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(54) **BACKPACK**

(57) A backpack (10) comprises a bag (100) comprising a rear face (120) for contacting a wearer's back. The backpack comprises a pair of shoulder straps (200a, 200b), wherein each shoulder strap (200a, 200b) comprises a lower end portion (210a, 210b) and an upper end portion (220a, 220b) which are respectively connected to the rear face (120). Each shoulder strap (200a, 200b) is rotatably connected to the rear face (120) at its upper end portion (220a, 220b) by means of a rotary bearing (400a, 400b). Each shoulder strap (200a, 200b) is releasably couplable to an adjacent face (130, 140) of the bag (100) by means of a coupling device (300a, 300b).

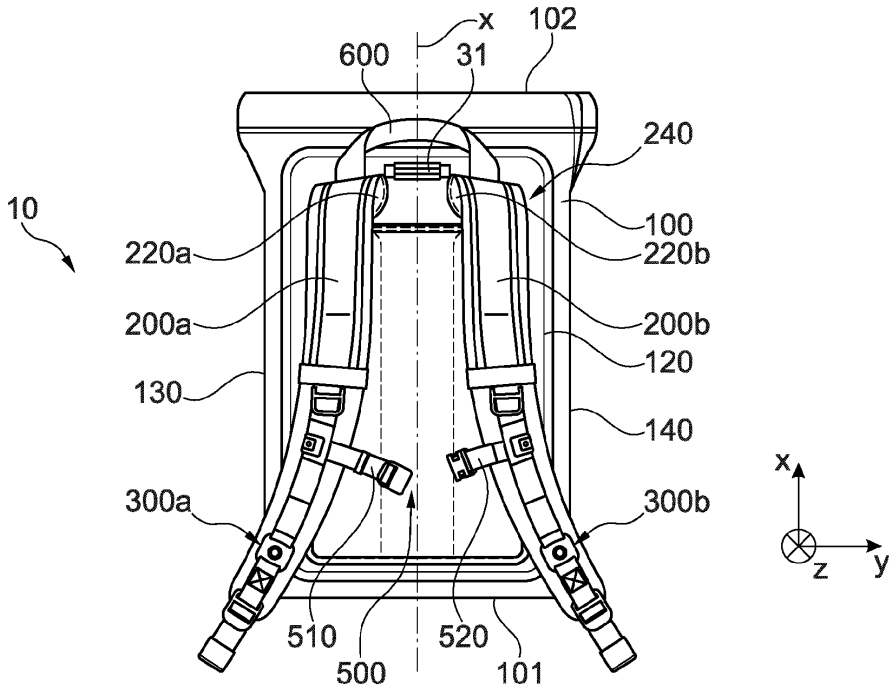

Fig. 1B

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of wearable and/or carrying devices, more specifically to a backpack, a carrying system, and a use of a backpack for coupling the backpack to a carrying device.

BACKGROUND

[0002] In the technical field of wearable and/or carrying devices, backpacks are known which can have different sizes, shapes and/or features. Known backpacks comprise a bag with an opening into which various articles can be inserted and/or stored. The bag may comprise one or more additional pockets or compartments, which may be provided either open or closable (e.g., via a zipper). Known backpacks typically have two shoulder straps sewn at their respective ends to a rear face (or back side) of the bag. To wear the backpack, the wearer slides the respective shoulder straps over his/her shoulders, with the rear face of the bag contacting the wearer's back. Instead of wearing the backpack by a wearer, backpacks can also be coupled to and carried (or transported) by other devices, e.g., movable devices like a bicycle.

[0003] However, when the backpack is not worn by a wearer, the two shoulder straps typically protrude from the rear face and/or lie loosely against the rear face of the bag. This may make carrying (and/or transporting) the backpack inconvenient and in particular may make transporting the backpack on a bicycle unsafe, since the shoulder straps can become entangled with, e.g., the spokes of the bicycle. Some existing backpacks have inconvenient and time-consuming solutions for this such as detaching and stowing the shoulder straps.

[0004] Thus, the object of the present disclosure is to provide an improved backpack, and more specifically which can be carried by another device in an improved manner.

SUMMARY

[0005] The present disclosure relates to a backpack as defined in claim 1, a carrying system as defined in claim 13, and a use of a backpack for coupling the backpack to a carrying device as defined in claim 15. The dependent claims represent advantageous embodiments of the present disclosure.

[0006] According to a first aspect of the present disclosure, a backpack comprises a bag. The bag comprises a rear face for contacting a wearer's back. The backpack comprises a pair of shoulder straps, wherein each shoulder strap comprises a lower end portion and an upper end portion which are respectively connected to the rear face. Each shoulder strap is rotatably connected to the rear face at its upper end portion by means of a rotary bearing. Each shoulder strap is releasably couplable to an adjacent face of the bag by means of a coupling device. The rotary bearing(s) can allow a rotation of each shoulder strap from a wearing position, e.g., in which the backpack may be worn by a wearer, to a carrying (or resting or securing) position, e.g., in which the backpack can be carried by another device (e.g., coupled to another device for transportation of the backpack). The releasable coupling of each shoulder strap to an adjacent face of the respective shoulder strap may allow fixation (and/or securement) of the shoulder straps in the carrying position. Thus, due to the combined provision of the rotary bearings and the coupling device, the shoulder straps can be held in a defined carrying position relative to the bag, e.g., when the bag (more specifically the backpack) is to be coupled to another device and/or carried by another device, in which shoulder straps may be provided more tightly to the backside of the backpack. In such an arrangement, the risk of the shoulder straps negatively interfering with the other device (e.g. the spokes of a bicycle) may be reduced. In addition, the rotary bearings and the coupling devices can provide improved ergonomics and handling of the backpack, particularly when the shoulder straps are moved from the wearing position to the carrying position. Thus, when the backpack is coupled (and/or is about to be coupled) to a carrying device, for example a luggage carrier of a bicycle, handling of the backpack can be improved and/or facilitated. Furthermore, when carrying the backpack, safety can be increased.

[0007] The adjacent face may be an adjacent side face of the bag. In embodiments, each coupling device may be configured to magnetically couple and/or positively couple and/or non-positively couple the respective shoulder strap to the respective adjacent face. In some embodiments, each coupling device may comprise a protruding element and a receiving element releasably couplable to each other. Each shoulder strap may comprise the protruding element or the receiving element. Each adjacent face may comprise the other one of the protruding element and the receiving element. Based on the above features, a secure coupling of the respective shoulder straps to an adjacent face can be provided. Furthermore, facilitated coupling and/or decoupling of the respective shoulder strap to the adjacent face can be provided.

[0008] In embodiments, the protruding element or the receiving element may be connected to an intermediate portion and/or proximate to the lower end portion of each shoulder strap. More specifically, the other one of the protruding element and the receiving element may be connected to each adjacent face proximate a bottom edge of the bag.

[0009] In embodiments, each shoulder strap may be rotatable about the rotary bearing from a wearing position to a carrying position. More specifically, each shoulder strap may be movable towards the adjacent face based on a rotation about the respective rotary bearing. By means of the rotary bearings, each shoulder strap can

be easily moved from the carrying position to the carrying position. In embodiments, from the wearing position to the carrying position, each shoulder strap may be rotated about the rotary bearing by a rotation angle from 100° to 180°, more specifically from 130° to 160°. In some embodiments, in the wearing position, each shoulder strap may extend away from the rear face. In the carrying position, each shoulder strap may substantially follow a contour of the bag from the rear face to the adjacent face. More specifically, in the carrying position, each shoulder strap may be releasably couplable to the adjacent face by means of the coupling device.

[0010] In embodiments, the upper end portion of each shoulder strap may be folded in the wearing position. The upper end portion of each shoulder strap may be unfolded in the carrying position.

[0011] In some embodiments, the protruding element or the receiving element may be connected to a side of the respective shoulder strap which, in the wearing position, faces away from the bag. The protruding element or the receiving element may be connected to a side of the respective shoulder strap which, in the carrying position, may be directed towards the bag.

[0012] In embodiments, each shoulder strap may comprise a first magnetic object arranged proximate the upper end portion. The bag may comprise respective second magnetic objects arranged on the rear face such that the respective first magnetic objects and second magnetic objects may be magnetically coupled to each other when the respective shoulder strap is in the carrying position. When the respective shoulder strap is in the carrying position, the magnetic objects may be attracted to each other to provide a retaining force retaining the respective shoulder strap to the rear face. Thereby, a defined rotation position of the respective shoulder straps relative to the rear face can be achieved in the carrying position.

[0013] In embodiments, the rotary bearings may be distanced from each other by a bearing distance measured between rotation axes of the respective rotary bearings. The bag may comprise a width measured between respective side faces. A ratio of the bearing distance and the maximum width may be from 0,3 to 0,7, more specifically from 0,4 to 0,6. This ratio may improve wearing comfort and/or ergonomics. Furthermore, the handling of a rotation of each shoulder strap about the respective rotary bearing may be facilitated.

[0014] In embodiments, each rotary bearing may comprise a pin element and a receptacle. Each pin element may protrude from the rear face. Each receptacle may be formed in the upper end portion of the respective shoulder strap. More specifically, each pin element may be non-detachably received in the respective receptacle.

[0015] In some embodiments, the bag may comprise a surface structure on the rear face. The surface structure may comprise a pair of slanted edges proximate the respective rotary bearings. The slanted edges may provide stops to limit (or at least inhibit) rotation of the respective shoulder straps. In embodiments, the respective slanted edges may be arranged relative to the respective rotary bearings such that respective stops are provided. The stops may limit rotation of the respective shoulder strap about the respective rotary bearing when moving the respective shoulder strap from the wearing position to the carrying position. In embodiments, the surface structure may comprise a first region of a first thickness and a second region of a second thickness. The first thickness may be larger than the second thickness. The pair of slanted edges may be formed between the first region and the second region. In embodiments, the first region may comprise at least two longitudinal strips extending in a longitudinal direction of the backpack. The second region may comprise a first partial region between the at least two longitudinal strips and a second partial region at respective upper edges of the surface structure.

[0016] In some embodiment, the respective second magnetic objects may be arranged in the second partial region.

