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(54) Sportswear

(57) In a sportswear, especially skii wear of the type that pants are suspended with suspenders (3), length of the leg portions of the pants are formed extendably and contractably. Front ends (3a) of the suspenders are fixed to the front face of the waist portion (W) of the pants, while rear ends of the suspenders (3b) are fixed

in a narrow width to a back support piece (4a) attached to the back face of the waist portion and having a length from the waist portion up to the neck portion. Thus the suspenders are prevented from slipping off from the shoulders.

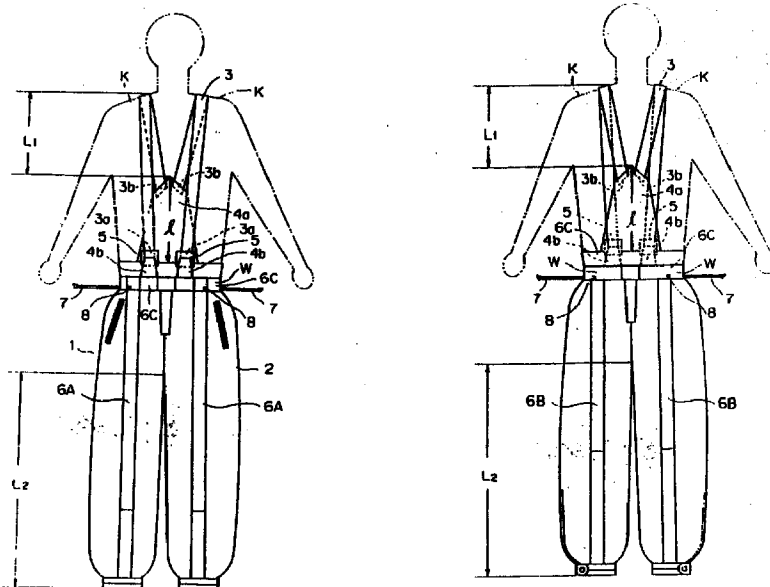


Figure 3

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Description

Field of the Invention

This invention relates to sportswear, especially ski wear for children of the type that a pair of pants are suspended by suspenders to prevent the pants from slipping down and that length of limb portions can be adjusted according to individual figures.

Background of the Invention

There is known a ski wear as shown in the attached drawings, Fig. 1. A user wears the pants a adjusting the wearing position according to his height employing suspenders b. Front or back ends of the suspenders are detachably fixed to the front or the back of a waist portion W of the pants by means of clips c.

A ski wear of so-called jumpsuit type wherein a jacket portion d is integrally formed with pants a as shown in Fig. 2 has been popular because of its wind breaking and warmth keeping property. Some of the ski wear of this type also employ suspenders b whose front or back ends are attached to the pants by means of clips c.

In both types of the skii wear as shown in Figs. 1 and 2, a number of sizes have to be manufactured for a user to choose a size most suitable to his height and figure.

Conventionally, the user was likely to choose a suit of rather big size to leave some space around his body. Especially children tend to wear too big suits because their heights and figures grow faster than adults.

However, the pants a are often slackened and so, uncomfortable to wear and hinder the wearer's movement. The pants a therefore, are suspended with suspenders b stretched on his shoulders. However, the suspenders apt to slip off the shoulders while the wearer is skiing, and he has to stop skiing for positioning the suspenders. This causes an unnecessary trouble and a loss of time.

In case of the jumpsuit type skii wear as shown in Fig. 2 of which the upper half portion d is connected with the lower half portion a, the trouble is more serious than the type shown in Figs. 1, because the upper half portion d must be opened or taken off to readjust the slipped-off suspenders on the shoulders. It is difficult especially for children to position the suspenders on the shoulders by themselves.

It is therefore an object of this invention to solve such inconveniences of the conventional sportswear as abovementioned and further to provide a sportswear which is adaptable to the user's size to enhance adaptability and workability of the sportswear.

It is another object of this invention to provide means for adjusting length of limb portions of sportswear according to length of the users' limbs.

Summary of the Invention

According to the invention in its broadest form there are provided means for adjusting limb portions of the sportswear extendably and contractably to enable adjustment to the user's size. To solve the aforementioned objects there is provided a sportswear as defined in claim 1. The dependent claims define particular embodiments of the invention.

In one embodiment the means for adjustment of the limb portions may for example be realized by providing a string or a cord in a tunnel which is provided along the limb portion to be adjusted in length. The string may be fixed at one end and guided through the channel or tunnel at the end of which it may be pulled out from the tunnel through an opening. By pulling the string the limb portion along which the tunnel is provided may be contracted and then the string is fixed by some fastening means such as a button, by a knot, or by any means holding the string in such a position that the limb portion maintains its desired length.

Tunnels of the aforementioned kind may be provided along one or both legs or arms, or along the waist portion of the sportswear according to the present invention. The tunnels of the leg portions may respectively be connected to a tunnel formed along the waist portion so that the string runs along the leg and then further along the waist.

The tunnels may be provided at the outer surface of the sportswear so that the adjustment can be done easily without opening the sportswear.

By providing support members, preferably of a material which is relatively stiff at the junction between a leg tunnel and a waist tunnel the string can be pulled easily to thereby simultaneously adjust the leg length and the waist width. A tunnel portion may be provided at the front and the rear side of a leg, respectively, and then the fixing of the adjustment can be easily made by tying the ends of the string of the front channel and the rear channel together by making a knot.

In other embodiments the adjusting means may comprise fastening means provided with some space thereinbetween so that by fastening the fastening means the contraction of the respective limb portion may be performed.

Another embodiment may comprise divisional tubular portions which may be inserted into or taken out from the limb portion to thereby extend or contract the limb portion, respectively.

Brief Description of the Drawings

Objects, features and advantages of this invention will become more apparent from the following detailed description together with the accompanying drawings in which:

Figure 1 is a front and a rear view of a conventional

sportswear.

Fig. 2 is a front and a rear view of a jumpsuit type of a conventional sportswear.

Fig. 3 is a front and a rear view of a sportswear of a preferred embodiment according to this invention.

