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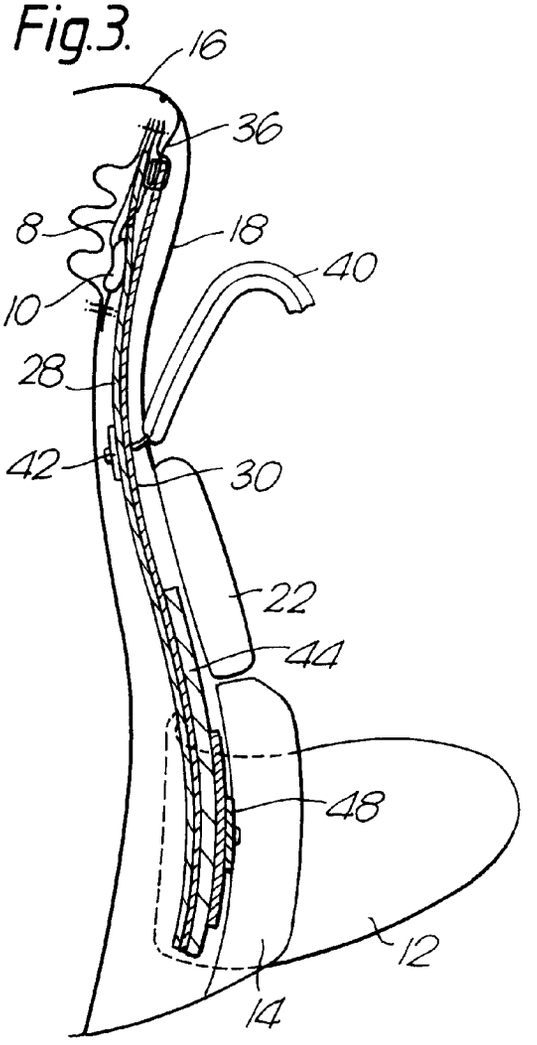
(54) Rucksacks.

(57) A rucksack comprises a flexible body portion (2), a lid portion (16) thereon, a pair of shoulder straps (40), a hip belt (2) and means (30,44) for adjusting the distance between the shoulder straps (40) and the hip belt (12). The adjustment means comprise an upper member (30) mounted on the lid portion (16), the shoulder straps (40) being mounted on the upper member (30), a lower member (44) mounted on the lower regions of the rucksack, the upper and lower members (30,44) being selectively adjustable to vary the distance between the shoulder straps (40) and the hip belt (12), and at least one adjustment element (8) on the upper regions of the rear of the rucksack co-operating with the upper member (30) whereby tightening thereof tensions the rear region of the body portion (2) therebelow, any slack in the rear region being accommodated in the upper regions thereof, a skirt (18) on the lid portion (16) embracing the slack regions of the body portion (2).

Fig.3.



EP 0 549 197 A1

This invention relates to rucksacks and more particularly to adjustable rucksacks.

In view of the varying sizes of the human frame, and in particular the distance between the shoulders and the waist, it is established practice to provide rucksacks having shoulder straps and hip belts the positions of which can be altered to suit a given user,

Thus the user can move the shoulder harness and/or the hip belt upwardly or downwardly on the rucksack to suit his build and whereby the shoulder straps and the hip belt are comfortably received on the shoulders and the waist respectively of the user.

However, moving the hip belt up the rucksack from the preferred location adjacent the bottom thereof exposes an increasing length of the rucksack below the hip belt which can interfere with the users thighs and legs and can cause difficulty in walking naturally.

Similarly, moving the shoulder harness downwardly can result in the upper regions of the rucksack interfering with the user's head movement, again causing discomfort to the user.

It has been proposed in our European patent application no. 90.313754.5 to provide an arrangement for overcoming these problems in which the shoulder straps and the hip belt remain in their optimum positions relative to the upper and lower regions of the rucksack respectively, all adjustment for the height of the user being accommodated by an extensible intermediate region within the rear of the rucksack.

However, it has been found that, in some cases, adjustment of the intermediate region of the rear of the rucksack to a position suitable for a relatively short user can cause distortion of the front of the rucksack in a manner which is aesthetically unattractive.

It would therefore be desirable to be able to provide an adjustable rucksack capable of accommodating all adjustments in a visually attractive manner.