[0017] In embodiments, each shoulder strap may comprise a shoulder strap thickness. The sum of the strap thickness and the second thickness may be approximately equal to the first thickness. This can lead to a substantially flat arrangement of the shoulder straps and the first region on the rear face when the shoulder straps are in the carrying position. Thereby, a handling of the backpack during carriage can be improved and safety during carriage can be increased.

[0018] In some embodiments, from the upper end portion towards the lower end portion, each shoulder strap may comprise a substantially linear shape followed by a curved shape. More specifically, the curved shape may be curved towards the respective adjacent face. Particularly, the curved shape may be curved towards the respective adjacent face in the wearing position. The curved shape may lead to improved ergonomics when wearing the backpack. In addition, an improved abutment of the respective shoulder straps to the bag can be provided when the shoulder straps are in the carrying position (and/or coupled to the respective adjacent face).

[0019] In embodiments, the backpack further comprises a chest strap which may be connected at its respective ends to the respective shoulder straps. The chest strap may comprise a first chest strap portion and a second chest strap portion which may be releasably couplable to each other. In embodiments, a length of the chest strap may be configured and/or adjustable such that in the wearing position, the first chest strap portion and second chest strap portion may be couplable to each other around a wearer's chest. In embodiments, a length of the chest strap may be configured and/or adjustable such that, in the carrying position, the first chest strap portion and the second strap portion may be couplable to each other around a front face of the bag. Consequently, in the wearing position, the chest strap may provide improved ergonomics for a wearer. In the carrying position. The chest strap may provide additional securing means

for the respective shoulder straps. Thus, when carrying the backpack, safety can be increased.

[0020] In some embodiments, the backpack may comprise a first coupling member connected to the rear face. The first coupling member may be configured to releasably couple the backpack to a carrying device. The first coupling member may be connected to the rear face between the respective rotary bearings and/or above the respective rotary bearings. The connection position of the first coupling member on the rear face may lead to increased balance when carrying the backpack (e.g., with a bicycle) and/or facilitated coupling of the backpack to the carrying device.

[0021] In embodiments, the backpack may comprise a carrying handle connected to the rear face adjacent a top edge of the bag. More specifically, the carrying handle may be connected to the rear face between the rear face and the rotary bearings.

[0022] In embodiments, each shoulder strap may comprise a lower portion comprising the lower end portion, an upper portion comprising the upper end portion and an intermediate portion. The lower portion may be fixedly connected to the rear face at the lower end portion. The lower portion may be releasably and/or adjustably coupled to the upper portion, more specifically to the intermediate portion.

[0023] In embodiments, the bag comprises an opening. The backpack may comprise a closure device configured to close the opening. In some embodiments, the bag may comprise a foldable portion adjacent the top edge. In a folded position, the opening may be closed. The closure device may be configured to retain the foldable portion in the folded position.

[0024] According to a second aspect of the present disclosure a carrying system comprises a carrying device and a backpack according to the first aspect of the present disclosure. The backpack is releasably coupled to the carrying device. Due to the rotary bearing(s), each shoulder strap can be rotated from the wearing position to the carrying position. The releasable coupling of each shoulder strap to an adjacent face of the respective shoulder strap may allow fixation (and/or securement) of the shoulder straps in the carrying position. Thus, due to the combined provision of the rotary bearings and the coupling device, the shoulder straps can be held in a defined carrying position relative to the bag, e.g., when the bag is to be coupled to another device and/or carried by another device, in which shoulder straps may be provided more tightly to the backside of the backpack. In such an arrangement, the risk of the shoulder straps negatively interfering with the other device (e.g. the spokes of a bicycle) may be reduced. In addition, the rotary bearings and the coupling devices can provide improved ergonomics and handling of the backpack, particularly when the shoulder straps are moved from the wearing position to the carrying position. Furthermore, when the backpack is coupled (and/or is about to be coupled) to a carrying device, for example a luggage carrier of a bicycle, handling of the backpack can be improved and/or facilitated.

[0025] In embodiments, the coupling device may be a first coupling device. The backpack may be releasably coupled to the carrying device by means of a second coupling device. The second coupling device may comprise a first coupling element and a second coupling element. In embodiments, the first coupling element may be fixedly connected to the backpack. The second coupling element may be releasably or fixedly connected to the carrying device.

[0026] In some embodiments, the carrying device may be a bicycle. More specifically, the carrying device may be a luggage carrier of a bicycle.

[0027] A third aspect of the present disclosure relates to a use of a backpack according to the first aspect of the present disclosure for coupling the backpack to a carrying device, in particular to a luggage carrier of a bicycle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028] Other characteristics will be apparent from the accompanying drawings, which form a part of this disclosure. The drawings are intended to further explain the present disclosure and to enable a person skilled in the art to practice it. However, the drawings are intended as non-limiting examples. Common reference numerals on different figures indicate like or similar features.

Fig. 1A	is a front view of a backpack according to the present disclosure;
Fig. 1B	is a rear view of the backpack according to the present disclosure with shoulder straps in a wearing position;
Figs. 1C	is a left-side view of the backpack according to the present disclosure with shoulder straps in the wearing position;
Figs. 1D	is a right-side view of the backpack according to the present disclosure with shoulder straps in the wearing position;
Figs. 2A and 2B	are a left-side view and a rear view of the backpack according to the present disclosure with shoulder straps in a carrying position;
Fig. 3	is a front view of the backpack according to the present disclosure with shoulder straps in the carrying position and a coupled chest strap;
Fig. 4	is a more detailed rear view of the backpack as shown in Fig. 1B with released shoulder straps;
Figs. 5A and 5B	are schematic views of a carrying system according to a second aspect of the present disclosure, wherein the backpack is coupled to

a carrying device.

DETAILED DESCRIPTION

[0029] Embodiments of the backpack, the carrying system and the use of the backpack according to the present disclosure will be described in reference to the drawings as follows.

[0030] Figs. 1A to 1D are a front view, a rear view, a left-side view and a right-side view of a backpack 10 according to the first aspect of the present disclosure. The backpack 10 comprises a bag 100 comprising a rear face 120 for contacting a wearer's back. The backpack 10 further comprises a pair of shoulder straps 200a, 200b. Each shoulder strap 200a, 200b comprises a lower end portion 210a, 210b and an upper end portion 220a, 220b which are respectively connected to the rear face 120. Each shoulder strap 200a, 200b is rotatably connected to the rear face 120 at its upper end portion 220a, 220b by means of a rotary bearing 400a, 400b (which will be described in detail below with reference to Figs. 2B and 4). Each shoulder strap is releasably couplable to an adjacent face 130, 140 of the bag 100 by means of a coupling device 300a, 300b (which will be described in detail below with reference to Figs. 1B to 1D). The rotary bearing(s) 400a, 400b can allow for a rotation of each shoulder strap 200a, 200b from a wearing position 240, e.g., in which the backpack 10 may be worn by a wearer, to a carrying (or resting or securing) position 250, e.g., in which the backpack 10 can be carried by another device (e.g., coupled to another device for carriage of the backpack). The releasable coupling of each shoulder strap 200a, 200b to an adjacent face 130, 140 of the respective shoulder strap 200a, 200b may allow fixation (and/or securement) of the shoulder straps 200a, 200b in the carrying position. Thus, due to the combined provision of the rotary bearings 400a, 400b and the coupling devices 300a, 300b, the shoulder straps 200a, 200b can be held in a defined carrying position 250 relative to the bag 100, e.g., when the bag 100 (more specifically the backpack 10) is to be coupled to another device and/or carried by another device, in which shoulder straps 200a, 200b may be provided more tightly to the rear face 120 of the backpack 10. In addition, the combined rotary bearings 400a, 400b and coupling devices 300a, 300b can provide improved ergonomics and handling of the backpack 10, particularly when the shoulder straps 200a, 200b are moved from the wearing position 240 to the carrying position 250. Thus, when the backpack 10 is coupled (and/or is about to be coupled) to a carrying device 20, for example a luggage carrier of a bicycle, handling of the backpack 10 can be improved and/or facilitated. Furthermore, when carrying the backpack 10 by a carrying device 20, safety can be increased.

[0031] As shown, e.g., in Figs. 1A to 1D, the bag 100 has a front face 110, a rear face 120, a left-side face 130, and a right-side face 140. As outlined above, the rear face 120 may be the face which may contact a wearer's back when the backpack is worn. The front face 110 is the face which extends on a opposite side of the bag 100 with respect to the rear face 120. Viewing the rear face 120, the left-side face 130 may be on a left side of the bag 100 and the right-side face 140 may be on the right side of the bag 100. Left-side face 130 and right-side face 140 may extend between the front face 110 and the rear face 120, respectively. The adjacent face 130, 140 as defined above may be an adjacent side face 130, 140 of the bag 100, i.e., the left-side face 130 and/or the right-side face 140.

[0032] Viewing the rear face 120 in Fig. 1B, the pair of shoulder straps 200, 200b may comprise a left (or first) shoulder strap 200a being connected to the rear face 120 adjacent the left-side face 130. The pair of shoulder straps 200b may comprise a right (or second) shoulder strap 200b being connected to the rear face 120 adjacent the right-side face 140. The left shoulder strap 200a may be releasably couplable to the adjacent, left-side face 130. The right shoulder strap 200b may be releasably couplable to the adjacent, right-side face 140. In some embodiments, the adjacent face 130, 140 may be the front face 110. In other words, the pair of shoulder straps 200a, 200b may be releasably coupleable to the front face 110. In some embodiments, the adjacent face 130, 140 may be the rear face 120. In this case the pair of shoulder straps 200a, 200b may be releasably coupleable to the rear face 120. However, it should be noted that in this case the shoulder straps 200a, 200b may be releasably coupleable to the rear face 120 at positions different from the positions at which the respective upper end portions 220a, 220b and lower end portions 210a, 210b are connected to the rear face 120. In an example, each shoulder strap 200a, 200b may be releasably coupleable to the front face 110 or the rear face 120 at a position proximate to a respective side face of the bag 100.

