0012] According to a preferred aspect of the garment of the present invention, the zipper is a fastener, to which a slider having no lock is attached.

[0013] According to a preferred aspect of the garment of the present invention, the tab is attached at each of any two

or more positions on each of the left and the right of the upper end of the opening and closing portion and each of the right and the left of the opening and closing portion of a front body.

[0014] According to a preferred aspect of the garment of the present invention, the tab is placed on each of the left and the right with the opening and closing portion sandwiched therebetween, the left and right tabs has asymmetric in size, and the smaller tab is disposed inside the larger tab.

EFFECTS OF THE INVENTION

[0015] According to the present invention, it is possible to obtain a garment which can be quickly taken off while contaminants stuck on a hand of a wearer are inhibited from sticking to the inside of the garment and a body from a zipper opening portion during undressing.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

Fig. 1 is a front view showing one aspect of a garment of the present invention.

Fig. 2 is a perspective view showing an opening and closing portion of the garment of the present invention.

Fig. 3 is a perspective view showing an upper end of the opening and closing portion of the garment of the present invention.

Fig. 4 is a front view showing another aspect of the garment of the present invention.

EMBODIMENT OF THE INVENTION

[0017] A garment of the present invention is a garment having an opening and closing portion for putting on and taking off the garment on the front body, in which a tab is placed at any position on each of the left and the right outside the opening and closing portion.

[0018] In a preferred aspect, the garment of the present invention has an opening and closing portion for putting on and taking off the garment, the opening and closing portion passing through the center of a front body to reach any position on a waist portion.

[0019] The garment mentioned in the present invention refers to an over all type garment in which an upper garment and a lower garment are integrally formed, or a garment having an opening and closing portion on the front face of the garment, such as a jacket or a raincoat. Specific examples of the garment include antifouling protective garments and chemically protecting protective garments.

[0020] The fabric used for the garment may be any fabric such as a woven fabric, a knitted fabric or a non woven fabric, and synthetic fibers such as those of polyester and polyethylene are preferably used as a fiber material that forms such a fabric.

[0021] In addition, in the present invention, the upper end of the opening and closing portion refers to an upper end portion of a first tab attached to the upper end of the opening and closing portion.

[0022] Next, an embodiment of the garment of the present invention will be described in detail with reference to the drawings.

[0023] Fig. 1 is a front view showing one aspect of the garment of the present invention. Fig. 2 is a perspective view showing the opening and closing portion in the present invention. Fig. 3 is a perspective view showing the upper end of the opening and closing portion in the present invention. Fig. 4 is a front view showing another aspect of the garment of the present invention.

[0024] One aspect of the garment of the present invention is a garment of a type in which an upper garment 1 and a lower garment 2 are integrally formed as shown in Fig. 1. The upper garment 1 has hood portion 3, and as shown in Fig. 2, a first tab (large) 8a and a first tab (small) 8b, and a second tab (large) 9a and a second tab (small) 9b are sewn to an opening and closing portion 5 on the left and right. In addition, in Fig. 1, a substantially circular opening portion 30 for securing a field of view is formed on the front face of the hood portion 3. The lower garment 2 includes left and right leg portions 21a and 21b.

[0025] In a preferred aspect, the opening and closing portion 5 for putting on and taking off the garment of the present invention extends from the position of the upper end at the center of the front body to the vicinity of the waist. In a preferred aspect, the opening and closing portion 5 of a front body 4 has the first tab (large) 8a and the first tab (small) 8b, and the second tab (large) 9a and the second tab (small) 9b on the left and right for making it possible to take off the garment, the first tab (large) 8a and the first tab (small) 8b are sewn on the left and right in conformity to the upper end 11 of the opening and closing portion, and the second tab (large) 9a and the second tab (small) 9b is sewn to the opening and closing portion 5 in a lower part as compared to the first tab (large) 8a and the first tab (small) 8b. By placing

the tabs on the left and the right of the opening and closing portion 5, and drawing the tabs to the left and right in the order of the first tab and the second tab, the opening and closing portion 5 can be opened without holding a slider 7 of a zipper, and the garment can be quickly taken off while contaminants are inhibited from getting to a body because the slider is not touched with an unclean hand.