According to the present invention there is provided a rucksack comprising an upwardly-open body portion of a flexible fabric material, a lid portion for closing said body portion, a pair of shoulder straps the upper ends of which are mounted on the upper regions of the rear of the rucksack, a hip belt on the lower regions of the rucksack, and means for adjusting the distance between the shoulder straps and the hip belt, said the adjustment means comprising an upper adjustment member mounted on the rear region of the lid portion of the rucksack, the upper ends of the shoulder straps being mounted on said upper adjustment member, and a lower adjustment member mounted on the lower regions of the rucksack, the upper and lower adjustment members co-operating with one another whereby they can be secured in any one of a plurality of different positions relative to one another to vary the distance between the upper ends of the shoulder straps and the hip belt, the adjustment means further comprising at least one adjustment element mounted on the upper regions of the rear of the rucksack and co-operating with the upper adjustment member in such a manner that, once the upper and lower adjustment members have been secured relative to one another, tightening of the or each adjustment element tensions the region of the rear of the body portion below said adjustment element, any slack in said rear of the body portion being accommodated in the upper regions thereof, the lid portion including a depending skirt embracing said slack upper regions of the body portion.

With such an arrangement, at least the extent of the body portion of the rucksack below the adjustment elements is mantained free of distortion regardless of the relative positions of the shoulder straps and the hip belt, all distortion being accommodated in that part of the body portion concealed by the skirt of the lid portion.

In a preferred embodiment of the invention, the lid portion and the upper adjustment member mounted thereon are separate from the body portion of the rucksack, the lid portion being attached to the rucksack by co-operating means mounted on the body portion of the rucksack and on the upper adjustment member.

In one embdiment of the invention, the co-operating means comprise a pair of support loops secured one to each side of the rear of the upper regions of the rucksack, and a pair of lateral projections one to each side of the upper end of the upper adjustment member and adapted to be received in, to be supported by, associated ones of said loops, it being preferred that there are two adjustment elements in the form of straps the upper ends of which are secured one to each side of the rear of the upper regions of the rucksack adjacent said support loops.

In a alternative embodiment of the invention, there are two adjustment elements in the form of straps the upper ends of which are secured one to each side of the rear of the upper regions of the rucksack, the upper end of the upper adjustment member being provided with a pair of loops thereon one to each side thereof, the adjustment straps extending through associated ones of said loops to attach the lid portion of the rucksack to the body portion thereof.

A preferred rucksack includes, for each adjustment strap, a buckle secured to the rear of the upper regions of the body portion of the rucksack, the free end of each adjustment strap extending through, to be secured by, an associated buckle whereby, on tightening of the adjustment straps, any slack in the rear of the body portion is accommodated in the upper regions thereof above said buckles.

The upper and lower adjustment members preferably comprise plate-like members adapted to slide one over the other on variation of the distance between the upper ends of the shoulder straps and the

hip belt, one of said members being provided with an elongate slot therethrough and the other of said members carrying a projection extending through said slot, locking .means reacting between the projection and the slot securing the upper and lower adjustment members together in any one of a plurality of chosen positions.

Conveniently the lower adjustment member is housed within a pocket provided on the lower regions of the back of the body portion of the rucksack, and the upper adjustment member includes an elongate extent depending downwardly from the lid portion of the rucksack to underlie said lower adjustment member within the pocket.

By way of example only, an embodiment of the invention will now be described in greater detail with reference to the accompanying drawings of which:

Fig. 1 shows the back of the body portion of a rucksack according to the invention;

Fig. 2 is an exploded view of the lid portion and the upper and lower adjustment members of a rucksack according to the invention;

Fig. 3 and 4 are vertical sections through part of a rucksack according to the invention adjusted for use by a relatively short user and a relatively tall user respectively;

Fig. 5 shows in more detail the action of an adjustment strap, and

Fig. 6 shows the means by which the upper adjustment member and lid portion are attached to the body portion of a rucksack according to the invention.

Referring to the drawings, the illustrated rucksack includes an upwardly-open body portion 2 of a flexible fabric material to the rear of which are sewn, adjacent the lower regions, a pocket 4, and, adjacent the upper regions, a pair of laterally-spaced loops 6, and, beneath said loops 6, a pair of similarly-spaced adjustment straps 8.

More particularly, one end of each strap 8 is sewn to the rear of the body portion 2 beneath an associated loop 6, the free end of each strap being adapted to pass through an associated buckle 10 also sewn to the rear of the body portion at a position displaced downwardly of the body portion from the one end of the associated strap 8. The vertical spacing between the loops 6 and the buckles 10 determines the range of adjustment of the rucksack as will be detailed below.

A hip belt 12 passes between the pocket 4 and the rear of the rucksack thereby to be mounted on the lower regions of the rucksack, while, in the final assembly, a lumbar pad 14 covers the pocket 4 as seen in Figs. 3 and 4.