Fig. 4 is an expanded view of a tunnel cloth portion of the sportswear in a normal (left) and in a squeezed (right) state.

Fig. 5 is an exploded view of the tunnel cloth portion.

Fig. 6 is a front (right) and a rear view (left) of the sportswear of the second embodiment of this invention.

Fig. 7 is an enlarged front view of the tunnel cloth portion according to this invention.

Fig. 8 is a front view of a sportswear of the third embodiment according to this invention.

Fig. 9 is an enlarged front view partly cut away of a fastener provided as means for adjusting length of leg portions of the pants according to this invention shown in an open (upper) and in a closed (bottom) position.

Fig. 10 is a front view of a sportswear of the fourth embodiment according to this invention in which means for adjusting length of leg portions of the pants consist of divisional tubular portions and fasteners provided at both edges thereof.

Fig. 11 is an enlarged front view of the pants with their leg portions extended (upper) and shortened (bottom) employing the divisional tubular portions of Fig. 10

Fig. 12 is a perspective view showing a sportswear of jumpsuit type of the fifth embodiment according to this invention.

Fig. 13 is a front view of the sportswear shown in Fig. 12 when it is worn.

Fig. 14 is a perspective view showing a sportswear of the sixth embodiment according to this invention.

Fig. 15 is an embodiment of the invention with suspenders fixed in a X-shape.

Detailed Description of the Preferred Embodiments

Referring now to the drawings, Figure 3 shows a preferred embodiment of this invention.

Reference numeral 1 is a sportswear comprising salopette pants 2.

Suspenders 3 with their front ends 3a and rear ends 3b are fixed respectively to the front and back of the pants 2 at their waist portion W. The suspenders 3 are stretched on the wearer's both shoulders K thereby to pull the pants 2 upwards. The suspenders 3 are formed of strips of knitted cloth, rubber cords or the like and are so constructed that their length can be adjusted according to a size of the wearer's torso.

A back support piece 4a of elongated bell-shape having a length l corresponding to the length from the wearer's waist to the neck is attached by sewing to the

back of the waist portion W of the pants 2 as shown in Figure 3. The support piece 4a is made of a cloth for example, having good water repellency, elasticity, warmth retaining property and permeability. To the front of the waist portion W of the pants 2 are attached by sewing a pair of front support pieces 4b. The front ends 3a of the suspenders 3 are fixed to said front support pieces 4b by means of clips 5 detachably and adjustably, or by other fixing means. The back ends 3b of the suspenders 3 are fixed to the back support piece 4a directly or by means of clips (not shown) similar to said clips 5 detachably and adjustably.

The back ends 3b may be fixed to the back support piece 4a either in a bifurcated shape as shown in Fig. 3 or in an X-shape (as shown in Fig. 15). Because length L1 from the position where the ends 3b are fixed to the support piece 4a to the wearer's shoulders K is set short and the ends 3b are close to each other, the suspenders are prevented from slipping off the shoulders K and so, time and trouble to re-adjust the suspenders can be saved.

As described above, even pants of a larger size leaving some spaces around the wearer's body can be comfortably worn without slacking on the body and so, pressure or tightness which would hinder the wearer's movement can be avoided.

Further, because the back support piece 4a stably abuts the wearer's back, the suspenders 3 fixed to the support piece 4a at their back ends 3b do not accidentally move and tangle. Moreover, the support piece 4a removes such inconvenience as the suspenders 3 pull the pants 2 too tightly. Due to its elasticity, the support piece 4a is easily stretched and follows the wearer's movements.

A tunnel cloth portion 6A is provided near a knee position in front of each leg of the salopette pants to constitute means for adjusting length of the leg. A tunnel cloth portion 6B is provided at a similar position in rear of each leg of the pants. A tunnel cloth portion 6C is provided on the waist portion W. Strings 7 are provided to pass through both the tunnel cloth portions 6A, 6B on the legs and the tunnel cloth portion 6C on the waist. At junctions of the tunnel cloth portions 6A, 6B and 6C are provided support members 8 such as rollers of synthetic resin, etc. to reduce abrasion for enabling the string 7 to be pulled outward smoothly.

The structure of the tunnel cloth portion is illustrated in Figs. 4 and 5. The tunnel cloth portions 6A, 6B on the legs and the tunnel cloth portion 6C on the waist are connected at substantially right angle. The strings 7 passing through the tunnel cloth portions are fixed by sewing at their one ends 7a to the lower ends of the tunnel cloth portions 6A, 6B while the other ends 7b of the strings 7 are guided outwardly from openings 9 formed in the tunnel cloth portions 6C at the waist portion W.

When the strings 7 are pulled from the outside as shown in the right of Fig. 4, the tunnel cloth portions 6A, 6B are contracted preferentially to the tunnel cloth por-

tions 6C by means of the support members 8 thereby to adjust length L2 of the legs of the pants 2 according to length of the wearer's legs. A size of the waist portion W is simultaneously adjusted according to a size of the wearer's waist. The strings 7 are fastened up by means of appropriate fastening means such as buckles or fasteners to prevent accidental release of the strings after the length of the legs and the size of the waist portions of the pants have been set.

Thus the wearer can adjust the length L2 of the legs of the pants 2 by pulling the strings passing through the tunnel cloth portions 6A, 6B and being fixed at their one ends according to the length of his legs, and at the same time can adjust the waist portion W of the pants 2 according to the size of his waist.

Therefore, even if adults of individually different sizes have purchased sportswear of rather large size, they can adjust the length L2 of the legs of the pants 2 as well as the size of the waist portion W by pulling the strings 7. This can reduce the variety of sizes of the sportswear to be manufactured. The sportswear according to this invention is most suitable for children who rapidly grow in height and figure. It can be worn by people with different body size and shape.

Figs. 6 and 7 shows a second embodiment according to this invention, in which the means for extending and contracting length of the legs of the pants 2 are tunnel cloth portions 6A, 6B only provided along the both legs in front and rear of the pants 2. The string 7 fixed at its one end to each end of the tunnel cloth portions 6A, 6B passes through the tunnel cloth portions and is fastened up at the other end of the portions 6A, 6B at a desired length by suitable fastening means thereby to adjust the length L2 of the pants' legs. Further, the rear ends 3b, 3b of the suspenders 3 are fixed to the back support piece 4a in a narrow width similarly to the first embodiment, thereby to prevent the suspenders 3 from slipping off from the wearer's shoulders K.

