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(54) **A weight training apparatus**

(57) A weight training apparatus (1) is reconfigurable between an open configuration and a compact configuration in which the apparatus is packed into a smaller form than in the open configuration. The apparatus comprises a plurality of storage compartments (18) configured to removably receive and retain a flowable weighted material to selectively increase the weight of the apparatus. The storage compartments (18) are movable rel-

ative to each other and are shaped and arranged to enable the apparatus (1) to be reconfigured to the compact configuration in a filled condition in which the storage compartments (18) contain weighted material. The apparatus (1) may be configured in the compact configuration without weighted material within the pockets (18) for transport or storage.

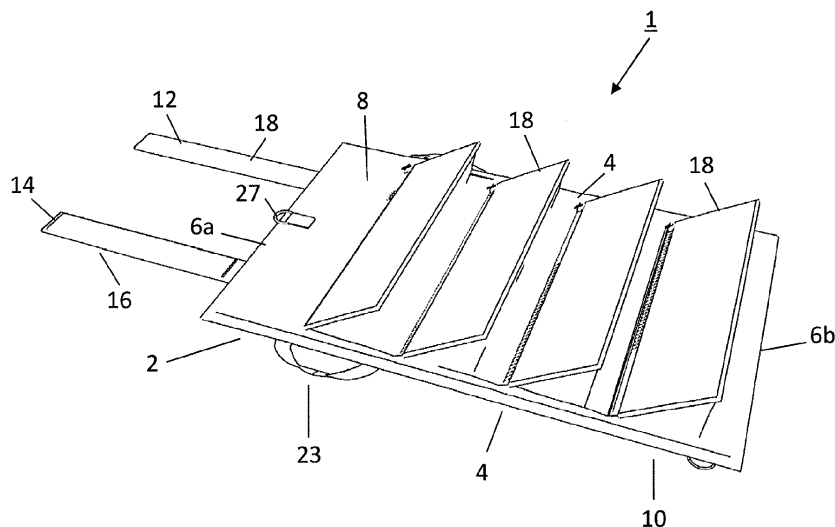


FIG. 1

Description

[0001] The present invention relates to a weight training apparatus and in particular to a refillable weight lifting bag.

[0002] Weight training is a common form of exercise for developing strength and power through an increase in the strength and size of skeletal muscles. Weight training requires the performance of specific movements involving the contraction of the muscles during which the force generated by the muscles is opposed by a weighted device such as a dumbbell acting under the force of gravity. A wide range of weighted devices are available that enable an even wider range of weight training exercises to be performed.

[0003] Weight training devices require a weighted element to provide the required resistance. This weighted element may be metal such as cast iron, or a flowable material such as sand or metal shot. The weight of this material provides the necessary resistance force, but also makes the apparatus difficult for a user to move, store and transport. For example, it would not be practically possible to carry a weight suitable for weight training while travelling both due to the burden of the weight as well as the significant space consumed by the apparatus. In addition, the weight of such apparatus significantly increases the cost of transport for the manufacturer and hence the cost of the apparatus to the consumer.

[0004] It is known to provide weight training apparatus such as dumbbells that comprise hollow weight sections that may be filled at the point of use with weighted material such as sand. However, dumbbells of this type still comprise a rigid form that is space consuming. It is also known to use rudimentary weight apparatus such as sand bags that may be filled at the point of use, but sandbags are difficult for a user to hold and manipulate during exercise in part due to the fact that they do not maintain a fixed shape and structure.

[0005] It is therefore desirable to provide an improved weighted apparatus for exercise which addresses the above described problems and/or which offers improvements generally. According to the present invention there is provided a weight training apparatus as described in the accompanying claims.

[0006] In an embodiment of the invention there is provided a weight training apparatus reconfigurable between an open configuration and a compact configuration in which the apparatus is packed into a smaller form than in the open configuration. The apparatus comprises a plurality of storage compartments configured to removably receive and retain a weighted material to selectively increase the weight of the apparatus. The storage compartments are movable relative to each other and are shaped and arranged to enable the apparatus to be reconfigured to the compact configuration in a filled condition in which the storage compartments contain weighted material. The apparatus may be configured in the compact configuration without weighted material within the

pockets for transport or storage. The absence of any weighted material makes the apparatus lightweight to carry, as well as enabling it to compact to a much smaller size than in the in-use filled configuration. At the location of use the apparatus can be opened and weighted material added into the storage compartments, with the apparatus then being returned to the compact configuration for use. The compact configuration is preferable to the open configuration for use as it enables the apparatus to be handled and manipulated more easily.

