US012383076B2

(12) **United States Patent**
Fan

(10) **Patent No.: US 12,383,076 B2**
(45) **Date of Patent: *Aug. 12, 2025**

(54) **CHILD CARRIER**

(71) Applicant: **Wonderland Switzerland AG**, Steinhausen (CH)

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(73) Assignee: **WONDERLAND SWITZERLAND AG**, Steinhausen (CH)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 500 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **17/856,172**

(22) Filed: **Jul. 1, 2022**

(65) **Prior Publication Data**

US 2022/0330716 A1 Oct. 20, 2022

Related U.S. Application Data

(63) Continuation of application No. 17/140,537, filed on Jan. 4, 2021, now Pat. No. 11,406,201, which is a (Continued)

(30) **Foreign Application Priority Data**

Apr. 19, 2018 (CN) 201810355370.5
May 31, 2018 (CN) 201810549110.1

(51) **Int. Cl.**
A47D 13/02 (2006.01)

(52) **U.S. Cl.**
CPC ***A47D 13/025*** (2013.01)

(58) **Field of Classification Search**
CPC A47D 13/02; A47D 13/025; A61G 1/00; A41D 2400/482
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,149,687 A * 4/1979 Nunemacher A47D 13/025 224/159
4,434,920 A * 3/1984 Moore A47D 13/025 224/160

(Continued)

FOREIGN PATENT DOCUMENTS

AU 2013378673 A1 9/2015
CA 2870491 A1 8/2014

(Continued)

OTHER PUBLICATIONS

Decision of Rejection for corresponding Korean Application No. 10-2024-0012560 mailed Oct. 7, 2024.

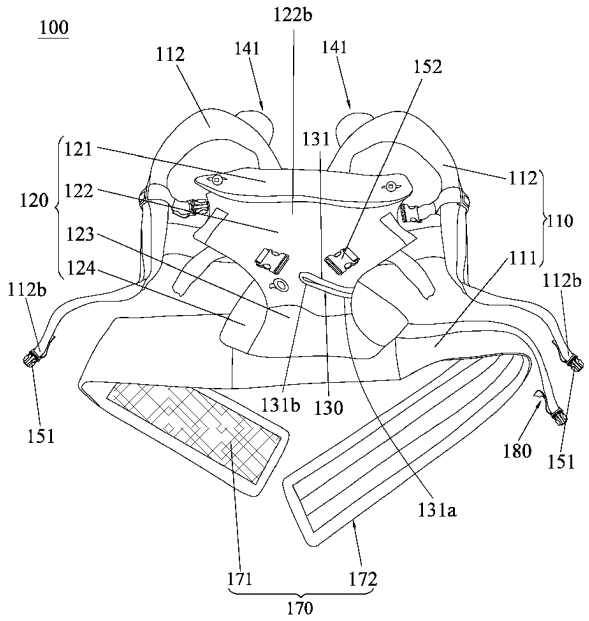
(Continued)

Primary Examiner — Brian D Nash
(74) *Attorney, Agent, or Firm* — Volpe Koenig

(57) **ABSTRACT**

A child carrier includes a carrying harness, a child supporting part connected with the carrying harness and including a hip support portion and a torso support portion connected with each other, and a panel having a first end anchored to the carrying harness, a second end anchored to the child supporting part at a location distant from the first end, and an intermediate portion between the first end and the second end that extends above the hip support portion and adjacently overlaps with the hip support portion.

22 Claims, 21 Drawing Sheets



Related U.S. Application Data

continuation of application No. 16/385,889, filed on Apr. 16, 2019, now Pat. No. 10,905,252.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,692,655	A *	12/1997	Fair	A47D 13/025 224/160
5,791,535	A	8/1998	Roan et al.	
8,627,988	B2	1/2014	Bergkvist	
9,357,852	B2 *	6/2016	Salazar	A47D 13/025
10,426,275	B2	10/2019	Telford	
10,905,252	B2	2/2021	Fan	
10,905,253	B2	2/2021	Fan	
11,026,519	B2	6/2021	Fan	
11,026,520	B2	6/2021	Fan	
11,039,695	B2	6/2021	Fan	
11,395,551	B2	7/2022	Fan	
11,406,201	B2	8/2022	Fan	
2001/0030210	A1 *	10/2001	Donine	A47D 13/025 224/160
2005/0051582	A1 *	3/2005	Frost	A47D 13/025 224/160
2005/0184114	A1 *	8/2005	Hoff	A47D 13/025 224/160
2005/0242136	A1	11/2005	Moriguchi et al.	
2007/0246493	A1	10/2007	Kernkamp	
2008/0283559	A1	11/2008	Parness et al.	
2009/0026235	A1	1/2009	Gray	
2009/0206116	A1 *	8/2009	Grant	A47D 15/006 224/160
2010/0072236	A1 *	3/2010	Parness	A47D 13/02 224/160
2010/0155446	A1	6/2010	Stein et al.	
2010/0308087	A1	12/2010	Lindbloom	
2011/0186605	A1 *	8/2011	Favorito	A47D 13/025 224/160
2012/0061429	A1	3/2012	Sauer	
2012/0217273	A1	8/2012	Gunter et al.	
2012/0241487	A1	9/2012	Zack et al.	
2012/0298702	A1	11/2012	Jung et al.	
2013/0284783	A1	10/2013	Burpee	
2014/0224846	A1	8/2014	Mullins	
2014/0231472	A1	8/2014	Cha	
2014/0263491	A1	9/2014	Telford et al.	
2015/0150385	A1	6/2015	Mullins	
2016/0015187	A1	1/2016	Telford et al.	
2016/0120334	A1	5/2016	Pond et al.	
2016/0150893	A1 *	6/2016	Salazar	A47D 13/025 224/160
2016/0227941	A1	8/2016	Mullins	
2017/0027337	A1	2/2017	Mullins	
2017/0119173	A1	5/2017	Telford	
2017/0150826	A1	6/2017	Salazar et al.	
2017/0156513	A1	6/2017	Mullins	
2018/0027991	A1	2/2018	Mullins	
2018/0035823	A1	2/2018	Landeros	
2018/0199730	A1	7/2018	Lundh	
2019/0014920	A1	1/2019	Matsuyama	
2019/0191891	A1	6/2019	Mullins	
2019/0281995	A1	9/2019	Troutman et al.	
2019/0320821	A1	10/2019	Fan	
2022/0330716	A1 *	10/2022	Fan	A47D 13/025

FOREIGN PATENT DOCUMENTS

CN	1205192	A	1/1999
CN	1870920	A	11/2006
CN	201067234	Y	6/2008
CN	102602310	A	7/2012
CN	102648808	A	8/2012
CN	202775324	U	3/2013
CN	202932500	U	5/2013
CN	203262785	U	11/2013
CN	103889279	A	6/2014
CN	203873395	U	10/2014
CN	204541034	U	8/2015
CN	104970626	A	10/2015
CN	105377084	A	3/2016
CN	105377085	A	3/2016
CN	205410570	U	8/2016
CN	107495744	A	12/2017
EP	2368462	A1	9/2011
EP	2956033	A1	12/2015
EP	3054813	A1	8/2016
GB	678225	A	8/1952
HK	1248080	A1	10/2018
JP	S53155443	U	12/1978
JP	S5921273	U	2/1984
JP	S6125399	A	2/1986
JP	H08322685	A	12/1996
JP	H105081	A	1/1998
JP	H11276311	A	10/1999
JP	2001070107	A	3/2001
JP	2001104115	A	4/2001
JP	2004141573	A	5/2004
JP	2004222828	A	8/2004
JP	2005118471	A	5/2005
JP	2006507887	A	3/2006
JP	2006230640	A	9/2006
JP	2008220666	A	9/2008
JP	2009178389	A	8/2009
JP	2010029290	A	2/2010
JP	2012512124	A	5/2012
JP	2012152547	A	8/2012
JP	2014176494	A	9/2014
JP	2016507014	A	3/2016
JP	6271137	B2	1/2018
JP	2018519906	A	7/2018
JP	2018531745	A	11/2018
KR	19980063382	U	11/1998
KR	2020090008715	U	8/2009
KR	20090010149	U	10/2009
KR	2020100002191	U	3/2010
KR	20120098567	A	9/2012
KR	20120132306	A	12/2012
KR	20130085778	A	7/2013
KR	20140070778	A	6/2014
KR	101432450	B1	8/2014
KR	101453460	B1	10/2014
KR	20150115925	A	10/2015
KR	20160034547	A	3/2016
KR	20160046224	A	4/2016
KR	20160102092	A	8/2016
KR	101812529	B1	1/2018
KR	20180031477	A	3/2018
MX	2015010378	A	4/2016
NZ	710948	A	1/2018
SE	1351182	A1	4/2015
SG	11201609617X		12/2016
WO	2012079787	A1	6/2012
WO	2012129060	A2	9/2012
WO	2014124513	A1	8/2014
WO	2015053696	A1	4/2015
ZA	201506757	B	1/2017

OTHER PUBLICATIONS

Notice of Reasons for Refusal for corresponding Japanese Application No. 2024-040739 mailed Nov. 5, 2024.

Office Action issued in corresponding Canadian Application No. 3115420 dated Aug. 19, 2022.

Office Action issued in corresponding Chinese Application No. 201910286049.0 dated Jun. 1, 2022.

Office Action issued in corresponding Chinese Application No. 201810549110.1 dated Sep. 28, 2022.

Office Action issued in corresponding Chinese Application No. 201810549110.1 dated May 7, 2022.

Office Action issued in corresponding Chinese Application No. 201910286634.0 dated May 7, 2022.

Office Action issued in corresponding Chinese Application No. 201910286633.6 dated Jun. 1, 2022.

(56) **References Cited**

OTHER PUBLICATIONS

Office Action issued in corresponding Chinese Application No. 201910286632.1 dated Jun. 1, 2022.
Office Action issued in corresponding Chinese Application No. 201910286631.7 dated Mar. 31, 2023.
Office Action issued in corresponding Chinese Application No. 201910286631.7 dated May 6, 2022.
Extended European Search Report issued in corresponding European Application No. 20215113.0 dated Feb. 4, 2021.
Extended European Search Report issued in corresponding European Application No. 19170228.1 dated May 6, 2020.
Extended European Search Report issued in corresponding European Application No. 19170223.2 dated Jun. 27, 2019.
Extended European Search Report issued in corresponding European Application No. 23189096.3 dated Oct. 5, 2023.
Office Action issued in corresponding European Application No. 19170224.0 dated Aug. 19, 2020.
Office Action issued in corresponding Japanese Application No. 2019-079032 mailed May 12, 2020.
Office Action issued in corresponding Japanese Application No. 2021-122412 mailed Nov. 21, 2023.
Search Report issued in corresponding Japanese Application No. 2019-079032 mailed Mar. 11, 2020.
Search Report issued in corresponding Japanese Application No. 2019-079036 mailed Apr. 23, 2020.
Search Report issued in corresponding Japanese Application No. 2019-079035 mailed May 25, 2020.
Search Report issued in corresponding Japanese Application No. 2019-079034 mailed Apr. 22, 2020.
Search Report issued in corresponding Japanese Application No. 2019-079033 mailed Mar. 11, 2020.
Office Action issued in corresponding Korean Application No. 10-2021-0108791 mailed May 16, 2022.
Office Action issued in corresponding Korean Application No. 10-2019-0046054 mailedd May 26, 2021.
Office Action issued in corresponding Korean Application No. 10-2019-0046049 mailed May 24, 2021.
Office Action issued in corresponding Thailand Application No. 1901002310 dated Jul. 13, 2023.
Office Action issued in corresponding Thailand Application No. 1901002311 dated Jul. 25, 2023.
Office Action issued in corresponding Thailand Application No. 1901002312 dated Jul. 25, 2023.
Office Action issued in corresponding Thailand Application No. 1901002313 dated Jul. 25, 2023.
Office Action issued in corresponding Thailand Application No. 1901002314 dated Jul. 25, 2023.
Final Office Action issued in corresponding U.S. Appl. No. 16/385,910 dated Oct. 13, 2020.
Non-Final Office Action issued in corresponding U.S. Appl. No. 16/385,902 dated Jun. 26, 2020.
Non-Final Office Action issued in corresponding U.S. Appl. No. 16/385,894 dated Jun. 12, 2020.
Non-Final Office Action issued in corresponding U.S. Appl. No. 16/385,899 dated Jun. 26, 2020.
Office Action issued in corresponding Vietnam Application No. 1202204324 dated Jul. 13, 2023.
Office Action issued in corresponding Vietnam Application No. 1202204449 dated Jul. 13, 2023.
"Notice of Allowance Issued in Corresponding Korean Patent Application No. 10-2024-0012560", Mailed Date: Feb. 25, 2025, 6 pages.
"Third Office Action Issued in Corresponding Japanese Patent Application No. 2021-122412", Mailed Date: Apr. 1, 2025, 30 pages.