[0033] As indicated in Fig. 1B, the backpack 10 defines a longitudinal axis x, which extends in a longitudinal direction of the bag 100. A perpendicular axis y is defined perpendicular to the longitudinal axis x and extends in a width direction of the bag (i.e., in a direction from left-side face towards right-side face). A thickness axis z is defined perpendicular to the longitudinal axis x and the perpendicular axis y, and the thickness axis z extends in a thickness direction of the bag 100. Referring to Fig. 1B, the backpack 10 comprises a top edge 102 and a bottom edge 101. The bottom edge 101 may be arranged at a bottom of the bag 100, more specifically between the bottom of the bag 100 and the respective faces 110, 120, 130, 140 of the bag 100. The top edge 102 may be on an opposite side of the bag 100 with respect to the bottom edge 101. The bag 100 may comprise an opening 180 (not shown in Figs. 1A to 1D but indicated in Fig. 2A) which can be closed by means of a closure device 700, i.e., which may be configured to close the opening 180 or keep opening 180 closed. The top edge 102 may be proximate the opening 180. As indicated in Fig. 1A, the

backpack may comprise a foldable portion 170 arranged adjacent the top edge 102. The foldable portion 170 may be movable between a folded position (see, e.g., Figs. 1A to 1D), and an unfolded position (see, e.g., Fig. 2A). In the folded position, the opening 180 may be closed. The closure device 700 may be configured to retain the foldable portion in the folded position (i.e., to keep the opening 180 closed).

[0034] The upper end portions 220a, 220b are arranged proximate to the top edge 102 and distal to the bottom edge 101. The lower end portions 210a, 210b are arranged proximate to the bottom edge 101 and distal to the top edge 102. When worn by a user (or wearer), the respective upper end portion 220a, 220b may be arranged proximate to a wearer's shoulder and the lower end portion 210a, 210b may be arranged distal to a wearer's shoulder. In other words, the upper end portions 220a, 220b may refer to ends of the respective each shoulder strap 200a, 200b which are disposed proximate to the opening 180 and/or the top edge 102 of the bag 100. The lower end portion 210a, 210b may refer to ends of the respective each shoulder strap 200a, 200b disposed proximate to the bottom edge 101 of the bag 100.

[0035] Referring to Figs. 1B to 1D, each shoulder strap 200a, 200b may comprise a lower portion comprising the lower end portion 210a, 210b, and an upper portion comprising the upper end portion 220a, 220b and an intermediate portion 230a, 230b. The intermediate portion 230a, 230b may extend between the upper end portion 220a, 220b and an intermediate end opposite the upper end portion 230a, 230b. The lower portion may be fixedly connected to the rear face 120 at the lower end portion 210a, 210b. In some embodiments, the lower portion may comprise an end opposite the lower end portion 210a, 210b. The lower portion may be releasably and/or adjustably coupled to the upper portion, more specifically to the intermediate portion 230a, 230b, at the end opposite the lower end portion 210a, 210b.

[0036] The respective coupling devices 300a, 300b are now described in more detail with reference to Figs. 1B to 1D. Each coupling device 300a, 300b may be configured to magnetically couple and/or positively couple and/or non-positively couple the respective shoulder strap 200a, 200b to the respective adjacent face 130, 140. In embodiments, each coupling device 300a, 300b may be configured to magnetically and positively couple the respective shoulder strap 200a, 200b to the respective adjacent face 130, 140. As indicated in Figs. 1C and 1D, each coupling device 300a, 300b may comprise a protruding element 310a, 310b and a receiving element 320a, 320b releasably coupleable to each other. The respective protruding element 310a, 310b may be a male part. The respective receiving element 320a, 320b may be a female part. Each shoulder strap 200a, 200b may comprise the protruding element 310a, 310b and each adjacent face 130, 140 may comprise the receiving element, or vice versa. As shown in Figs. 1C and 1D, a first protruding element 310a may be connected to the left shoulder strap 200a. A second protruding element 310b may be connected to the right shoulder strap 200b. A first receiving element 320a may be connected to the left-side face 130. A second receiving element 320b may be connected to the right-side face 140. Each of the above protruding elements 310a, 310b and/or receiving elements 310 may be fixedly connected to the respective shoulder straps 200a, 200b and adjacent faces 130, 140. Based on the above features, a secure coupling of the respective shoulder straps to an adjacent face can be provided. Furthermore, facilitated coupling and/or decoupling of the respective shoulder strap to the adjacent face can be provided.

[0037] As shown in Figs. 1B to 1D, the respective protruding elements 310a, 310b or the respective receiving elements 320a, 320b may be connected, more specifically fixedly connected, to the intermediate portion 230a, 230b and/or proximate to the lower end portion 210a, 210b of each shoulder strap 200a, 200b. The other one of the protruding elements 310a, 310b and the receiving elements 320a, 320b may be connected, more specifically fixedly connected, to the respective adjacent face 130, 140, particularly to the respective adjacent face 130, 140 proximate a bottom edge 101 of the bag 100. Referring to Figs. 1B to 1D, the respective protruding element 310a, 310b or the respective receiving element 320a, 320b may be connected to a side 201a, 201b of the respective shoulder strap 200a, 200b which, in a wearing position 240, faces away from the bag 100 and which, in a carrying position 250, is directed towards the bag 100. The wearing position 240 and the carrying position 250 will be described in detail below.

[0038] Figs. 2A, 2B and 3 are a left-side view, a rear view and a front view of the backpack 10 according to the present disclosure with shoulder straps 200a, 200b in a carrying position 250. Fig. 4 is a more detailed rear view of the backpack 10 as shown in Fig. 1B with released shoulder straps 200a, 200b (i.e., the upper portion of the respective shoulder straps 200a, 200b is released (or decoupled) from the lower portion of the respective shoulder straps 200a, 200b).

[0039] As best shown in Figs. 2B and 4, each shoulder strap 200a, 200b is rotatable about the rotary bearing 400a, 400b from a wearing position 240 (see, Figs. 1A to 1D) to a carrying position 250 (see, Figs. 2A to 3). More specifically each shoulder strap 200a, 200b is movable towards the adj acent face 130, 140 (e.g., the respective side face) based on a rotation about the respective rotary bearing 400a, 400b. In some embodiments, the respective rotary bearings 400a, 400b may be pivot bearings. In the wearing position 240, each shoulder strap 200a, 200b may extend away from the rear face 120. In the carrying position 250, each shoulder strap 200a, 200b may substantially follow a contour of the bag 100 from the rear face 120 to the adjacent face 130, 140. More specifically, in the carrying position 250, each shoulder strap 200a, 200b may be releasably couplable to the adjacent face 120 by means of the coupling device

300a, 300b. In more detail, in the wearing position 240, the shoulder straps 200a, 200b may not be coupled to the adjacent faces 130, 140 and may extend away from the rear face 120, e.g., to be worn on a wearer's upper body. In the wearing position 240, the shoulder straps 200a, 200b may extend away from the bag 100, particularly from the rear face 120, in the intermediate portion 230a, 230b of the respective shoulder strap 200a, 200b. In the carrying position 250, the shoulder straps 200a, 200b may substantially abut the bag 100 and may be coupled to the respective adjacent face 130, 140 to hold (or secure) the abutment of the respective shoulder straps 200a, 200b relative to the bag 100. In other words, in the carrying position 250, each shoulder strap 200a, 200b may substantially follow an outer contour of the bag 100 from the respective rotary bearing 400a, 400b to the adjacent face 130, 140, more specifically to the respective coupling device 300a, 300b.

[0040] As indicated in Fig. 2B, from the wearing position 240 to the carrying position 250, each shoulder strap 200a, 200b can be rotated about the rotary bearing 400a, 400b by a rotation angle φ from 100° to 180°, more specifically from 130° to 160°. More specifically, the left shoulder strap 200a may be rotated about the rotary bearing 400a, 400b by a first rotation angle φ_1 from 100° to 180°, more specifically from 130° to 160°. The right shoulder strap 200a may be rotated about the rotary bearing 400a, 400b by a second rotation angle φ_2 from 100° to 180°, more specifically from 130° to 160°. Due to the rotation, each shoulder strap 200a, 200b can be positioned flat against the bag 100 and may then be coupled to the respective adjacent face 130, 140. Referring to Figs. 2B and 4, the left shoulder strap 200a may be rotated about the rotary bearing 400a counterclockwise towards the left-side face 130. The right shoulder strap 200b may be rotated about the rotary bearing 400b clockwise towards the right-side face 140.

[0041] Referring to Figs. 1B and 2B, in the wearing position 240, the upper end portion 220a, 220b of each shoulder strap 200a, 200b may be folded, i.e., in a folded state. In the carrying position 250, the upper end portion 220a, 220b of each shoulder strap 200a, 200b may be unfolded, i.e. in an unfolded state. More specifically, the respective upper end 220a, 220b may be unfolded by the rotation about the rotary bearing 400a, 400b from the wearing position 240 to the carrying position 250 as described above. As indicated in Fig. 4, each upper end portion 220a, 220b may comprise a plate-like structure having an increased rigidity (or stiffness) as compared to the intermediate portion 230a, 230b of each shoulder strap 200a, 200b. Thus, the upper end portion 220a, 220b may facilitate the handling of a rotation of each shoulder strap 200a, 200b about the respective rotary bearing 400a, 400b. In embodiments, each upper end portion 220a, 220b may comprise a hinge which may facilitate the transition from the folded state to the unfolded state. In embodiments, the hinge may be provided e.g., by material change (e.g., a change in rigidity) or a structural change (e.g., a change in thickness). Each hinge may be provided between the upper end portion 220a, 220b and the intermediate portion 230a, 230b. Since each upper end portion 220a, 220b can be unfolded from the wearing position 240 to the carrying position 250, the flat positioning (or abutment or contour following) of the respective shoulder strap 200a, 200b relative to the bag 100 can be provided.