[0007] The use of multiple storage compartments enables the shape of the apparatus to be controlled when filled by controlling the size and arrangement of the storage compartments. A single volume fillable device such as a sandbag is provided in a fixed form that must be filled to capacity to provide a form that is suitable for handling, but will still experience sag regardless of how much it is filled, and be difficult to manipulate. The form is difficult to maintain as the weighted material is able to flow throughout the entire body. In contrast, the use of multiple storage compartments enables the weighted material to be localised in discrete pockets enabling a more usable form to be maintained.

[0008] The apparatus is unfurled in the open configuration and furled in the closed configuration. The term unfurled means opened, unrolled, unfolded, or spread out from a furled state such as a rolled or folded state. Rolling or folding the apparatus forms a compact, tightly bound body that resists sagging or other deformation.

[0009] The storage compartments each comprise an opening that is accessible when the apparatus is unfurled. Rolling or folding the apparatus to the compact configuration binds and encloses the pockets thereby enclosing and shielding the weighted material to mitigate the risk of damage and release in use.

[0010] The plurality of storage compartments preferably comprises a plurality of pockets formed of a flexible material. The pockets are preferable provided on a flexible support substrate to fix them in a predetermined relationship to each other.

[0011] The plurality of pockets may be configured to receive and retain flowable material and comprise closure means for closing the pockets and sealing the flowable material within the pockets. The use of flowable material such as sand is advantageous as such material may be present on site, which is the case for example for members of the armed forces based in arid or desert environments, meaning that the weighted material is readily available at the point of use without requiring transportation. By the same token this material may be readily disposed of following use. Flowable material also has the advantage of taking the form of the pockets, without requiring specific manufacture to provide a weighted element configured to fit the pockets.

[0012] The support substrate may be a flexible support sheet or panel. The plurality of pockets are secured to a common inner surface of the support panel and arranged such that the support panel may be rolled into cylindrical

form in which the pockets are contained within and surrounded by the support panel. This provides a continuous cylindrical outer surface that may include handles or other means for gripping the apparatus, with the weighted material housed within the confines of the support panel and shielded from impact thereby minimising the risk of splitting or other damage to the pockets, as well as preventing the pockets from providing an obstruction to the user during use.

[0013] The support sheet may be rolled into cylindrical form when the pockets are filled with weighted material and may also be rolled into cylindrical form when the pockets do not contain weighted material with the unfilled 'stowed' compact configuration having a diameter less than the second filled compact configuration. In the stowed configuration the pockets may be arranged substantially flush with the inner surface of the support panel and the panel is able to be rolled several providing a very compact form when no filling is present in the pockets.

[0014] The pockets may each comprise first and second front panels hingedly connected to each other their distal edges and hingedly connected to the support panel along their proximal edges. Side panels are arranged at either side of the first and second front panels connected to the side edges of the front panels and to the support sheet. The distal and proximal edges of the front panels extend transversely across the support panel.

[0015] The pockets may effectively define a bellows arrangement in which the second front panel and the side panels are formed from a flexible material and are collapsible such that first front panel is pivotable between a collapsed position in which it is arranged parallel to the inner surface of the support panel, and an expanded position in which it is angled away from the support panel. The first front panel may be formed from a flexible material that is stiffer than the second front panel and side panels such that it retains its planar form more readily than the second front panel, with the second front panels and side panels configured to collapse beneath the first front panel.

[0016] The opening to each pocket is preferably arranged proximate to and parallel with the proximal edge of the first front panel. Alternatively the opening may be defined by the proximal edge of the first front panel.

[0017] The pockets are preferably arranged such that in the compact configuration, when the pockets are filled, they extend radially inwards from the inner surface of the support panel. The pockets preferably define a substantially v-shaped wedge when filled. Preferably four pockets are provided and in the compact configuration the pockets extend and taper inwardly and substantially define quarter segments of the circular cross section of the apparatus to fill the central volume of the rolled apparatus with minimal void that could lead to sagging.

[0018] At least one strap may be included that extends from and is preferably secured to one end of the support panel and arranged to extend circumferentially around at least part of the circumference of the apparatus in both

compact arrangements to hold the apparatus in said configurations.