[0026] In a preferred aspect, the garment of the present invention is a garment having an opening and closing portion for putting on and taking off the garment on the front body, in which the tab is placed at any position on each of the left and the right outside the opening and closing portion 5.

[0027] In a preferred aspect of the zipper in the present invention, a distance 11a from the upper end 11 of the opening and closing portion to a zipper insertion is at least 1 cm. Here, as shown in Fig. 3, an angle α of a line connecting the upper end 11 of the opening and closing portion and an upper end 7a of the slider is less than 45° at the position of the upper end 7a of the slider, and thus a force d for moving the slider 7 downward is greater than a force c for opening the tab to the left and the right, so that a zipper 6 is easily opened. More preferably, the zipper is attached at such a position that the distance 11a to the zipper insertion fastener is 1 cm or more and 3 cm or less.

[0028] When the distance 11a to zipper insertion is less than 1 cm, the angle α is 45° or more, and thus the force c for opening the tab to the left and the right is greater than the force d for moving the slider 7 downward, so that when there is no difference in force c for opening the tab, the force d for moving the slider 7 downward is reduced, thus making it difficult to open the zipper. In addition, when the zipper 6 is placed at such a position that the distance 11a is more than 3 cm, the upper end 11 of the opening and closing portion is opened, and therefore contaminants may enter from the opening and closing portion 5, resulting in sticking of contaminants to a body.

[0029] The zipper 6 in the present invention is preferably a fastener, and the slider 7 of the fastener is preferably a slider having no lock. In the case of a slider having a lock, it is necessary that the slider 7 be held by hand, lifted upward and moved downward, so that contaminants stuck on a hand more likely stick to a body.

[0030] The position at which the second tab (large) 9a and the second tab (small) 9b in the present invention are attached is preferably at a distance of 20 cm or more and 40 cm or less from the first tab (large) 8a and the first tab (small) 8b. In a preferred aspect, the distance is more preferably 25 cm or more and 35 cm or less. When the position of the second tabs 9a and 9b are at a distance of less than 20 cm, the distance from the second tab to the waist portion is long, so that even when the second tab is expanded to the left and the right, the opening and closing portion 5 cannot be fully opened. In addition, when the positions of the second tab (large) 9a and the second tab (small) 9b are disposed at a distance of more than 40 cm below the first tab (large) 8a and the first tab (small) 8b, the zipper can be opened to the vicinity of the solar plexus, but the second tab is disposed below the solar plexus, and therefore even when the second tab (large) 9a and the second tab (small) 9b are expanded to the left and the right, the opening and closing portion 5 cannot be opened.

[0031] In the present invention, it is preferable that the first tab (large) 8a and the first tab (small) 8b have bilateral-asymmetric in size, and the second tab (large) 9a and the second tab (small) 9b have bilateral-asymmetric in size. More preferably, the smaller tabs, e.g. the first tab (small) 8b and the second tab (small) 9b, are disposed inside the larger tabs, e.g. the first tab (large) 8a and the second tab (large) 9a.

[0032] Generally, when a tab is placed, a double-sided tape or a fastener tape are often placed inside the tab for suppressing fluttering of the tab. Here, when the sizes of tabs on left and the right are the same, or the size of a tab disposed on the lower side is larger than the size of the other tab, the upper and lower tabs are bonded to each other at the time of providing a double-sided tape or a fastener tape inside the tab disposed on the upper side.

[0033] It is preferable to provide a cover member 10 which covers the opening and closing portion 5 at the time of closing the opening and closing portion 5, and exposes the opening and closing portion 5 at the time of opening the opening and closing portion 5. The cover member 10 is formed of a fabric identical to that of a body part, and the cover member 10 can be kept in a closed state by a double-sided tape, a fastener tape or the like.

[0034] The garment of the present invention is produced in the following manner. The fabric that forms the garment is cut into parts such as the upper garment 1, the hood portion 3, the leg portions 21a and 21b, the first tab (large) 8a, the first tab (small) 8b, the second tab (large) 9a, and the second tab (small) 9b.