[0042] Referring to Figs. 2B and 4, each shoulder strap 200a, 200b may comprise a first magnetic object 260a, 260b arranged proximate the upper end portion 220a, 220b. The bag 100 may comprise second magnetic objects 160a, 160b arranged on the rear face 120 for interacting with the respective first magnetic objects 260a, 260b. The respective second magnetic objects 160a, 160b may be disposed at positions on the rear face 120 such that the respective first magnetic objects 260a, 260b and second magnetic objects 160a, 160b may be magnetically coupled to each other when the respective shoulder strap 200a, 200b is in the carrying position 240. In embodiments, the first magnetic objects 260a, 260b and/or the second magnetic objects 160a, 160b may be permanent magnets (e.g., neodymium magnets). In some embodiments, the first magnetic objects 260a, 260b may be permanent magnets and the second magnetic objects 160a, 160b may comprise materials being magnetically attracted to the permanent magnets (e.g., ferromagnetic materials), or vice versa. The respective first magnetic objects 260a, 260b and second magnetic objects 160a, 160b may provide a releasable magnetic coupling. When the respective shoulder strap 200a, 200b is in the carrying position 250, the magnetic objects 160a, 160b, 260a, 260b may be attracted to each other to provide a retaining force for holding (or retaining) the respective shoulder strap 200a, 200b to the rear face 120. More specifically, in the carrying position 250, a first pair of magnetic objects 160a, 260a may be configured to hold (or retain) the left shoulder strap 200a against the rear face 120. In the carrying position 250, a second pair of magnetic objects 160b, 260b may be configured to hold (or retain) the right shoulder strap 200a against the rear face 120. Thus, a defined rotation position of the respective shoulder straps 200a, 200b relative to the rear face 120 (and/or the bag 100) can be achieved in the carrying position 250.

[0043] As shown in Figs. 2B and 4, the rotary bearings 400a, 400b are distanced from each other by a bearing distance d, measured between rotation axes of the respective rotary bearings 400a, 400b, particularly in the direction of the perpendicular axis y. The bag 100 comprises a width w measured between respective side faces 130, 140, particularly in the direction of the perpendicular axis y. The width w may be a maximum width of the bag 100 measured between the respective side faces 130, 140. In some embodiments, a ratio of the bearing distance d and the width w may be from 0,3 to 0,7, more specifically from 0,4 to 0,6. The ratio as described above may improve wearing comfort and/or ergonomics. Fur-

thermore, the handling of a rotation of each shoulder strap 200a, 200b about the respective rotary bearing 400a, 400b may be facilitated.

[0044] As indicated in Figs. 2B and 4, each rotary bearing 400a, 400b may comprise a pin element and a receptacle. The respective pin elements may protrude from the rear face 120. Each receptacle may formed in the upper end portion 220a, 220b of the respective shoulder strap 200a, 200b. However, in other embodiments, the respective pin elements may protrude from the upper end portions 220a, 220b and the rear face 120 may comprise the respective receptacles. Each pin element may be non-detachably received in the respective receptacle. In other words, the respective shoulder strap 200a, 200b may be non-detachably (but rotatably) connected at their upper end portions 220a, 220b to the respective pin elements. In embodiments, the respective receptacle may be provided as a through-hole arranged in the respective upper end portion 220a, 220b. The pin element may have a first diameter portion and a second diameter portion. The first diameter portion may be received in the receptacle (or through-hole). The second diameter portion may be larger than the first diameter portion and/or a diameter of the receptacle. The second diameter portion may be configured to retain the respective shoulder strap 200a, 200b to the bag 100, more specifically by preventing the respective upper end portions 220a, 220b from being retracted (and/or decoupled) from the respective pin elements. In some embodiments, and as already mentioned above, each rotary bearing 400a, 400b may be a pivot bearing.

[0045] As shown in Figs. 2B and 4, the bag 100 may comprise a surface structure 150 on the rear face 120. The surface structure 150 may be configured to provide a stop for each shoulder strap 200a, 200b to limit rotation thereof. In embodiments, the surface structure 150 may comprise a pair of slanted edges 151a, 151b proximate the respective rotary bearings 400a, 400b. The respective slanted edges 151a, 151b may be arranged relative to the respective rotary bearings 400a, 400b such that respective stops are provided which, when moving the respective shoulder strap 200a, 200b from the wearing position 240 to the carrying position 250, to limit (or at least inhibit further) rotation of the respective shoulder strap 200a, 200b about the respective rotary bearing 400a, 400b. In other words, the slanted edges 151a, 151b may provide stops to limit rotation of the respective shoulder straps 200a, 200b. More specifically, the slanted edges 151a, 151b may provide stops to limit a rotation of the respective shoulder straps 200a, 200b which might exceed the rotation angles φ, φ_1, φ_2 as defined above. Furthermore, the slanted edges 151a, 151b may define a rotation position of the respective shoulder straps 200a, 200b (more specifically in the carrying position 250), in which the first pair of magnetic objects 160a, 260a and/or the second pair of magnetic objects 160b, 260b are attracted to each other to hold (or retain) the respective shoulder straps 200a, 200b to the rear face 120. In embodiments, the surface structure 150 may comprise a foam material which may lead to increased comfort when the backpack 10 is worn on a wearer's back. As indicated in Fig. 2B, in the carrying position 250, the respective shoulder straps 200a, 200b may substantially (or at least partially) follow a contour of the slanted edges 151a, 151b.

[0046] Referring to Figs. 1C and 4, the surface structure 150 may comprise a first region 152a, 152b of a first thickness t1 and a second region 153a, 153b, 153c of a second thickness t2. The first thickness t1 and the second thickness t2 may be measured in the direction of the thickness axis z. The first thickness t1 may be larger than the second thickness t2. The pair of slanted edges 151a, 151b may be formed between the first region 152a, 152b and the second region 153a, 153b. In embodiments, the surface structure 150 may comprise a rectangular shape. The surface structure may be provided on the rear face 120 between the bottom edge 101 and the rotary bearings 400a, 400b in the direction of the longitudinal axis x. As indicated in Fig. 4, the first region 152a, 152b may comprise at least two longitudinal strips extending in the direction of the longitudinal axis x (or longitudinal direction) of the backpack 10. The at least two longitudinal strips may extend substantially parallel to each other and may be distanced from each other with respect to the perpendicular direction y. The second region 153a, 153b, 153c may comprise a first partial region 153c between the at least two longitudinal strips and second partial regions 153a, 153b at respective upper edges of the surface structure 150. In some embodiments, each second partial region 153a, 153b at the respective upper edge may comprise a substantially triangular shape. The slanted edges 151a, 151b may be defined between the respective first region 152a, 152b and the respective second partial regions 153a, 153b at the respective upper edges of the surface structure 150. With respect to Fig. 4, a left slanted edge 151 may be defined at a left upper edge of the surface structure 150. The left slanted edge 151 may be defined between the second partial region 151a at the left upper edge and the first region 152a (adjacent the left-side face 130). A right slanted edge 151 may be defined at a right upper edge of the surface structure 150. The right slanted edge 151 may be defined between the second partial region 151b at the right upper edge and the first region 152b (adjacent the right-side face 130). As indicated in Fig. 4, the respective second magnetic objects 160a, 160b may be arranged in the respective second partial regions 153a, 153b, more specifically at the left upper edge and the right upper edge of the surface structure 150. More specifically, the respective second magnetic objects 160a, 160b may be arranged in the respective second partial regions 153a, 153b between the respective upper edges and the respective slanted edges 151a, 151b. Thus, in the carrying position 250, the first pair of magnetic objects 160a, 260a and/or the second pair of magnetic objects 160b, 260b may be substantially adjacent (and/or coaxial) with re-

spect to other.

[0047] Referring to Figs. 1C and 4, each shoulder strap 200a, 200b may comprise a shoulder strap thickness t3. The shoulder strap thickness t3 may be measured in the intermediate portion 230a, 230b of the respective shoulder strap 200a, 200b proximate the upper end portion 220a, 220b. The sum of the shoulder strap thickness t3 and the second thickness t2 may be approximately equal to the first thickness t1. This can lead to a substantially flat arrangement of the shoulder straps 200a, 200b and the first region 152a, 152b on the rear face 120 when the shoulder straps 200a, 200b are in the carrying position 250. Thereby, a handling of the backpack 10 during carriage can be improved and safety can be increased.

[0048] Referring back to Fig. 1B, the backpack 10 is illustrated in the wearing position 240. Viewed from the upper end portion 220a, 220b towards the lower end portion 210a, 210b, each shoulder strap 200a, 200b may comprise a substantially linear shape followed by a curved shape. The curved shape may be curved towards the respective adjacent face 130, 140 (more specifically in the wearing position 250). The curved shape may lead to improved ergonomics when wearing the backpack 10. In addition, an improved abutment of the respective shoulder straps 200a, 200b relative to the bag 100 can be provided when the shoulder straps 200a, 200b are in the carrying position 250 (and coupled to the respective adjacent face 130, 140).

[0049] Referring to Figs. 1B, 3 and 4, the backpack 10 may further comprise a chest strap 500 which may be connected at its respective ends to the respective shoulder straps 200a, 200b. The chest strap 500 may comprise a first chest strap portion 510 and a second chest strap portion 520 which may be releasably couplable to each other. The first chest strap portion 510 may be fixedly connected to the left shoulder strap 200a. The second chest strap portion 510 may be fixedly connected to the right shoulder strap 200b. The respective chest strap portions 510, 520 may be connected to the respective shoulder straps 200a, 200b such that they are directed to each other in the wearing position 240 (see, e.g., Fig. 1B). In embodiments, a length of the chest strap 500 may be configured and/or adjustable such that, in the wearing position 240, the first chest strap portion 510 and second chest strap portion 520 may be couplable to each other around a wearer's chest. A length of the chest strap 500 may be configured and/or adjustable such that, in the carrying position 250, the first chest strap portion 510 and the second strap portion 520 may be couplable to each other around the front face 110 of the bag 100. This can provide improved securement of the respective shoulder strap 200a, 200b relative to the bag 100 in the carrying position 250. Furthermore, when carrying the backpack 10 by another device 20, safety can be increased.

[0050] As indicated in Figs. 1B, 2B and 4, the backpack may comprise a first coupling member 31 connected to the rear face 120. The first coupling member 31 may be configured to releasably couple the backpack 10 to a carrying device 20. More specifically, the first coupling member 31 may be connected to the rear face 120 between the respective rotary bearings 400a, 400b and/or above the respective rotary bearings 400a, 400b. This connection position of the first coupling member 31 on the rear face 120 may lead to increased balance when carrying the backpack 10 (e.g., with a bicycle) and/or may facilitate coupling of the backpack 10 to the carrying device 20. The first coupling member 31 will be explained in more detail below with respect to the carrying system 1.

[0051] As shown, e.g., in Figs. 1B and 2B, the backpack 10 may comprise a carrying handle 600 connected to the rear face 120 adjacent the top edge 102 of the bag 100. More specifically, the carrying handle 600 may be connected to the rear face 120 between the rear face 120 and the rotary bearings 400a, 400b. In an example, the respective ends of the carrying handle 600 may be attached to the respective pin elements protruding from the rear face 120. The respective ends of the carrying handle may thus be sandwiched between the rear face 120 and the respective upper end portions 220a, 220b, which in turn are non-detachably (but rotatably) coupled to respective pin elements.