[0019] The at least one strap wraps at least partially around the apparatus and preferably includes releasable fastening means to fasten the strap in position when wrapped around the apparatus, which may be Velcro[®] or similar hook and eye fabric.

[0020] At least one handle may be arranged on the opposing side of the support panel to the pockets such that it is on the external surface of the apparatus in the compact configurations to enable the apparatus to be gripped by a user to lift the apparatus.

[0021] The present invention will now be described by way of example only with reference to the following illustrative figures in which:

Figure 1 shows a weight training apparatus in accordance with an embodiment of the invention in the open unrolled configuration;

Figure 2 shows a pocket of the apparatus of Figure 1;

Figure 3 shows the reverse side of the arrangement of Figure 1;

Figure 4 shows the apparatus of Figure 2 in the stowed filled configuration;

Figure 5 shows an end view of the arrangement of Figure 4; and

Figure 6 shows the apparatus of Figure 1 in the filled compact configuration.

[0022] Referring to Figure 1, a weight training apparatus 1 comprises a support sheet 2 formed of a flexible material. The support sheet 1 is a substantially rectangular flexible panel having sides 4 defining the length of the support panel and ends 6 shorter than the sides. The support sheet 2 is substantially planar in the unfolded condition as represented in Figure 1 and includes an inner surface 8 and outer surface 10.

[0023] A plurality of elongate straps 12 are secured to the outer side 10 of the support sheet 2 and extend past one end 6a. The straps 12 are transversely spaced and extend longitudinally past the end 6a and include free ends 14. The straps 12 have an outer surface 16 and an inner surface 18 that includes securing fabric such as one part of a hook and eye fabric arrangement such as Velcro[®]. Alternatively the straps 14 may be provided with mechanical fasteners.

[0024] A plurality of pockets 18 are provided on the inner surface 8 of the support sheet 2. Preferably the apparatus 1 comprises four pockets 18. The pockets 18 are transversely aligned and regularly spaced longitudinally. Each pocket 18 includes a front panel 20, base panel 22 connected along a common edge, and side panels 24 located transversely either side of the front 20 and

base 22 panels and connected to both. The front 20, base 22 and side 34 panels are formed of a flexible material and preferably of the same material as the base panel 2. The side panels 24 are substantially triangular and the front panel 20 and base panel 22 are substantially rectangular such that the pockets form a wedge shaped configuration. As the base panel 22 and side panels 24 are flexible they are able to collapse when the pockets 18 are empty in a bellows type arrangement such that the front panel 20 is able to lie substantially parallel with the base panel 2, and expand when full to the wedge configuration.

[0025] As shown in Figure 2, the pockets 18 are stitched, adhered or otherwise permanently secured to the support sheet, with the outer surface of the support sheet 2 contained within the pocket, and the inner surfaces of the front 20, base 22 and side 34 panels combining to define a sealed enclosure. Each pocket 18 includes an opening arranged to permit access to the interior of the pocket 18. In the embodiment shown in Figure 1 the opening is a transversely extending slit 26 formed width-wise across the proximal end of the front panel 20 proximate its intersection with the base panel 2. A fastener 28 such as a zip is provided along the slit to close and seal the slit 26.

[0026] Figure 3 shows the outer surface 10 of the support sheet 2. The straps 12 extend longitudinally along substantially the whole length of the support sheet 2, with the portion of the straps overlying the support sheet 2 being secured directly to the support sheet, preferably by stitching and/or adhesion. The outer surface 16 of at least the proximal end 19 includes a Velcro[®] material configured to be secured to by the corresponding Velcro[®] sections on the inner surface of the opposing free ends 14. The Velcro[®] material on the outer surface 16 may extend fully along the length of the straps 12 or in another alternative as far as the ends of the support sheet 2. The straps 12 also provide reinforcement for the support sheet 2 in the longitudinal direction. Additional straps 21 extend transversely across the outer surface 10 of the support sheet 2 and extend past the sides 4 to form handles 23 which in use are located at longitudinally opposed ends of the apparatus 1. Securing eyes 27 and 29 are also located to the end 6a and sides 4 respectively and enable the apparatus to be suspended in the open configuration. This allows the pockets 18 to be used as storage means when they are not filled with weighted material for use in exercise.