Figs. 8 and 9 show a third embodiment of this invention, in which open fasteners 21 are employed as means for adjusting length of the both legs 20 of the pants 2. Both edges 21a, 21b of the fastener 21 are fixed to the periphery of the leg 20 at its middle portion spacing a desired distance, thereby to adjust the length L2 of the pants legs according to the length of the wearer's legs by engaging and disengaging the open fasteners 21. The open fastener is shown here only by way of example, but some other fastening means such as buttons and button holes, attachment tapes, etc. can be used.

Figs. 10 and 11 show the fourth embodiment of this invention. This embodiment differs from the third embodiment in that a desired number of divisional tubular portions 22 having at least the same diameter as the leg portions 20 are provided at intermediate positions of the leg portions 20, 20. Between the leg portion 20 and the divisional tubular portion 22, and between the respective divisional tubular portions 22 are provided

respective edges 21a, 21b of open fasteners 21 so that the divisional tubular portions 22, 22 can be detachably connected to the leg portions 20. By engaging or disengaging the open fasteners 21 and by thereby inserting or detaching the tubular portions the length L2 of the pants legs can be adjusted according to the length of the wearer's legs.

Buttons and button holes, attachment tapes can be also employed instead of the open fasteners 21 as in the previous embodiment.

Figs. 12 and 13 show the fifth embodiment illustrating a sportswear of jumpsuits type in which a jacket portion 30 is connected to the pants 2.

The upper fronts 30a, 30b of the jacket portion 30 are adapted to be opened and closed by suitable fastening means 32 at the front center from a neck 31a through a breast 31b, to a lower abdomen 31c. As the fastening means is employed a fastener 32 in the drawings, but snaps, attachment tape, buttons, etc. can be employed instead of the fastener.

The front ends 3a of the suspenders 3 are detachably and contractably connected to the front support pieces 4b, 4b provided in front of the waist portion W of the pants 2 by means of clips 5 or by sewing. The rear ends 3b of the suspenders 3 are fixed to the back support piece 4a having a length l of elongated bell shape in a narrow width or are detachably attached to the back support piece 4a by means of clips. Thus, the length L1 of the suspenders 3 from the points connected to the support piece 4a to the wearer's shoulders K is shortened whereby the suspenders 3 are prevented from slipping off from the shoulders K and the pants 2 can be safely worn, similarly to the first embodiment.

Further in this embodiment, tunnel cloth portions 6'A of the same structure as in the second embodiment are provided along both sleeves 33 of the jacket 30. The string 7 passing through the tunnel cloth portions 6'A is fixed to one end of the tunnel cloth portion 6'A at its one end and fastened up at a desired position at the other end of the tunnel cloth portion 6'A. Thus, the length of the sleeves 33 can be adjusted according to length of the wearer's arms or for necessity of working.

Fig. 14 shows a further embodiment according to this invention in which a length of the sleeves 33, 33 of the jacket portion 30 can be adjusted. An open fastener 21 is fixed to the outer circumference of the sleeve with a desired space between both edges 21a, 21b similarly to the aforementioned third embodiment. With this structure, the sleeve length can be efficiently adjusted by engaging or disengaging the fastener 21.

According to this embodiment, suitable fastening means 41 are provided between the two leg portions 20 from the bottom to the crotch 40 so that the pants 2 can be opened under the legs. Thus for wearing the sportswear, the pants 2 integral with the jacket portion 30 can be worn from the top and then closed by engaging the fastening means 41. The pants 2 can be easily opened under the legs by disengaging the fastening means 41,

which makes it easy to put on or take off the pants 2 keeping one's skii shoes or safety shoes on. Especially children can put the jumpsuits on or take them off easily.

An inner backing cloth 50 is attached to the back face of the leg portion 20 below knee position in a height h substantially corresponding to length of the leg portion. The inner backing cloth 50 is of rectangular shape in developed state. An upper edge 50a is fixed by sewing to the pants legs 20 from their back faces with side edges 50b, 50b kept open. At a lower edge 50c is formed a rubber containing tightening band 51 inside the opening 20a of the pants leg 20. Fastening means 52 such as attachment tape as shown in the drawing are provided at both ends of the tightening band 51. Fastening means 52 may be a fastener, button, snap, etc.

By providing the inner leg cloth 50 inside the pants legs 20 wind, snow, etc. are prevented from intruding into the pants 20 through the opening 20a of the legs 20. The cloth 50 is formed unclosed at the side edges 50b to facilitate the wearer to pull off his legs.

A hood 53 may be integrally formed around the neck of the jacket 30 or may be detachably connected to the jacket by means of a fastener, button, snap or the like.

With the structure of this invention as described in the foregoing embodiments, the length of the arms and legs can be extended and shortened, the wearer can adjust the length of a sportswear according to the length of his arms and legs.

Further, due to a back support piece attached to the back of the waist portion the length of the suspenders up to the shoulders is set short, which obviates slipping off the suspenders from the shoulders. Therefore, the pants can be worn in the most comfortable state. The wearer can save time and trouble of interrupting skiing or working for re-adjusting the slipped-off suspenders on his shoulders.

While the embodiments described before respectively consist of certain distinct combination of features, it has to be understood that the individual features of the embodiments may also be combined in different manners, so there may for example also be a sportswear having divisional tubular portions provided at its legs while the means for adjustment of the sleeves comprises opening fasteners spaced at some distance. The different adjustment means may be provided at one or more limb portions, at the front or the rear or the side portion of the limbs, they may be combined with the back support portion or with the hood integrally formed with the sportswear, and so on. The combination of features as described in the specific embodiments may not be understood such as if no other combinations of features are possible, but rather the foregoing description is to be understood as also disclosing such modifications of the described combinations which are clear to the expert as being similar possible combinations of features as the ones explicitly described here.