[0035] Examples of the method for joining the parts include sewing with a sewing thread, welding with an ultrasonic wave or a high-frequency sewing machine, and bonding with an adhesive tape. In addition, the jointed portion can be reinforced with a resin tape or the like. In addition, the first tab (large) 8a and the first tab (small) 8b, the second tab (large) 9a and the second tab (small) 9b, and fasteners are attached to the opening and closing portion 5 on the left and the right, and the cover member 10 is attached to the opening and closing portion 5 on one of the right or the left so as to cover the opening and closing portion 5. In addition, a stretchable material such as rubber is sewn to a hood hem opening 30, a sleeve hem, a bottom hem, and the like.

[0036] The garment of the present invention is put on and taken off in the following manner. For putting on the garment, the body is put in the garment from the opening and closing portion 5, and fitted with the garment, and the hood portion 3 is put on the body. Subsequently, the slider 7 of the fastener is moved to the position of the upper end of the zipper, and the opening and closing portion 5 is closed. Thereafter, the first tab (large) 8a and the first tab (small) 8b, the second

tab (large) 9a and the second tab (small) 9b, and the cover member 10 are closed to cover the opening and closing portion 5.

[0037] Also, for taking off the garment, the cover member 10, the first tab (large) 8a and the second tab (large) 9a are opened to expose the opening and closing portion 5. Subsequently, the tabs are opened in the left and right in the order of the first tab (large) 8a and the first tab (small) 8b, and the second tab (large) 9a and the second tab (small) 9b, so that the opening and closing portion 5 is opened. Next, the head is released from the hood portion 3, and both the sleeves are unfastened. The garment is drawn down, and finally both the legs are drawn out to take off the garment.

[0038] Specific examples of the garment of the present invention include antifouling protective garments and chemically protective garments.

EXAMPLES

[0039] Next, the garment of the present invention will be described further in detail by way of examples. Quality evaluation in examples which was carried out by the following method.

(1) First tab (large) 8a and first tab (small) 8b, and second tab (large) 9a and second tab (small) 9b Measurement of undressing time

[0040] Undressing was started in a state in which an over all type garment was worn, and the time until completion of undressing to the ankle was measured.

(2) Evaluation on whether a hand touches a slider of the garment during undressing:

[0041] Evaluation was performed on the basis of the following criteria: the sample is rated "○" when the slider is not touched during undressing; and the sample is rated "×" when there is the possibility that the slider is touched.

(Example 1)

[0042] A vertically continuous over all type garment was fabricated using a non woven fabric obtained by providing a non woven fabric on each of the front and back sides, and disposing a waterproof and moisture-permeable film between the non woven fabrics on the front and back sides. For joining at each position, welding was performed with a seam margin of 1 cm using an ultrasonic welding machine, and welded portions were bonded with a resin tape. Here, a first tab (large) 8a and a first tab (small) 8b to be sewn to an opening and closing portion 5 were positioned at a distance of 30 cm from a second tab (large) 9a and a second tab (small) 9b to be sewn to the opening and closing portion 5, a slider 7 having no lock was attached to a zipper 6, and a distance 11a to a zipper insertion was 1 cm. A cover member 10 was sewed so as to cover the opening and closing portion 5 with the cover member 10. Here, the first tab (large) 8a and the second tab (large) 9a were disposed under the cover member 10. Rubber was sewn to the opening portion 30, a sleeve hem, and a bottom hem. Results are shown in Table 1.

[0043] As shown in Table 1, the tabs were disposed under the cover member 10, and therefore it was possible to shorten the uncovering time because it was possible to open the cover member 10 concurrently with opening the tabs for undressing. In addition, it was not necessary to touch the slider 7 during undressing, and therefore the body was not contaminated.

(Example 2)

[0044] A vertically continuous over all type garment was fabricated using a non woven fabric identical to that in Example 1 as a fabric. For joining at each position, sewing was performed with a seam margin of 0.7 cm using an overlock machine. Here, a first tab (large) 8a and a first tab (small) 8b to be sewn to an opening and closing portion 5 were positioned at a distance of 25 cm from a second tab (large) 9a and a second tab (small) 9b to be sewn to the opening and closing portion 5, a slider 7 having no lock was attached to a zipper 6, and a distance 11a to a zipper insertion was 3 cm. A cover member was sewed so as to cover the opening and closing portion 5 with the cover member 10. Here, the first tab (large) 8a and the second tab (large) 9a were disposed under the cover member 10. Rubber was sewn to the opening portion 30, a sleeve hem, and a bottom hem. Results are shown in Table 1.

