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(54) **GARMENT**

(57) A garment (1) which comprises at least one fastener (5) on its back side, the fastener (5) being manufactured by forming a band-like part (6), conforming to a vertical side of a rear piece of the garment (1), to a first part (4) of the rear piece, and by forming, to a second

part (3) of the rear piece, substantially at a height corresponding to the part fastened to the rear piece of the band-like part (6), at least one incision (9, 10, 11), whose height substantially corresponds with the width of the band-like part (6).

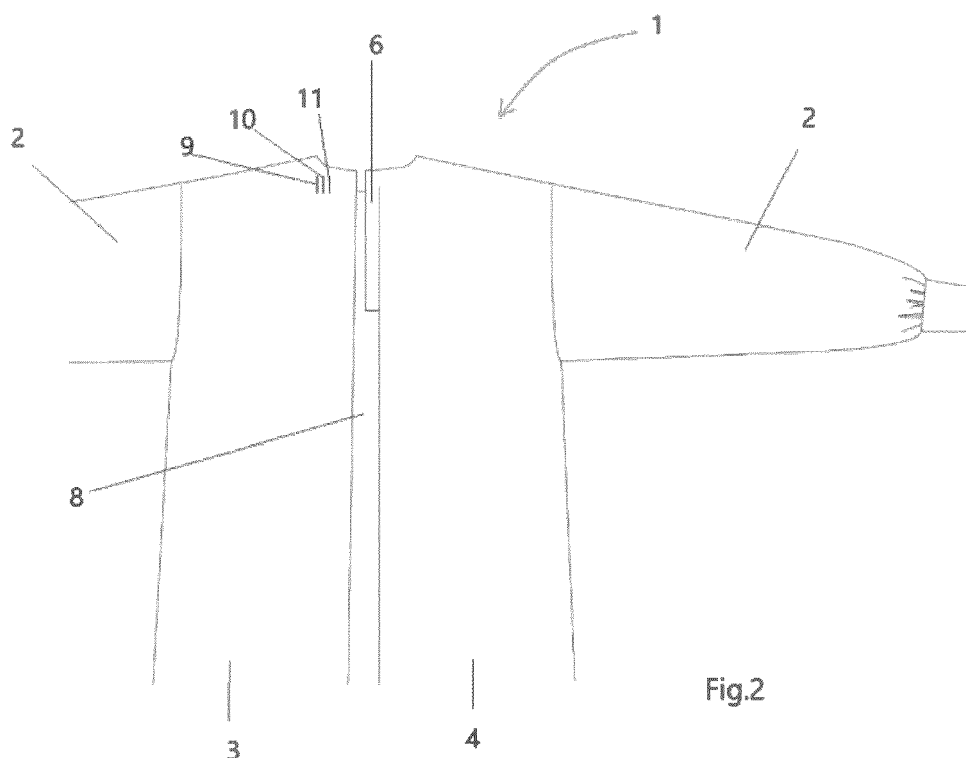


Fig. 2

Description

Background

[0001] The solution relates to garments in general. In particular, the solution relates to protective garments. Protective garments may make use of fasteners to keep a garment on its wearer.

Brief disclosure

[0002] The object is a new type of garment, such as a protective garment, as well as a fastener and fastening arrangement for keeping the garment on its wearer. The solution according to the invention is characterised by what is stated in the independent claim.

[0003] On its back side, the garment comprises at least one fastener, the fastener being manufactured by forming a band-like part, conforming to a vertical side of a rear piece of the garment, to a first part of the rear piece, and by forming, to a second part of the rear piece, substantially at a height corresponding to the part fastened to the rear piece of the band-like part, at least one incision, whose height substantially corresponds to the width of the band-like part. The preferred embodiments are disclosed in the dependent claims.

Brief description of the drawings

[0004] The invention will now be described in closer detail with reference to the accompanying drawings in which:

Figure 1 is a schematic view of a protective garment in which a fastening member is closed.

Figure 2 is a schematic view of a protective garment in which a fastening member is open.

Detailed description

[0005] Garments, in particular protective garments, are used in various kinds of operating environments to protect a person carrying out a task, and their other clothing. On the other hand, in certain environments, such as healthcare, the purpose of protective garments is to protect against the spread of bacteria and other impurities from a person or their clothing to the operating environment and to protect a wearer against potential pathogens. In healthcare, a sterile environment may even be a requirement for the level of hygiene.