* cited by examiner

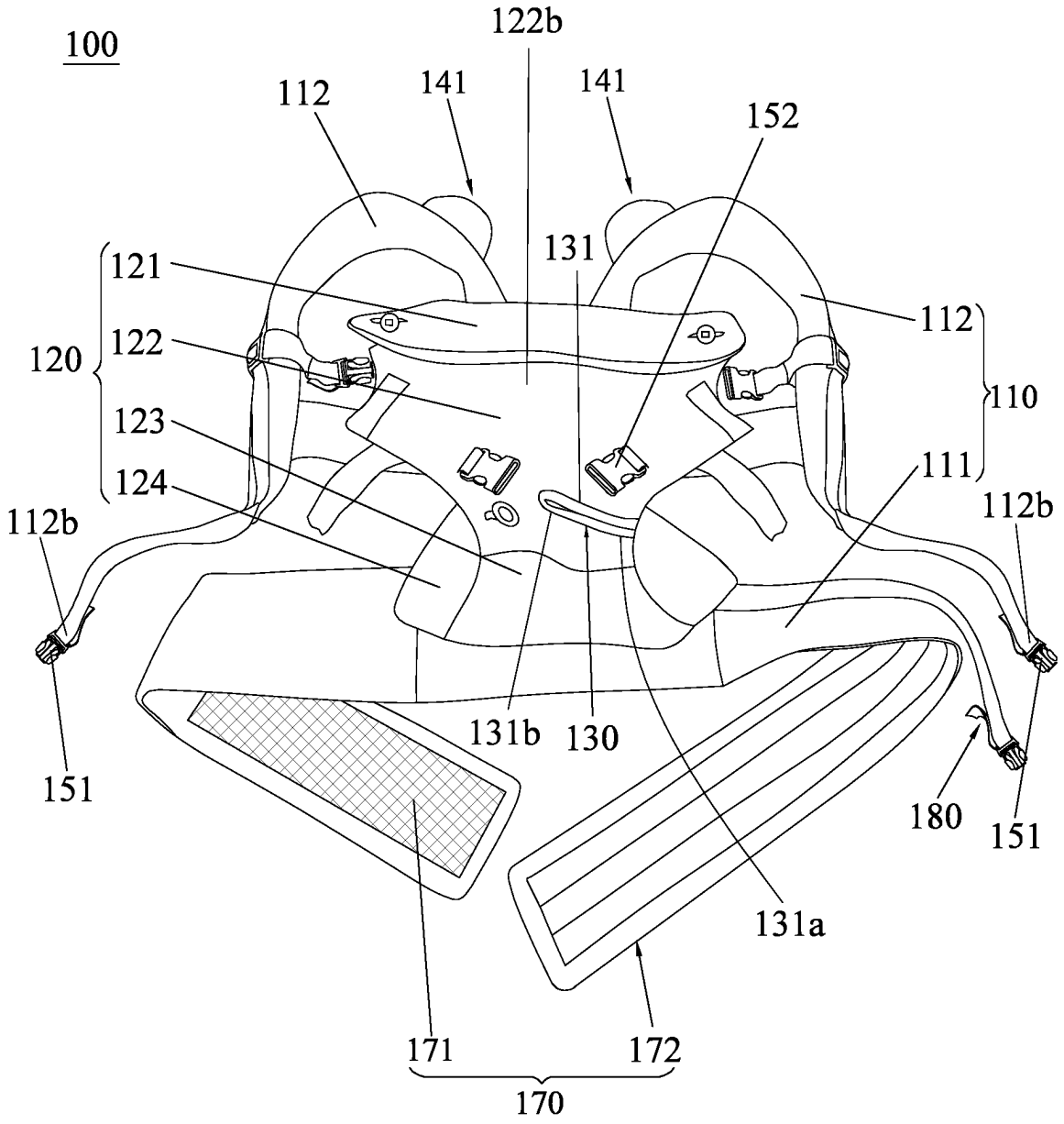

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FIG.1

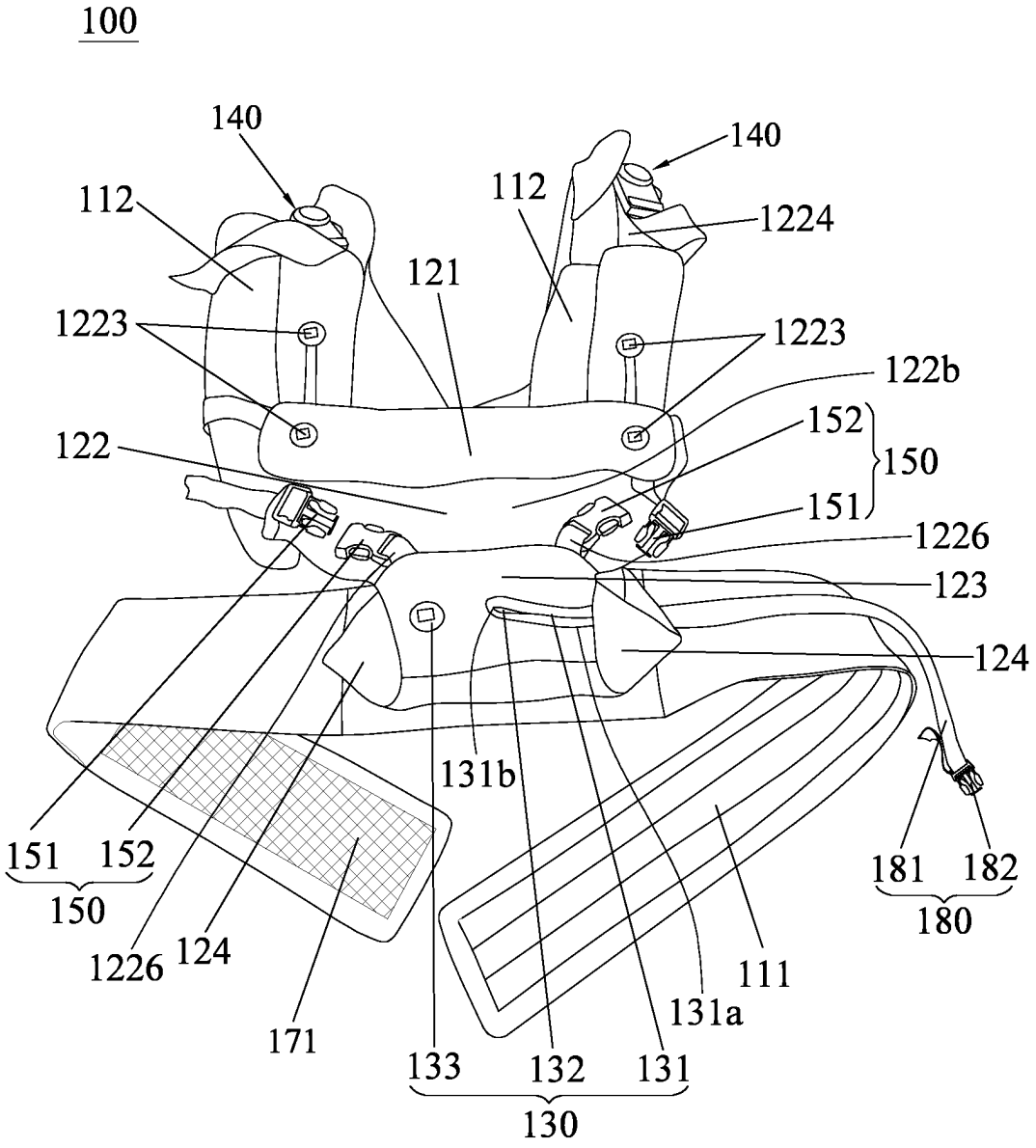
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FIG.2

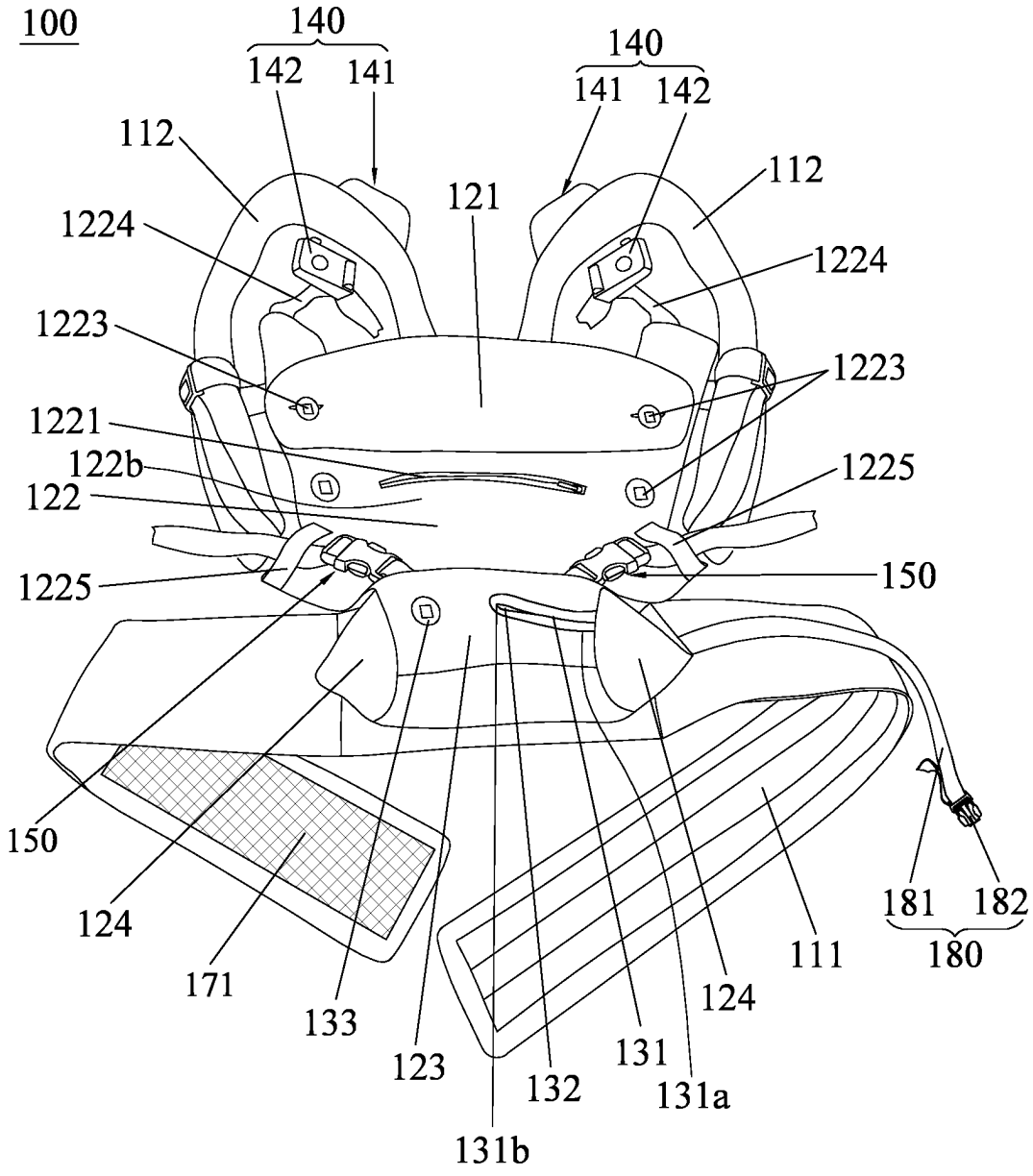
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FIG.3

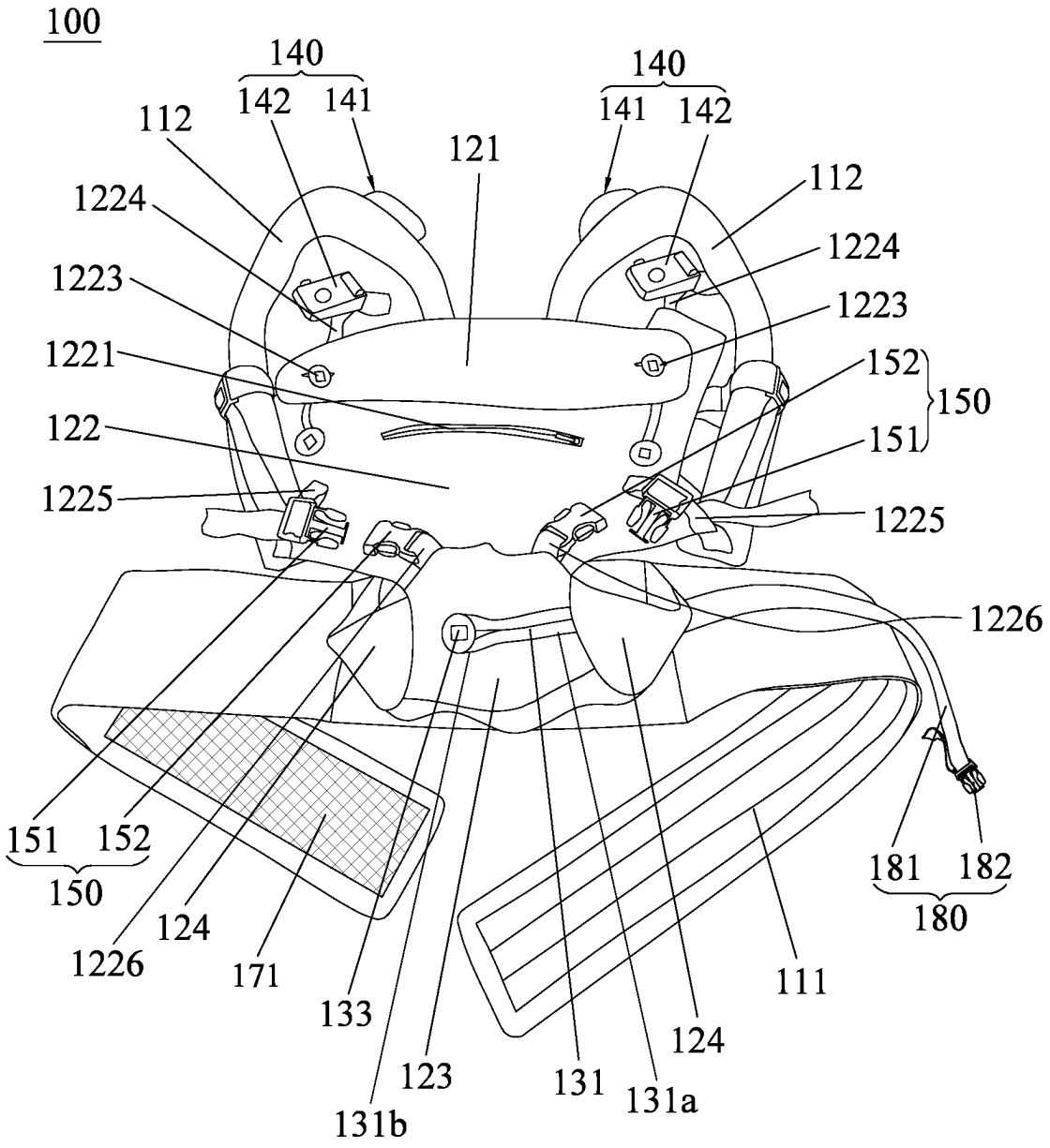
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FIG.4

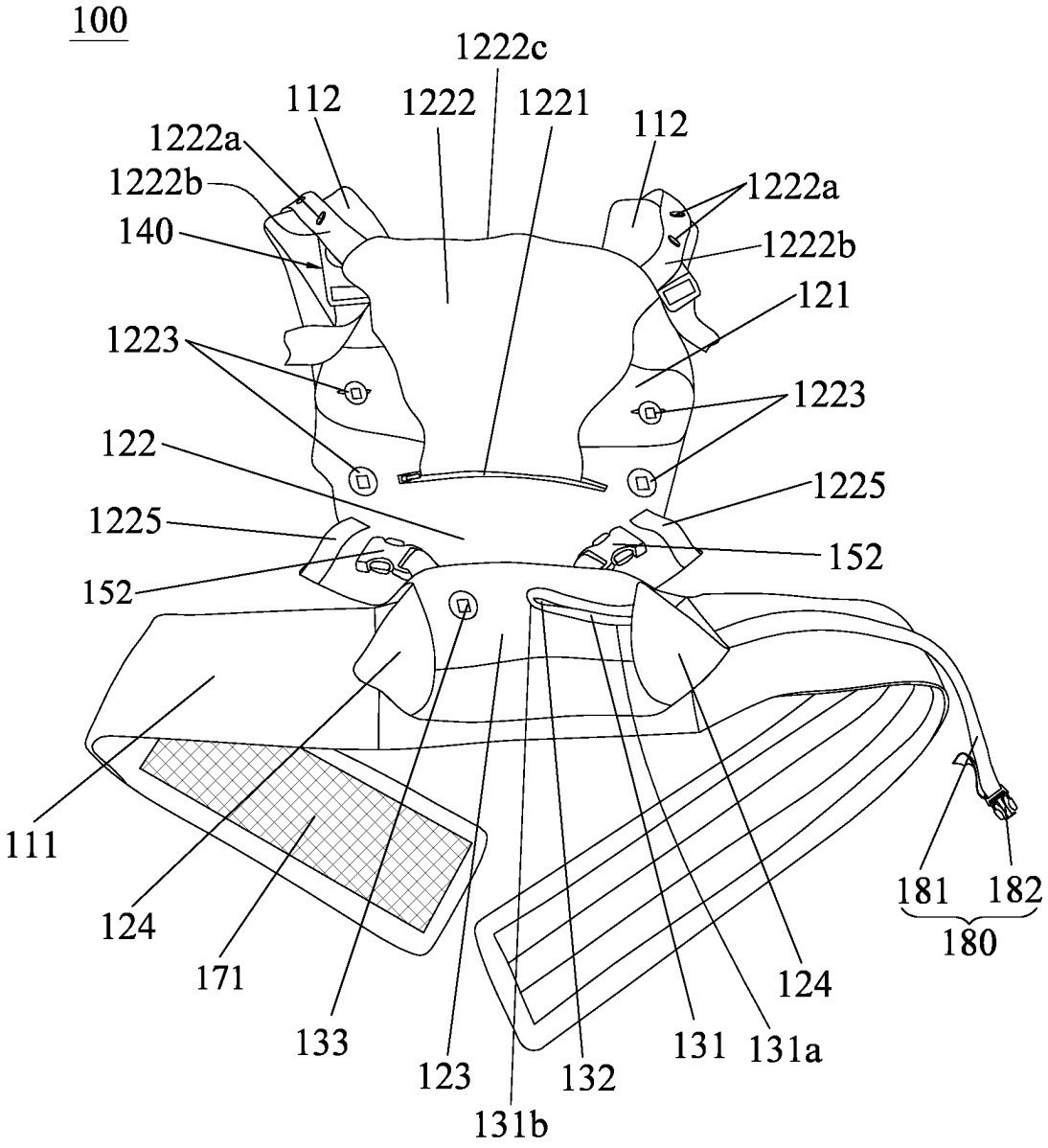
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FIG.5

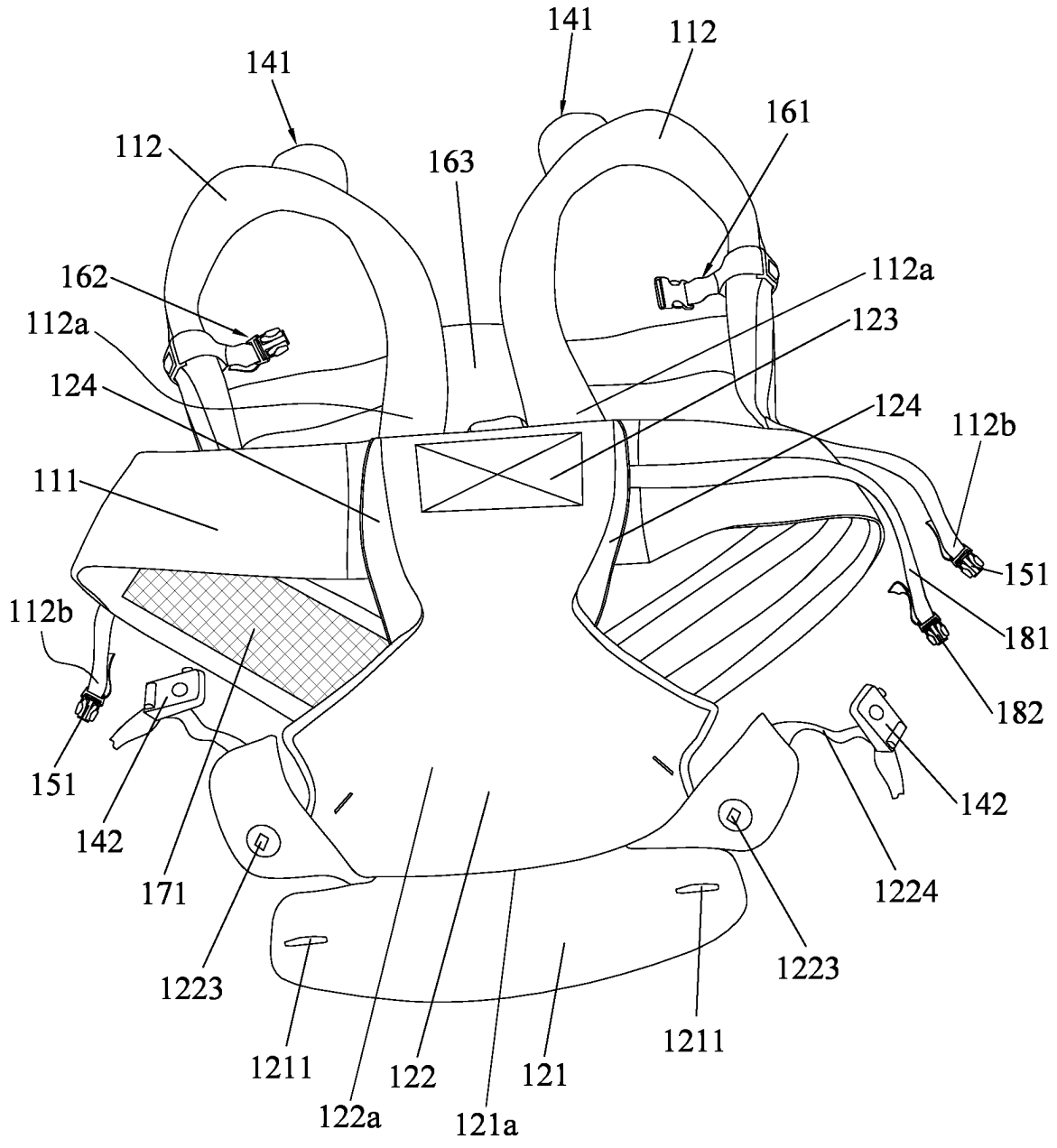
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FIG.6