[0027] As shown in Figure 4, in a first stowed configuration in which the pockets are empty, the base panel 2 may be rolled length-wise into a substantially cylindrical form. With the empty pockets collapsed a tightly rolled arrangement is possible comprising several concentric spiralled layers. The base panel 2 is rolled from the opposing 6b to the straps 12 in the direction of the straps 12. When the base panel 2 is fully rolled the straps 12 are pulled and wrapped around the rolled arrangement. As described above, the inner surface of the straps 18,

which in the rolled configuration face radially inwards, comprise a Velcro[®] material. A corresponding Velcro material is provided on a portion of the outer surface such that when the straps 12 are pulled tight around the rolled panel 2 the inner surface may be secured to the corresponding portion of the outer surface 16 to hold the straps 12 in position, to clamp and retain the panel 2 in the rolled configuration.

[0028] In use, when the apparatus is to be used to perform weight training exercises, the straps 12 are released and the base panel 2 is unrolled to the flat configuration of Figure 1. The pockets 18 are then opened by releasing the zips 28. The pockets 18 are then filled with a weighted material such as sand or metal shot. The material of the pockets 18 and base panel 2 is selected to be non-porous to ensure that even fine sand particles are retained within the pockets 18 when sealed. As an alternative to sand or shot a waterproof bladder may be provided that is configured to fit within the pockets 18 which may be filled with water to provide the required resistance weight. The bladder may be removable from the pocket 18 to allow it to be offered to a source of water more easily.

[0029] In the filled condition the pockets 18 adopt the wedged configuration. With each of the pockets 18 filled, the apparatus 1 may again be reconfigured to the closed configuration by rolling the support panel 2. With the pockets 18 filled the support panel 2 is no longer able to be rolled into the tight stowed configuration. As the support panel 2 is rolled, each pocket 18 moves into abutment with the longitudinally adjacent pocket 18. Again the support panel 2 is rolled from the lower end 6b until the lower end 6b comes into engagement with the upper end 6a which wraps over the outer surface of the lower end 6b. In the configuration the apparatus 1 is now substantially cylindrical. Internally, the pockets 18 are in abutment with each other.

[0030] As shown in Figure 5, the wedge shape of the pockets 18 is such that when viewed in cross section from the end 30 of the rolled apparatus each of the pockets 18 taper in the radially inwards direction with each of the four pockets 18 substantially forming a quarter segment of the overall circular cross section. Each pocket 18 tapers from a wide base 33 to an apex 35. In an alternative arrangement including more or less than four pockets the pockets would be sized and arranged to substantially fill the circular cross section to avoid gaps that may lead to sagging.

[0031] In the compact cylindrical form the pockets 18 extend longitudinally along the length of the apparatus. In this way, a circular outer shape is achieved with apparatus being maintained in a cylindrical form having a greater diameter than when in the stowed configuration due the internal presence of the weighted filling material. As the pockets 18 are flexible, they may be selectively filled with varying amounts of material to achieve differing weights. Where the pockets are not completely filled their flexible nature allows them to compact against each other as the support panel is rolled, with the support panel 2

being rolled tightly to compress the pockets such that the resultant cylindrical rolled form is retained and the apparatus remains longitudinally rigid, having a diameter less than the completely filled form and greater than the stowed form.

[0032] A plurality of handles 32 are arranged along the length of the outer surface 10 of the support panel 2. The straps 32 are arranged transversely such that in the rolled configuration they extend circumferentially around part of the circumference of the apparatus 1. In use the handles 32 allow the filled apparatus to be gripped by the user to enable it to be manipulated to perform weight training exercises. Further straps 34 extend transversely from the sides of the panel 2, which in the rolled configuration extend longitudinally away from the ends of the cylindrical body of the apparatus 1 to provide an alternative grip position.

[0033] Following use the zip 28 of each pocket 18 is opened and the filling material may be emptied from the pockets 18 allows the apparatus 1 to be rolled back into the stowed configuration for transit or storage.

[0034] As shown in Figure 6, in the compact stowed configuration, the absence of filled weighted material in the pocket 18 means the pockets are able to deform and lie substantially parallel to the inner surface of the support sheet 2 and conform to the same shape as the sheet 2 as it is rolled. This enables a close compact rolled arrangement in which there is minimal spacing between adjacent concentric layers of the rolled configuration. This optimises the compact arrangement for storage and transport.

