



(51) International Patent Classification:

A41B 1/20 (2006.01) A41D 13/05 (2006.01)  
A42B 1/20 (2006.01) A42B 1/04 (2006.01)  
A41D 13/00 (2006.01)

(21) International Application Number:

PCT/FI2014/050612

(22) International Filing Date:

7 August 2014 (07.08.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

20135831 14 August 2013 (14.08.2013)

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(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,  
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,  
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,  
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,  
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,  
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,  
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,  
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM,

[Continued on next page]

(54) Title: FUNCTIONAL ARTICLE OF CLOTHING

(57) Abstract: An upper body article of clothing (1) has a hood (2) and means for filling an airtight inflatable inner space (3) in the hood with air or other gas. The inflatable inner space (3) extends along parts of the hood (2) around the neck and over the head of a person wearing the article.

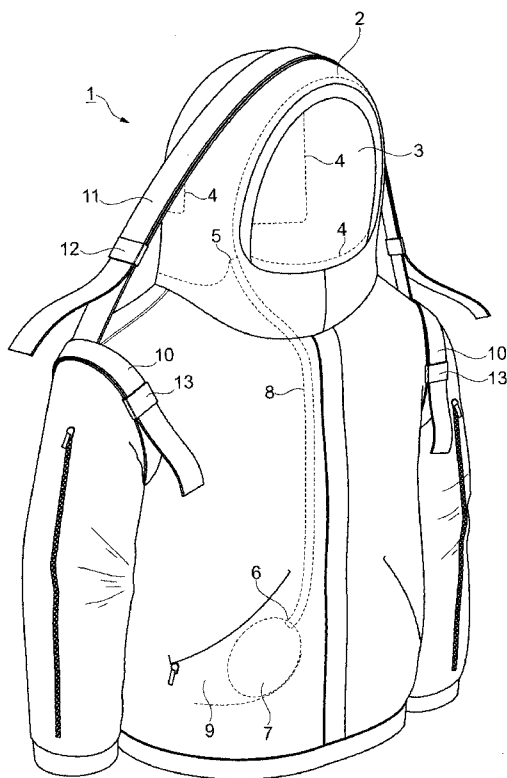


Fig. 1



TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

**(84) Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report (Art. 21(3))

## FUNCTIONAL ARTICLE OF CLOTHING

### TECHNICAL FIELD

The invention is concerned with an upper body article of clothing having a hood and  
5 means for filling an airtight inflatable inner space in the hood with air or other gas.

### BACKGROUND

In airplanes, cars, trains, trams, boats and many other vehicles people are travelling on  
seats that are intended for sitting. Sleeping well in e.g. airplanes, especially on a long  
10 flight, is therefore not easy and it is difficult to find a comfortable position. The seats  
might be tiltable but usually they can be reclined backwards only to a given extent due  
to the restricted place reserved for each passenger and seat.

For traveling, having a neck pillow can make resting and sleeping easier for those that  
have trouble falling asleep in moving vehicles. A neck travel pillow offers support for  
15 sleeping on airplanes and in cars but is inconvenient to carry around. The best pillows  
for neck support will vary on the person and the severity of the pain when trying to sleep  
in the awkward upright position they have to be in during the travel. Some require a stiff  
and tight fit while others just need the softest pillow possible.

Known neck pillows are usually u-shaped and either they have an inner foam filling or  
20 they are inflatable. These u-shaped pillows provide a help, but they do not solve all  
problems in view of finding a comfortable sleeping position and keeping the pillow on  
place. For the best head support while being on the road, a neck travel pillow, even an  
inflatable one, can also aid in habitual body sores, ailments and problems.

Attempts have been made in constructing comfortable clothes instead.

25 US patent application 2012/0255099 discloses an outerwear garment that includes a  
hood with an interior inflatable space to support either the neck or the head of the  
person wearing it when the space is in an inflated state and having a tubular form. The

inflatable space also has a valve and a tubular valve stem extending outwardly from the valve and is configured to receive a removable plug at a distal end of the valve stem.