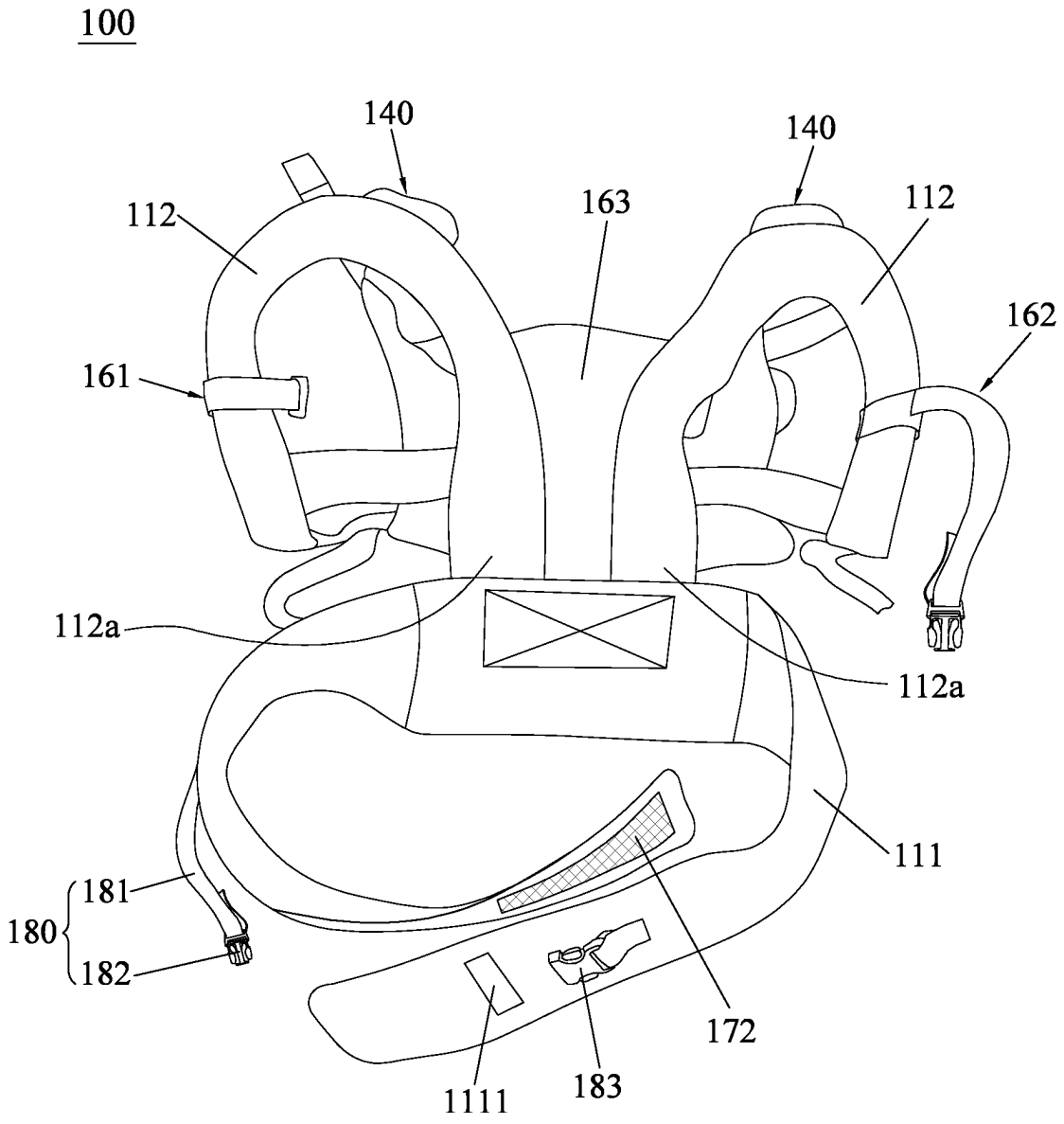
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FIG.7

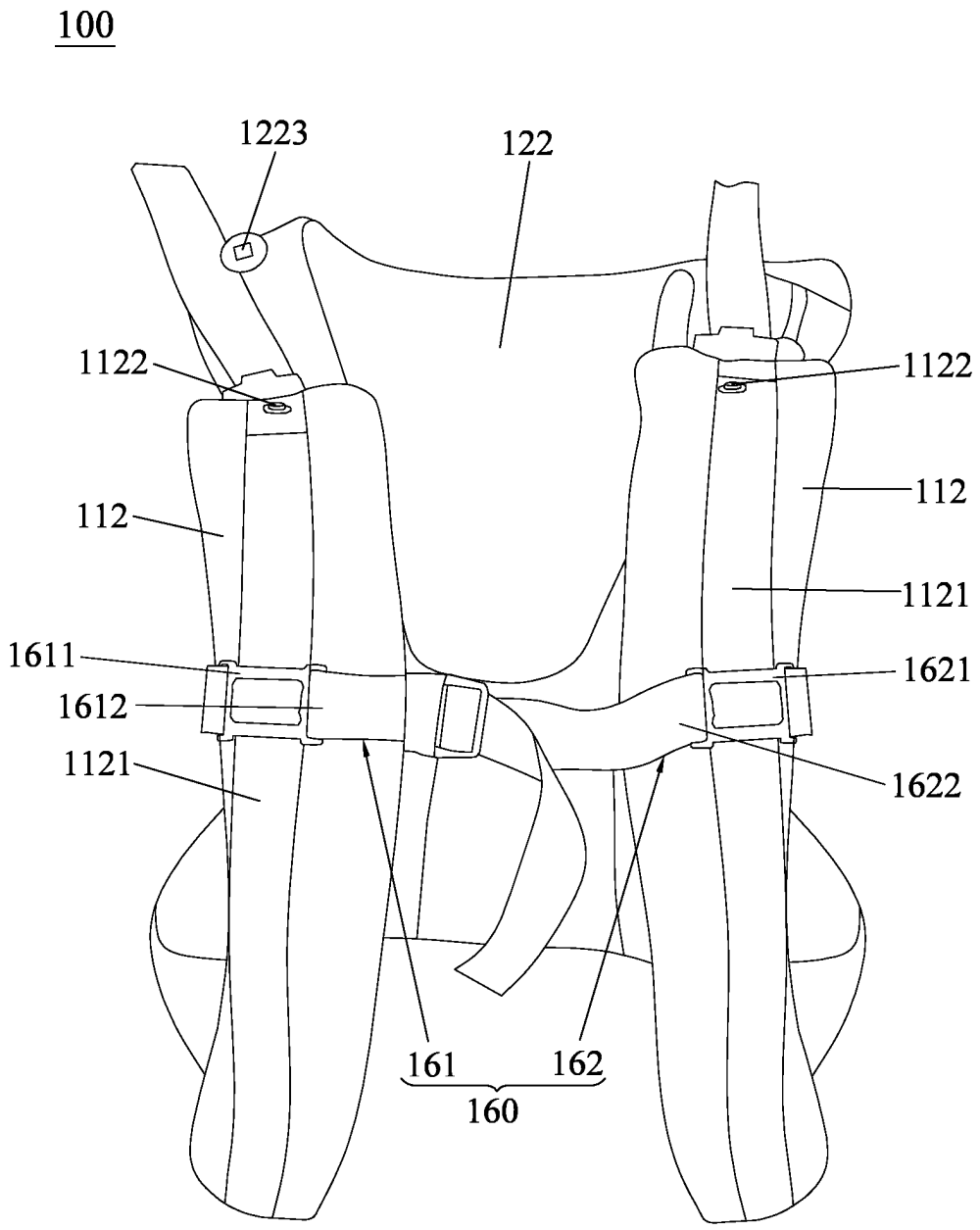
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FIG.8

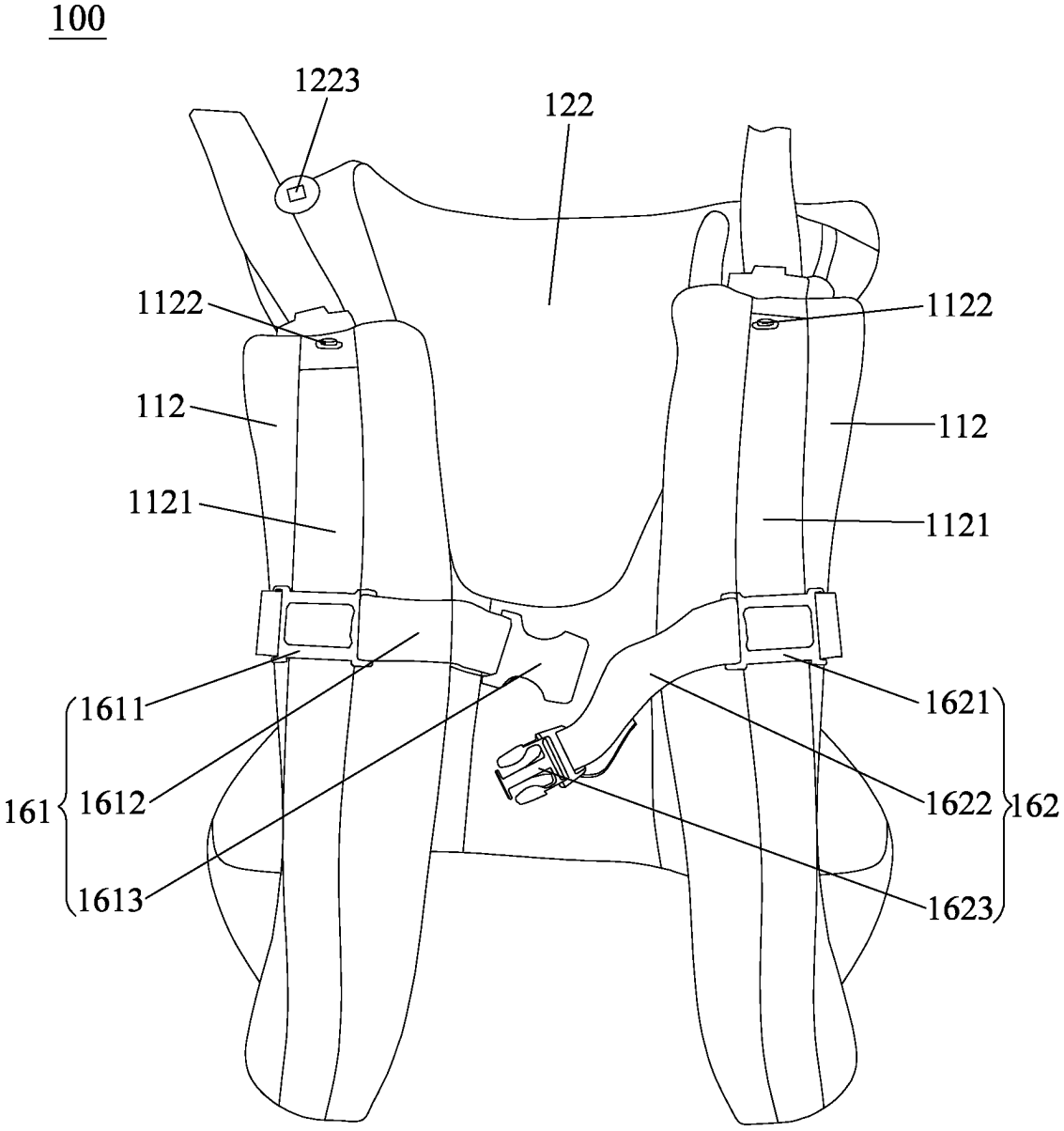
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FIG.9

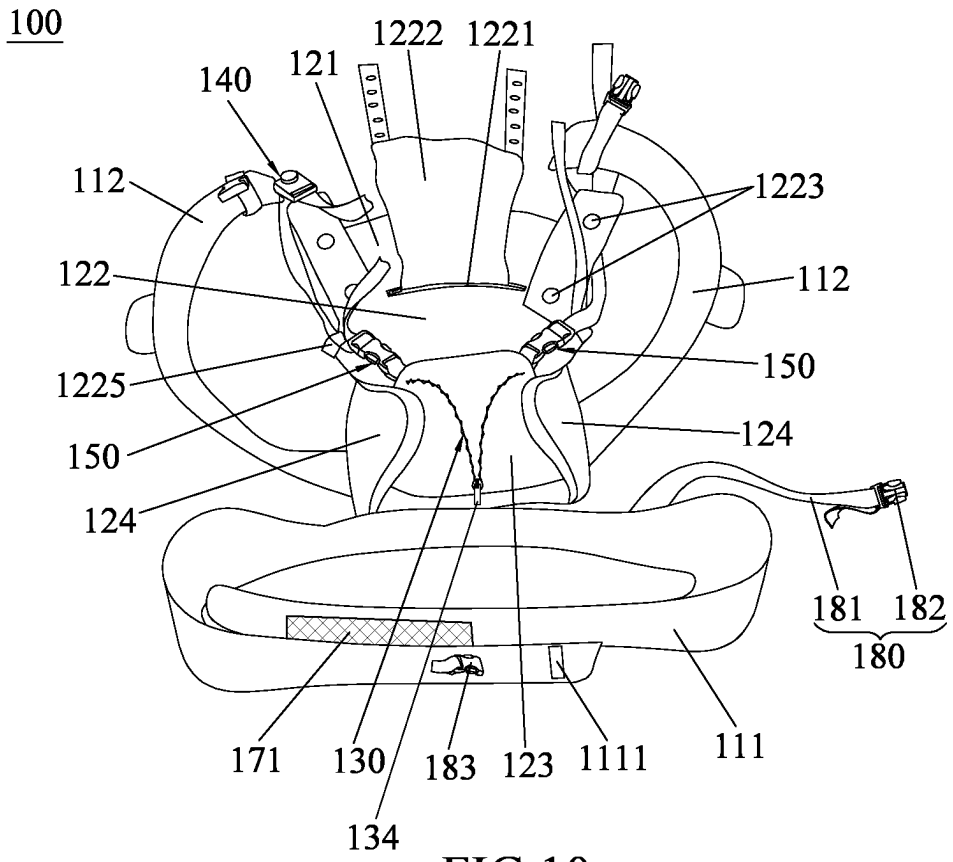
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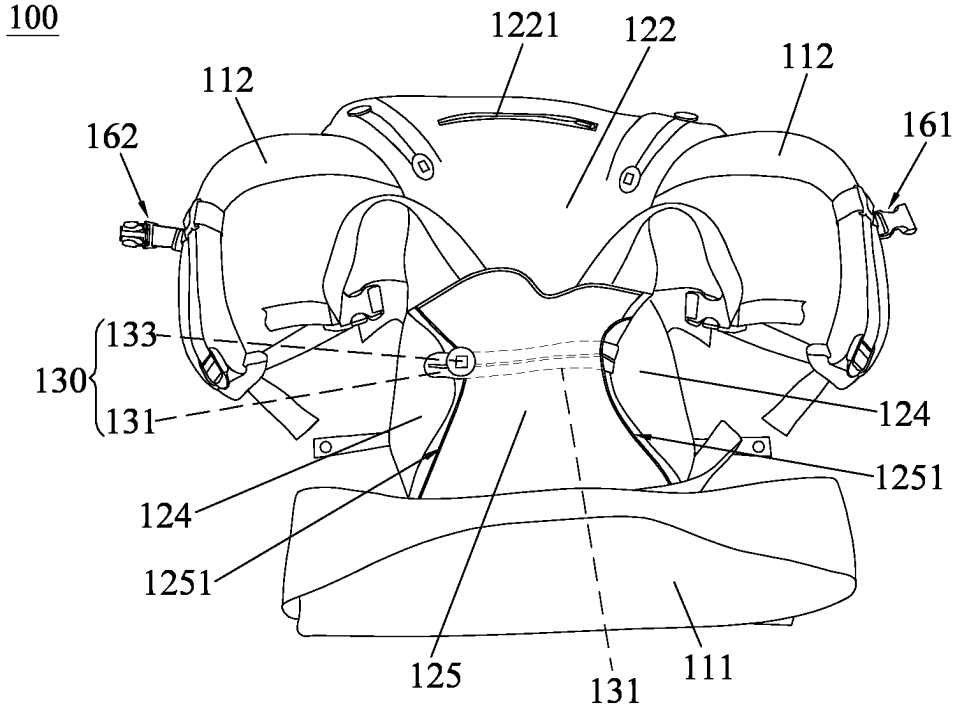
FIG.10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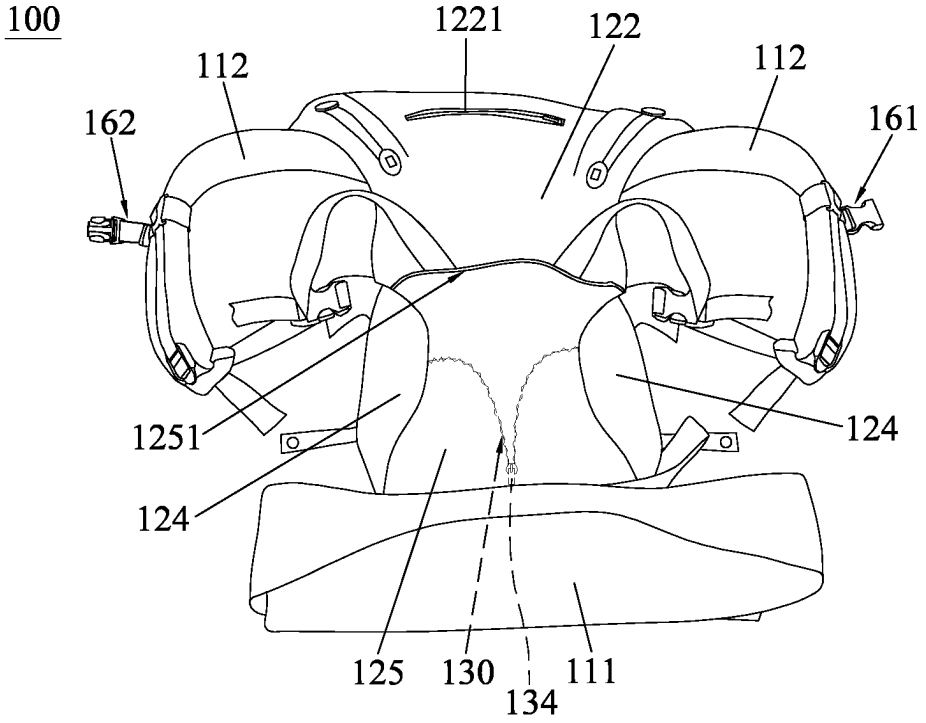
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FIG.12