[0035] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A weight training apparatus reconfigurable between an open configuration and a compact configuration, the apparatus comprising a plurality of storage compartments configured to removably receive and retain a weighted material to increase the weight of the apparatus, the storage compartments being movable relative to each other during reconfiguration and arranged to enable the apparatus to be reconfigured to the compact configuration in a filled condition containing the weighted material.
2. A weight training apparatus according to claim 1 wherein the apparatus is unfurled in the open configuration and rolled or folded in the closed configuration.

3. A weight training apparatus according to claim wherein the storage compartments each comprise a sealable opening that is accessible when the apparatus is unfurled.
4. A weight training apparatus according to claim 3 wherein the plurality of storage compartments comprises a plurality of pockets.
5. A weight training apparatus according to claim 4 wherein the plurality of pockets are configured to receive and retain flowable material and comprise closure means for closing the pockets and sealing the flowable material within the pockets.
6. A weight training apparatus according to claim 4 or 5 comprising a flexible support panel, wherein the plurality of pockets are secured to a common surface of the support panel and arranged such that the support panel may be rolled into cylindrical form in the compact configuration in which the pockets are contained within the support panel.
7. A weight training apparatus according to claim 5 wherein the support panel may be rolled into cylindrical form when the pockets are filled and empty.
8. A weight training apparatus wherein the pockets each comprise first and second front panels hingedly connected to each other their distal edges and hingedly connected to the support panel along their proximal edges, side panels arranged at either side of the first and second front panels connected to the side edges of the front panels and to the support sheet.
9. A weight training apparatus according to claim 8 wherein the pockets define a bellows arrangement in which the second front panel and the side panels are collapsible such that first front panel is pivotable between a collapsed position in which it is arranged parallel to the inner surface of the support panel, and an expanded position in which it is angled away from the support panel.
10. A weight training apparatus according to any one of claims 6 to 9 wherein the pockets are arranged such that in the rolled configuration they extend radially inwards from the inner surface of the support sheet.
11. A weight training apparatus according to claim 10 wherein the pockets are configured such that in the rolled configuration they taper inwardly in the radially inwards direction.
12. A weight training apparatus according to any one of claims 6 to 11 comprising at least one strap extending from one end of the support sheet arranged to

extend circumferentially around the outer surface of the apparatus in rolled configuration to hold the apparatus in said configuration.

13. A weight training apparatus according to claim 12 5
wherein the at least one strap includes releasable fastening means to fasten the strap in position when wrapped around the apparatus.
14. A weight training apparatus according to any one of 10
claims 6 to 13 comprising at least one handle arranged on the opposing side of the support sheet to the pockets such that it is arranged on the external surface of the apparatus in the rolled configuration 15
to enable the apparatus to be gripped by a user to lift the apparatus. 15

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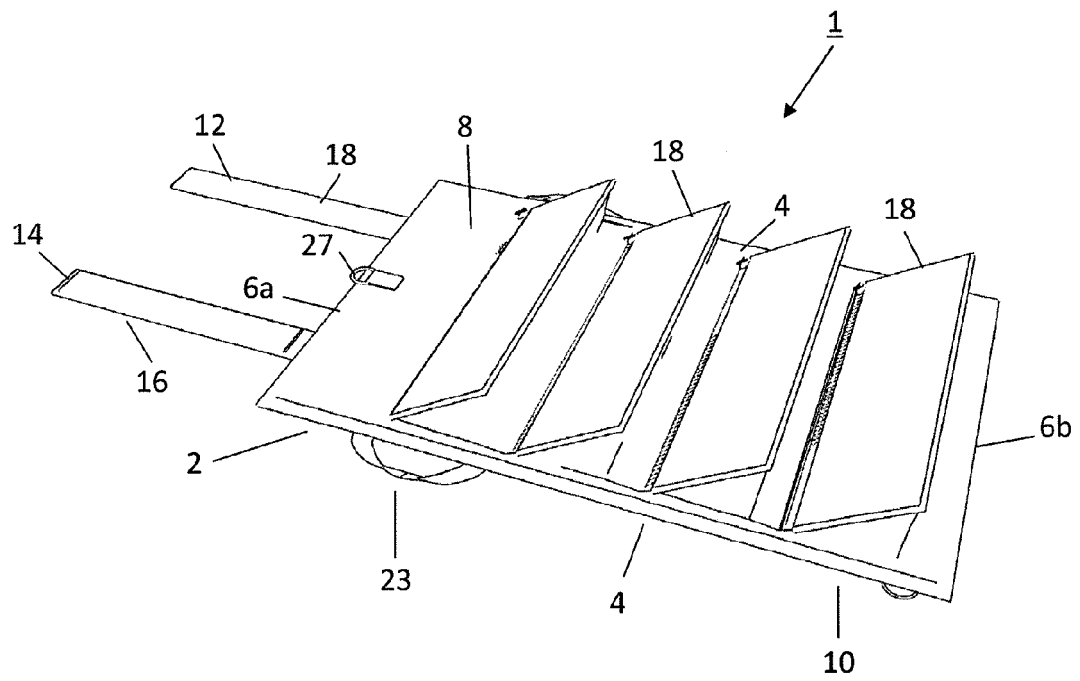