The rucksack further includes, separate from the body portion 2, a lid or top cover 16 including a depending peripheral skirt portion 18 defined by an upper seam 20. A scapula pad 22 depends from the lower edge of the rear extent of the skirt portion 18 of the lid 16.

Secured within the rear of the lid 16 are the upper regions of an upper adjustment member 24. This member 24 includes a substantially T-shaped aluminium frame consisting of a transverse arm portion 26 and a vertical leg portion 28, and a plastic top plate 30 secured to said frame. The plate 30 is of a generally curved shape to conform with a user's back and includes a pair of opposed projections 32 aligned with the ends of the arm portion 26.

More particularly, the top plate 30 is rivetted to the transverse arm portion 26 of the frame by rivets 34, and the assembly is secured within the rear of the lid 16 by means of attachment tapes 36 depending from the lid the free ends of which are rivetted between the arm portion 26 of the frame and the top plate 30.

A pair of slots 38 are formed in the upper regions of the top plate 30 through each of which passes the upper end of one of a pair of shoulder straps 40 associated with the rucksack, a slotted reinforcement plate 42 receiving said upper ends of the shoulder straps 40 and being located between the top plate 30 and the rear of the body portion 2 of the rucksack.

The lower ends of the shoulder straps 40 are buckled to the lower regions of the body portion 2 of the rucksack in conventional manner.

Housed within the pocket 4 is a lower adjustment member in the form of a plastic bottom plate 44 in which is formed an elongate slot 46. An adjustment plaque 48 is secured externally of the pocket with a central slot 50 therein aligned with the slot 46 in the plate 44, said slot 50 defining therein a plurality of interconnected, axially-spaced locking apertures of generally circular shape as best seen in Fig. 2.

A shaft extends from the lower regions of the top plate 30 through the slot 46 in the bottom plate 44 and through the adjustment plaque 48, the free end of said shaft carrying a locking key 52 which can be rotated between an inoperative open position in which the plates 30,44 can be slid axially relative to one another with the key 52 moving along the slot 50, and an operative locked position in which the key 52 is locked in a chosen one of the apertures in the slot 50 thereby securing the plates 30,44 relative to one another.

The described rucksack is adjusted as follows. With the projections 32 on the top plate 30 located one in each of the loops 6 to positions the top plate 30 and attached lid 16 on the rear of the body portion, and with the bottom plate 44 in the pocket 4, the top and bottom plates 30,44 are slid relative to one another within the pocket 4 until the distance between the hip belt 12 and the shoulder straps 40 suits the user.

The locking key 52, which has been in its inoperative open position, is turned to a locking position

within the resultant aperture of the slot 50 in the plaque 48, thereby to retain the plates 30,44 in their desired relative positions.

The free end extents of the straps 8 are passed through the associated buckles 10, and the straps are tensioned. If the distance between the loops 6 and the hip belt 12 is less than the normal distance between the open top of the body portion 2 and the hip belt 12, this tensioning of the straps 8 causes distortion or pleating of the upper regions of the body portion 2 between the buckles 10 and the open top of the body portion 2 as best seen in Figs. 3 and 5. The range of adjustment of the rucksack is typically about 10 cms and is accommodated within the upper regions of the body portion 2 between the buckles 10 and the open top thereof.

Fig. 3 shows the rucksack adjusted for a relatively short user with fairly extensive pleating of the fabric of the upper regions of the body portion being indicated at 'P'. However the extent of the rear of the body portion 2 below the buckles 10 remains taut.

Fig. 4 shows the rucksack adjusted for a relatively tall user with minimum overlap of the adjustment members 30,44 and substantially no deformation of the upper regions of the rear of the body portion 2.

As previously mentioned, the upper regions of the upper adjustment member 24 are secured within the lid 16 of the rucksack, the arrangement being such that, for all finally adjusted positions of the rucksacks, the seam 20 of the lid 16 is substantially aligned with the upper open end of the body portion 2. The skirt portion 18 depending from the seam 20 is of such a length that it extends below the level of the buckles 10 for all positions of adjustment of the rucksack thereby to embrace the upper regions of the body portion 2 whether pleated or otherwise.

Such an arrangement ensures that all distortion of the body portion 2, whether it be restricted to the rear of the body portion 2 or whether it extends right around the upper regions of the body portion 2, is contained within, to be hidden by, the lid 16 and more particularly by the peripheral skirt portion 18 of said lid 16.

In use of the rucksack, and once adjusted, the lumbar pad 14 and the scapula pad 22 are positioned to cover the adjustment members 30, 44 whereby all adjustability features of the rucksack are hidden from sight.