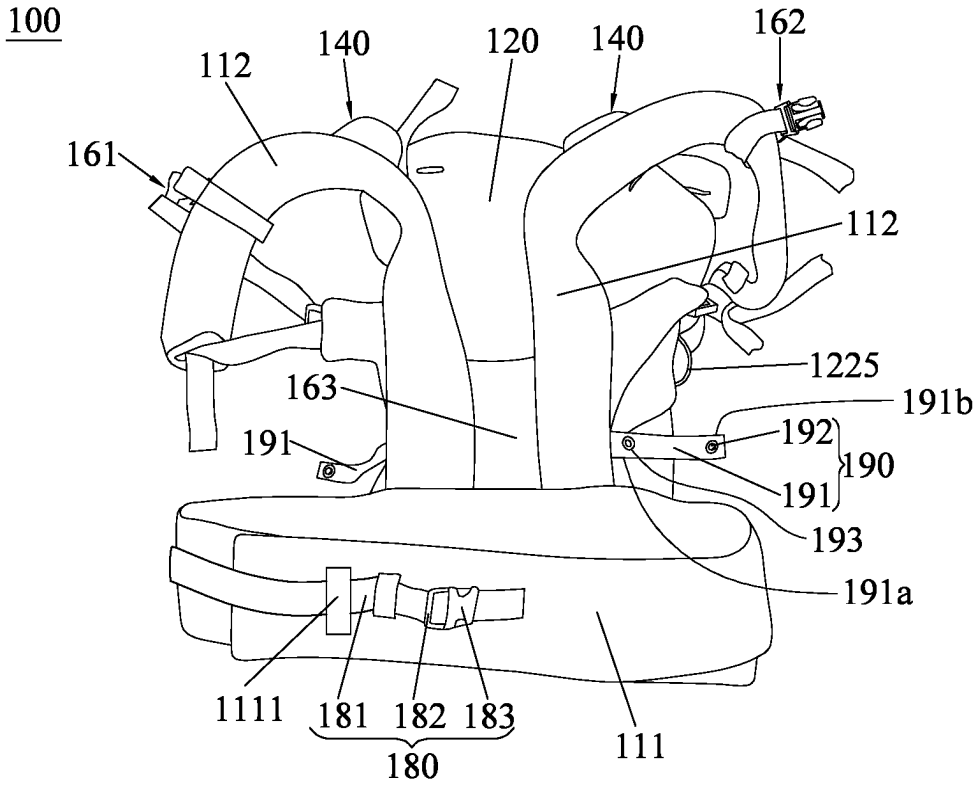
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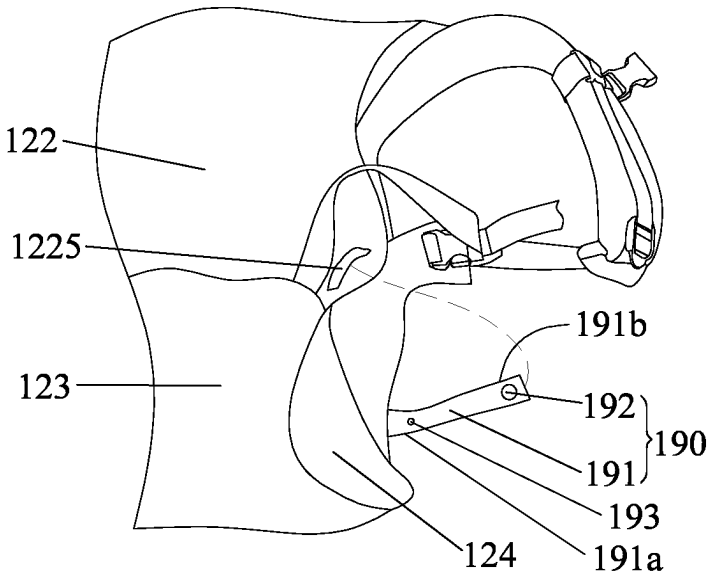
FIG.13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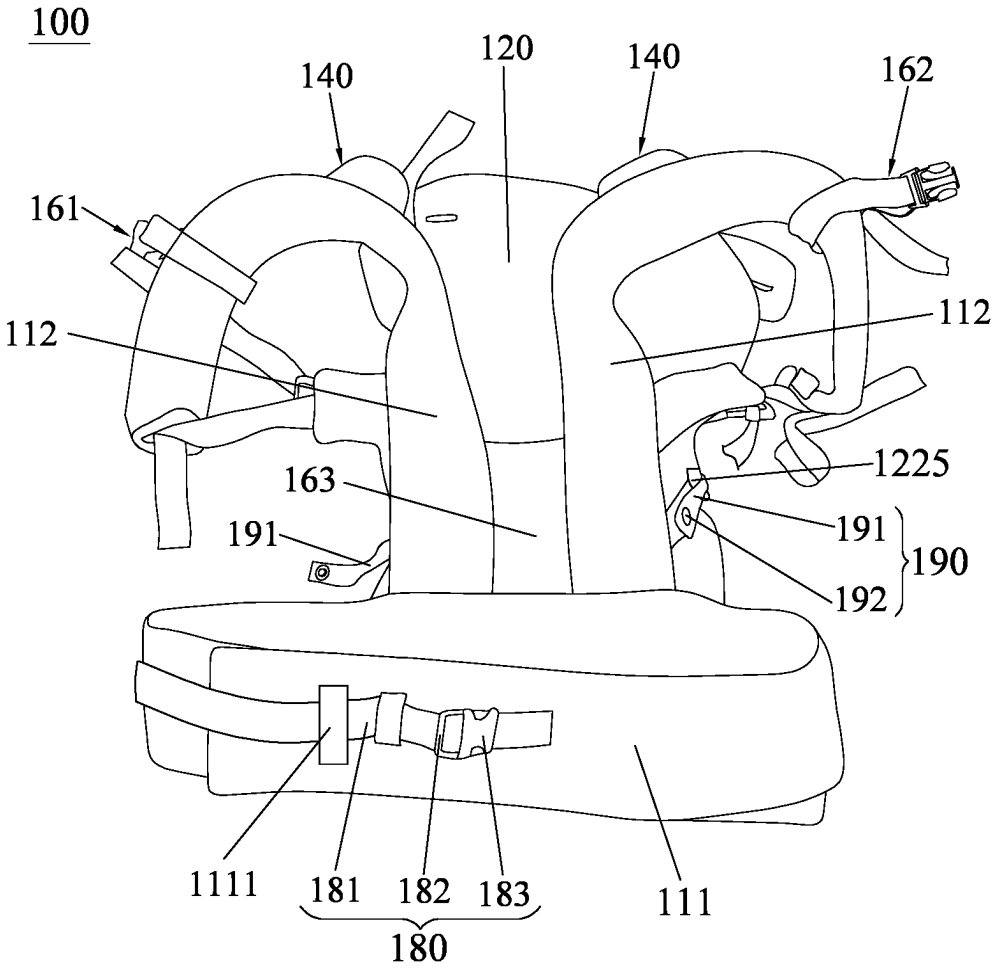
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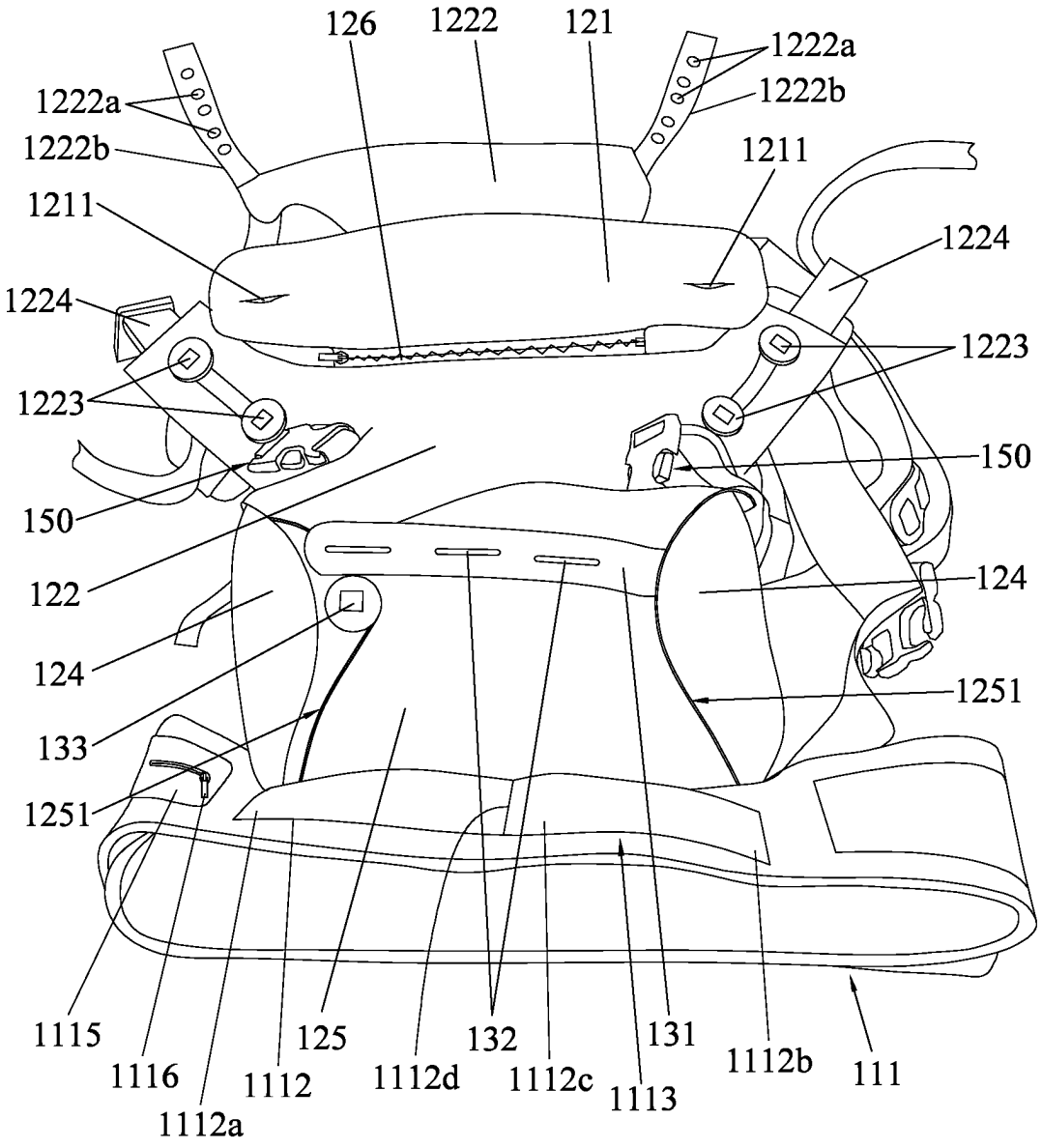
FIG.15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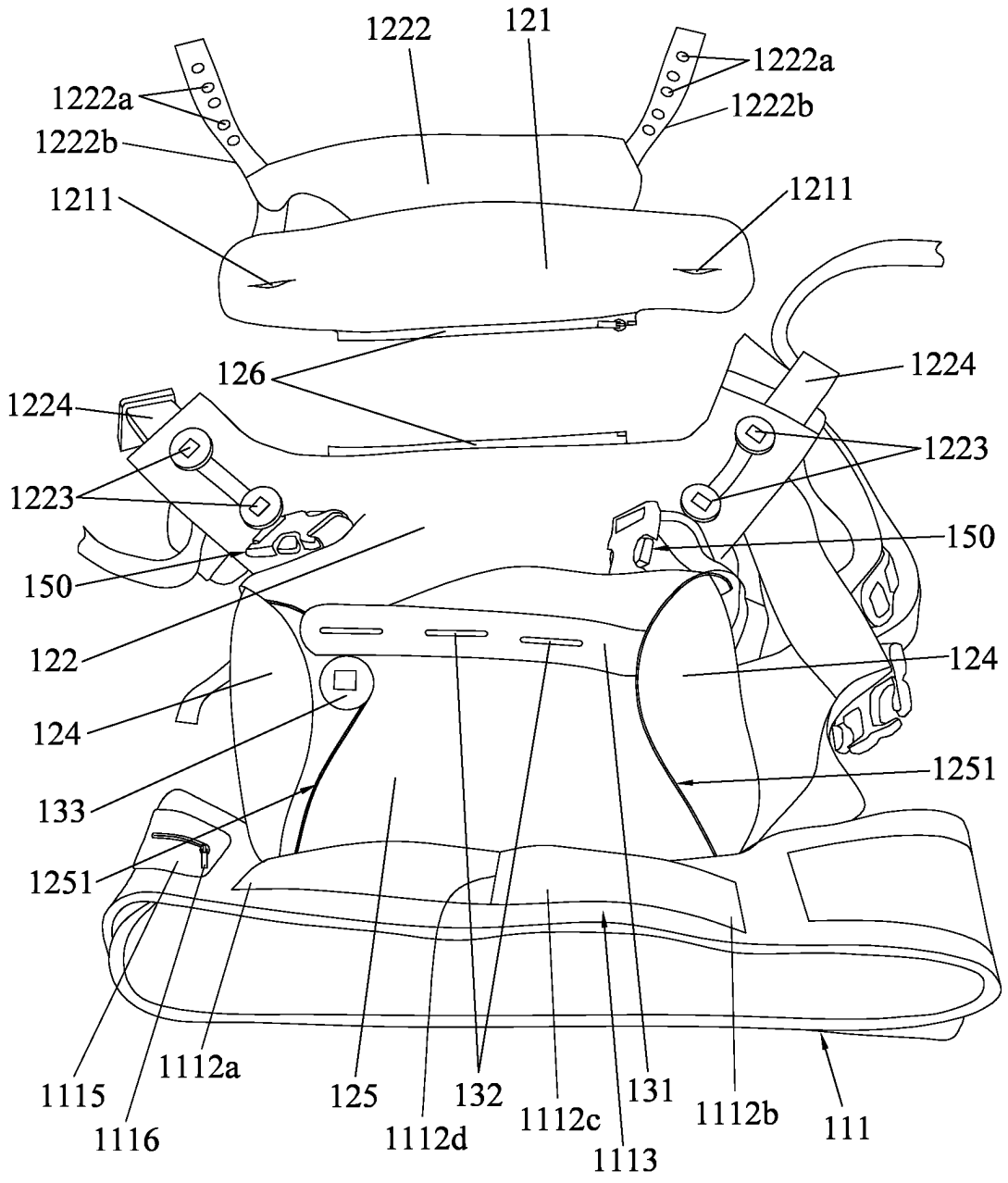
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111