WO publication 2011/047417 discloses a similar garment with a hood having a neck inflation portion and a lumbar inflation portion. The neck inflation portion may extend to the chin and cheekbones and up to the ears of the wearer to provide a little more support than just to the neck. The garment also includes an inflation tube extending through the jacket lining between the inflation portions and a pocket from which it may be extracted for inflation without removal of the garment. Automatic inflation means may alternatively be provided by pushing a button positioned on the garment to operate a source of compressed gas to expel into the inflatable portions.

DE utility model 20 2009 010 111 U1 is additionally mentioned as prior art comprising a jacket with a hood inside which there is a space to be filled with air for travelling comfort.

DE utility model 202 04 335 discloses a garment with an inflatable space inside the hood for protection against sound, wind, rain, snow and cold.

Inflatable hoods have previously been used also in life jackets and masquerade costumes.

The inflatable spaces in these known solutions, however, are not shaped well enough to provide comfortable support and nor are they able to keep the position of the head stable.

UK patent application GB2492588 attempts to solve the problem with the slumping head of a person trying to sleep on a seat in a plane, train or car by means of a head support of straps. The head support comprises a strap for mounting on the head and additional support straps extending to fastening means mounted around the upper body or breast part of the person wearing the head support. This solution, however, only prevents movement of the head and gives no comfortable neck or head support in itself.

The object of the invention is a solution that fulfills all the problems with comfort and head movement at the same time.

## SUMMARY OF THE INVENTION

The upper body article of clothing of the invention has a hood and means for filling an airtight inflatable inner space in the hood with air or other gas. The inflatable inner space extends along parts of the hood around the neck and over the head of a person wearing the article.

The preferable embodiments of the invention have the characteristics of the sub claims.

The inflatable inner space is formed as a sand-which layer inside the hood further extending along those parts of the hood that are on top of the head of the person wearing the article of clothing and behind the neck of the person. In one preferable embodiment, the inner space extends along parts of the hood being against the ears and to the chins and chin bones. The hood extends around the head of a person wearing the article by leaving the face free. The hood but not the inflatable portion, i.e. the inner space, also extends over the back of the head. The inner space has integral neck and head portions giving superior support for both neck and head by not extending over the back of the head.

Any kind of known inflation means for filling portions of clothes with air can be used for transferring air into the inflatable space. Advantageously, a solution presented in e.g. the swim cloth of CN publication 1093246A can be used. Thus, the article of clothing of the invention, such as a garment with an inflatable interior portion as an inner space, can be equipped with a valve air-filled by a rubber ball and a soft tube of e.g. latex for transferring gas or air into the inner space. The air is filled by pressing the rubber ball whereby the air is passed through the soft tube into the inner space of the hood. In a practical embodiment, the rubber ball is placed inside the article of clothing, such as in a pocket, and the tube is extending preferably inside the article of clothing, e.g. through a lining, between the rubber ball and the hood.

The means for filling the airtight inner space in the hood with air can also be another kind of a manually operated hand pump, air pump, or it can even be filled with the mouth or it can be constructed to be automatically filled by pressing a button.

- 5 The article of the invention is in the most preferable embodiment further equipped with one or more straps, belts or rems to adjust the position of the hood and thereby the head to keep the head in a static position.

Different solutions are possible within the inventive idea.

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In a first and preferable embodiment, a pair of adjustable first straps is in use extending around the shoulders and the armpit. The pair of the first adjustable straps thus forms an enclosed loop around the shoulder joints and follows a path by passing underneath the armpits. Another adjustable strap transversal to the first straps is extending over the  
15 head, the other transversal strap being fastened to the straps of the first pair.

Said adjustable strap that is extending over the head can be connected directly to the first straps or by means of fastening means situated in the first straps at the shoulders of the article of clothing.

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In a second embodiment, there might be two transversal straps instead of only one, both extending from the shoulders to the sides of the hood and being fastened to the sides of the hood at approximately on ear height of the head.