[0045] As shown in Table 1, the tabs were disposed under the cover member 10, and therefore it was possible to shorten the uncovering time because it was possible to open the cover member 10 concurrently with opening the tabs for undressing. In addition, it was not necessary to touch the slider during undressing, and therefore the body was not contaminated.

(Example 3)

[0046] A vertically continuous over all type garment was fabricated using a 100-percent-cotton woven fabric as a fabric. For joining at each position, sewing was performed with a seam margin of 0.7 cm using an overlock machine. Here, a first tab (large) 8a and a first tab (small) 8b to be sewn to an opening and closing portion 5 were positioned at a distance of 35 cm from a second tab (large) 9a and a second tab (small) 9b to be sewn to the opening and closing portion 5, a slider 7 having no lock was attached to a zipper 6, and a distance 11a to a zipper insertion was 1 cm. A cover member was sewed so as to cover the opening and closing portion 5 with the cover member 10. Here, the first tab (large) 8a and the second tab (large) 9a were disposed under the cover member 10. In addition, rubber was sewn to a sleeve hem and a bottom hem. Results are shown in Table 1.

[0047] As shown in Table 1, the tabs were disposed under the cover member 10, and therefore it was possible to shorten the uncovering time because it was possible to open the cover member 10 concurrently with opening the tabs for undressing. In addition, it was not necessary to touch the slider 7 during undressing, and therefore the body was not contaminated.

(Example 4)

[0048] An upper garment was fabricated using a woven fabric identical to that in Example 3 as a fabric. For joining at each position, sewing was performed with a seam margin of 0.7 cm using an overlock machine. Here, a first tab (large) 8a and a first tab (small) 8b to be sewn to an opening and closing portion 5 were positioned at a distance of 30 cm from a second tab (large) 9a and a second tab (small) 9b to be sewn to the opening and closing portion 5, a slider 7 having no lock was attached to a zipper 6, and a distance 11a to a zipper insertion was 1 cm. A cover member 10 was sewed so as to cover the opening and closing portion 5 with the cover member 10. Here, the first tab (large) 8a and the second tab (large) 9a were disposed under the cover member 10. In addition, rubber was sewn to a sleeve hem and a bottom hem. Results are shown in Table 1.

[0049] As shown in Table 1, the tabs were disposed under the cover member 10, and therefore it was possible to shorten the uncovering time because it was possible to open the cover member 10 concurrently with opening the tabs for undressing. In addition, it was not necessary to touch the slider 7 during undressing, and therefore the body was not contaminated.

(Comparative Example 1)

[0050] As with Example 1, a vertically continuous over all type garment was fabricated using as a fabric a non woven fabric obtained by providing a non woven fabric on each of the front and back sides, and disposing a waterproof and moisture-permeable film between the non woven fabrics on the front and back sides. For joining at each position, welding was performed with a seam margin of 1 cm using an ultrasonic welding machine, and welded portions were bonded with a resin tape. Here, only one tab (large) was sewn to an upper end of an opening portion 5 on the left side of the opening and closing portion 5, a slider having a lock was used as the slider 7 to be attached to a zipper 6, and a distance 11a to a zipper insertion was 0 cm. A cover member 10 was sewed so as to cover the opening and closing portion 5 with the cover member 10. Here, the tab was disposed on the cover member 10. In addition, rubber was sewn to a hood hem, a sleeve hem, and a bottom hem. Results are shown in Table 1.

[0051] As shown in Table 1, the tab was disposed on the cover member 10, and therefore it was necessary to open the tab and the cover member 10 in this order during undressing, so that much time was taken for undressing. In addition, since a hand touches the slider during undressing, a body may be contaminated.

(Comparative Example 2)

[0052] As with Example 1, a vertically continuous over all type garment was fabricated using as a fabric a non woven fabric obtained by providing a non woven fabric on each of the front and back sides, and disposing a waterproof and moisture-permeable film between the non woven fabrics on the front and back sides. For joining at each position, welding was performed with a seam margin of 1 cm using an ultrasonic welding machine, and welded portions were bonded with a resin tape. Here, a first tab (large) 8a was sewn only to an upper end 11 of the opening and closing portion, a slider having no lock was used as the slider 7 to be attached to a zipper 6, and a distance 11a to a zipper insertion was 1 cm. A cover member 10 was sewed so as to cover the opening and closing portion 5 with the cover member 10. Here, the tab (large) 8a was disposed on the cover member 10. In addition, rubber was sewn to a hood hem, a sleeve hem, and a bottom hem. Results are shown in Table 1.