FIG.17

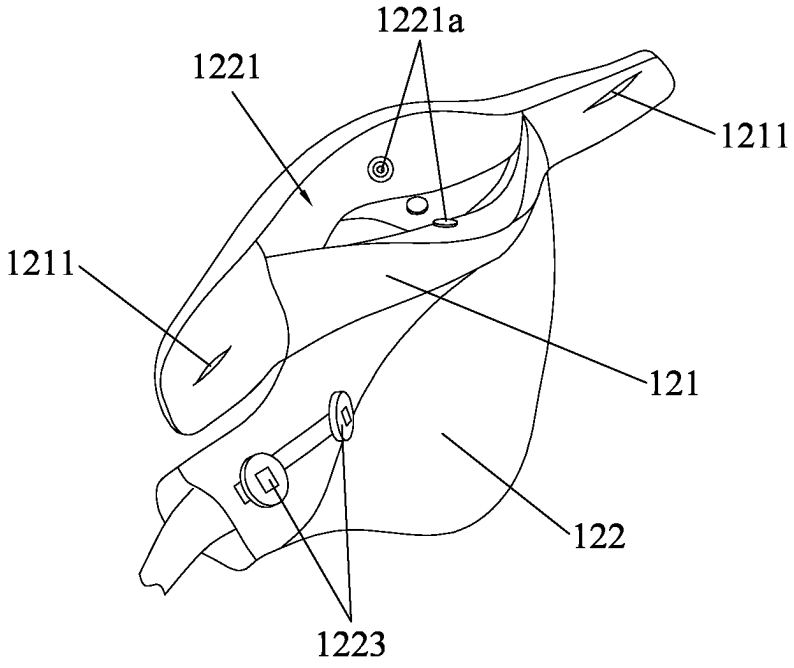
1221a
1221
1211
1211
121
122
1223

FIG.18

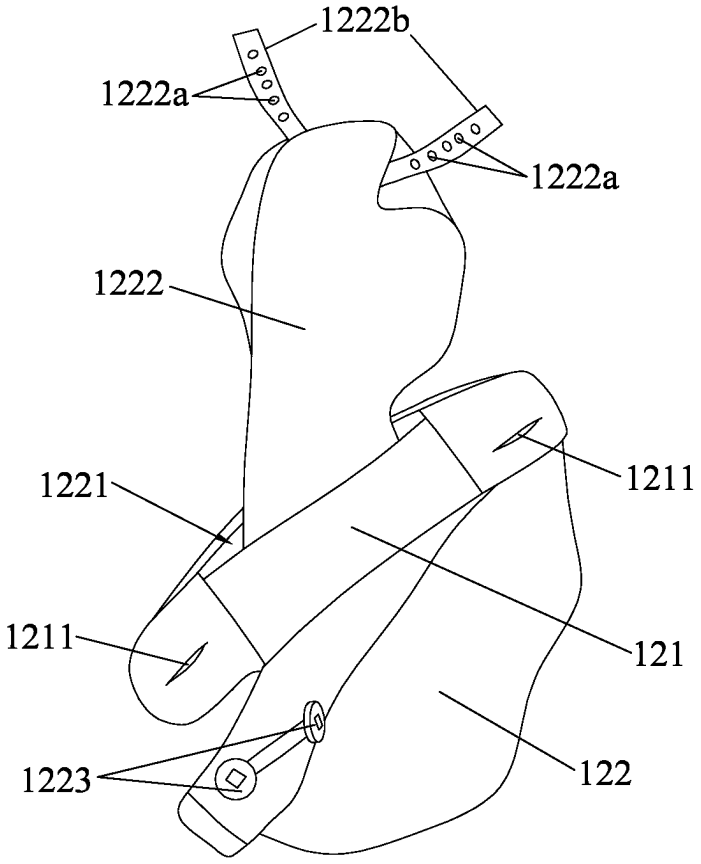
1222b
1222a
1222a
1222
1221
1211
1211
121
1223
122

FIG.19

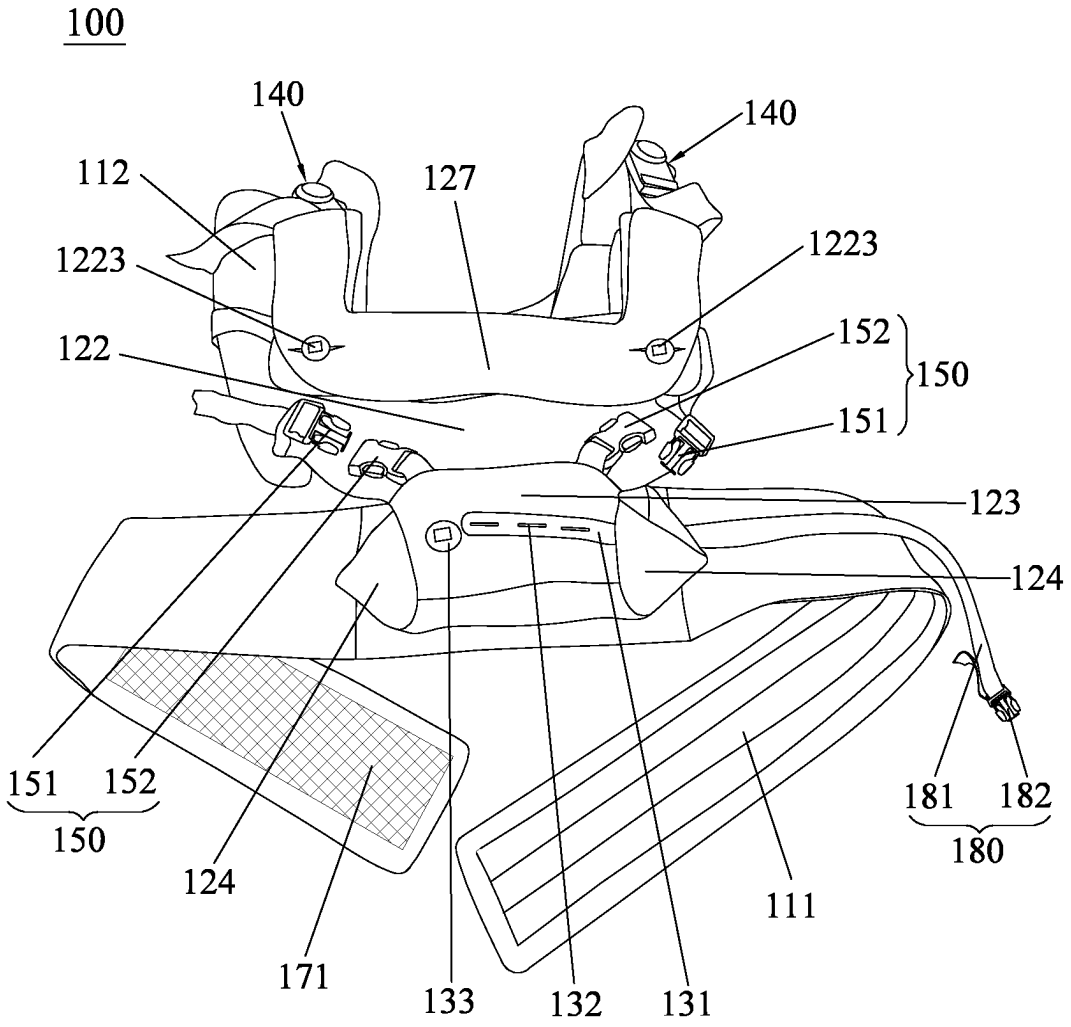
100
140
140
112
127
1223
1223
122
152
150
151
123
124
151
152
150
124
181
182
180
111
171
133
132
131