FIG. 1

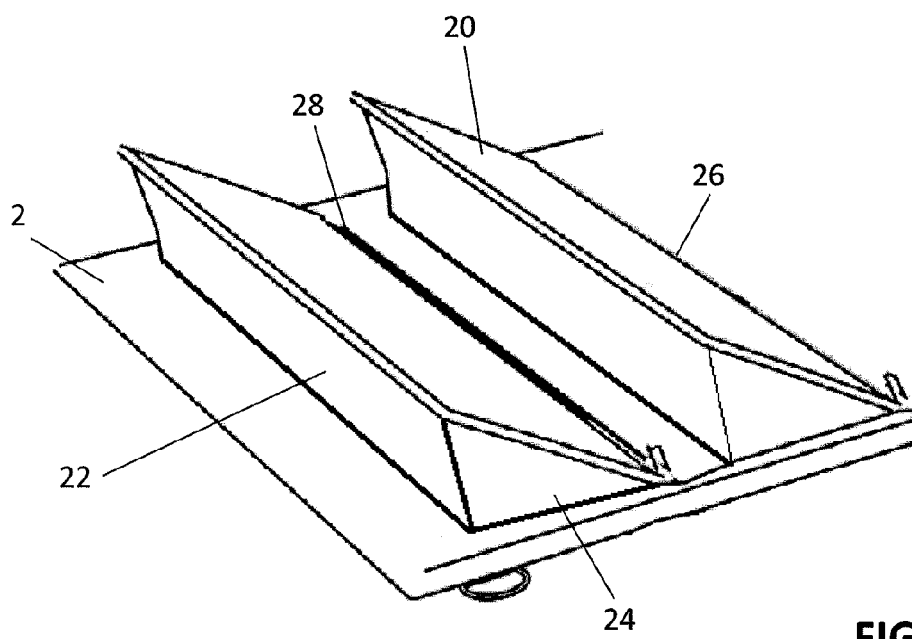
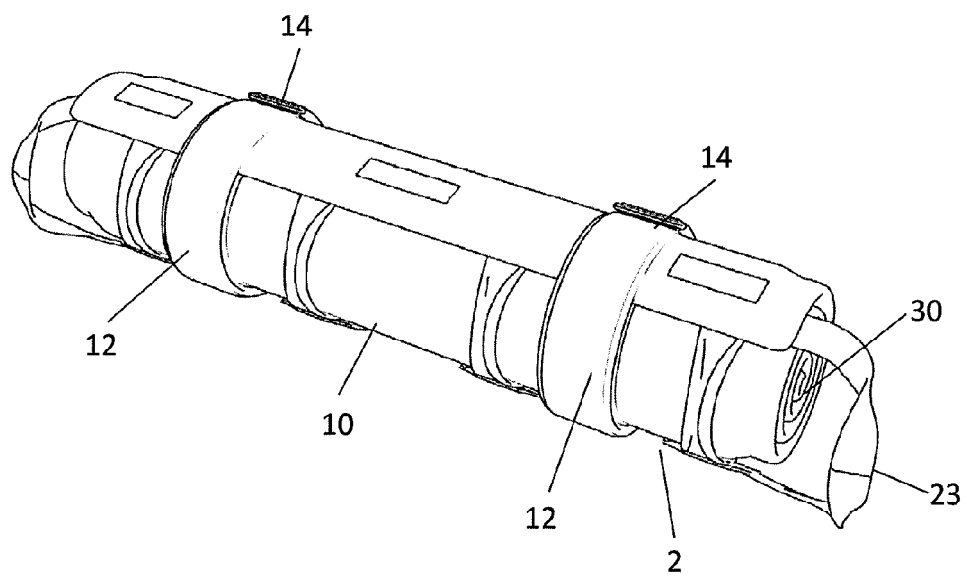