[0006] When operating in a sterile environment or with infectious diseases, it is necessary to avoid all touching that is unnecessary for the task being performed, for example, to surfaces, tools, or utensils. When preparing for a procedure, such as an operation, it is typical that a second person may help the performing person to dress into required sterile protective garments, whereby he need not touch anything unnecessary. It is in such a case

advantageous for a protective garment that it is as simple as possible to dress and fasten on a second person. A typical solution is a protective garment open at the back, which an assisting person can easily dress on a person being assisted. After performing the procedure, the requirement for sterility decreases, but touching one's own protective garment, for example, at the back must be avoided even when taking off the protective garment.

[0007] The solution discloses a garment 1 which may be used as a protective garment in healthcare, for example. In the example of Figure 1, the coat-like garment consists of a front piece 8, sleeves 2, and two rear pieces 3, 4. The rear pieces 3, 4 are sewn to the front piece 8 at the shoulders and under the armpits, and by the rear part of the sleeve 2 to the sleeve. At the centre of the back, the rear pieces are open and unsewn together whereby dressing the garment on succeeds from the rear by passing the hands into the sleeves and lifting the garment in place by the shoulders, for example. The rear pieces 3, 4 of the coat-like garment go on top of each other on the back side. Dressing on a second person or assisting in dressing can be done from the back side, because the rear pieces are not sewn together. In addition, there is no need to lift the garment unnecessarily to put it over the head, for example. The simple structure speeds up putting on the protective garment. Dressing up fast is beneficial in an emergency situation, for example. To make sure the garment stays on a person, the rear pieces that go over each other on the back side are fastened with a fastener 5, located at substantially the top part of the garment, near the neck. The location of the fastener behind the neck is of advantage if the protective garment is put on without assistance. The garment may, if needed, comprise more fasteners, such as two, three, four, or more. When the garment comprises several fasteners, they are distributed over the distance of the vertical side of the rear piece as required by each purpose of use.

[0008] The example of Figure 2 shows the garment 1 with the fastener 5 open. The fastener comprises a band-like part 6 cut on a first side of the rear piece, and parallel vertical incisions 9, 10, 11 cut on a second side and substantially corresponding to the width of the band. The fastener is made by cutting a band-like part, conforming to a vertical side of a rear piece of the garment, to a first part of the rear piece, and by forming, to a second part of the rear piece, substantially at a height corresponding to the band-like part, three parallel incisions whose height substantially corresponds to the width of the band-like part. The incisions may be substantially vertically-running vertical incisions. The length of the incision may also vary in relation to the width of the band, being in some cases shorter than the width of the band and in some cases longer than the width of the band. The incisions are located in the first back member, vertically at essentially the same height as the band-like part comprised by and attached to the second back member. The width of the band-like part may be 20 to 60 cm, for example, and

the length 150 to 300 mm, for example. In addition to the incisions, the opening may be formed in the shape of a circle, oval, square, or diamond.

[0009] The fastener may be closed by threading the band-like part through at least one incision from inside the garment to outside, or vice versa.

[0010] If there are three or more incisions, the fastener is closed by threading the band from outside the garment through the first incision 11, as seen from the centre part of the back, inside the garment, and then through the last incision 9, as seen from the centre part of the back, back to outside the garment, and then, seen from the exit opening towards the centre of the back, from the next incision 10 inside from outside the garment, and back through the next incision 11, as seen from the centre part of the back, from inside the garment to outside the garment. The threading may also be carried out as a mirror image, beginning from the other side.

[0011] By threading the band in any of the manners described in the above, a fastening is achieved, which keeps the back members attached to each other essentially from the vicinity of the fasteners. The fastenings created by threading are opened by pulling the fastened pieces away from each other. In such a case, when using the fastening in, for example, in a healthcare protective garment in the rear piece of the garment, it is possible to take off the garment without touching the rear piece on the back side by pulling the garment from the front piece to such an extent that the fastening either loosens to remove the garment over the head, or the fastening detaches entirely whereby the garment may be taken off from the front. An advantage of the procedure is that the wearer of the garment need not touch the rear piece of the garment, and that taking it off works out without an assisting person. Furthermore, the garment can also be taken off very fast, which may be of specific advantage in a first aid situation where protective garments have to be replaced fast once they have become dirty.