[0052] Figs. 5A and 5B are schematic views of a carrying system 1 according to a second aspect of the present disclosure. The carrying system 1 comprises a carrying device 20 and a backpack 10 according to the first aspect of the present disclosure. The backpack is releasably coupled to the carrying device 20. Due to the rotary bearing(s) 400a, 400b, each shoulder strap 200a, 200b can be rotated from the wearing position 240 to the carrying (or resting or securing) position 250. The releasable coupling of each shoulder strap 200a, 200b to the adjacent face 130, 140 of the respective shoulder strap 200a, 200b may allow fixation (and/or securement) of the shoulder straps 200a, 200b in the carrying position 250. Thus, due to the combined provision of the rotary bearings 400a, 400b and the coupling devices 300a, 300b, the shoulder straps 200a, 200b can be held in a defined carrying position 250 relative to the bag 100, e.g., when the bag (more specifically the backpack 10) is to be coupled to another device and/or carried by another device, in which shoulder straps 200a, 200b may be provided more tightly to the rear face 120 or backside of the backpack 10. In such an arrangement, the risk of the shoulder straps negatively interfering with the other device (e.g. the spokes of a bicycle) may be reduced. In addition, the rotary bearing(s) 400a, 400b and the coupling device(s) 300a, 300b can provide improved ergonomics and handling of the backpack 10, particularly when the shoulder straps 200a, 200b are moved from the wearing position 240 to the carrying position 250. Thus, when the backpack 10 is coupled to a carrying device 20, handling of the backpack 10 can be improved and/or facilitated.

[0053] The coupling device 300a, 300b as described above may be a first coupling device. As indicated in Figs. 5A and 5B, the backpack 10 may be releasably

coupled to the carrying device 20 by means of a second coupling device 30. More specifically, the second coupling device 30 may comprise the first coupling element 31 as described above and a second coupling element 32. In some embodiments, the first coupling element 31 may be a male coupling element and the second coupling element 32 may be a female coupling element, or vice versa. The second coupling device 30 may be configured to magnetically couple and/or positively couple and/or non-positively couple the backpack 10 to the carrying device 20. In embodiments, the first coupling element 31 may be fixedly connected to the backpack 10. The second coupling element 32 may be releasably or fixedly connected to the carrying device 20.

[0054] In embodiments, the carrying device 20 may be a bicycle. More specifically, as shown in Figs. 5A and 5B, the carrying device 20 may be a luggage carrier of a bicycle. As shown in the embodiment of Fig. 5A, the backpack 10 may be releasably coupled to a top portion of the luggage carrier. As shown in the embodiment of Fig. 5B, the backpack 10 may be releasably coupled to a side portion of the luggage carrier. Although not shown in the Figs., a plurality of backpacks 10 (e.g., two, three, four or more backpacks) according to the first aspect of the present disclosure may be provided. Each backpack of the plurality of backpacks 10 may be releasably coupled to the carrying device 20 as described above. In embodiments, a first backpack may be releasably coupled to a first side portion of the luggage carrier, and at least one second backpack may be releasably coupled to, e.g., a second side portion of the luggage carrier opposite the first side portion, and/or the top portion of the luggage carrier.

[0055] A third aspect of the present disclosure relates to a use of a backpack 10 according to the first aspect of the present disclosure for coupling the backpack 10 to a carrying device 20, in particular to a luggage carrier of a bicycle.

[0056] Although the present invention has been described above and is defined in the attached claims, it should be understood that the invention may alternatively be defined in accordance with the following embodiments:

1. A backpack (10), comprising:

   a bag (100) comprising a rear face (120) for contacting a wearer's back,
   a pair of shoulder straps (200a, 200b), wherein each shoulder strap (200a, 200b) comprises a lower end portion (210a, 210b) and an upper end portion (220a, 220b) which are respectively connected to the rear face (120),
   characterized in that each shoulder strap (200a, 200b) is rotatably connected to the rear face (120) at its upper end portion (220a, 220b) by means of a rotary bearing (400a, 400b), and
   in that each shoulder strap (200a, 200b) is releasably couplable to an adjacent face (130, 140) of the bag (100) by means of a coupling device (300a, 300b).

2. The backpack (10) according to embodiment 1, wherein the adjacent face (130, 140) is an adjacent side face (130, 140) of the bag (100).

3. The backpack (10) according to embodiment 1 or embodiment 2, wherein each coupling device (300a, 300b) is configured to magnetically couple and/or positively couple and/or non-positively couple the respective shoulder strap (200a, 200b) to the respective adjacent face (130, 140).

4. The backpack (10) according to any one of embodiments 1 to 3, wherein each coupling device (300a, 300b) comprises a protruding element (310a, 310b) and a receiving element (320a, 320b) releasably couplable to each other.

5. The backpack (10) according to embodiment 4, wherein each shoulder strap (200a, 200b) comprises the protruding element (310a, 310b) or the receiving element (320a, 320b), and wherein each adjacent face (130, 140) comprises the other one of the protruding element (310a, 310b) and the receiving element (320a, 320b).

6. The backpack (10) according to embodiment 4 or embodiment 5, wherein the protruding element (310a, 310b) or the receiving element (320a, 320b) is connected to an intermediate portion (230a, 230b) and/or proximate to the lower end portion (210a, 210b) of each shoulder strap (200a, 200b), and more specifically wherein the other one of the protruding element (310a, 310b) and the receiving element (320a, 320b) is connected to each adjacent face (130, 140) proximate a bottom edge (101) of the bag (100).

7. The backpack (10) according to any one of the preceding embodiments, wherein each shoulder strap (200a, 200b) is rotatable about the rotary bearing (400a, 400b) from a wearing position (240) to a carrying position (250), more specifically wherein each shoulder strap (200a, 200b) is movable towards the adjacent face (130, 140) based on a rotation about the respective rotary bearing (400a, 400b).

8. The backpack (10) according to embodiment 7, wherein from the wearing position (240) to the carrying position (250), each shoulder strap (200a, 200b) is rotated about the rotary bearing (400a, 400b) by a rotation angle (φ) from 100° to 180°, more specifically from 130° to 160°.

9. The backpack (10) according to embodiment 7 or embodiment 8, wherein in the wearing position (240), each shoulder strap (200a, 200b) extends away from the rear face (120), and wherein in the carrying position (250), each shoulder strap (200a, 200b) substantially follows a contour of the bag (100) from the rear face (120) to the adjacent face (130, 140), more specifically wherein in the carrying position (250), each shoulder strap (200a, 200b) is releasably couplable to the adjacent face (120) by means of the coupling device (300a, 300b).

10. The backpack (10) according to any one of embodiments 7 to 9, wherein the upper end portion (220a, 220b) of each shoulder strap (200a, 200b) is folded in the wearing position (240), and wherein the upper end portion (220a, 220b) of each shoulder strap (200a, 200b) is unfolded in the carrying position (250).

11. The backpack (10) according to any one of embodiments 7 to 10, when dependent on embodiment 5, wherein the protruding element (310a, 310b) or the receiving element (320a, 320b) is connected to a side (201a, 201b) of the respective shoulder strap (200a, 200b) which, in the wearing position (240), faces away from the bag (100) and which, in the carrying position (250), is directed towards the bag (100).

12. The backpack (10) according to any one of the preceding embodiments, wherein each shoulder strap (200a, 200b) comprises a first magnetic object (260a, 260b) arranged proximate the upper end portion (220a, 220b), and wherein the bag (100) comprises a respective second magnetic objects (160a, 160b) arranged on the rear face (120) such that the respective first magnetic objects (260a, 260b) and the respective second magnetic objects (160a, 160b) are magnetically coupled to each other when the respective shoulder strap (200a, 200b) is in the carrying position (250).

13. The backpack (10) according to any one of the preceding embodiments, wherein the rotary bearings (400a, 400b) are distanced from each other by a bearing distance (d) measured between rotation axes of the respective rotary bearings (400a, 400b), and wherein the bag (100) comprises a width (w) measured between respective side faces (130, 140), wherein a ratio of the bearing distance (d) and the width (w) is from 0,3 to 0,7, more specifically from 0,4 to 0,6.

14. The backpack (10) according to any one of the preceding embodiments, wherein each rotary bearing (400a, 400b) comprises a pin element and a receptacle, wherein each pin element protrudes from the rear face (120) and wherein each receptacle is formed in the upper end portion (220a, 220b) of the respective shoulder strap (200a, 200b), more specifically wherein each pin element is non-detachably received in the respective receptacle.

15. The backpack (10) according to any one of the preceding embodiments, wherein the bag (100) comprises a surface structure (150) on the rear face (120), wherein the surface structure (150) comprises a pair of slanted edges (151a, 151b) proximate the respective rotary
bearings (400a, 400b).

16. The backpack (10) according to embodiment 15, when dependent on embodiment 7, wherein the respective slanted edges (151a, 151b) are arranged relative to the respective rotary bearings (400a, 400b) such that respective stops are provided which, when moving the respective shoulder strap (200a, 200b) from the wearing position (240) to the carrying position (250), limit rotation of the respective shoulder strap (200a, 200b) about the respective rotary bearing (400a, 400b).

17. The backpack (10) according to embodiment 15 or embodiment 16, wherein the surface structure (150) comprises a first region (152a, 152b) of a first thickness (t1) and a second region (153a, 153b, 153c) of a second thickness (t2), wherein the first thickness (t1) is larger than the second thickness (t2), and wherein the pair of slanted edges (151a, 151b) are formed between the first region (152a, 152b) and the second region (153a, 153b, 153c).

18. The backpack (10) according to embodiment 17, wherein the first region (152a, 152b) comprises at least two longitudinal strips extending in a longitudinal direction of the backpack (10), and wherein the second region comprises a first partial region (153c) between the at least two longitudinal strips and a second partial region (153a, 153b) at respective upper edges of the surface structure (150).

19. The backpack (10) according to embodiment 18, when dependent on embodiment 12, wherein the each second magnetic object (160a, 160b) is arranged in the second partial region (153a, 153b).