The invention provides a perfect solution for travelers in order to find a comfortable and  
25 safe position for resting or sleeping when sitting in a vehicle or airplane chair. Already the form (profile) of the inner space in supporting both the neck and the head is an inventive solution since the inflatable portion filled with gas or air has a profile only extending behind the neck and around said portions of the head but not the back of the head. Such a profile gives a better support for the head than the profiles of prior art  
30 since those of prior art cause the head to recline backwards against the back rest of the seat. The profile of the inner space together with the straps to be tightened from the

sides gives an optimum support and position of the head by helping the user finding the best possible resting position.

The inflatable space can be adapted to be selectively inflated to provide support to both the neck and the head. The form allows the inner space to be filled to a desired extent in order to individually fit the contours and curves of ones' head being also comfortable to the back of the head and the neck. The amount of air or gas can be adjusted depending on how to sleep or rest.

The comfort can even be improved by using adjustable straps for finding a perfect and stable position of the head.

The straps are especially designed to work together with the inflatable inner space in the hood since both the straps and the inflatable space are adjustable to fit personal preferences of the person using the article of clothing of the invention. As the volume of the inflatable inner space can be filled to a desired extent and each strap is adjustable, a lot of different end results for the combined solution of adjustments of the inner space and straps are possible. This solution of the invention keeps the head in a static position and prevents backwards slumping.

The invention provides more comfort to the wearer as the designed form of the inflatable portion optionally together with the adjustable straps ensure less rocking or wobbling of the head of the user particularly if the vehicle or plane is undergoing turbulence, going over bumps or the like.

The use of the article of clothing of the invention is not restricted to vehicle or airplane chairs only. It can be used in any chair as well by both children and adults in different situations.

The article of clothing of the invention can be a jacket, hoodie, coat, vest, blouse, dress, sweatshirt, t-shirt, tunika, shirt, shoulder clothing, collar assembly, cape or the like. Primarily it is intended to be designed as a jacket, coat, hoodie or sweatshirt.

Next, the invention will be described by referring to an advantageous embodiment by referring to figures. The invention is not restricted to the details of the figures and accompanying text

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## FIGURES

Figure 1 shows a front view of the article of clothing of the invention

Figure 2 shows a side view of the article of clothing of the invention

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## DETAILED DESCRIPTION

Figure 1 shows a front view of an article of clothing 1 of the invention, which in figure 1  
15 is a jacket having a hood 2 extending around the head by leaving the face free. Inside the hood 2, there is an inflatable inner space 3 that extends integrally around the neck and over the head of a person wearing the article as is shown by dotted lines 4. The inflatable inner space 3 is thus formed in order to support both the neck and the head and therefor extends in vertical direction up and over the head and down again and  
20 horizontally around the neck and over the ears and to the chins and chin bones. Thereby, the article also reduces environmental disturbing sounds. The hood 2 but not the inner space also extends over the back of the head.

The inflatable inner space 3 has an inlet for air shown by reference number 5 through  
25 which the space 3 can be filled to a desired extent by air. The means for filling the airtight inflatable inner space 3 in the hood 2 with air has a valve 6 air-filled by a rubber ball 7 and a soft tube 8 of e.g. latex for transferring gas or air into the inner space. The soft tube 8 is indicated with another dotted line. The air is filled by pressing the rubber ball 7 whereby the air is passed through the soft tube 8 into the inner space 3 of the  
30 hood 2. In the embodiment of figure 1, the rubber ball 7 is placed inside the article of clothing 1, such as in a pocket 9, and the tube 8 is extending preferably inside the



article of clothing 1, e.g. through a lining in the article, between the rubber ball 7 and the hood 2.

5 The article of the invention is in the preferable embodiment of figure 1 further equipped with straps to adjust the position of the hood 2 and thereby the head to keep the head in a static position.