[0012] The number of incisions may in addition to one, two, and three vary from four to ten, for example. In such a case, the threading may start at any point of the parallel incisions; at the beginning, middle, or end, as seen from the middle of the back. The threading may be started either from the inside or outside of the garment, and the band may be threaded either by making use of adjacent incisions, or by skipping over one or more incisions before threading through an incision from one side of the fabric to the other. Threading may take place from the middle of the back towards the armpit, and the direction may be changed once or more often.

[0013] When forming a fastening with the use of at least three incisions, the fastening may, in addition to keeping the garment fastened, be utilised to adjust the garment size as needed. The advantage of the chance to adjust the garment size is that the same garment size fits a plurality persons of different sizes, whereby the need for different size garments is reduced, the garments are simpler to handle and require less work.

[0014] In the garments 1 shown as examples in Figures 1 and 2, the fastener parts band 6 and incisions 9, 10, 11 are formed of the same material blank as the rear pieces 3, 4 of the garment. Forming may take place by cutting with a chisel, for example, or a mould. An advantage of the manufacturing method is that all the cuts are performed at the same work stage as cutting the rest of the blank, reducing work time. A further advantage is savings in the material, when the incision parts do not require any material, and the band part, too, is easily formed of the same material. Saving material is also ecologic. If need be, the fastener may also use another material than the garment material. For example, the neckline may be neatened with a band made of another material, one end of which may be left overlong and used as the band for the fastener.

[0015] The garment may be made of various materials. Suitable materials include all the materials applicable to protective clothes, such as fabric materials. The garment may be made of a fabric, such as a nonwoven fabric. The fabric may be, for example, a Fibrella fabric, such as Fibrella 50-55g/m² 100% PP, Thermoembossed, Fibrella 75g/m² 100% PP, Thermoembossed, WALKI Apron 45 PPNW 30/ Thermoplastic Polymer, or nonwoven fabric 15-80g/m². An advantage of making the garment of a fabric is that the garment may be washed after use and therefore be used a plurality of times. Compared to single-use products, a washable garment is an environment-saving option.

[0016] The fastener is suitable for use in other than coat-like garments. For example, it may be used to fasten an apron-like or robe-like garment. The fastener may also be arranged on the front side of the garment.

[0017] Those skilled in the art will find it obvious that, as technology advances, the basic idea of the invention may be implemented in many different ways. The invention and its embodiments are thus not restricted to the examples described above but may vary within the scope of the claims.

Claims

1. A garment **characterised in that** the garment (1) comprises at least one fastener (5) on its back side,

the fastener (5) being manufactured by forming a band-like part (6), conforming to a vertical side of a rear piece of the garment (1), to a first part (4) of the rear piece, and by forming, to a second part (3) of the rear piece, substantially at a height corresponding to the part fastened to the rear piece of the band-like part (6), at least one incision (9, 10, 11), whose height substantially corresponds with the width of the band-like part (6).

2. A garment (1) as claimed in claim 1, **characterised**

in that the garment (1) comprises, in the second part (3) of the rear piece, substantially at a height corresponding to the part fastened to the rear piece of the band-like part (6), at least three incisions (9, 10, 11) whose height substantially corresponds with the width of the band-like part (6). 5

3. A garment (1) as claimed in claim 1 or 2, **characterised in that** the fastener (5) is made by cutting from the same blank as the rear pieces (3, 4) of the garment (1). 10

4. A garment (1) as claimed in any one of claims 1 to 3, **characterised in that** the incisions (9, 10, 11) are vertical incisions. 15