[0053] As shown in Table 1, the tab was disposed on the cover member 10, and therefore it was necessary to open the tab and the cover member 10 in this order during undressing, so that much time was taken for undressing. In addition,

since a hand touches the slider during undressing, a body may be contaminated.

(Comparative Example 3)

- 5 **[0054]** An upper garment was fabricated using a woven fabric identical to that in Example 4 as a fabric. For joining at each position, sewing was performed with a seam margin of 0.7 cm using an overlock machine. Here, a first tab (large) 8a was sewn to an upper end 11 of the opening and closing portion, a slider having no lock was used as the slider 7 to be attached to a zipper 6, and a distance 11a to a zipper insertion was 1 cm. A cover member 10 was sewed so as to cover the opening and closing portion 5 with the cover member 10. Here, the tab (large) 8a was disposed on the cover member 10. In addition, rubber was sewn to a hood hem, a sleeve hem, and a bottom hem. Results are shown in Table 1.
- 10 **[0055]** As shown in Table 1, the tab was disposed on the cover member 10, and therefore it was necessary to open the tab and a placket front in this order for undressing, so that much time was taken for undressing. In addition, since the slider is touched during undressing, a body may be contaminated.

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[Table 1]

		Fabric	Shape	Number of tabs	Distance of tab at second position	Distance from upper end of opening and closing portion (position of zipper insertion)	Presence/absence of lock in slider	Undressing time	Whether or not slider is touched by hand	Assessment
Examples	Example 1	Non woven fabric	Over all	Two positionson left and right	30 cm	1 cm	Absent	37 seconds	Not touched	○
	Example 2	Non woven fabric	Over all	Two positionson left and right	25 cm	2 cm	Absent	39 seconds	Not touched	○
	Example 3	Woven fabric	Over all	Two positionson left and right	35 cm	1 cm	Absent	36 seconds	Not touched	○
	Example 4	Woven fabric	Upper garment	Two positionson left and right	30 cm	1 cm	Absent	25 seconds	Not touched	○
Comparative Examples	Comparative Example 1	Non woven fabric	Over all	One position on left	-	0 cm	Present	49 seconds	Touched	×
	Comparative Example 2	Non woven fabric	Over all	One position on left	-	1 cm	Absent	48 seconds	Touched	×
	Comparative Example 3	Woven fabric	Upper garment	One position on left	-	1 cm	Absent	29 seconds	Touched	×

DESCRIPTION OF REFERENCE SIGNS

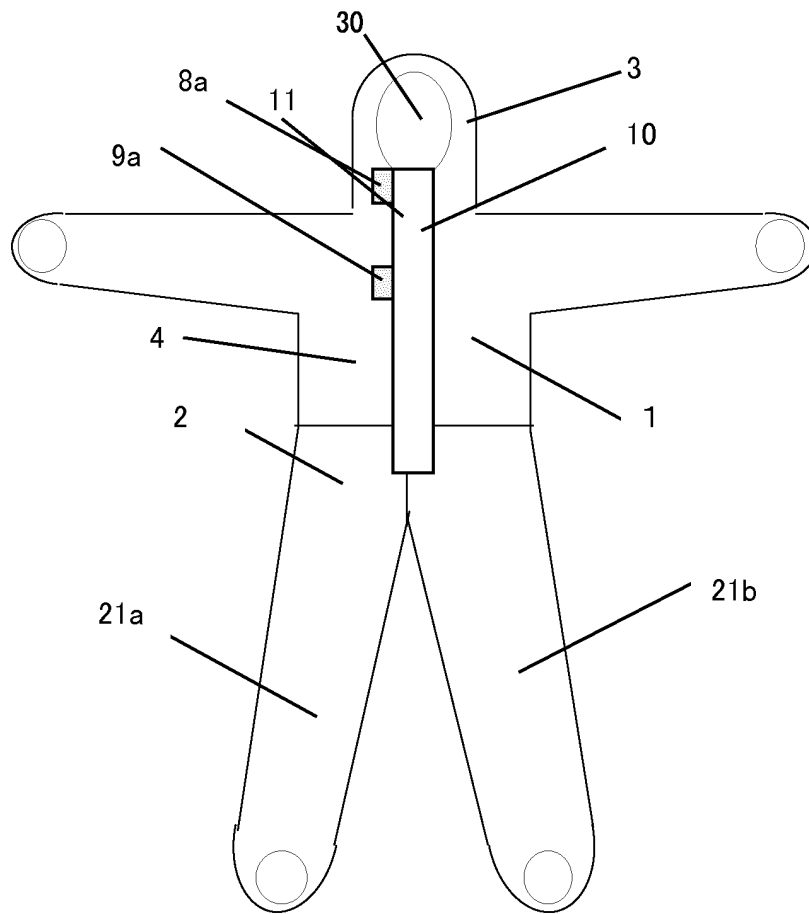
[0056]