The upper adjustment member 30 may be mounted on the rear of the body portion 2 other than by the loops 6/projections 32 arrangement shown in the drawings. For example, the projections 32 on the top plate 30 may include or may comprise a pair of opposed loops through which the straps 8 are passed prior to their passage through the buckles 10 and whereby initial tensioning of the straps 8 locates the upper adjustment member against the rear of the body portion 2. Other modifications and variations from the illustrated arrangement will be apparent to those skilled in the art.

Thus there is provided a rucksack the length of which can be varied within a predetermined range, typically 10 cms, the adjustability being accommodated within the upper regions of the body portion 2 in such a manner that the positions of the hip belt 12 and the shoulder straps 40 remain fixed with respect to the top and bottom of the rucksack respectively and whereby any distortion of the body portion 2 resulting from adjustment is hidden.

Claims

1. A rucksack comprising an upwardly-open body portion (2) of a flexible fabric material, a lid portion (16) for closing said body portion (2), a pair of shoulder straps (40) the upper ends of which are mounted on the upper regions of the rear of the rucksack, a hip belt (12) on the lower regions of the rucksack, and means for adjusting the distance between the shoulder straps and the hip belt, characterised in that the adjustment means comprise an upper adjustment member (30) mounted on the rear region of the lid portion (16) of the rucksack, the upper ends of the shoulder straps (40) being mounted on said upper adjustment member (30), and a lower adjustment member (44) mounted on the lower regions of the rucksack, the upper and lower adjustment members (30,44) co-operating with one another whereby they can be secured in any one of a plurality of different positions relative to one another to vary the distance between the upper ends of the shoulder straps (40) and the hip belt (12), the adjustment means further comprising at least one adjustment element (8) mounted on the upper regions of the rear of the rucksack and co-operating with the upper adjustment member (30) in such a manner that, once the upper and lower adjustment members (30,44) have been secured relative to one another, tightening of the or each adjustment element (8) tensions the region of the rear of the body portion (2) below said adjustment element (8), any slack in said rear of the body portion (2) being accommodated in the upper regions thereof, the lid portion (16) including a depending skirt (18) embracing said slack upper regions of the body portion (2).

2. A rucksack as claimed in claim 1 in which the lid portion (18) and the upper adjustment member (30) mounted thereon are separate from the body portion (2) of the rucksack, the lid portion (16) being attached to the rucksack by co-operating means (6,32) mounted on the body portion of the rucksack and on the upper adjustment member

(30).

3. A rucksack as claimed in claim 2 in which the co-operating means comprise a pair of support loops (6) secured one to each side of the rear of the upper regions of the rucksack, and a pair of lateral projections (32) one to each side of the upper end of the upper adjustment member (30) and adapted to be received in, to be supported by, associated ones of said loops (6).

4. A rucksack as claimed in claim 3 in which the adjustment elements comprise two adjustment straps (8) the upper ends of which are secured one to each side of the rear of the upper regions of the rucksack adjacent said support loops (6).

5. A rucksack as claimed in claim 2 in which the adjustment elements comprise two adjustment straps (8) the upper ends of which are secured one to each side of the rear of the upper regions of the rucksack, the upper end of the upper adjustment member (30) being provided with a pair of loops thereon one to each side thereof, the adjustment straps (8) extending through associated ones of said loops to attach the lid portion (16) of the rucksack to the body portion thereof.

6. A rucksack as claimed in claim 4 or claim 5 and including, for each adjustment strap (8), a buckle (10) secured to the rear of the upper regions of the body portion (2) of the rucksack, the free end of each adjustment strap (8) extending through, to be secured by, an associated buckle (10) whereby, on tightening of the adjustment straps (8), any slack in the rear of the body portion (2) is accommodated in the upper regions thereof above said buckles (10).

7. A rucksack as claimed in any one of claims 1 to 6 in which the upper and lower adjustment members comprise plate-like members (30,44) adapted to slide one over the other on variation of the distance between the upper ends of the shoulder straps (40) and the hip belt (12), one of said members (44) being provided with an elongate slot (46) therethrough and the other of said members (30) carrying a projection extending through said slot (46), locking means (48,50,52) reacting between the projection and the slot (46) securing the upper and lower adjustment members (30,44) together in any one of a plurality of chosen positions.

8. A rucksack as claimed in claim 7 in which the lower adjustment member (44) is housed within a pocket (4) provided on the lower regions of the back of the body portion (2) of the rucksack, and the upper adjustment member (30) includes an elongate extent depending downwardly from the lid portion (16) of !the rucksack to underlie said lower adjustment member (30) within the pocket (4).