20. The backpack (10) according to any one of embodiments 17 to 19, wherein each shoulder strap (200a, 200b) comprises a shoulder strap thickness (t3), and wherein the sum of the strap thickness (t3) and the second thickness (t2) is approximately equal to the first thickness (11).

21. The backpack (10) according to any one of the preceding embodiments, wherein, from the upper

end portion (220a, 220b) towards the lower end portion (210a, 210b), each shoulder strap (200a, 200b) comprises a substantially linear shape followed by a curved shape, more specifically wherein the curved shape is curved towards the respective adjacent face (130, 140).

22. The backpack (10) according to any one of the preceding embodiments, wherein the backpack (10) further comprises a chest strap (500) which is connected at its respective ends to the respective shoulder straps (200a, 200b), wherein the chest strap (500) comprises a first chest strap portion (510) and a second chest strap portion (520) which are releasably couplable to each other.

23. The backpack (10) according to embodiment 22, wherein a length of the chest strap (500) is configured and/or adjustable such that in the wearing position (240), the first chest strap portion (510) and second chest strap portion (520) are couplable to each other around a wearer's chest, and such that, in the carrying position (250), the first chest strap portion (510) and the second strap portion (520) are couplable to each other around a front face (110) of the bag (100).

24. The backpack (10) according to any one of the preceding embodiments, wherein the backpack (10) comprises a first coupling member (31) connected to the rear face (120), wherein the first coupling member (31) is configured to releasably couple the backpack (10) to a carrying device (20), more specifically wherein the first coupling member (31) is connected to the rear face (120) between the respective rotary bearings (400a, 400b) and/or above the respective rotary bearings (400a, 400b).

25. The backpack (10) according to any one of the preceding embodiments, wherein the backpack (10) comprises a carrying handle (600) connected to the rear face (120) adjacent a top edge (102) of the bag (100), more specifically wherein the carrying handle (600) is connected to the rear face (120) between the rear face (120) and the rotary bearings (400a, 400b).

26. The backpack (10) according to any one of the preceding embodiments, wherein each shoulder strap (200a, 200b) comprises a lower portion comprising the lower end portion (210a, 210b), an upper portion comprising the upper end portion (220a, 220b) and an intermediate portion (230a, 230b), wherein the lower portion is fixedly connected to the rear face (120) at the lower end portion (210a, 210b), and wherein the lower portion is releasably and/or adjustably coupled to the upper portion, more specifically, to the intermediate portion (230a, 230b).

27. The backpack (10) according to any one of the preceding embodiments, wherein the bag (100) comprises an opening (180) and wherein the backpack (10) comprises a closure device (700) configured to close the opening (180).

28. The backpack (10) according to embodiment 27, wherein the bag (100) comprises a foldable portion (170) adjacent a top edge (102), wherein in a folded position, the opening (180) is closed, and wherein the closure device (700) is configured to retain the foldable portion in the folded position.

29. A carrying system (1), comprising:

a carrying device (20), and
a backpack (10) according to any one of the preceding embodiments,
wherein the backpack (10) is releasably coupled to the carrying device (20).

30. The carrying system (1) according to embodiment 29, wherein the coupling device (300a, 300b) is a first coupling device, and wherein the backpack (10) is releasably coupled to the carrying device (20) by means of a second coupling device (30), more specifically wherein the second coupling device (30) comprises a first coupling element (31) and a second coupling element (32).

31. The carrying system (1) according to embodiment 30, wherein the first coupling element (31) is fixedly connected to the backpack (10), and wherein the second coupling element (32) is releasably or fixedly connected to the carrying device (20).

32. The carrying system (1) according to any one of embodiments 29 to 31, wherein the carrying device (20) is a bicycle, more specifically wherein the carrying device (20) is a luggage carrier of a bicycle.

33. Use of a backpack (10) according to any one of embodiments 1 to 28 for coupling the backpack (10) to a carrying device (20), in particular to a luggage carrier of a bicycle.

REFERENCE NUMERALS

[0057]

x	longitudinal axis
y	perpendicular axis
z	thickness axis
d	bearing distance
w	width
t1	first thickness
t2	second thickness
t3	shoulder strap thickness

φ	rotation angle
1	carrying system
10	backpack
20	carrying device
30	second coupling device
31	first coupling member
32	second coupling member
100	bag
101	bottom edge
102	top edge
110	front face
120	rear face
130	adjacent face, left-side face
140	adjacent face, right-side face
150	surface structure
151a, b	pair of slanted edges
152a, b	first region
153a, b, c	second region
160a, b	second magnetic objects
180	opening
170	closure device
200a, b	shoulder straps
201a, b	shoulder strap side
210a, b	lower end portions
220a, b	upper end portions
230a, b	intermediate portions
240	wearing position
250	carrying position
260a, b	first magnetic object
300a, b	(first) coupling device
310a, b	protruding element
320a, b	receiving element
400a, b	rotary bearings
500	chest strap
510	first chest strap portion
520	second chest strap portion
600	carrying handle

Claims

1. A backpack (10), comprising:

a bag (100) comprising a rear face (120) for contacting a wearer's back,
a pair of shoulder straps (200a, 200b), wherein each shoulder strap (200a, 200b) comprises a lower end portion (210a, 210b) and an upper end portion (220a, 220b) which are respectively connected to the rear face (120),
characterized in that each shoulder strap (200a, 200b) is rotatably connected to the rear face (120) at its upper end portion (220a, 220b) by means of a rotary bearing (400a, 400b), and **in that** each shoulder strap (200a, 200b) is releasably couplable to an adjacent face (130, 140) of the bag (100) by means of a coupling device (300a, 300b).

2. The backpack (10) according to claim 1, wherein the adjacent face (130, 140) is an adjacent side face (130, 140) of the bag (100), more specifically wherein each coupling device (300a, 300b) is configured to magnetically couple and/or positively couple and/or non-positively couple the respective shoulder strap (200a, 200b) to the respective adjacent face (130, 140).

3. The backpack (10) according to claim 1 or claim 2, wherein each coupling device (300a, 300b) comprises a protruding element (310a, 310b) and a receiving element (320a, 320b) releasably couplable to each other, more specifically wherein each shoulder strap (200a, 200b) comprises the protruding element (310a, 310b) or the receiving element (320a, 320b) and wherein each adjacent face (130, 140) comprises the other one of the protruding element (310a, 310b) and the receiving element (320a, 320b).

4. The backpack (10) according to claim 3, wherein the protruding element (310a, 310b) or the receiving element (320a, 320b) is connected to an intermediate portion (230a, 230b) and/or proximate to the lower end portion (210a, 210b) of each shoulder strap (200a, 200b), and more specifically wherein the other one of the protruding element (310a, 310b) and the receiving element (320a, 320b) is connected to each adjacent face (130, 140) proximate a bottom edge (101) of the bag (100).

5. The backpack (10) according to any one of the preceding claims, wherein each shoulder strap (200a, 200b) is rotatable about the rotary bearing (400a, 400b) from a wearing position (240) to a carrying position (250), more specifically wherein each shoulder strap (200a, 200b) is movable towards the adjacent face (130, 140) based on a rotation about the respective rotary bearing (400a, 400b).

6. The backpack (10) according to claim 5, wherein from the wearing position (240) to the carrying position (250), each shoulder strap (200a, 200b) is rotated about the rotary bearing (400a, 400b) by a rotation angle (φ) from 100° to 180°, more specifically from 130° to 160°.

7. The backpack (10) according to claim 5 or claim 6, wherein in the wearing position (240), each shoulder strap (200a, 200b) extends away from the rear face (120), and wherein in the carrying position (250), each shoulder strap (200a, 200b) substantially follows a contour of the bag (100) from the rear face (120) to the adjacent face (130, 140), more specifically wherein in the carrying position (250), each shoulder strap (200a, 200b) is releasably couplable

to the adjacent face (120) by means of the coupling device (300a, 300b).

8. The backpack (10) according to any one of claims 5 to 7, when dependent on claim 3, wherein the protruding element (310a, 310b) or the receiving element (320a, 320b) is connected to a side (201a, 201b) of the respective shoulder strap (200a, 200b) which, in the wearing position (240), faces away from the bag (100) and which, in the carrying position (250), is directed towards the bag (100).

9. The backpack (10) according to any one of the preceding claims, wherein each shoulder strap (200a, 200b) comprises a first magnetic object (260a, 260b) arranged proximate the upper end portion (220a, 220b), and wherein the bag (100) comprises respective second magnetic objects (160a, 160b) arranged on the rear face (120) such that the respective first magnetic objects (260a, 260b) and second magnetic objects (160a, 160b) are magnetically coupled to each other when the respective shoulder strap (200a, 200b) is in the carrying position (250).

10. The backpack (10) according to any one of the preceding claims, wherein each rotary bearing (400a, 400b) comprises a pin element and a receptacle, wherein each pin element protrudes from the rear face (120) and wherein each receptacle is formed in the upper end portion (220a, 220b) of the respective shoulder strap (200a, 200b), more specifically wherein each pin element is non-detachably received in the respective receptacle.

11. The backpack (10) according to any one of claims 5 to 10, wherein the bag (100) comprises a surface structure (150) on the rear face (120), wherein the surface structure (150) comprises a pair of slanted edges (151a, 151b) proximate the respective rotary bearings (400a, 400b), more specifically wherein the respective slanted edges (151a, 151b) are arranged relative to the respective rotary bearings (400a, 400b) such that respective stops are provided which, when moving the respective shoulder strap (200a, 200b) from the wearing position (240) to the carrying position (250), limit rotation of the respective shoulder strap (200a, 200b) about the respective rotary bearing (400a, 400b).

12. The backpack (10) according to any one of the preceding claims, wherein the backpack (10) comprises a first coupling member (31) connected to the rear face (120), wherein the first coupling member (31) is configured to releasably couple the backpack (10) to a carrying device (20), more specifically wherein the first coupling member (31) is connected to the rear face (120) between the respective rotary bearings (400a, 400b) and/or above the respective rotary bearings (400a, 400b).

13. A carrying system (1), comprising:

a carrying device (20), and
a backpack (10) according to any one of the preceding claims,
wherein the backpack (10) is releasably coupled to the carrying device (20).

14. The carrying system (1) according to claim 13, wherein the carrying device (20) is a bicycle, more specifically wherein the carrying device (20) is a luggage carrier of a bicycle.