10 In figure 1, a pair of adjustable first straps 10 with adjusting means 13 is in use extending around the shoulders and the armpit. The pair of the first adjustable straps 10 thus forms an enclosed loop around the shoulder joints and follows a path by passing and underneath the armpits. Another adjustable strap 11 with adjusting means 12 transversal to the first straps 10 is extending over the head, the transversal strap 11 being fastened to the straps 10 of the first pair.

15 Said transversal adjustable strap 11 that is extending over the head can be connected directly to the first straps 10 or by means of fastening means situated in the first straps 10 at the shoulders of the article of clothing 1.

20 Figure 2 shows a side view of the article of clothing of the invention. The same reference numbers applies as in figure 1. The form of the inner space 3 can be better seen in figure 2 showing its form to support both the neck and the head.

## CLAIMS

1. An upper body article of clothing (1) having a hood (2) and means for filling an airtight inflatable inner space (3) in the hood (2) with air or other gas, c h a r a c t e r i z e d by the inflatable inner space (3) extending along parts of the hood (2) around the neck and over the head of a person wearing the article, and the article of clothing (1) further comprising an adjustable strap (11) extending over the head.

2. Article of clothing of claim 1, c h a r a c t e r i z e d in that the inflatable inner space (3) further extends along parts of the hood (2) covering the ears and to the cheeks and cheek bones of the person wearing the article.

3. Article of clothing of claim 1 or 2, c h a r a c t e r i z e d in that the means for filling the airtight inner space in the hood (2) with air or other gas is a hand pump.

4. Article of clothing of claim 3, c h a r a c t e r i z e d in that the hand pump is of a manually operated type having a valve (6) that is air-filled by a rubber ball (7) and a soft tube (8) for transferring air via the soft tube (8) to said inner space (3) by pressing the rubber ball (7).

5. Article of clothing of claim 4, c h a r a c t e r i z e d in that the rubber ball (7) is placed inside the article of clothing (1) such as in a pocket (9) of the article and the tube (8) is extending inside the article of clothing (1) between the rubber ball (7) and the hood (2).

6. Article of clothing of claim 1, 2, 3, 4, or 5, c h a r a c t e r i z e d in that the inflatable inner space (3) in the hood (2) has a form with integral neck and head portions, the head portion extending on top and over the head and the neck portion extending behind the neck, the inflatable inner space (3) leaving free the back of the person wearing the article.

7. Article of clothing of claim 1, 2, 3, 4, or 5, c h a r a c t e r i z e d in that the inflatable inner space (3) in the hood (2) has a form with neck and head portions, that

can be selectively inflated, the head portion extending on top and over the head and the neck portion extending behind the neck, the inflatable inner space (3) leaving free the back of the person wearing the article.

5 8. Article of clothing of claim 1, 2, 3, 4, 5, or 6, c h a r a c t e r i z e d in that the adjustable strap (11) extending over the head has adjusting means (12).

9. Article of clothing of claim 7, c h a r a c t e r i z e d in that a pair of adjustable straps (10) is extending around the shoulders and the armpits and another strap (11) is  
10 extending over the head, the other strap (11) being fastened to the straps (10) of said pair.

10. Article of clothing of claim 1, 2, 3, 4, 5, 6, 7, or 8, c h a r a c t e r i z e d in that the adjustable strap (11) extending over the head is connected to fastening means on the  
15 shoulders of the article of clothing (1).

11. Article of clothing of claim 1, 2, 3, 4, 5, 6, 7, 8, or 9, c h a r a c t e r i z e d in that it is a jacket, hoodie, coat, vest, blouse, dress, sweatshirt, t-shirt, tunika, shirt, shoulder clothing, collar, cape or the like.