Fig.1.

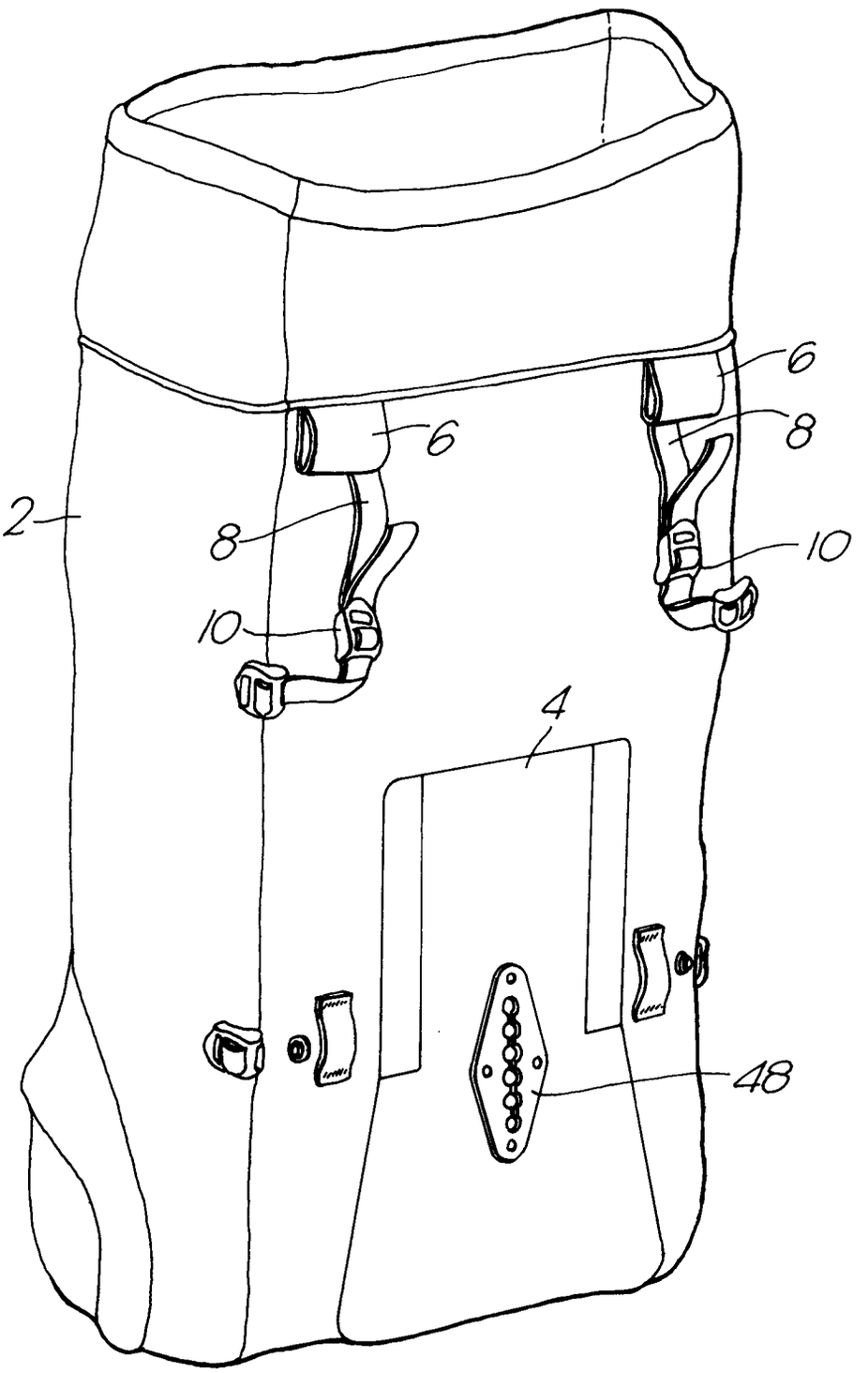


Fig.2.