15. Use of a backpack (10) according to any one of claims 1 to 12 for coupling the backpack (10) to a carrying device (20), in particular to a luggage carrier of a bicycle.

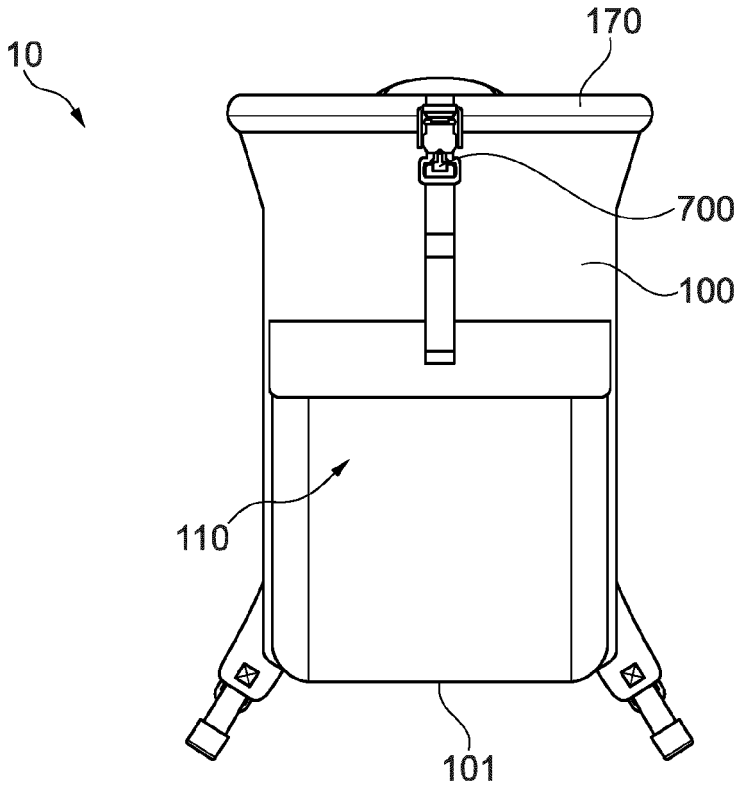

10
170
700
100
110
101

Fig. 1A

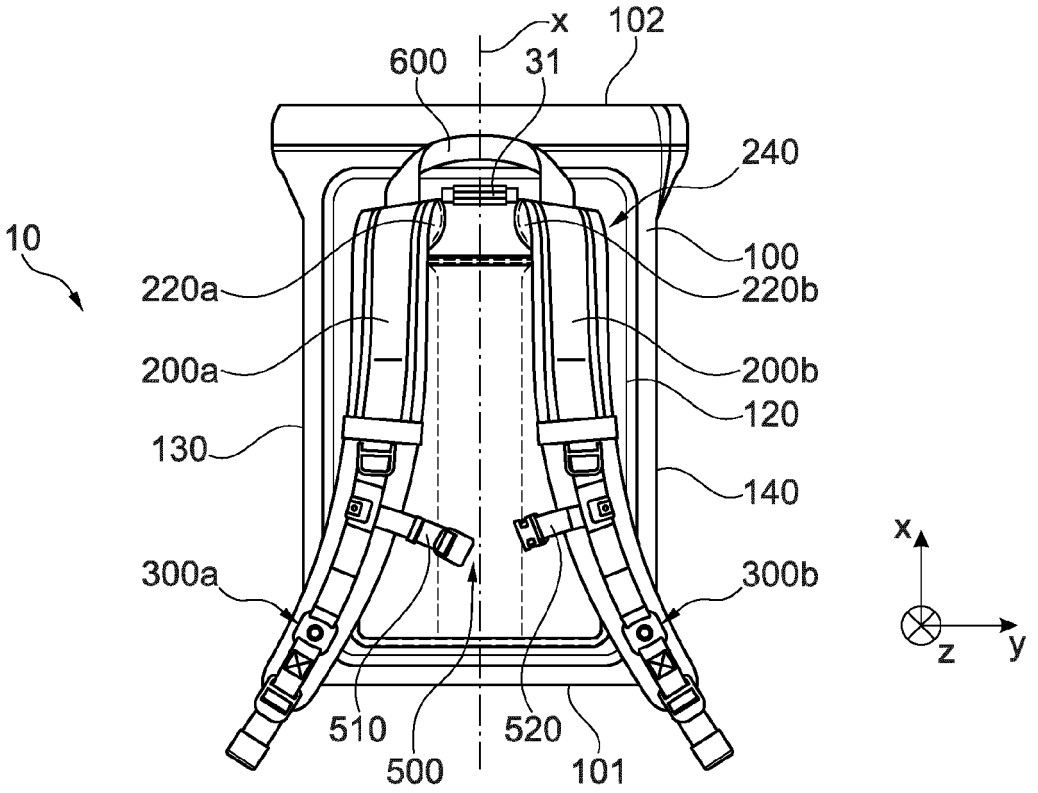

10
x
102
600
31
240
100
220b
220a
200a
200b
120
130
140
300a
300b
510
500
520
101
x
z
y