1/2

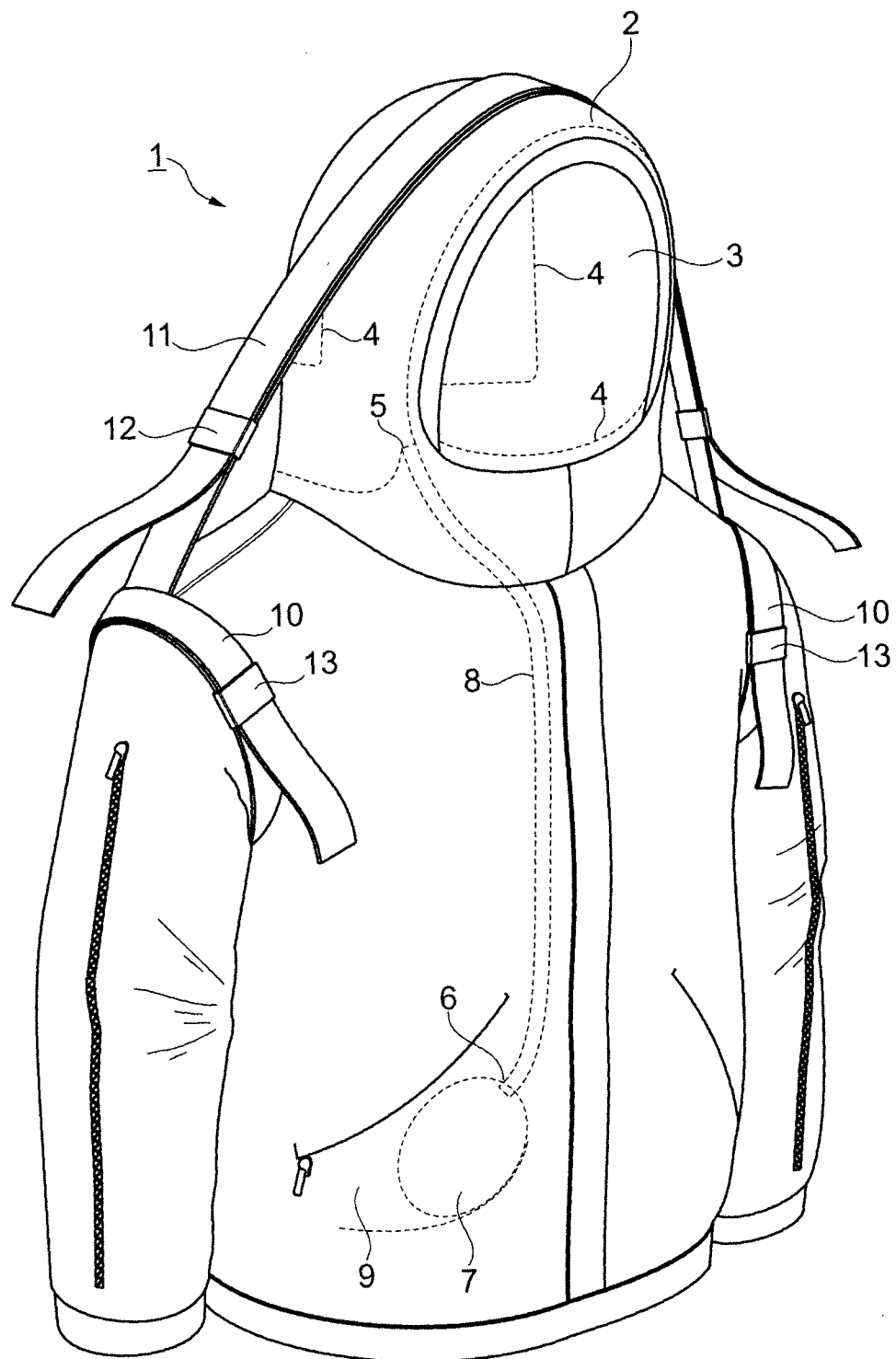


Fig. 1

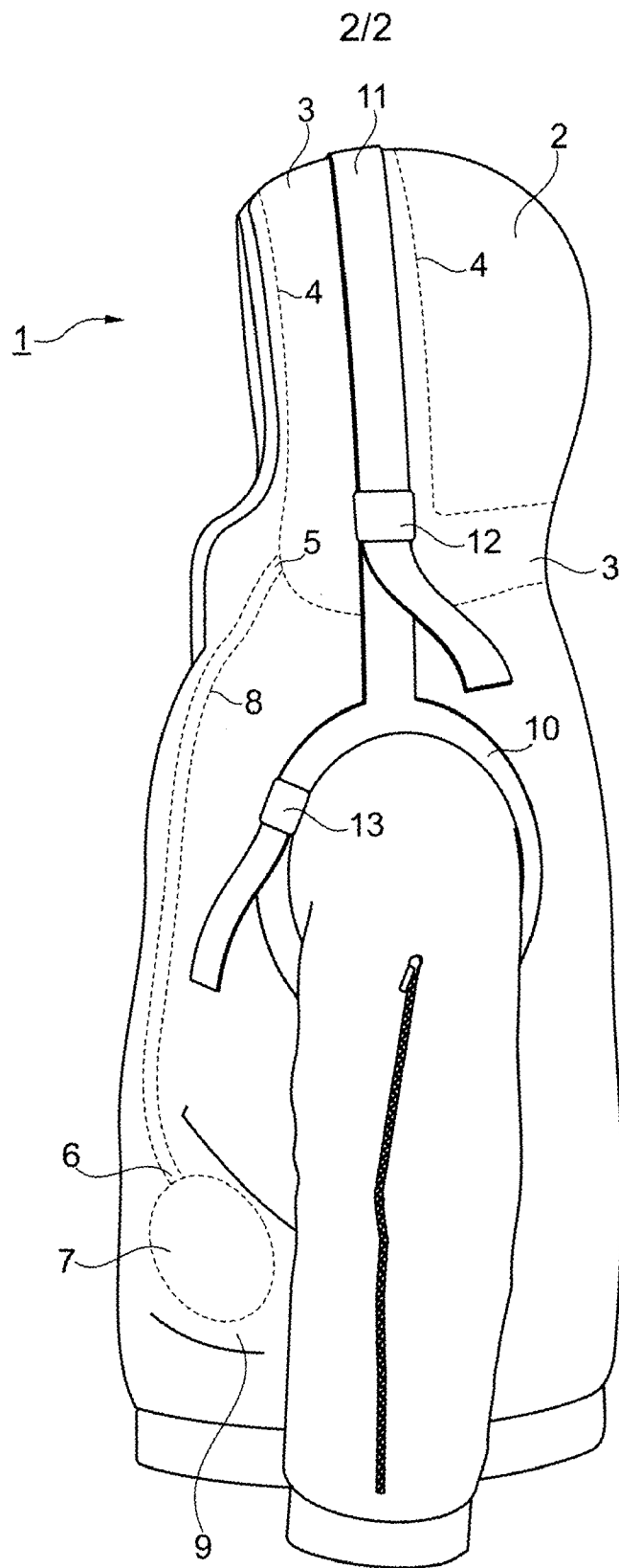


Fig. 2

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/FI2014/050612

## A. CLASSIFICATION OF SUBJECT MATTER

INV. A41B1/20 A42B1/20 A41D13/00  
ADD. A41D13/05 A42B1/04

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)

A41B A42B A41D

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

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

EP0-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2011/047417 A1 (COWLE K) 28 April 2011 (2011-04-28) cited in the application figures 1-8 -----	1-11
A	US 2012/255099 A1 (STERNBERG A B) 11 October 2012 (2012-10-11) cited in the application paragraph [0016]; figure 4 -----	1-11
A	GB 2 492 588 A (RAVENSROFT P) 9 January 2013 (2013-01-09) cited in the application abstract figure 5 -----	1-11
	-/--	



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

17 October 2014

Date of mailing of the international search report

23/10/2014

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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/FI2014/050612

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2012/044245 A1 (HOEVDING SVERIGE AB) 5 April 2012 (2012-04-05) figure 2	1-11
A	----- US 2013/131566 A1 (BODANSKY S A) 23 May 2013 (2013-05-23) figure 1 -----	3-5

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2011047417 A1	28-04-2011	AU 2010310870 A1 WO 2011047417 A1	26-07-2012 28-04-2011
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