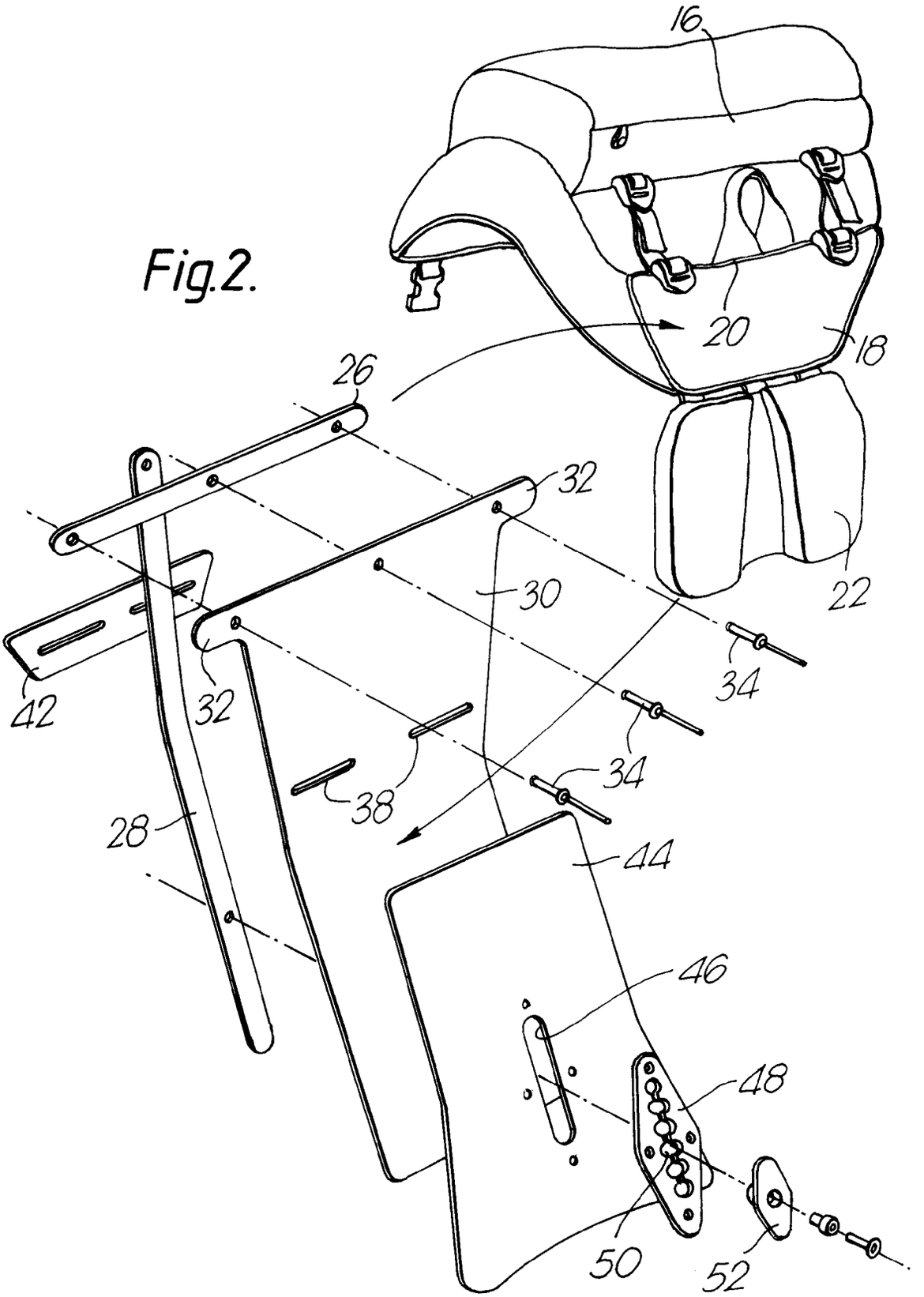


Fig.3.