- 5 1: Upper garment
 2: Lower garment
 3: Hood portion
 4: Front body
 5: Opening and closing portion
 10 6: Zipper
 7: Slider
 7a: Upper end of slider
 8a: First tab (large)
 8b: First tab (small)
 15 9a: Second tab (large)
 9b: Second tab (small)
 10: Cover member
 11: Upper end of opening and closing portion
 11a: Distance to zipper insertion
 20 21a: Leg portion
 21b: Leg portion
 30: Opening portion
 a: Angle
 b: Direction in which force is applied at the time of opening
 25 c: Force applied at the time of opening tab
 d: Force for moving slider downward

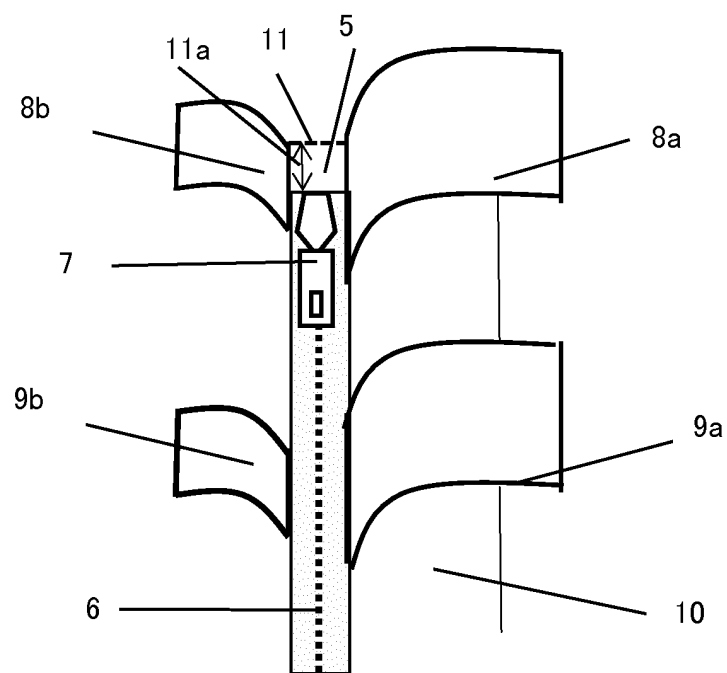
Claims

- 30 1. A garment having an opening and closing portion for putting on and taking off the garment on a front body, wherein a tab is placed at any position on each of a left and a right outside the opening and closing portion.
- 35 2. The garment according to claim 1, wherein an upper end portion of the tab is attached to an upper end of the opening and closing portion in conformity to the opening and closing portion, and a distance from the upper end of the opening and closing portion to a position at which a zipper is attached to the opening and closing portion is at least 1 cm.
3. The garment according to claim 2, wherein, the zipper is a fastener, to which a slider having no lock is attached.
- 40 4. The garment according to any one of claims 1 to 3, wherein the tab is attached at each of any two or more positions on each of the left and the right of the upper end of the opening and closing portion and each of the right and the left of the opening and closing portion of a front body.
- 45 5. The garment according to any one of claims 1 to 4, wherein the tab is placed on each of the left and the right with the opening and closing portion sandwiched therebetween, the left and right tabs have asymmetric in size, and the smaller tab is disposed inside the larger tab.