It is also clear from the foregoing that for example the waist tunnel portion may either be a single tunnel extending along the whole waist or that there may be multiple waist tunnels, possibly extending only along a part of the waist, where one waist tunnel portion may have a corresponding leg tunnel portion such that the string passes through said leg tunnel portion and then through the corresponding waist tunnel portion. A tunnel may also be interrupted by some open parts which may actually be larger than the corresponding tunnel parts, which may result even in a structure comparable to the loops through which a belt is guided along the waist portion of some pants or trousers. This may reduce the amount of textile material needed, the guiding properties for the string, however are better in case of a tunnel which fully covers the string without exposing parts of it, a reason for which a tunnel covering at least a larger fraction of the string is preferable.

Claims

1. A sportswear comprising:

means for adjusting the length of a limb portion of said sportswear extendably and contractably.

2. A sportswear according to claim 1, comprising:

suspenders whose front and rear ends are attached respectively to a front and a back face of a waist portion of pants;
means for adjusting length of leg portions of the pants extendably and contractably; and
a back support piece attached to the back face of the waist portion,

whereby front ends of said suspenders are fixed to the front face of the waist portion while rear ends of said suspenders are fixed in a narrow width to said back support piece.

3. A sportswear as claimed in claim 1 or 2, wherein said sportswear comprises at least one of the following:

(a) said back support piece being formed in substantially elongated bell shape having a length corresponding to a wearer's back from his waist portion up to neck portion;

(b) said suspenders being detachably engaged with a pair of front support pieces or said back support piece by sewing or by means of clips;

(c) said pants being of salopette type.

(d) a jacket portion being integrally formed with said pants.

(e) means for adjusting the length of the sleeves of the sportswear.

4. A sportswear according to one of claims 1 to 3, wherein said adjusting means for adjusting the length of the legs and/or the sleeves of the sportswear comprises any one or any combination of the following:

a tunnel portion provided on each leg of the pants and a string passing through each tunnel portion and being fixed at one end to the leg of the pants and pulled outward with its other end of the tunnel portion, 5
a tunnel portion provided along both sleeves of the jacket portion, and a string fixed at its one end to the sleeve of the jacket portion and pulled out with its other end of the tunnel portion, 10
fastening means provided at the legs of the pants and/or the sleeves of the jacket portion of the sportswear with a spacing between the two edges of the fastening means. 15 20

5. A sportswear according to one of claims 1 to 4, wherein said leg adjusting means comprises:

at least one tunnel portion provided on each leg of the pants and at least one tunnel portion provided along the waist portion, 25
a string passing through said leg tunnel and said waist tunnel portion, said string being fixed at its one end to the leg portion, and being pulled outward with its other end from the waist portion to be fastened up, and 30
support members provided at junctions of the tunnel portions of the leg portions and the waist portions for enabling said strings to be pulled smoothly. 35

6. A sportswear according to claim 5, wherein said leg adjusting means is provided at the front side and at the back side of said pants. 40

7. A sportswear as claimed in one of the preceeding claims, wherein said leg adjusting means comprises a plurality of divisional tubular portions and fastening means of provided at the divisional tubular portions and the leg portions to detachably connect the divisional tubular portions with the leg portions. 45

8. A sportswear as claimed in any one of the preceeding claims, wherein the pants comprise fastening means provided between the two leg portions from their bottom to the crotch thereby allowing the pants to be opened and closed under the legs. 50 55

9. A sportswear according to one of claims 4, 7, or 8, wherein said fastening means comprises any one of open fasteners, buttons and button holes and

attachment tapes.

10. A sportswear as claimed in any one of the preceeding claims, wherein the pants further comprise an inner backing cloth attached to the back face of each the leg portion below knee position, said inner backing cloth having a rectangular shape in developed state and a height substantially corresponding to length of the leg and being adapted to be opened and closed.