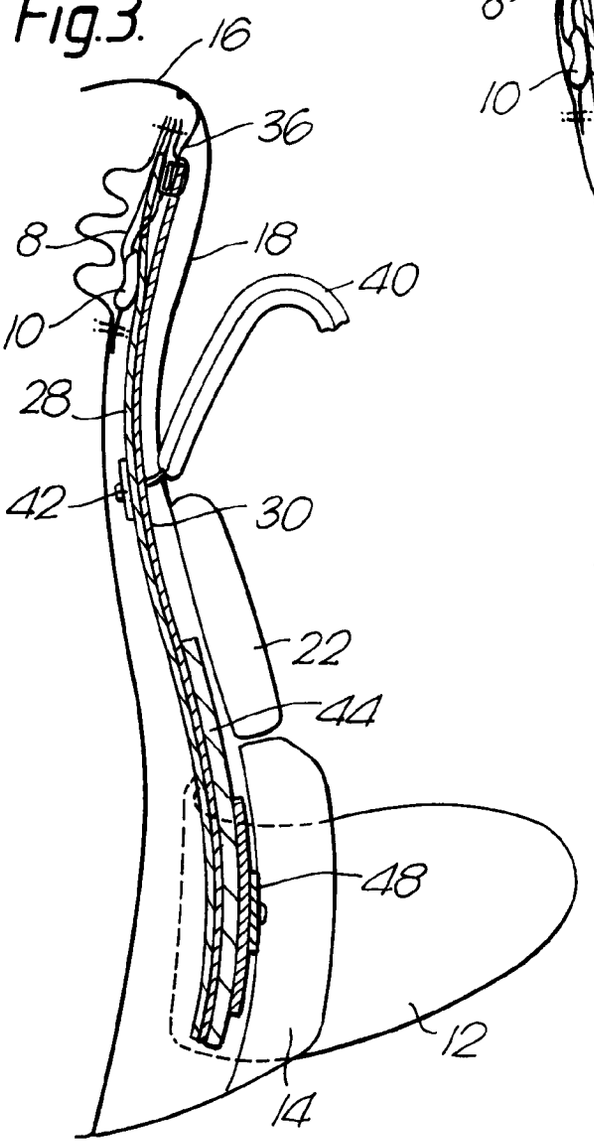

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Fig.4.

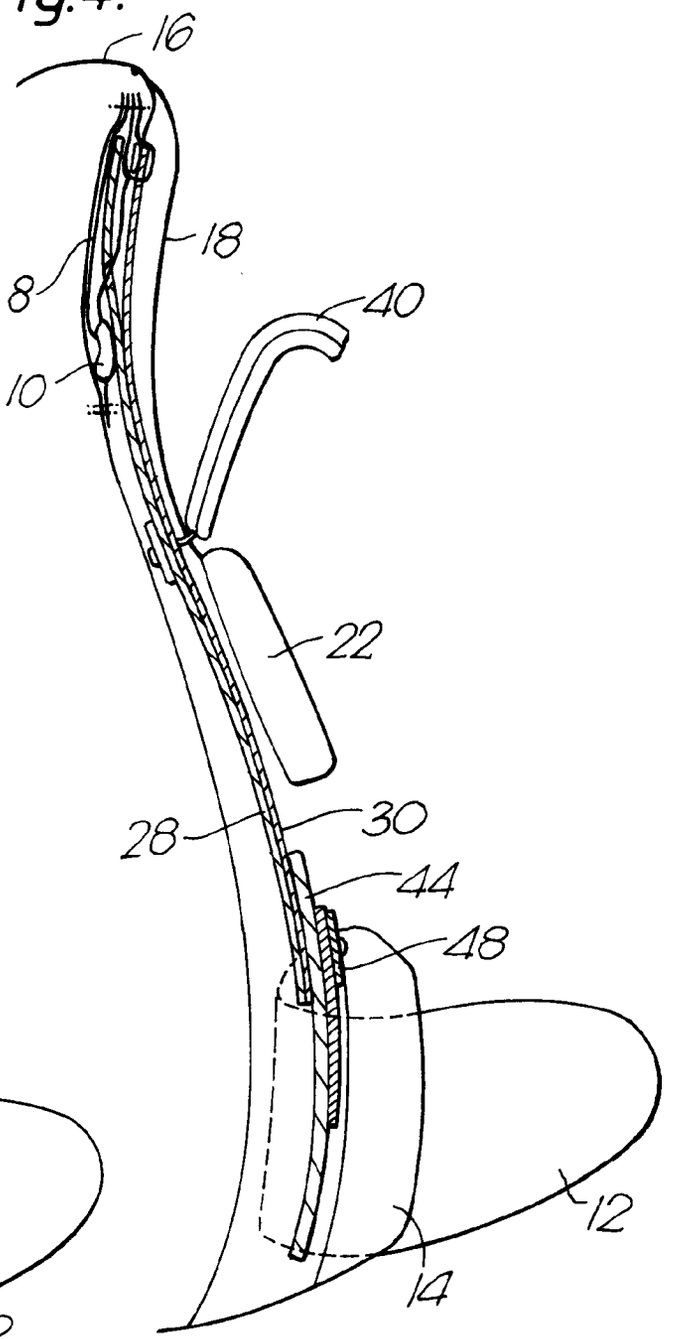
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Fig.5.