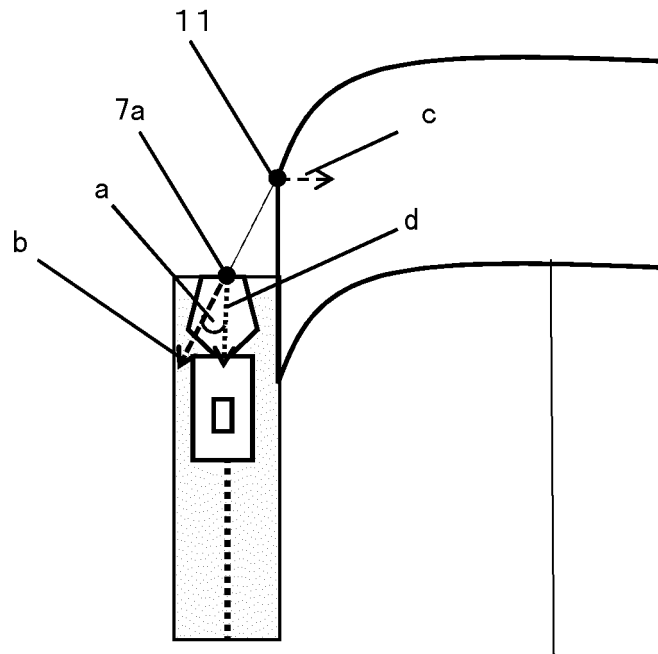
【Fig. 1】



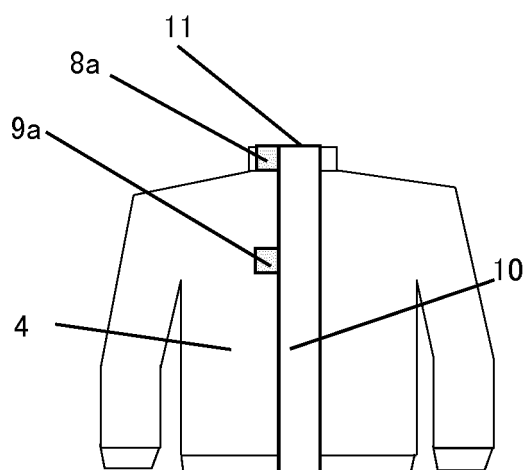
【Fig. 2】



【Fig. 3】



【Fig. 4】



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2017/010101

A. CLASSIFICATION OF SUBJECT MATTER

A41D13/00(2006.01)i, A41D27/00(2006.01)i

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)

A41D1/00-27/00

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

Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2017
 Kokai Jitsuyo Shinan Koho 1971-2017 Toroku Jitsuyo Shinan Koho 1994-2017

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.
X	JP 5409249 B2 (Onyone Co., Ltd.), 05 February 2014 (05.02.2014), paragraphs [0017] to [0018], [0029], [0033], [0041] to [0042]; fig. 1 to 5 (Family: none)	1-2
X	US 2325305 A (CARLILE, A. E.), 27 July 1943 (27.07.1943), specification, page 4, left column, line 46 to right column, line 32; fig. 1 to 4 (Family: none)	1, 3-4
X	JP 3178857 U (Daiichi Boseki Kabushiki Kaisha), 04 October 2012 (04.10.2012), paragraphs [0015] to [0016]; fig. 5, 6 (Family: none)	1-2

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

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29 May 2017 (29.05.17)Date of mailing of the international search report
06 June 2017 (06.06.17)Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2007-239129 A (Hirokazu NAGAYA), 20 September 2007 (20.09.2007), paragraphs [0020] to [0031]; fig. 1, 2 (Family: none)	1, 4
X	US 2013/0185841 A1 (AIRBORNE TEXTILES, LLC), 25 July 2013 (25.07.2013), paragraphs [0014] to [0017]; fig. 1A to 3C (Family: none)	1, 3-5
X	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 161474/1986 (Laid-open No. 69110/1988) (C.World Co., Ltd.), 10 May 1988 (10.05.1988), specification, page 4, line 13 to page 5, line 18; fig. 1 to 3 (Family: none)	1, 3

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 5560066 B [0004]
- JP 5409249 B [0004]
- JP 3912060 B [0004]