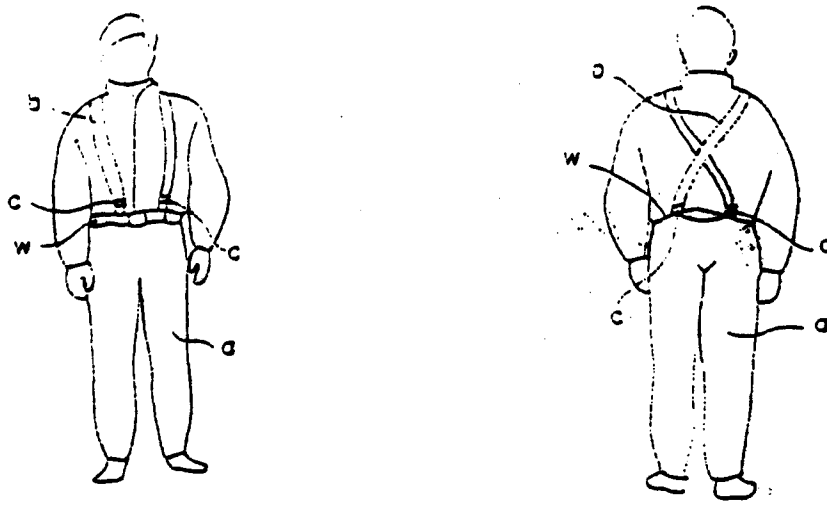


Figure 1

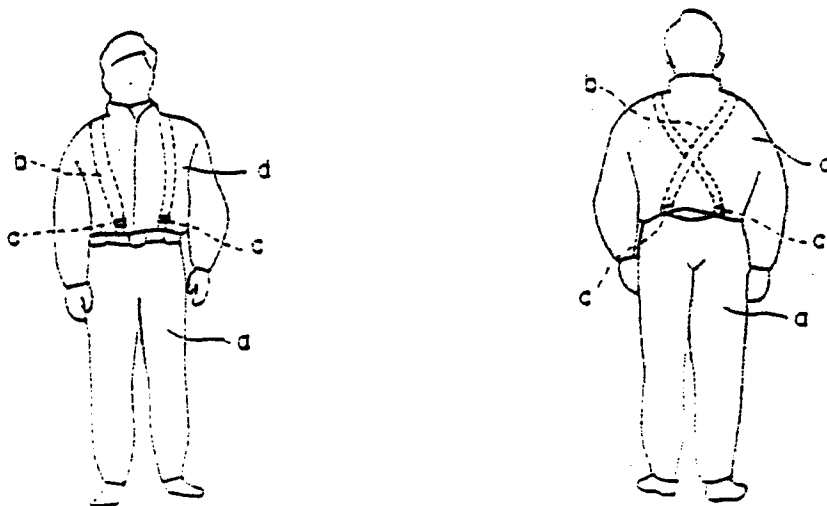


Figure 2

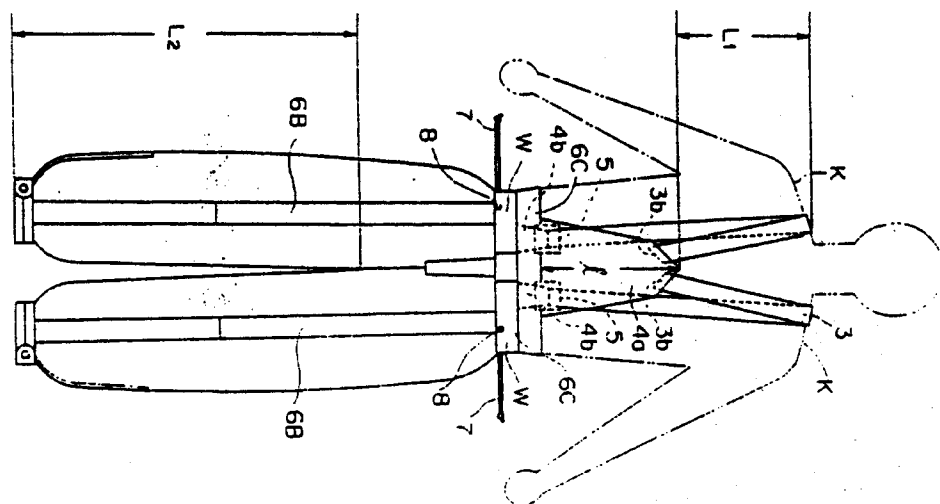
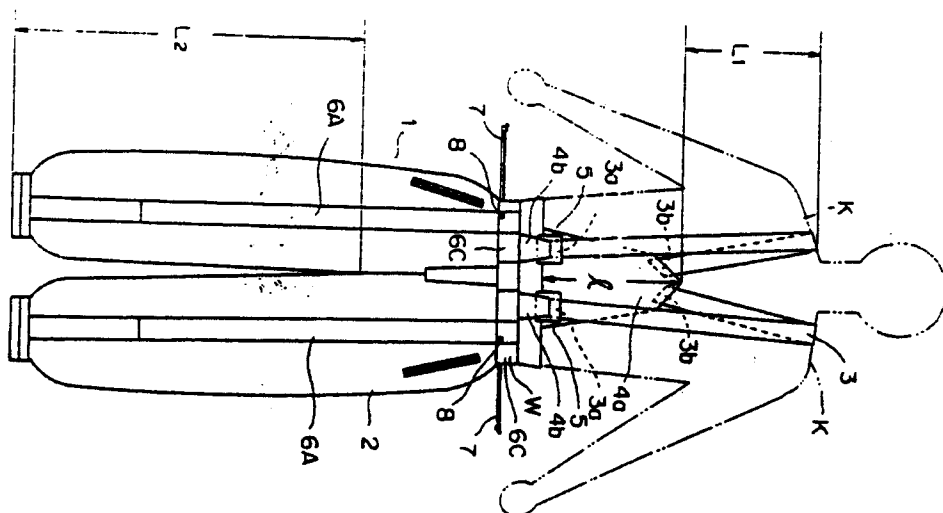