FIG.20

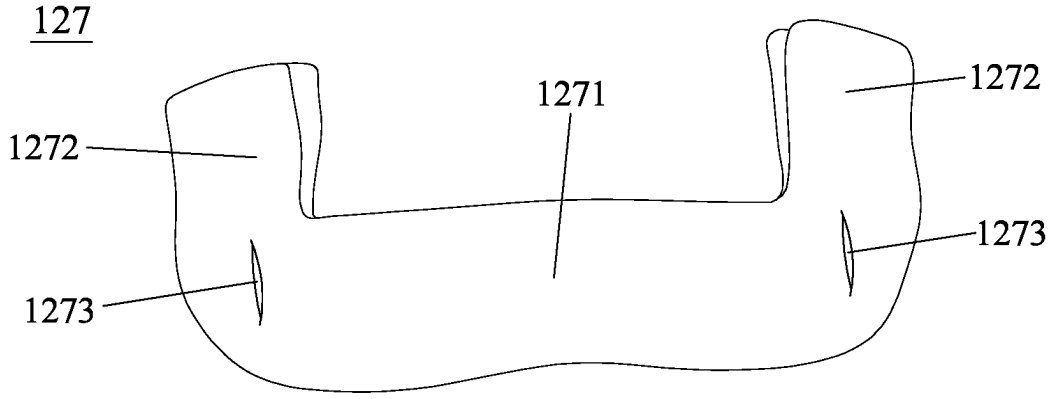
127
1271
1272
1272
1273
1273

FIG.21

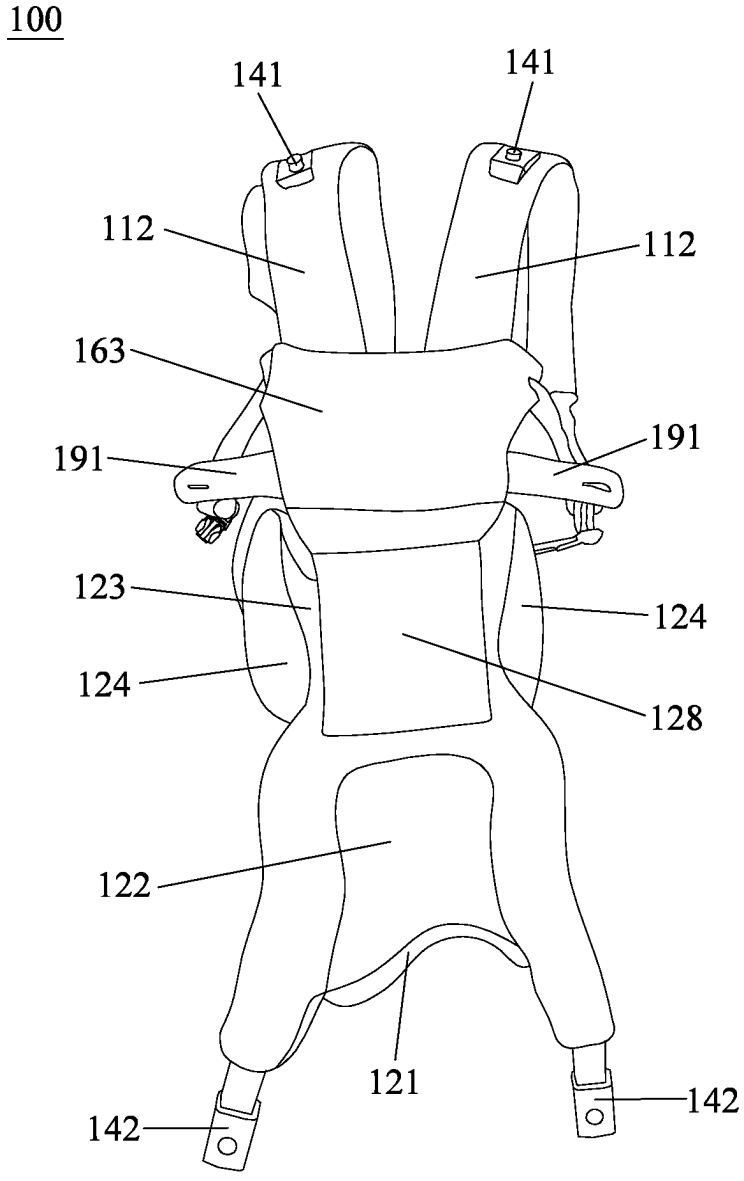

FIG.22

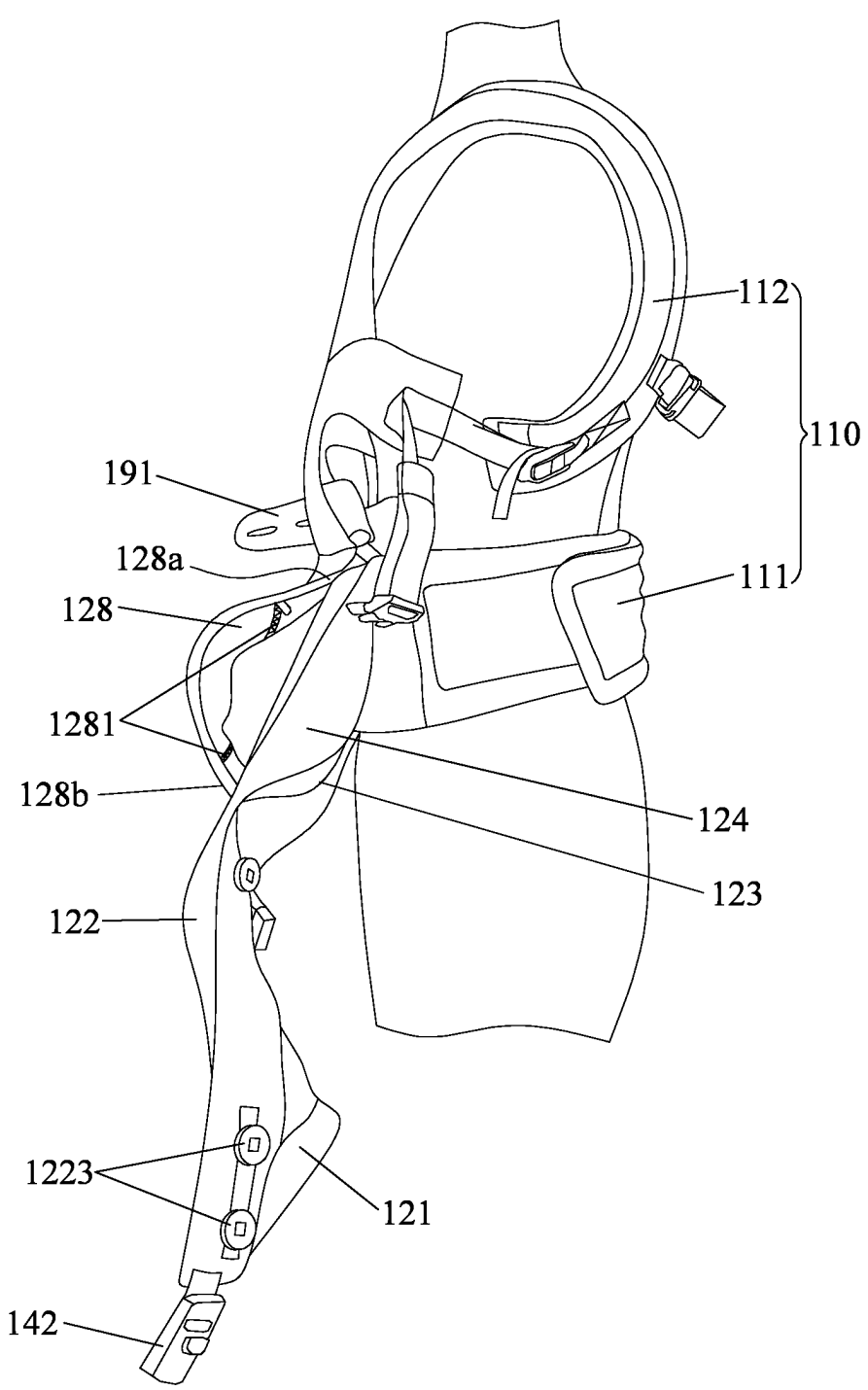

FIG.23

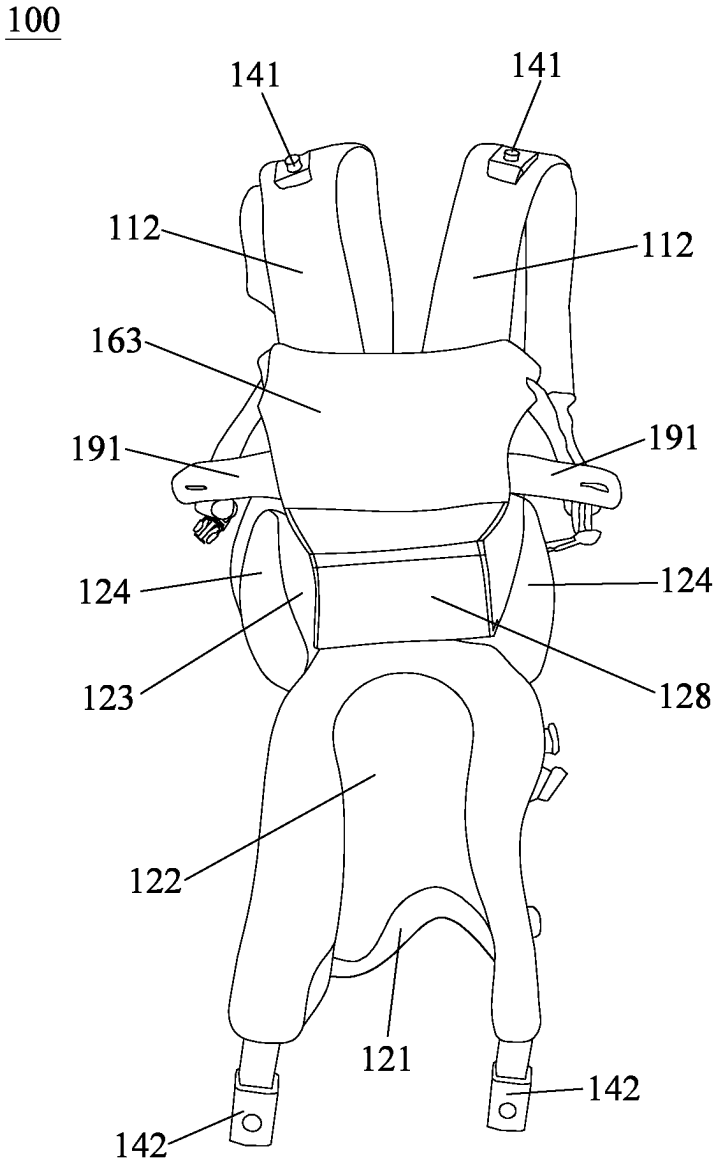

FIG.24

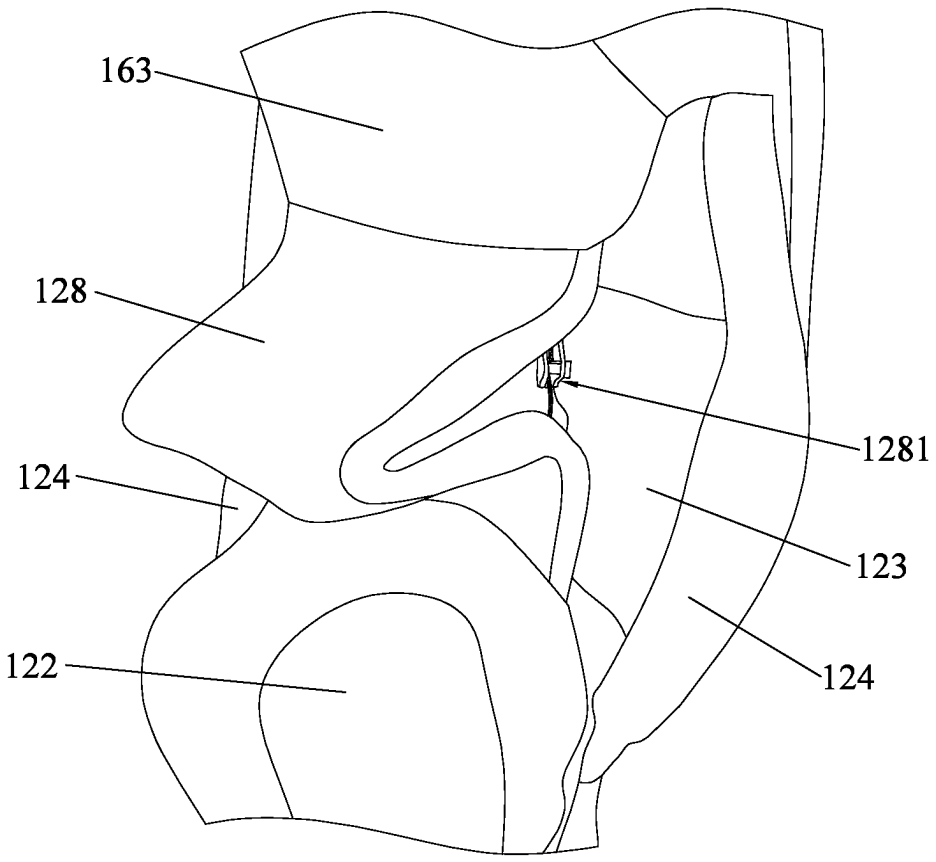

FIG.25

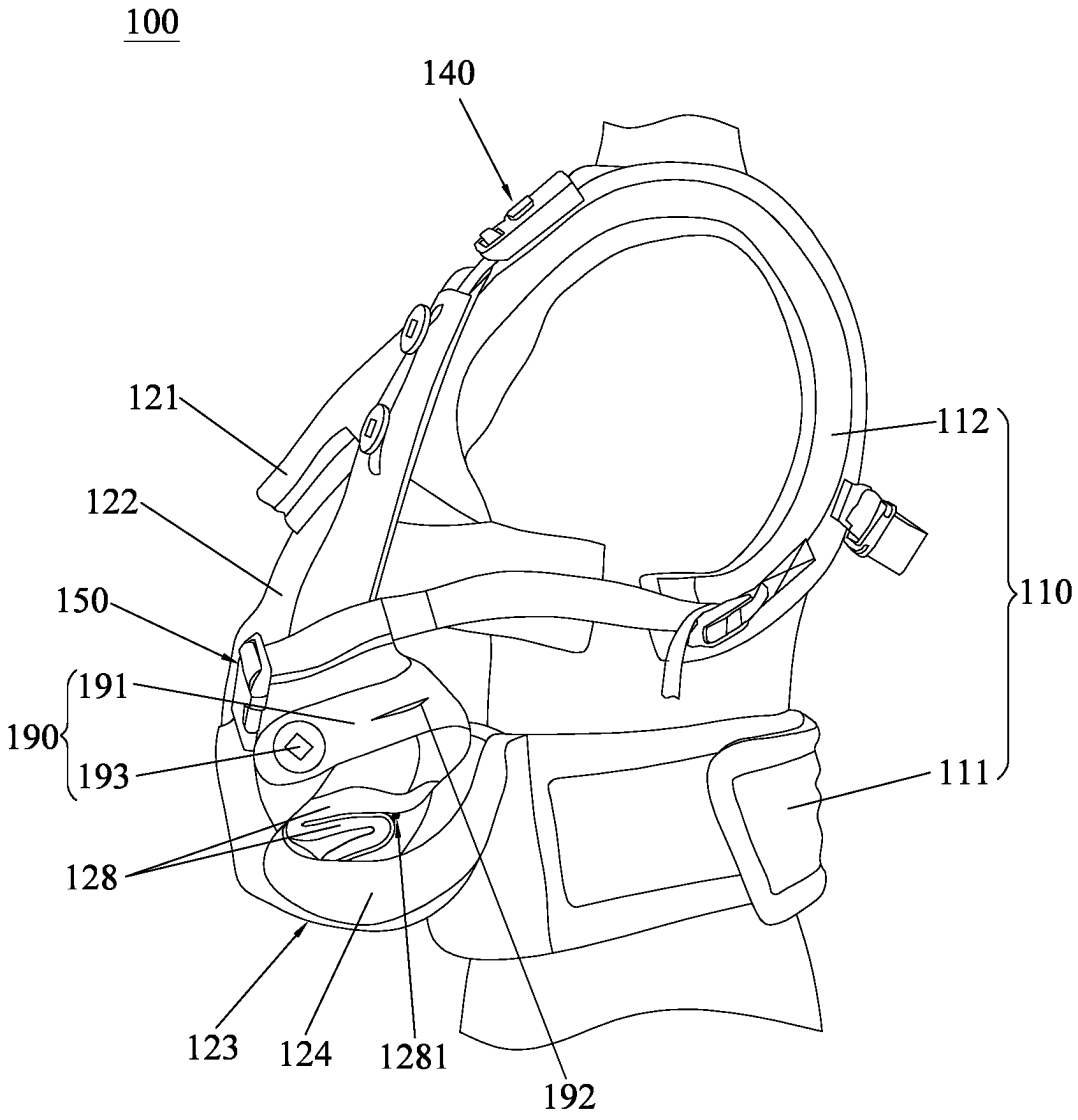

FIG.26

CHILD CARRIER

CROSS-REFERENCE TO RELATED APPLICATION(S)

This application is a continuation application of U.S. patent application Ser. No. 17/140,537 filed on Jan. 4, 2021, which is a continuation application of U.S. patent application Ser. No. 16/385,889 filed on Apr. 16, 2019, now granted as U.S. Pat. No. 10,905,252, which claims priority to China patent application no. 201810549110.1 filed on May 31, 2018, and to China patent application no. 201810355370.5 filed on Apr. 19, 2018.

BACKGROUND

1. Field of the Invention

The present invention relates to child carriers.

2. Description of the Related Art

Child carrier products allow caregivers to conveniently carry and transport a young child in close contact with the caregiver without using hands. Various types of child carriers available on the market may differ in the way of carrying a child, e.g., the young child may be carried in front of the bearer in a recumbent position or facing forward or rearward, or may be carried on the back of the bearer. The child carriers may also differ in functionality, e.g., single use, dual use, etc.

The design of a child carrier has to be ergonomic to avoid concentrated stress on the bearer, and provide a comfortable environment in which the hip, waist, neck and head of the child can be adequately supported without undesirable bending or undesirable pressure on the child. Unfortunately, child carriers available on the market may still not satisfy present needs. For example, most child carriers provide a fixed space volume configuration for seating a child, which may not be adapted to the need of seating children of different sizes in different positions.

Therefore, there is a need for an improved child carrier that is more flexible and convenient in use, and can address at least the foregoing issues.

SUMMARY

The present application describes a child carrier that is flexible and convenient to use.

According to an embodiment, the child carrier includes a carrying harness, a child supporting part connected with the carrying harness and including a hip support portion and a torso support portion connected with each other, and a panel having a first end anchored to the carrying harness, a second end anchored to the child supporting part at a location distant from the first end, and an intermediate portion between the first end and the second end that extends above the hip support portion and adjacently overlaps with the hip support portion.

According to another embodiment, the child carrier includes a carrying harness including two shoulder straps, a linking part disposed between and oppositely connected with the two shoulder straps, and a waist strap fixedly connected with the two shoulder straps, a child supporting part including a hip support portion and a torso support portion connected with each other, the hip support portion being connected with the waist strap, and a panel having a first end anchored to the carrying harness, a second end anchored to the child supporting part at a location distant from the first end, and an intermediate portion between the first end and the second end that lines the hip support portion and is movable relative to the hip support portion.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic front view illustrating an embodiment of a child carrier;

FIG. **2** is a schematic front view illustrating the child carrier of FIG. **1** in another state;

FIG. **3** is a schematic front view illustrating the child carrier of FIG. **2** with a neck support portion of the child carrier adjusted to a vertical position different from that shown in FIG. **2**;

FIG. **4** is a schematic front view illustrating the child carrier of FIG. **3** with a hip support adjustment of the child carrier in a fastened state for reducing a width of a hip support portion;

FIG. **5** is a schematic front view illustrating the child carrier of FIG. **3** having a head cover deployed outward;

FIG. **6** is a schematic view illustrating the child carrier of FIG. **1** with a child supporting part of the child carrier flipped downward;

FIG. **7** is a schematic rear view illustrating the child carrier of FIG. **1**;

FIG. **8** is a schematic view illustrating further details of the child carrier of FIG. **1** including two shoulder straps linked to each other via two strap fastening assemblies;

FIG. **9** is a schematic view illustrating the two strap fastening assemblies of the shoulder straps in an unfastened state;

FIG. **10** is a schematic view illustrating a variant construction of the child carrier;

FIGS. **11** and **12** are schematic views illustrating variant constructions of the child carrier including a pocket for concealing a hip support adjustment;

FIGS. **13-15** are schematic views illustrating another feature that may be provided in an embodiment of the child carrier;

FIG. **16** is a schematic view illustrating another variant construction that may be applied in an embodiment of the child carrier;

FIG. **17** is a schematic view illustrating the child carrier of FIG. **16** with a neck support portion detached from a torso support portion;

FIG. **18** is a schematic enlarged view illustrating further construction details of the neck support portion provided in the child carrier of FIG. **16**;

FIG. **19** is a schematic enlarged view illustrating a head cover deployed outside the neck support portion shown in FIG. **18**;

FIG. **20** is a schematic view illustrating an embodiment of the child carrier including a bib installed on a neck support portion;

FIG. **21** is a schematic view illustrating the bib alone;

FIG. **22** is a schematic view illustrating an embodiment of the child carrier including an expandable part operable to adjust a greatest bottom distance between a torso support portion and a carrying harness of the child carrier;

FIG. **23** is a side view illustrating the child carrier of FIG. **22**;

FIG. **24** is a schematic view illustrating exemplary adjustment of the expandable part in the child carrier shown in FIG. **22**;

FIG. **25** is a schematic enlarged view illustrating the adjusted expandable part in the child carrier shown in FIG. **24**; and

FIG. **26** is a schematic side view illustrating the child carrier of FIG. **24** in an installed configuration.

DETAILED DESCRIPTION OF THE EMBODIMENTS

Reference is made to FIGS. **1-9** to describe an embodiment of a child carrier **100**. The child carrier **100** can include a carrying harness **110** and a child supporting part **120**. The child carrier **100** may be suitable for carrying and transporting a child close to a caregiver's body.

Referring to FIGS. **1-9**, the carrying harness **110** can wrap around a caregiver's body when the child carrier **100** is installed and used for transporting a child. The carrying harness **110** can include a waist strap **111** and two shoulder straps **112**. Each of the two shoulder straps **112** can have one fixed end **112***a* (better shown in FIGS. **6** and **7**) fixedly connected with the waist strap **111**, and a distal end **112***b* (better shown in FIGS. **1** and **6**) that can be detachably fastened to the waist strap **111** or the child supporting part **120** (as described hereinafter).

The child supporting part **120** can be connected with the carrying harness **110**. More specifically, the child supporting part **120** can be respectively connected with the shoulder straps **112** and the waist strap **111** at two opposite end portions of the child supporting part **120**. According to an embodiment, the child supporting part **120** can include a neck support portion **121**, a torso support portion **122** having an inner surface **122***a* (better shown in FIG. **6**) and an outer surface **122***b* (better shown in FIGS. **1-3**) opposite to each other, a hip support portion **123** and two thigh support portions **124**. The child supporting part **120** comprised of the neck support portion **121**, the torso support portion **122**, the hip support portion **123** and the thigh support portions **124** may include flexible materials, which may include, without limitation, fabrics, soft goods, and the like. The hip support portion **123** is disposed between and is respectively connected with the waist strap **111** and the torso support portion **122**. The two thigh support portions **124** are respectively disposed transversally opposite to each other at a left and a right side of the hip support portion **123**, and are respectively connected with the hip support portion **123**. According to an example of construction, the two thigh support portions **124** may be respectively disposed at an angle relative to the hip support portion **123** (shown in FIG. **6**), and can fold toward the waist strap **111**. Moreover, each thigh support portion **124** may have a curved shape including two opposite tapered ends and a middle that is thicker than the two tapered ends, e.g., like a crescent shape. The middle of the thigh support portion **124** may exemplary include a filling material so as to increase its thickness. In use, the hip support portion **123** and the two thigh support portions **124** are foldable relative to the waist strap **111**, and can delimit at least partially a receiving space for seating a child. The thicker middle of each thigh support portion **124** can provide suitable support for the thigh so that a child can sit in a position with the knees level with the hip joint, which can provide a healthier sitting position that can facilitate natural hip development. The torso support portion **122** is foldable relative to the hip support portion **123**, and can provide support for a torso of a child. The neck support portion **121** can be folded over and connected with a top of the torso support portion **122**, and can be positioned adjacent to a child's neck for assisting in supporting the child's head.

Referring to FIGS. **1-5**, the child carrier **100** can include a hip support adjustment **130** provided on the hip support portion **123**. The hip support adjustment **130** is operable to modify a width of the hip support portion **123** according to the size and/or sitting configuration of a child. The width of the hip support portion **123** may be exemplary defined as a transversal distance between the two thigh support portions **124**. It will be appreciated, however, that the width may be defined as any distance between any two points on the hip support portion **123** along the transverse direction. According to an example of construction, the hip support adjustment **130** can include an adjusting part **131** connected with the hip support portion **123**. The adjusting part **131** may include a strip, a strap, a band, a panel, or the like. Examples of suitable materials for the adjusting part **131** may include flexible materials such as fabrics, elastic bands, and the like. The adjusting part **131** can extend transversally along a width direction of the hip support portion **123**, and is operable to urge the hip support portion **123** to transversally contract for reducing the width of the hip support portion **123**. For example, the adjusting part **131** may have at least one distal end portion operable to detachably fasten to the hip support portion **123** at one or more predetermined connecting locations thereon to adjust the width of the hip support portion **123**.