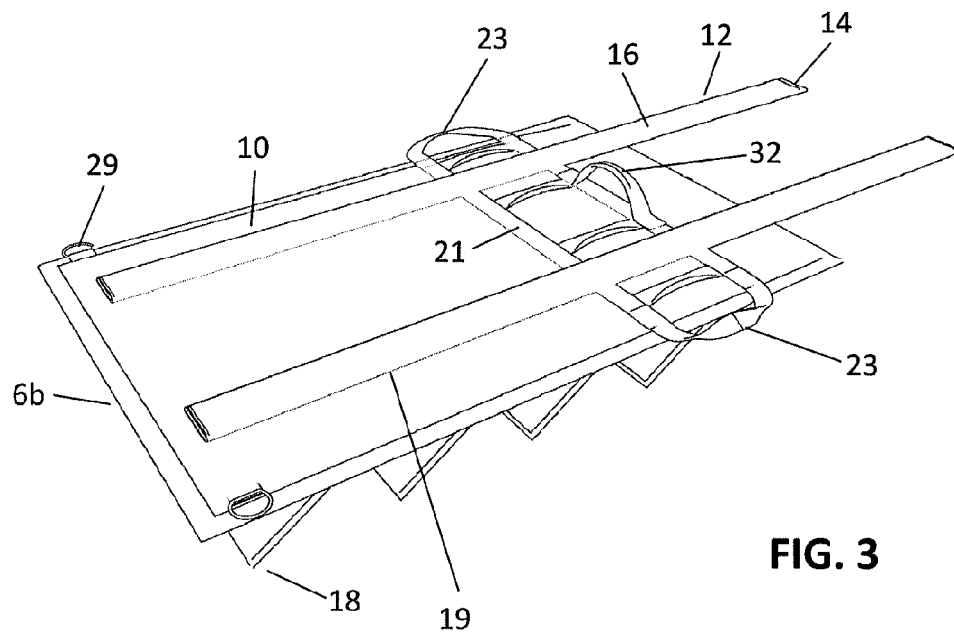
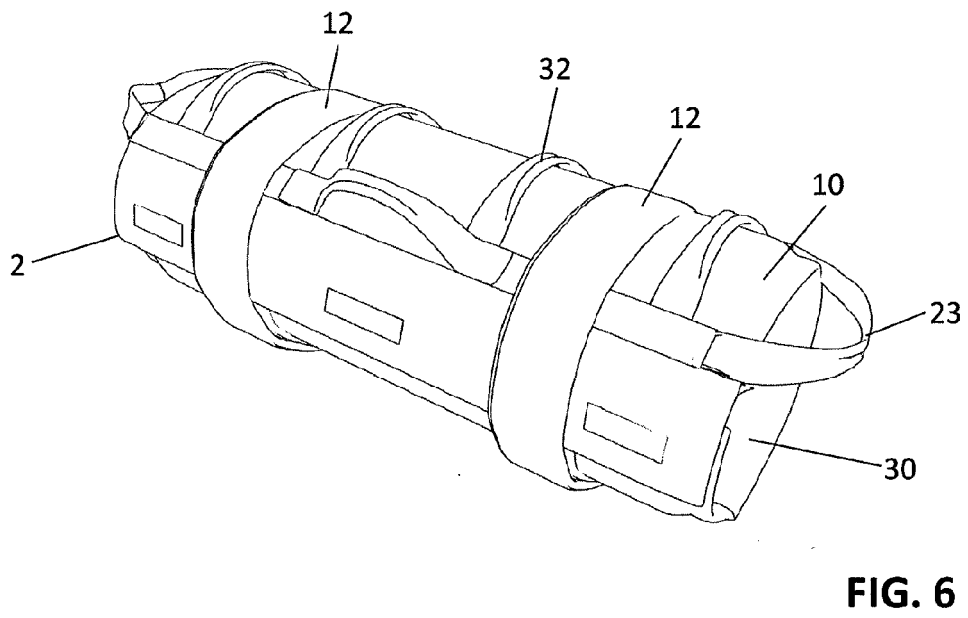
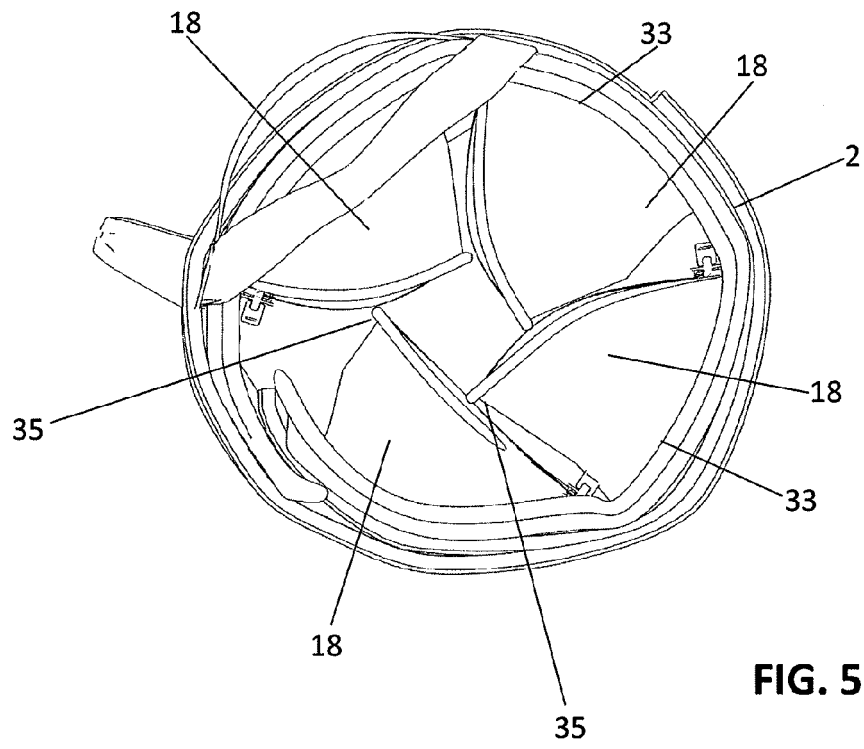