Fig. 1B

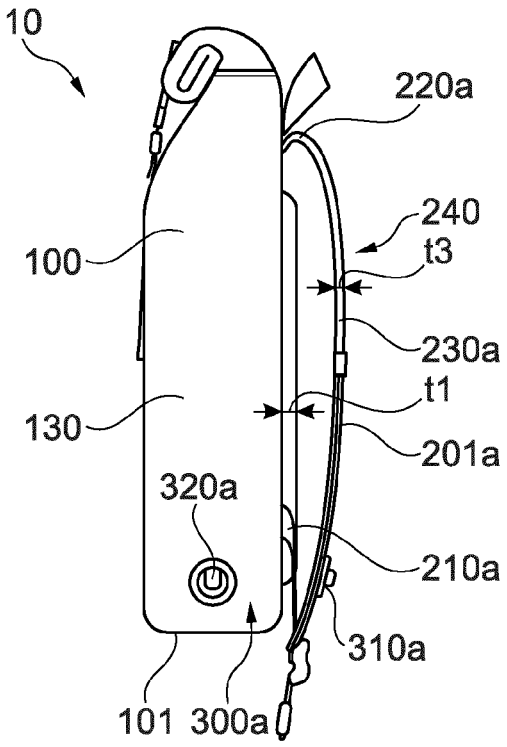


Fig. 1C

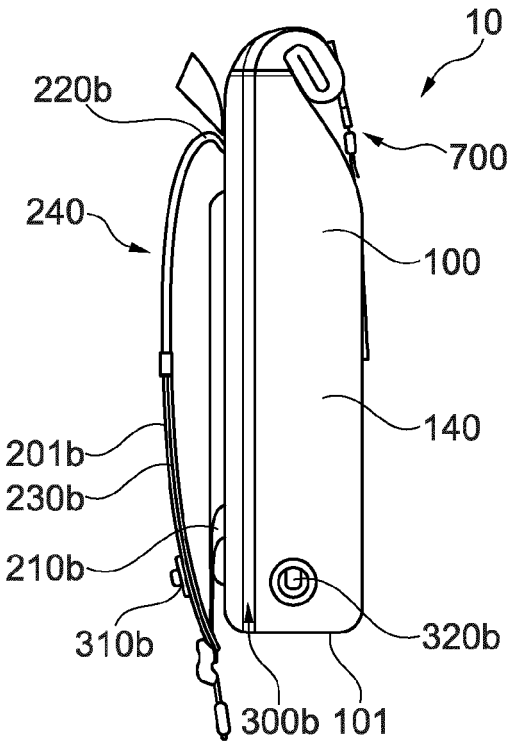


Fig. 1D

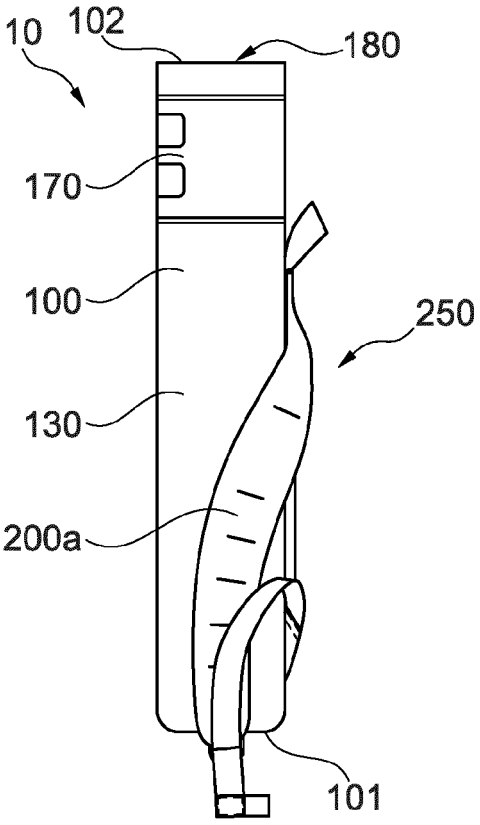


Fig. 2A

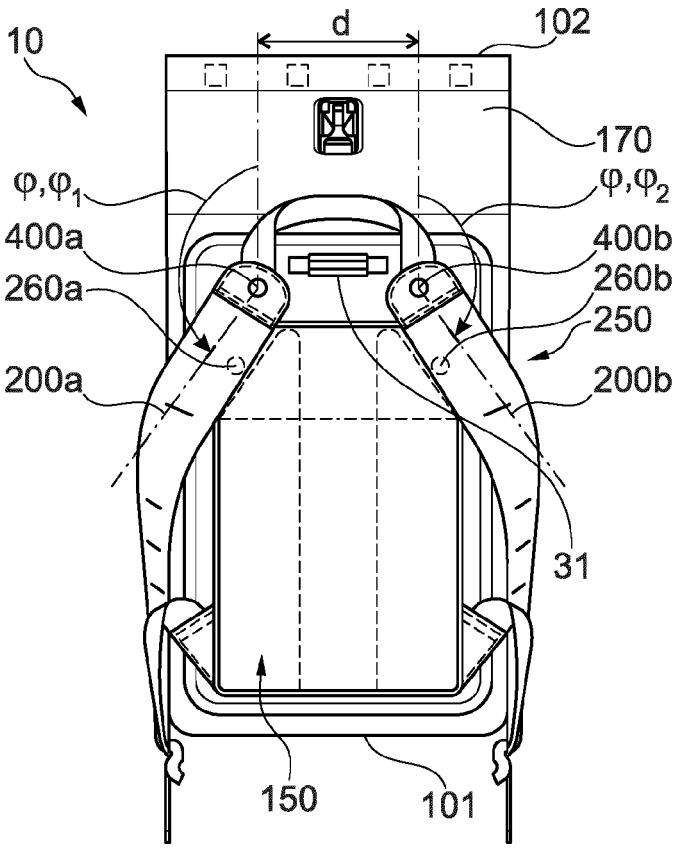


Fig. 2B

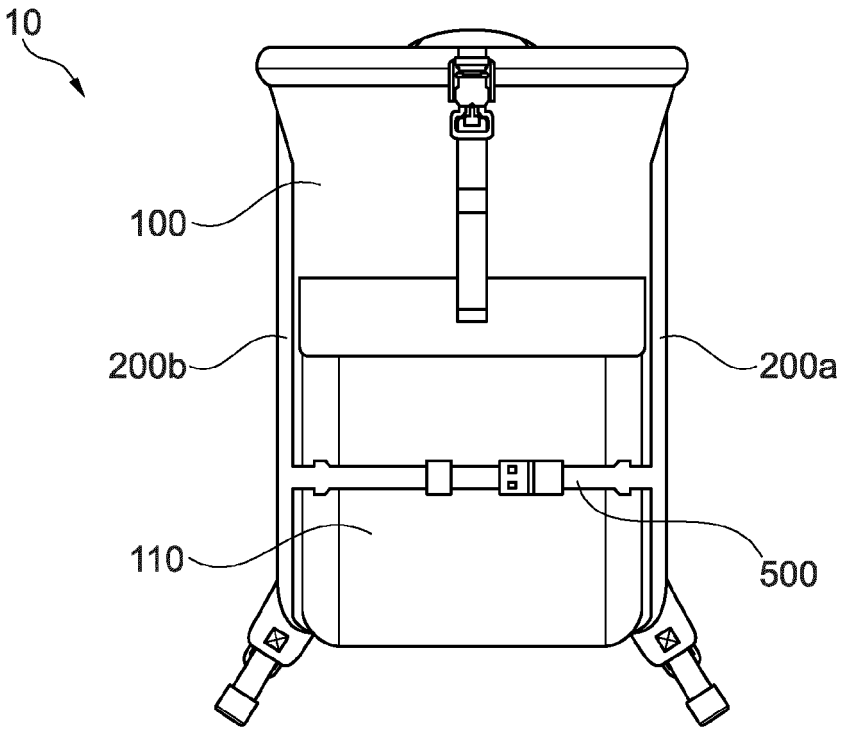
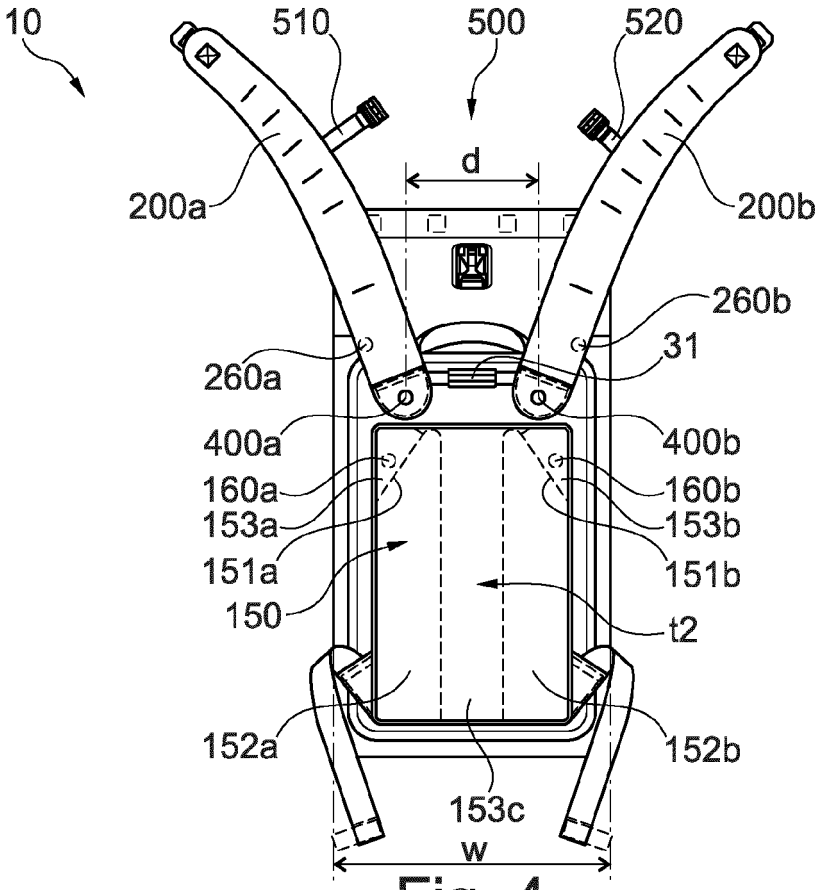

10
100
200b
200a
110
500

Fig. 3


10
510
500
520
d
200a
200b
260b
31
260a
400a
400b
160a
160b
153a
153b
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t2
152a
152b
153c
w

Fig. 4

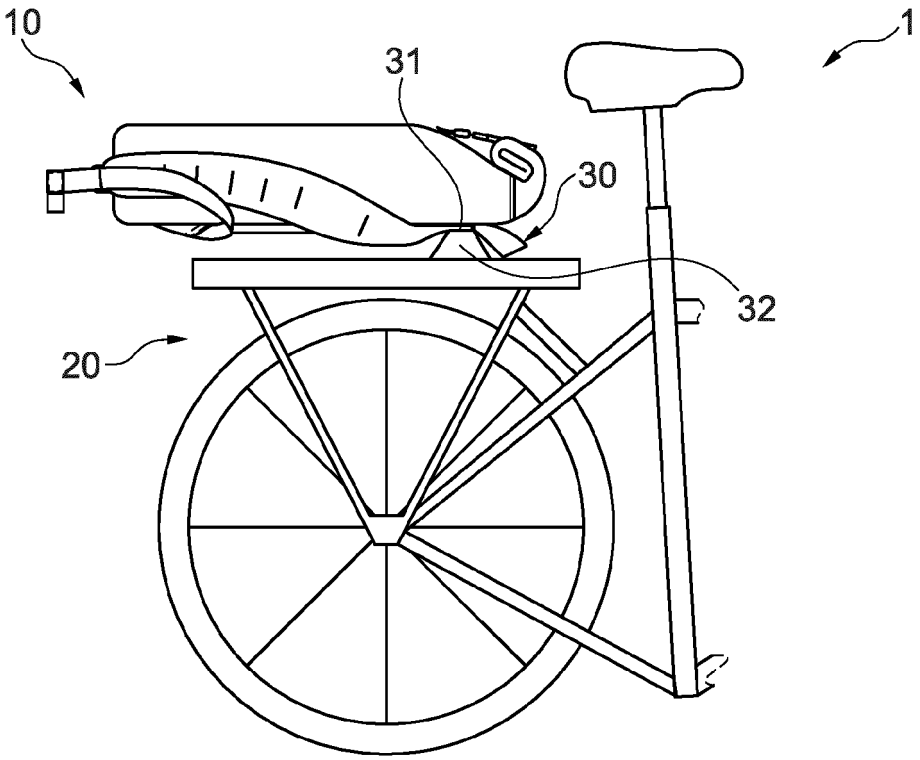

Fig. 5A

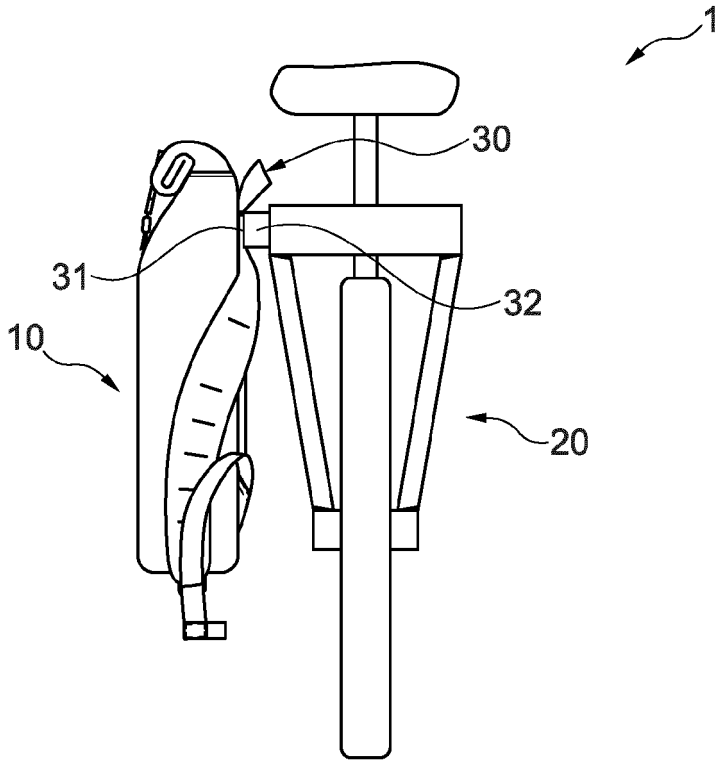

Fig. 5B

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EUROPEAN SEARCH REPORT

Application Number
EP 23 15 5648

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	CN 215 125 218 U (XIAMEN GEMEITE TECH CO LTD) 14 December 2021 (2021-12-14) * the whole document *	1-15	INV. A45F3/04 A45C15/00
A	US 2004/065708 A1 (AMRAM FRED M B [US]) 8 April 2004 (2004-04-08) * paragraphs [0054] - [0075]; figures *	1-15	
A	CA 2 425 216 A1 (LOVETT TERRY [US]) 26 October 2003 (2003-10-26) * figures *	13-15	

TECHNICAL FIELDS SEARCHED (IPC)

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	10 July 2023	Dinescu, Daniela

CATEGORY OF CITED DOCUMENTS

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L : document cited for other reasons

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10-07-2023

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EPO FORM P0459

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