Figure 3

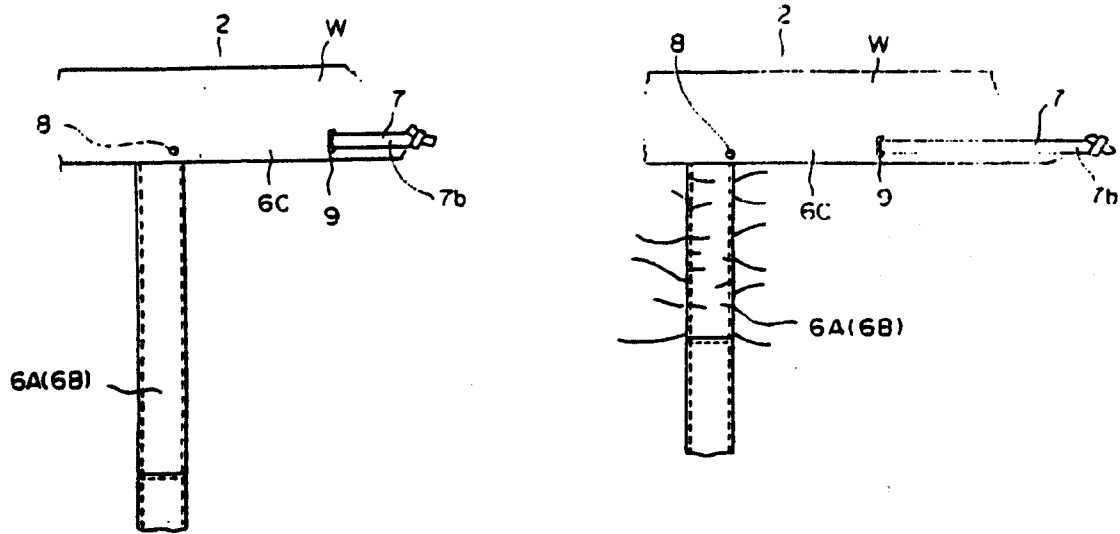


Figure 4

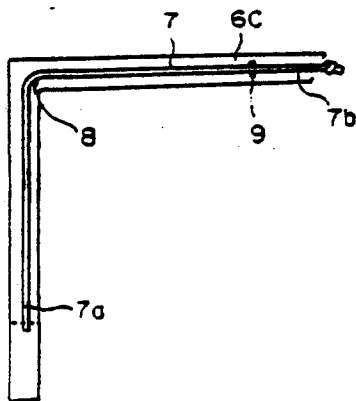


Figure 5

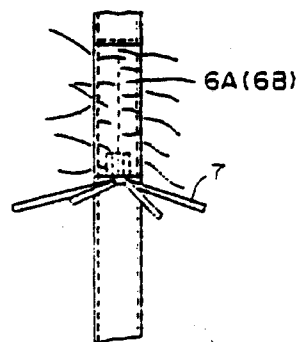


Figure 7

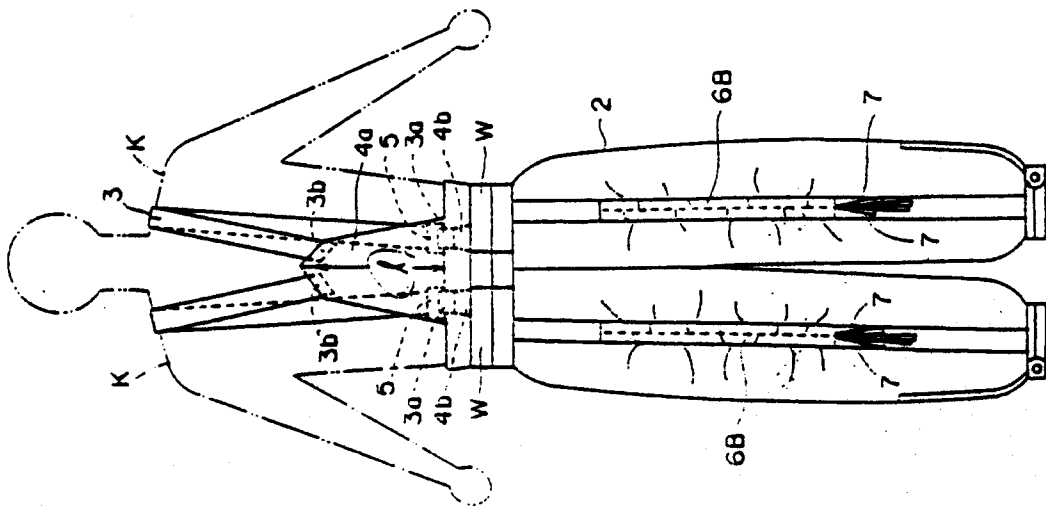
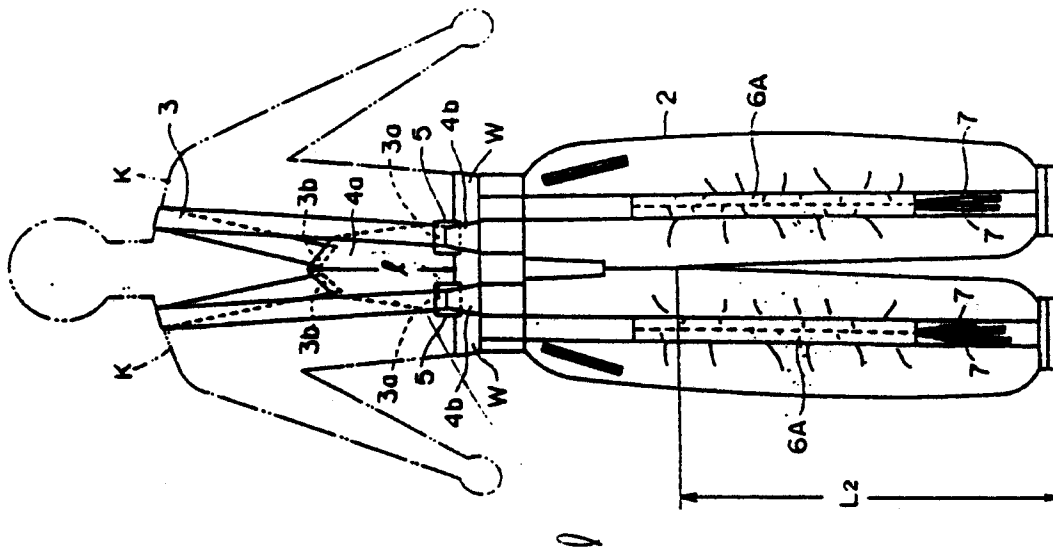