FIG. 2







PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 15 15 0453

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 3 924 851 A (WINSTON HERBERT) 9 December 1975 (1975-12-09) * column 1 - column 2; figures * -----	1-7, 10-14	INV. A63B21/00 A63B21/06
X	JP 2002 355333 A (SHINWA ENTPR KK) 10 December 2002 (2002-12-10) * abstract; figures * -----	1-7, 10-14	
X	US 2001/019986 A1 (COOK ARNOLD J [US]) 6 September 2001 (2001-09-06) * page 2 - page 5; figures * -----	1-7, 10-14	
X	US 6 669 608 B1 (WINSTON EDITH [US]) 30 December 2003 (2003-12-30) * abstract; figures * -----	1	
X	US 2 423 297 A (CREAMER HARRY H) 1 July 1947 (1947-07-01) * abstract; figures * -----	1	
X	US 5 067 484 A (HIEMSTRA-PAEZ CAROL L [US]) 26 November 1991 (1991-11-26) * abstract; figures * ----- -/--	1	TECHNICAL FIELDS SEARCHED (IPC) A63B
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out. Claims searched completely : Claims searched incompletely : Claims not searched : Reason for the limitation of the search: see sheet C			
Place of search Munich		Date of completion of the search 28 August 2015	Examiner Borrás González, E
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	

EPO FORM 1503 03.82 (P04E07)



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**INCOMPLETE SEARCH
SHEET C**

Application Number

EP 15 15 0453

Claim(s) completely searchable:
1-7

Claim(s) searched incompletely:
10-14

Claim(s) not searched:
8, 9

Reason for the limitation of the search:

In reply to the invitation to indicate the claims on which the search is to be based, the applicant failed to supply the requested indication in due time.

Thus, the search report has been drawn up on the basis of the first independent claim of each category (Rule 62a(1) EPC):
claims 1-7 were completely searched
claims 10-14 were partially searched.

The applicant's attention is drawn to the fact that the application will be further prosecuted on the basis of subject-matter for which a search has been carried out and that the claims should be limited to that subject-matter at a later stage of the proceedings (Rule 62a(2) EPC).

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

EP 15 15 0453

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-08-2015

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