Referring to FIGS. **1-5**, the adjusting part **131** can exemplary have a fixed end **131***a* fixedly anchored to the hip support portion **123**, and a distal end portion **131***b* operable to detachably fasten to the hip support portion **123** at a location distant from the fixed end **131***a*. The fixed end **131***a* of the adjusting part **131** may be fixedly anchored to the hip support portion **123** at a location adjacent to one of the two thigh support portions **124**. Any suitable fastening structure may be used to detachably fasten the distal end portion **131***b* of the adjusting part **131** to the hip support portion **123**. For example, the adjusting part **131** may have an opening **132** positioned distant from the fixed end **131***a* of the adjusting part **131**, and the hip support portion **123** may have a button **133** that can engage with and disengage from the opening **132** of the adjusting part **131**. According to an example of construction, only one opening **132** is provided in the adjusting part **131**. It will be appreciated, however, that the adjusting part **131** may include multiple openings **132**. Moreover, a distance between the fixed end **131***a* of the adjusting part **131** and the opening **132** can be smaller than the width of the hip support portion **123**. The button **133** is fixedly attached to the hip support portion **123** at a location distant from the fixed end **131***a* of the adjusting part **131** along the width direction of the hip support portion **123**.

The hip support adjustment **130** can be in a fastened state when the distal end portion **131***b* of the adjusting part **131** is attached to the hip support portion **123** by engaging the button **133** with the opening **132**, and in an unfastened state when the distal end portion **131***b* of the adjusting part **131** is detached from the hip support portion **123** by disengaging the button **133** from the opening **132**. When the hip support adjustment **130** is in the fastened state, the hip support portion **123** can be at least partially folded and contracted transversally, which reduces the width of the hip support portion **123**. When the hip support adjustment **130** is in the unfastened state, the hip support portion **123** may be transversally expanded, which increases the width of the hip support portion **123**. Accordingly, the width of the hip support portion **123** can be smaller when the hip support adjustment **130** is in the fastened state than when the hip support adjustment **130** is in the unfastened state. The hip

support portion **123** may be thereby adjusted for receiving children of different sizes and/or in different sitting configurations.

It will be appreciated that multiple variant constructions of the hip support adjustment **130** may be possible. For example, the placement of the opening **132** and the button **133** may be interchanged: the opening **132** may be provided on the hip support portion **123**, and the button **133** may be provided on the adjusting part **131**. According to a variant construction, rather than having the adjusting part **131** fixedly connected with the hip support portion **123** at the fixed end thereof, the adjusting part **131** may be entirely removable from the hip support portion **123**, i.e., the adjusting part **131** may have two ends that can be detachably connected with the hip support portion **123**. According to another variant construction, the adjusting part **131** may fasten to the hip support portion **123** by using buckle fasteners, snap fasteners, hooks and loop fasteners, a zip fastener, a restraining belt, and the like.

Referring to FIGS. **3-5**, the torso support portion **122** may include a storage pocket **1221** adapted to receive a head cover **1222**. The storage pocket **1221** may be placed below the neck support portion **121**, and may have an opening that can be opened and closed as desired on the outer surface **122***b* of the torso support portion **122**. For example, suitable fasteners that may be used for closing and opening the storage pocket **1221** may include, without limitation, zip fasteners, button fasteners, snap fasteners, hook and loop fasteners, and the like. The head cover **1222** is shaped and sized so as to be able to at least partially cover a child's head. Examples of suitable materials for the head cover **1222** may include flexible materials such as fabrics and soft goods. The head cover **1222** may be folded and stowed inside the storage pocket **1221**, and deployed outward for use. According to an example of construction, the head cover **1222** may have an end fixedly connected with an interior of the storage pocket **1221** (e.g., by sewing), so that the head cover **1222** can be coupled to the torso support portion **122**. This may prevent inadvertent loss of the head cover **1222**, and may avoid the need of additional fasteners for connecting the head cover **1222** to the torso support portion **122**. According to another example of construction, the head cover **1222** may be separable from the torso support portion **122** if required.

Referring to FIGS. **3-5**, when the head cover **1222** is deployed for use, the head cover **1222** can extend from the storage pocket **1221** across the neck support portion **121** and detachably fasten to the two shoulder straps **112** of the child carrier **100** to at least partially cover and help supporting the child's head. For example, the head cover **1222** may have a plurality of fastening parts **1222***a* (better shown in FIG. **5**) that can respectively engage with corresponding fastening parts **1122** (better shown in FIG. **8**) provided on the shoulder straps **112**. The fastening parts **1222***a* and **1122** may include, without limitation, snap fasteners, button fasteners and the like. According to an example of construction, the head cover **1222** may be connected with two belt portions **1222***b* that can protrude from a distal edge **1222***c* of the head cover **1222**, and the fastening parts **1222***a* may be respectively provided on the belt portions **1222***b*. During use, the head cover **1222** can be expanded to cover a child's head, and the belt portions **1222***b* may be extended toward the shoulder straps **112** so that the fastening parts **1222***a* on the belt portions **1222***b* can respectively engage with the fastening parts **1122** on the shoulder straps **112**. When the head cover **1222** is not used, the fastening parts **1222***a* and **1122** can be detached from each other, and the head cover **1222** then can be folded and stowed inside the storage pocket **1221**. The belt portions **1222***b* and the fastening parts **1222***a* thereon may be stored with the head cover **1222** inside the storage pocket **1221**.

It will be appreciated that the storage pocket **1221** may be provided at other suitable positions on the child supporting part **120**. For example, the storage pocket **1221** may be provided in the neck support portion **121**, so that the head cover **1222** can be stored inside the neck support portion **121**. In this case, the head cover **1222** may be connected with the neck support portion **121**, e.g., with an interior of the storage pocket **1221** provided in the neck support portion **121**.

Referring to FIGS. **1-4** and **6**, the neck support portion **121** can be folded over and connected with the torso support portion **122** at a top thereof. According to an example of construction, the neck support portion **121** can be fixedly connected with the top of the torso support portion **122** along a connection region **121***a* (better shown in FIG. **6**) extending transversally from a left to a right side of the torso support portion **122**. Moreover, the neck support portion **121** can have two end portions transversally opposite to each other along the direction of the connection region **121***a* that are respectively provided with two fastening parts **1211** (better shown in FIG. **6**). Each of a left and a right side of the torso support portion **122** can respectively have a plurality of fastening parts **1223** operable to engage with and disengage from the fastening parts **1211** of the neck support portion **121**. The fastening parts **1223** may be distributed at the left and right sides of the storage pocket **1221**. According to an example of construction, the fastening parts **1211** provided on the neck support portion **121** may be openings, and the fastening parts **1223** provided on the torso support portion **122** may be buttons that can engage and disengage the fastening parts **1211**. The fastening parts **1223** at each of the left and right sides may be exemplary provided on the outer surface **122***b* of the torso support portion **122**, and may be disposed in a row generally parallel to the lengthwise axis of the child supporting part **120**. According to an example of construction, the torso support portion **122** may include four fastening parts **1223**, a set of two fastening parts **1223** being respectively provided at each of the left and right sides of the torso support portion **122**.

According to the size of a child, the neck support portion **121** is configurable in different heights or vertical positions relative to the torso support portion **122** by folding the neck support portion **121** over the torso support portion **122**. For example, the neck support portion **121** may have a first height or vertical position by applying a first fold over the torso support portion **122** (shown in FIGS. **3** and **4**), and a second height or vertical position lower than the first height or vertical position by applying a second fold over the torso support portion **122** that is greater than the first fold (shown in FIGS. **1** and **2**). When the neck support portion **121** is in the first vertical position, the fastening parts **1211** on the two opposite end portions of the neck support portion **121** can respectively engage with two upper ones of the fastening parts **1223** on the left and right sides of the torso support portion **122** to hold the neck support portion **121** in the first vertical position. When the neck support portion **121** is in the second vertical position, the fastening parts **1211** at the two opposite end portions of the neck support portion **121** can respectively engage with two lower ones of the fastening parts **1223** on the left and right sides of the torso support portion **122** to hold the neck support portion **121** in the second vertical position.

It will be appreciated that multiple variant constructions of the fastening parts **1211** and **1223** may be possible. For example, the fastening parts **1211** provided on the neck support portion **121** may be buttons, and the fastening parts **1223** provided on the torso support portion **122** may be openings. According to a variant construction, the fastening parts **1211** and **1223** may include magnetic fasteners, snap fasteners, hooks and loop fasteners, zipper fasteners, restraining belts, and the like. Moreover, the vertical adjustment of the neck support portion **121** relative to the torso support portion **122** may be applicable to various embodiments of the child carrier **100**, including embodiments with the storage pocket **1221** for the head cover **1222** provided in the torso support portion **122** or the neck support portion **121**. In an embodiment where the storage pocket **1221** for the head cover **1222** is provided in the neck support portion **121**, the fastening parts **1211** may be disposed on the neck support portion **121** at a left and a right side of the storage pocket **1221**, and the neck support portion **121** may be folded over the torso support portion **122** to a desirable vertical position with the head cover **1222** stored inside the neck support portion **121** or deployed outward.

The neck support portion **121** described herein is conveniently adjustable according to the size of a child to provide suitable support for the child's head. Accordingly, the neck support portion **121** can contribute to offer a comfortable and safer support for the child.

Referring to FIGS. **1-7**, the child supporting part **120** and the shoulder straps **112** can detachably fasten to each other via coupling assemblies **140** and **150**. The coupling assembly **140** can include two sets of connectors **141** and **142** operable to engage with and disengage from each other. For example, two connectors **141** can be respectively coupled to the two shoulder straps **112**, and two connectors **142** can be respectively appended to a left and a right side of the torso support portion **122** via two belt portions **1224**. More specifically, each connector **141** may be attached to the corresponding shoulder strap **112** at an intermediate position between the fixed end **112***a* and the distal end **112***b* of the shoulder strap **112**. The two belt portions **1224** may be respectively attached to the torso support portion **122** adjacent to the top thereof and remotely distant from the hip support portion **123**, and each connector **142** may be coupled to the corresponding belt portion **1224**. According to an example of construction, the two belt portions **1224** may be respectively attached to the inner surface **122***a* of the torso support portion **122** adjacent to the top thereof. The length of each belt portion **1224** between the connector **142** thereof and the torso support portion **122** is adjustable according to the size of a child received in the child carrier **100**.

Referring to FIGS. **1-4**, the coupling assembly **150** can include two sets of connectors **151** and **152** operable to engage with and disengage from each other. For example, two connectors **151** can be respectively coupled to the two shoulder straps **112**, and two connectors **152** can be respectively coupled to the torso support portion **122** above the hip support portion **123** and the adjusting part **131**. More specifically, each connector **151** can be respectively appended at the distal end **112***b* of the corresponding shoulder strap **112** opposite to the fixed end **112***a* of the shoulder strap **112**. According to an example of construction, each connector **151** may be adjustably coupled to the shoulder strap **112** so that a length of the shoulder strap **112** between the connector **151** and the fixed end **112***a* of the shoulder strap **112** is adjustable. The connectors **152** may be disposed adjacent to the hip support portion **123**. According to an example of construction, each connector **152** may be respectively appended to a tab **1226** that can be affixed to the outer surface **122***b* of the torso support portion **122**.

Referring to FIGS. **1-4**, the outer surface **122***b* of the torso support portion **122** may further include two guide loops **1225** through which the two connectors **151** of the shoulder straps **112** can respectively pass for engagement with the two connectors **152**. For example, the two guide loops **1225** may be respectively disposed above the two thigh support portions **124** and close to the two connectors **152**.

According to the illustrated embodiment, the connectors **141** and **142** and the connectors **151** and **152** may include male and female connectors operable to engage into each other. According to some variant constructions, the connectors **141** and **142** and the connectors **151** and **152** may include snap fasteners, button fasteners, zipper fasteners, hook and loop fasteners, and the like.

For coupling the torso support portion **122** to the shoulder straps **112**, the distal ends **112***b* of the shoulder straps **112** may be connected to the torso support portion **122** by respectively engaging the connectors **151** at the distal ends **112***b* with the connectors **152** of the torso support portion **122**. Moreover, the connectors **142** of the torso support portion **122** can be respectively engaged with the connectors **141** of the shoulder straps **112**. A distance between the top of the torso support portion **122** and the shoulder straps **112** may be adjusted as desired by adjusting the length of the belt portions **1224** between the connectors **142** and the torso support portion **122**.

The aforementioned embodiment has the distal ends **112***b* of the shoulder straps **112** connected to the torso support portion **122** in the use configuration. According a variant embodiment, the distal ends **112***b* of the shoulder straps **112** may be connected with the waist strap **111** in the use configuration to form the closed loops for passage of the caregiver's arms, e.g., by providing the same connectors **152** at suitable positions on the waist strap **111**.

Referring to FIGS. **6-9**, the child carrier **100** can further include a strap restraining assembly **160** that can connect between the two shoulder straps **112**. The strap restraining assembly **160** is operable to restrictedly position the two shoulder straps **112** over the caregiver's shoulders, and may include two strap fastening assemblies **161** and **162** and a linking part **163**. Examples of suitable materials for the linking part **163** may include, without limitation, flexible materials such as fabrics or like soft goods. The linking part **163** may be disposed between and oppositely connected with the two shoulder straps **112**, and may be positioned adjacent to the waist strap **111**. The linking part **163** can assist in restrictedly position the shoulder straps **112**. The two strap fastening assemblies **161** and **162** can respectively slide along the two shoulder straps **112** for adjustment, and can engage with or disengage from each other for fastening or unfastening the strap restraining assembly **160**.

Referring to FIGS. **8** and **9**, the strap fastening assembly **161** can include a sliding part **1611**, a female fastener **1613**, and a belt portion **1612** respectively connected with the sliding part **1611** and the female fastener **1613**. The sliding part **1611** may be slidably connected with one of the two shoulder straps **112**. For example, a guide strip **1121** extending lengthwise along the shoulder strap **112** may be provided with two opposite ends affixed to the shoulder strap **112**, and the sliding part **1611** may be slidably mounted on the guide strip **1121**. The belt portion **1612** can wrap through and connect with the sliding part **1611**, so that the belt portion **1612** and the sliding part **1611** can slide in unison along the shoulder strap **112**. The female fastener **1613** can be appended to the shoulder strap **112** via the belt portion **1612**.

The strap fastening assembly **162** can include a sliding part **1621**, a male fastener **1623**, and a belt portion **1622** respectively connected with the sliding part **1621** and the male fastener **1623**. The sliding part **1621** can be slidably connected with the other one of the two shoulder straps **112**, e.g., by using a guide strip **1121** like described previously. The belt portion **1622** can wrap through and connect with the sliding part **1621**, so that the belt portion **1622** and the sliding part **1621** can slide in unison along the other shoulder strap **112**. The male fastener **1623** can be adjustably appended to the other shoulder strap **112** via the belt portion **1622**. The female fastener **1613** and the male fastener **1623** are operable to engage with and disengage from each other.

When the child carrier **100** is installed on a caregiver's body, the linking part **163** may be positioned in front of the caregiver's torso, and the female fastener **1613** and the male fastener **1623** can engage with each other at the back of the caregiver so as to restrictedly position the two shoulder straps **112** over the caregiver's torso.

Referring to FIGS. **1-7**, the waist strap **111** can include an attachment system **170** for fastening or unfastening the waist strap **111** around a caregiver's waist. The attachment system **170** can include two fastening parts **171** and **172** respectively provided on two opposite ends of the waist strap **111** that can detachably engage with each other. According to an example of construction, the fastening parts **171** and **172** may include hook and loop fasteners. According to other examples of construction, the fastening parts **171** and **172** may include mutually engageable male and female fasteners, snap fasteners, button fasteners, zip fasteners, and the like.

Referring to FIG. **7**, the waist strap **111** can further include a securing harness **180** operable to tighten the waist strap **111** around a caregiver's waist. The securing harness **180** can include a tightening belt **181**, and two fastening parts **182** and **183**. The tightening belt **181** can have one end fixedly connected with the waist strap **111**, the fastening part **182** can be adjustably connected with the tightening belt **181**, and the fastening part **183** can be fixedly connected with the waist strap **111**. According to an example of construction, the fastening parts **182** and **183** may include male and female buckle parts operable to engage with each other. In use, after the waist strap **111** is fastened around a caregiver's waist with the attachment system **170**, the tightening belt **181** can be stretched to extend across the two ends of the waist strap **111** so that the fastening part **182** on the tightening belt **181** can engage with the fastening part **183** on the waist strap **111**. The waist strap **111** can be thereby tightly secured around the caregiver's waist. According to an example of construction, the waist strap **111** can further include a guide loop **1111** disposed between the fastening part **183** and an end of the waist strap **111**. The guide loop **1111** may facilitate positioning of the tightening belt **181**, which can pass through the guide loop **1111** for engaging the fastening part **182** with the fastening part **183**.