Figure 6

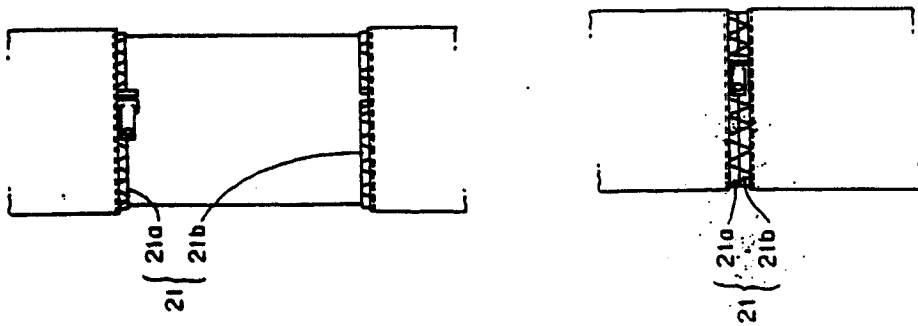


Figure 9

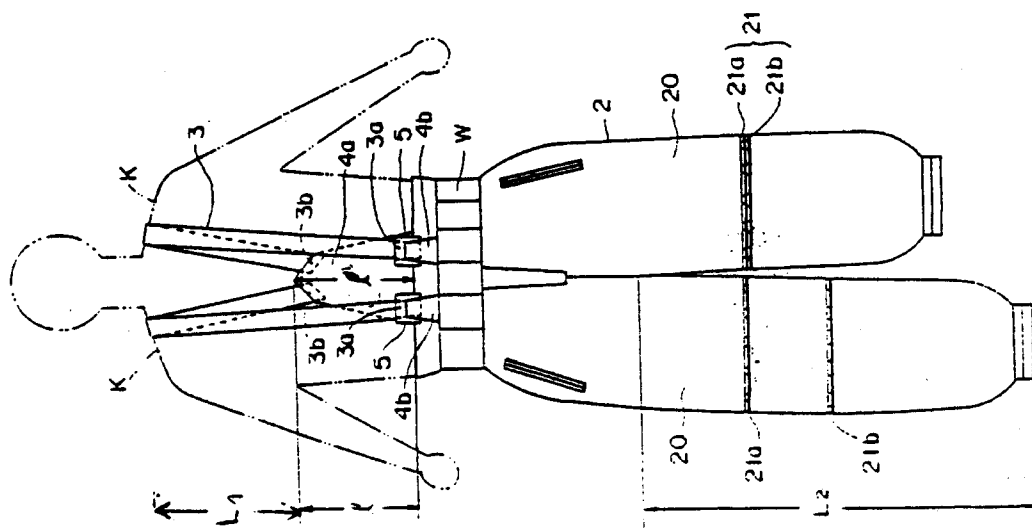


Figure 8

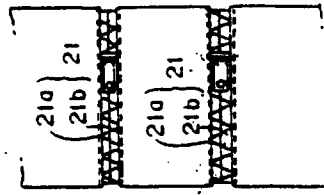
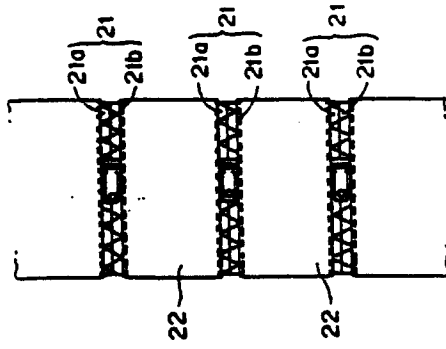