5. A garment (1) as claimed in any one of claims 1 to 4, **characterised in that** the material is a nonwoven fabric. 20

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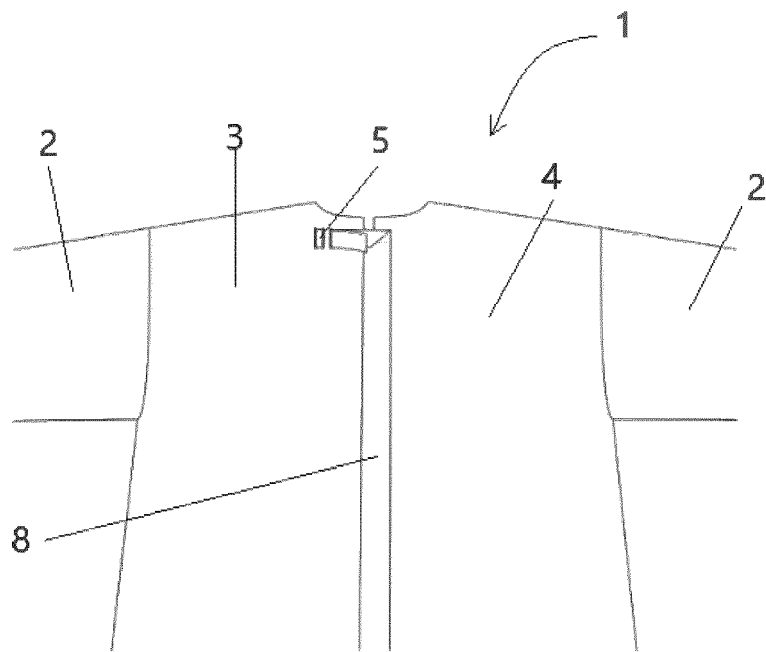


Fig.1

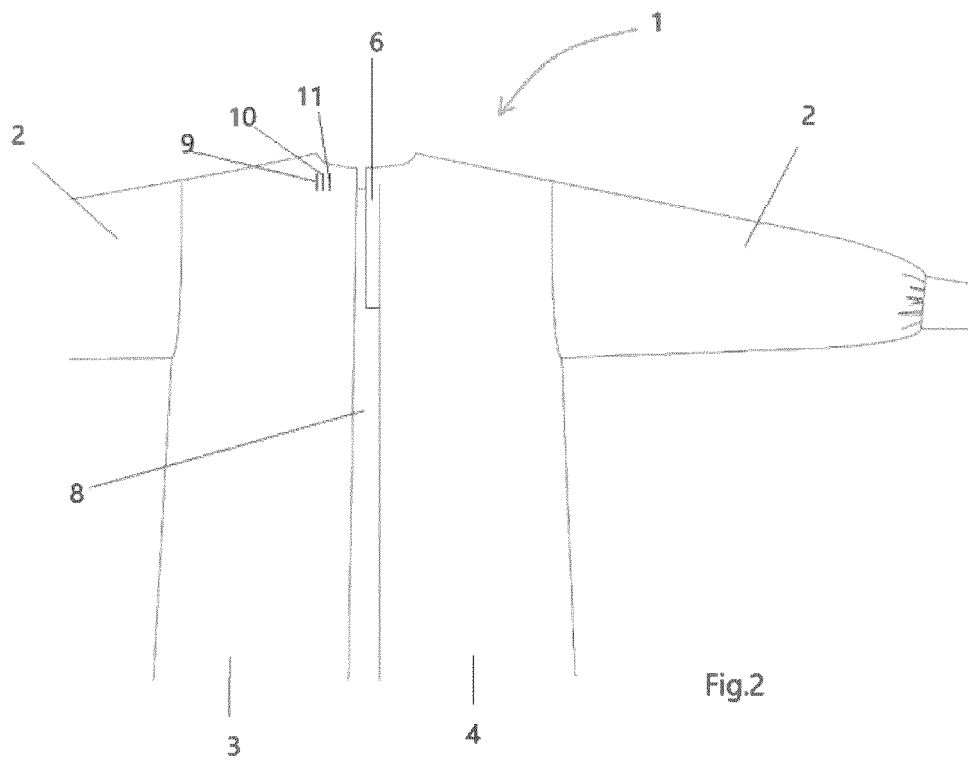


Fig.2



EUROPEAN SEARCH REPORT

Application Number
EP 21 18 1070

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2019/357607 A1 (CARTER LONNY LANGSTON [US]) 28 November 2019 (2019-11-28) * paragraphs [0005], [0032], [0079] - [0081]; figure 9 *	1-5	INV. A41D13/12
X	US 3 729 747 A (BELKIN N) 1 May 1973 (1973-05-01) * column 1, lines 48-55; figure 3 *	1,5	
X	US 2002/152535 A1 (GAZA ANN [US]) 24 October 2002 (2002-10-24) * paragraphs [0021] - [0024]; figures 2-4 *	1,2,4,5	
			TECHNICAL FIELDS SEARCHED (IPC)
			A41D A45D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 3 November 2021	Examiner Gallego, Adoración
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 21 18 1070

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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03-11-2021

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82