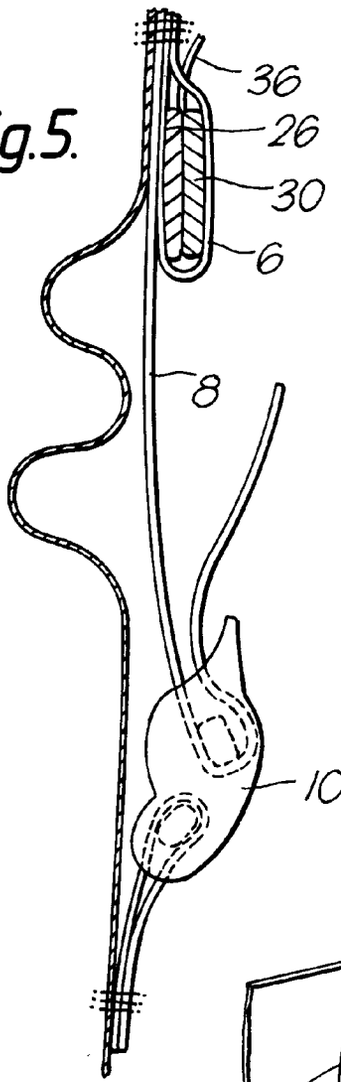
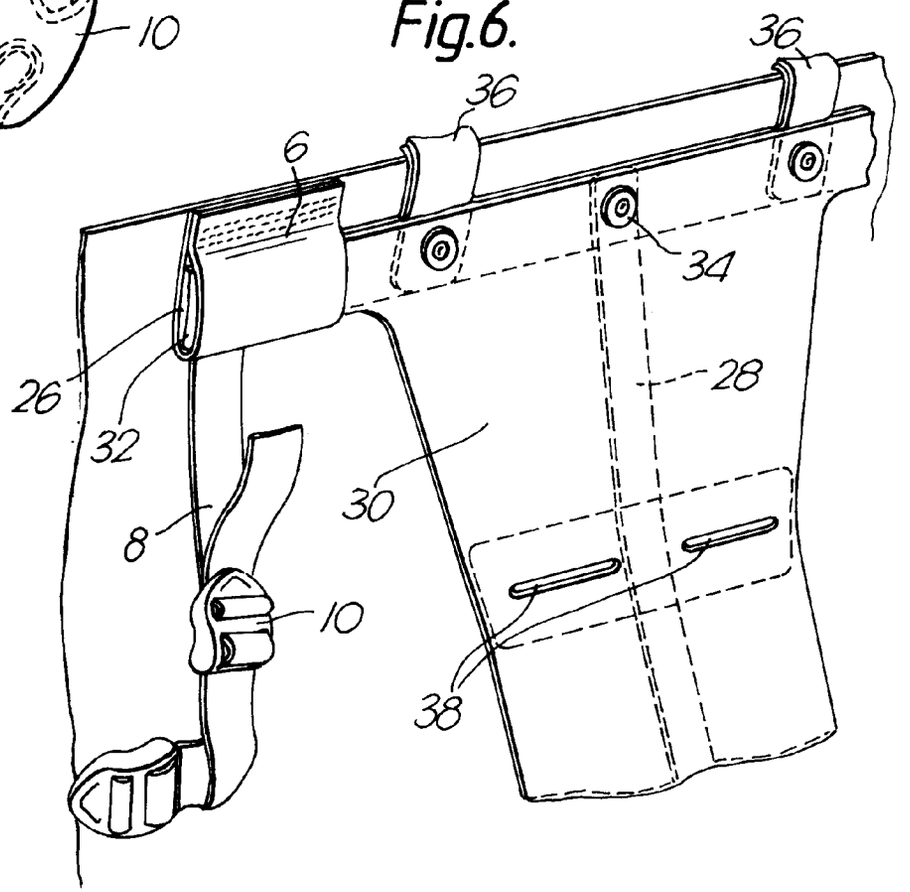


Fig.6.



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EUROPEAN SEARCH REPORT

Application Number
EP 92 31 1232

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.5)
D,Y	EP-A-0 434 336 (BERGHAUS LIMITED) * column 3, line 42 - column 4, line 21; figures 1-3B *	1	A45F3/04
Y	US-A-4 015 759 (DREISSIGACKER) * column 4, line 7 - line 21; figures 1-3 *	1	
A	EP-A-0 273 087 (PROPOSTA S.P.A.) * column 2, line 37 - column 3, line 22; figures *	1-3	
A	CH-A-313 066 (BUCHMÜLLER) * page 1, line 58 - page 2, line 25; figures *	1,4,6	
A	US-A-3 827 612 (MEAD ET AL.) * column 2, line 52 - line 58; figure 1 *	1,7	
A	CH-A-86 119 (SPORTHAUS REINHOLD SPITZ)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A45F
A45C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	23 MARCH 1993	ECCETTO M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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