Figure 11

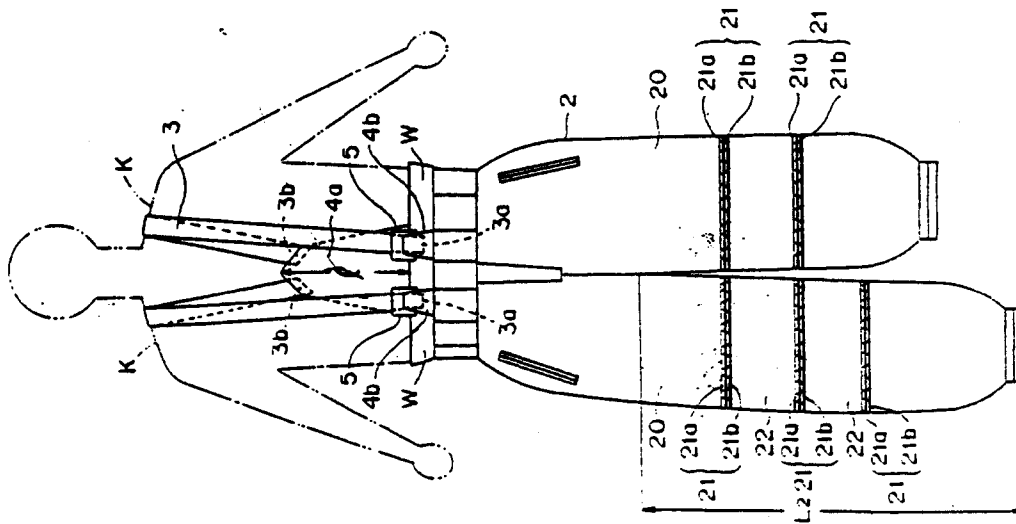


Figure 10

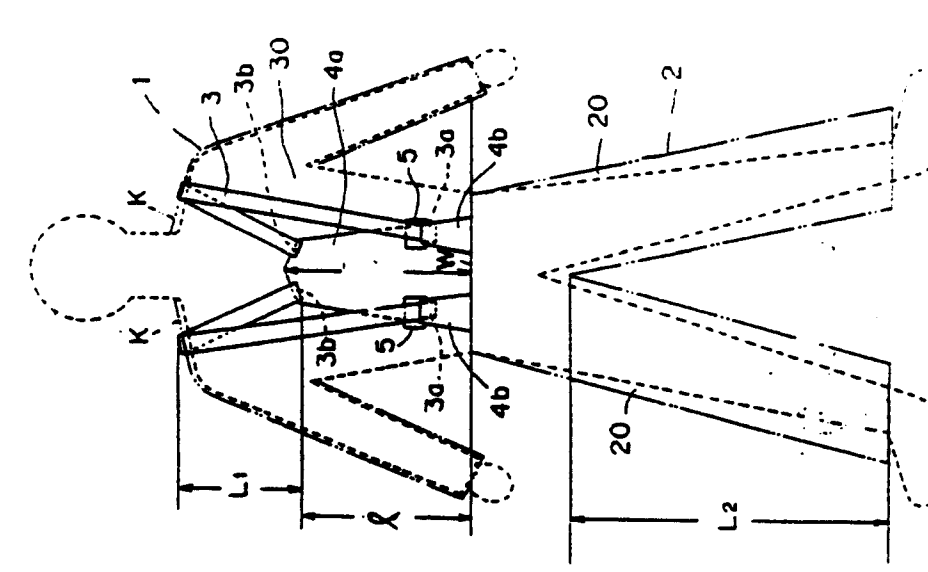


Figure 13

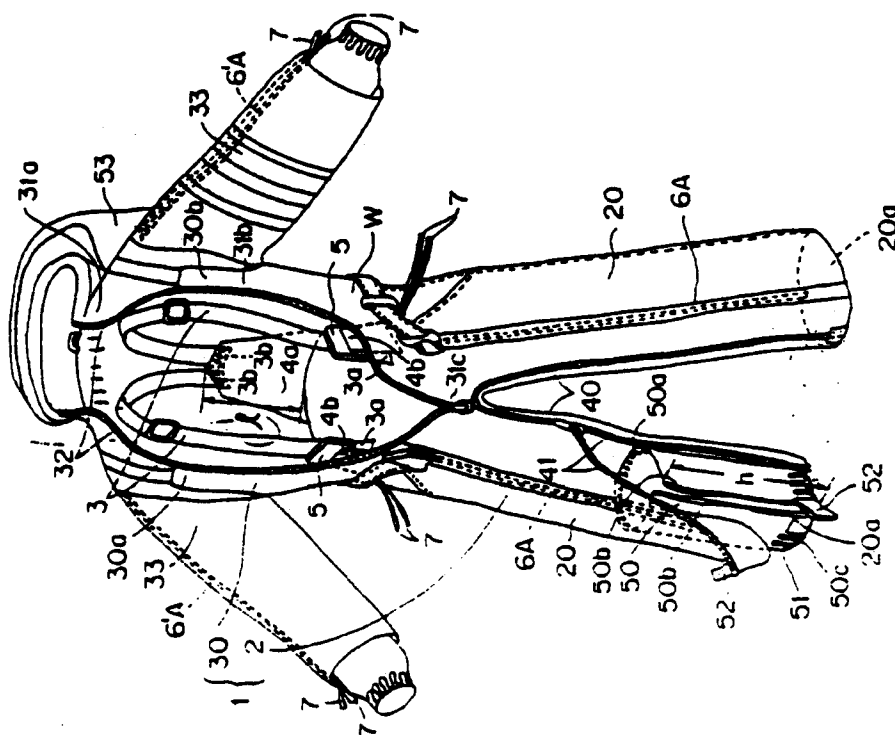


Figure 12

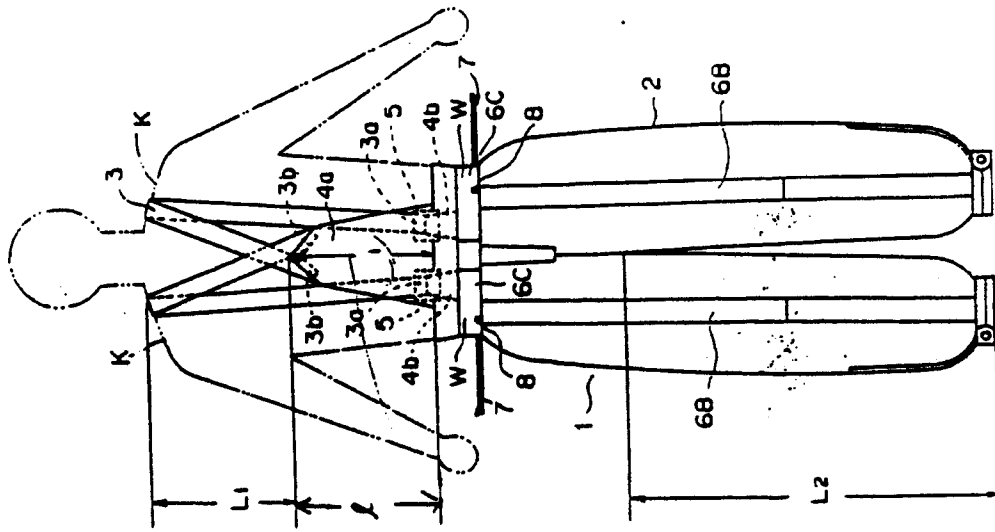


Figure 15

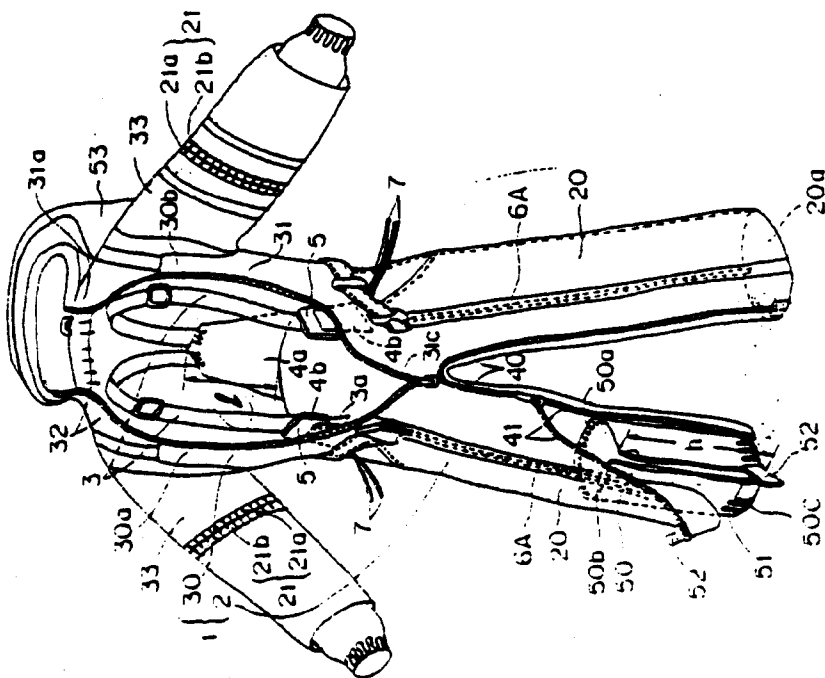


Figure 14



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 10 1924

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 4 773 101 A (N. L. A. KAPP) * column 3, paragraph 1 * * column 3, paragraph 5 - paragraph 7; claims 1,4,13,14; figures 5,11,12 *	1,4-6	A41D13/02 A41D15/00 A41D11/00
X	GB 2 269 085 A (CH. J. ROUT) * page 1, paragraph 1 - paragraph 2; claims 1-4; figures A-Z *	1,4,7,9	
A	DE 25 19 696 A (BALLONFABRIK SEE- UND LUFTAUSRÜSTUNG GMBH & CO) * page 4, last paragraph - page 6, paragraph 1; claim 1; figures 1-3 *	1-3	
A	GB 462 185 A (JOHN PECK & COMPANY LTD) * page 3, line 28 - page 4, line 6; figures 1-4 *	1-3	
A	DE 91 01 358 U (FRETCHIES BABY- UND KINDERARTIKEL GMBH) * page 3, paragraph 8; figure 1 *	8,9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A41D A41B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13 May 1998	Examiner Garnier, F
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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