Exemplary use of the child carrier **100** is described hereinafter with reference to FIGS. **1-9**. When the child carrier **100** is to be used, the connectors **151** at the distal ends **112***b* of the shoulder straps **112** can be fastened to the connectors **152** of the torso support portion **122**, and the connectors **142** of the torso support portion **122** can be respectively engaged with the connectors **141** of the shoulder straps **112**. The torso support portion **122** can be thereby coupled to the shoulder straps **112**, and the shoulder straps **112** can respectively define two closed loops for passage of the caregiver's arms. Moreover, the width of the hip support portion **123** may be adjusted with the adjusting part **131** according to the size of a child or the child's sitting configuration. For example, when the child is to be seated facing forward and away from the caregiver, the button **133** on the hip support portion **123** can be engaged with the opening **132** of the adjusting part **131** (as shown in FIG. **4**) to reduce the width of the hip support portion **123**, whereby the hip support portion **123** can more tightly support the child. When the child is to be seated facing the caregiver, the hip support portion **123** would wrap around the larger region of the child's hip, so the button **133** on the hip support portion **123** can be disengaged from the opening **132** of the adjusting part **131** (as shown in FIG. **3**) to increase the width of the hip support portion **123** for a comfortable sitting environment.

Once the setup of the child carrier **100** is completed, the waist strap **111** can be fastened around a caregiver's waist by engaging the two fastening parts **171** and **172** of the attachment system **170**. The waist strap **111** may then be tightened around the caregiver's waist with the securing harness **180**. Subsequently, the child is held in front of the caregiver's torso, and the shoulder straps **112** and the child supporting part **120** are pulled upward together so that the child supporting part **120** wraps around the child and the shoulder straps **112** extend along a front side of the caregiver's torso and wrap around the caregiver's shoulders. The inner surface **122***a* of the torso support portion **122** can thereby face an interior volume of the child carrier **100** where the child is received, and the outer surface **122***b* can face outward. Then the two strap fastening assemblies **161** and **162** can be adjusted along the two shoulder straps **112** according to the caregiver's size, and can engage with each other for fastening the strap restraining assembly **160**. A distance between the top of the torso support portion **122** and the caregiver's body may be adjusted as desired by adjusting the length of the belt portions **1224**.

FIG. **10** is a schematic view illustrating a variant construction of the child carrier **100** in which the hip support adjustment **130** can include a zip fastener **134** that may serve as the adjusting part **131** described previously. The zip fastener **134** can be connected with the hip support portion **123**, and can extend generally parallel to the lengthwise axis of the child supporting part **120**. According to an example of construction, the zip fastener **134** can be disposed adjacent to a middle of the hip support portion **123**. The zip fastener **134** can be closed to reduce the width of the hip support portion **123**, and opened to increase the width of the hip support portion **123**.

FIG. **11** is a schematic view illustrating a variant construction of the child carrier **100** that may include a pocket **125**. The pocket **125** can be provided in the hip support portion **123**, and can be configured to conceal the hip support adjustment **130**. More specifically, the hip support adjustment **130** may be disposed inside the pocket **125**, and the pocket **125** can have an opening **1251** at a top or a side thereof through which the hip support adjustment **130** may be accessible for operation. Concealment of the hip support adjustment **130** inside the pocket **125** may contribute to improve the overall outer appearance of the child supporting part **120**.

In FIG. **11**, the hip support adjustment **130** concealed in the pocket **125** can exemplary include the adjusting part **131** and the button **133** as described previously in conjunction with FIGS. **1-4**. In FIG. **12**, the hip support adjustment **130** concealed in the pocket **125** can exemplary include the zip fastener **134** as described previously in conjunction with FIG. **10**.

FIGS. **13-15** are schematic views illustrating another feature that may be provided in an embodiment of the child carrier **100**. The child carrier **100** shown in FIGS. **13-15** may have any of the structures described previously. Referring to FIGS. **13-15**, the child carrier **100** may further include two thigh restraints **190** that extend between the carrying harness **110** and the child supporting part **120** and are respectively provided close to the two thigh support portions **124** at the left and right sides. According to an example of construction, the thigh restraint **190** and the thigh support portion **124** at each of the left and right sides may at least partially delimit an adjustable restraining opening through which a thigh of a child may be positioned, the thigh restraint **190** extending above the thigh support portion **124**. Once a child is installed on the child carrier **100** with a thigh of the child positioned through the restraining opening, the thigh restraint **190** can upwardly limit an upward displacement of the thigh, which may assist in suitably positioning the child and prevent the child from falling sideways off the child carrier **100**.

Referring to FIGS. **13-15**, according to an example of construction, the thigh restraint **190** includes a limiting part **191** that can extend between the carrying harness **110** and the child supporting part **120**. The limiting part **191** may have an elongate shape, and may be comprised of a flexible material. For example, the limiting part **191** may be a flexible strip or band. Examples of suitable materials for the limiting part **191** may include, without limitation, fabrics, soft goods, and the like. According to an embodiment, the limiting part **191** may be respectively connected with the carrying harness **110** and the child supporting part **120** at a location between the thigh support portion **124** and the neck support portion **121**. For example, the limiting part **191** may have a fixed end **191***a* affixed to the carrying harness **110**, and may be operable to detachably connect with the torso support portion **122** at a location adjacent to the hip support portion **123** and above the thigh support portion **124**. According to an example of construction, the fixed end **191***a* of the limiting part **191** may be affixed to the shoulder strap **112** at a location adjacent to and above the waist strap **111**. According to another example of construction, the fixed end **191***a* of the limiting part **191** may be affixed to the waist strap **111**.

Rather than respectively connecting with the carrying harness **110** and the child supporting part **120**, the limiting part **191** may alternatively be connected with the child supporting part **120** at two distant locations. For example, the limiting part **191** may have the fixed end **191***a* connected with the hip support portion **123** or the thigh support portion **124**, and may be operable to detachably connect with the torso support portion **122** at a location adjacent to the hip support portion **123** and above the thigh support portion **124**.

When the limiting part **191** is connected with the torso support portion **122**, the limiting part **191** and the thigh support portion **124** can at least partially delimit a restraining opening for positioning of a child's thigh. In addition, the limiting part **191** is operable to modify the size of the restraining opening. For example, a length of the limiting part **191** between the fixed end **191***a* and the location where the limiting part **191** connects with the torso support portion **122** may be adjustable to modify the size of the restraining opening.

According to an example of construction, the limiting part **191** may have a first fastening part **192** disposed adjacent to a distal end **191***b* of the limiting part **191** opposite to the fixed end **191***a* thereof, and one or more second fastening part **193** disposed adjacent to the fixed end **191***a* that can engage with and disengage from the first fastening part **192**. The first and second fastening parts **192** and **193** may include, without limitation, button fasteners, snap fasteners, hook and loop fasteners, buckle fasteners, and the like. For forming the restraining opening, the limiting part **191** may lace through a guide loop that is provided on the outer surface **122***b* of the torso support portion **122** above the thigh support portion **124** (e.g., the guide loop **1225**), and then turn back so that the first fastening part **192** engages with one of the second fastening parts **193** (as shown in FIG. **15**). In a use configuration, the installed limiting part **191** can extend above the thigh support portion **124** and below the neck support portion **121**, and can upwardly limit an upward movement of a child's thigh positioned through the restraining opening. The length of the limiting part **191** between the fixed end **191***a* and the location where the limiting part **191** connects with the torso support portion **122** (e.g., the guide loop **1225**), which can upwardly delimit the restraining opening, can be adjusted by engaging the first fastening part **192** with a different one of the second fastening parts **193**.

It will be appreciated that the thigh restraint **190** may have other constructions. For example, rather than using a lacing method, a variant construction may dispose the second fastening parts **193** on the torso support portion **122**, and the first fastening part **192** on the limiting part **191** can engage with any of the second fastening parts **193** on the torso support portion **122** to form the restraining opening. According to another variant construction shown in FIG. **26**, the limiting part **191** may include a plurality of first fastening parts **192** respectively formed as openings, and the torso support portion **122** may have a second fastening part **193** in the form of a button operable to selectively engage with any of the openings on the limiting part **191** for forming the restraining opening. According to another construction, the limiting part **191** may be detachably and/or adjustably fastened to one or both of the carrying harness **110** and the torso support portion **122**.

FIGS. **16-19** are schematic views illustrating another variant construction that that may be applied in an embodiment of the child carrier **100**. Referring to FIGS. **16-19**, the neck support portion **121** may be detachably connected with a top of the torso support portion **122** via a fastener, which can be exemplary a zip fastener **126**. The fastener can be engaged to connect the neck support portion **121** with the torso support portion **122**, and disengaged to remove the neck support portion **121** from the torso support portion **122**. Accordingly, a caregiver can easily remove and install the neck support portion **121** as needed. For example, the neck support portion **121** may be removed from the torso support portion **122** for facilitating cleaning or repair. Although the example of FIGS. **16-19** uses a zip fastener, it will be appreciated that other types of fasteners are possible for detachably connecting the neck support portion **121** with the torso support portion **122** including, without limitation, snap fasteners, button fasteners, hook and loop fasteners, and the like. Once the neck support portion **121** is connected with the torso support portion **122**, the neck support portion **121** may be folded over the torso support portion **122** (e.g., along the zip fastener **126**) for adjustment of the vertical position of the neck support portion **121** relative to the torso support portion **122**, like described previously. The same fastening parts **1211** and **1223** described previously can be used to hold the vertical position of the neck support portion **121**.

Referring to FIGS. **16-19**, the storage pocket **1221** used for storing the head cover **1222** may be provided in the detachable neck support portion **121** rather than in the torso support portion **122**. For example, the storage pocket **1221**

may be placed in a central region of the neck support portion **121**, and the fastening parts **1211** of the neck support portion **121** may be positioned at a left and a right side of the storage pocket **1221**. The opening of the storage pocket **1221** may be exemplary closed and opened with one or more snap fastener **1221***a*. Other suitable fasteners for closing and opening the storage pocket **1221** may include, without limitation, zip fasteners, button fasteners, hook and loop fasteners, and the like. According to an example of construction, the head cover **1222** may have an end fixedly connected with an interior of the storage pocket **1221**, so that the head cover **1222** is coupled to the neck support portion **121**. The head cover **1222** may be folded and stowed inside the storage pocket **1221**, and deployed outward for use. When the head cover **1222** is deployed for covering a child's head, the head cover **1222** may detachably fasten to the two shoulder straps **112** of the child carrier **100** to help supporting the child's head. For example, the head cover **1222** may have two belt portions **1222***b* (better shown in FIG. **16**) respectively provided with fastening parts **1222***a* that can respectively engage with corresponding fastening parts **1122** provided on the shoulder straps **112**. When the head cover **1222** is unused, the belt portions **1222***b* and the fastening parts **1222***a* thereon may be stored with the head cover **1222** inside the storage pocket **1221**.

FIGS. **20** and **21** are schematic views illustrating another feature that may be provided in an embodiment of the child carrier **100**. Referring to FIGS. **20** and **21**, the child carrier **100** may include a bib **127** that is installable on the child supporting part **120** to at least partially cover and protect the neck support portion **121**. The neck support portion **121** may be permanently affixed to or detachably connected with the torso support portion **122**, and can be adjusted between a plurality of vertical positions relative to the torso support portion **122** by folding the neck support portion **121** over the torso support portion **122** as described previously. The bib **127** may be installed adjacently on the neck support portion **121** while the neck support portion **121** is in any desirable vertical positions relative to the torso support portion **122**. For convenient and flexible use, the bib **127** may be attached to and detached from the child supporting part **120** as desired. For example, the bib **127** may be detachably fastened to the neck support portion **121** and/or the torso support portion **122** of the child supporting part **120**.

According to an example of construction, the bib **127** may have a generally U-shape, including a transversal portion **1271** and two side portions **1272** protruding from the transversal portion **1271** at two opposite sides thereof. Examples of suitable materials for the bib **127** can include, without limitation, fabrics and soft goods. The bib **127** can include a plurality of openings **1273** for attachment of the bib **127** to the child supporting part **120**. For example, two openings **1273** may be respectively disposed on the bib **127** adjacent to the two connecting regions where the two side portions **1272** respectively join with the transversal portion **1271**. In use, the bib **127** may be disposed to cover at least partially the neck support portion **121**, and fastening parts provided on the torso support portion **122** can respectively engage with the openings **1273** to hold the bib **127** in position. Examples of suitable fastening parts provided on the torso support portion **122** for engaging with the openings **1273** of the bib **1273** can include buttons. According to one embodiment, the fastening parts **1223** provided on the torso support portion **122** for holding the different vertical positions of the neck support portion **121** may also engage with the openings **1273** to hold the bib **127** in position. For example, two of the fastening parts **1223** can respectively engage with the neck support portion **121** and the bib **127** to hold the neck support portion **121** in a desired vertical position and the bib **127** in position adjacent to the neck support portion **121**. Once the bib **127** is positioned on the neck support portion **121**, the two side portions **1272** of the bib **127** can at least partially cover at least some of the fastening parts **1223** and the two belt portions **1224**.

In addition to or alternatively to the aforementioned fastening parts provided on the torso support portion **122**, it will be appreciated that the neck support portion **121** may also have fastening parts operable to engage with the bib **127** to hold the bib **127** in position.

FIGS. **22-26** are schematic views illustrating another feature that may be provided in an embodiment of the child carrier **100**. Referring to FIGS. **22-26**, the child carrier **100** may include an expandable part **128** operable to adjust a greatest bottom distance between the torso support portion **122** and the carrying harness **110**, in particular a greatest bottom distance between the torso support portion **122** at one end, and the waist strap **111** or a region that is adjacent to the waist strap **111**, the shoulder straps **112** and/or the linking part **163** at the other end. The expandable part **128** may be a panel, a strip, a band, or the like. Examples of suitable materials for the expandable part **128** may include, without limitation, fabrics, soft goods, and like flexible materials. The expandable part **128** can be disposed above the hip support portion **123**. An end **128***a* (better shown in FIG. **23**) of the expandable part **128** may be affixed to the waist strap **111**, or to the child supporting part **120** at a region adjacent the connection between the child supporting part **120** and the waist strap **111**. Another end **128***b* (better shown in FIG. **23**) of the expandable part **128** opposite to the end **128***a* may be affixed to the torso support portion **122** adjacent to a bottom thereof, e.g., adjacent to the connection between the torso support portion **122** and the hip support portion **123**. The expandable part **128** can have an adjustable effective length that links the torso support portion **122** to the carrying harness **110**, which can define the greatest bottom distance allowed between the torso support portion **122** and the carrying harness **110**. For example, the expandable part **128** can be connected with a fastening structure **1281** operable to modify and adjust the effective length of the expandable part **128**, which can thereby adjust the greatest bottom distance between the torso support portion **122** and the carrying harness **110**. When the fastening structure **1281** is configured to reduce the greatest bottom distance between the torso support portion **122** and the carrying harness **110**, the effective length of the expandable part **128** can be smaller than the total length of the expandable part **128** between the two ends **128***a* and **128***b* thereof.

According to an example of construction, the fastening structure **1281** may include a zip fastener including two rows of protruding teeth that spaced apart from each other along the lengthwise direction of the expandable part **128** and extend along a width direction of the child supporting part **120**, the two rows of protruding teeth being operable to engage with and disengage from each other. When the two rows of protruding teeth are engaged with each other, the fastening structure **1281** is in a fastened state with the expandable part **128** folded to reduce the effective length of the expandable part **128** as shown in FIGS. **25** and **26**, which can reduce the greatest bottom distance between the torso support portion **122** and the carrying harness **110**. When the two rows of protruding teeth are disengaged from each other, the fastening structure **1281** is in an unfastened state with the expandable part **128** expandable as shown in FIG. **22** to increase the effective length of the expandable part **128**,

which can increase the greatest bottom distance between the torso support portion **122** and the carrying harness **110**. In other words, the greatest bottom distance allowed between the torso support portion **122** and the carrying harness **110** is smaller when the fastening structure **1281** is in the fastened state than when the fastening structure **1281** is in the unfastened state. During use, the expandable part **128** may be thereby adjusted in accordance with the size of a child to set a suitable bottom distance between the torso support portion **122** and the body of the caregiver carrying the child with the child carrier **100**.

Although the aforementioned example provides a zip fastener for the fastening structure **1281**, it will be appreciated that other constructions may be suitable. For example, some variant constructions for the fastening structure **1281** may include, without limitation, button fasteners, snap fasteners, buckle fasteners, hook and loop fasteners, and the like. Moreover, the fastening structure **1281** may include multiple fastening positions so that more than two greatest bottom distances may be desirably set between the torso support portion **122** and the carrying harness **110**.

According to an embodiment, the child carrier **100** including both the expandable part **128** and the hip support adjustment **130** described herein may offer more flexibility in adjusting the torso support portion **122** and the hip support portion **123** of the child supporting part **120** in accordance with the size of a child and/or the sitting configuration of the child. Accordingly, the child carrier **100** can provide a more comfortable environment for the child.

Referring to FIGS. **16** and **17**, a utility feature that may be provided in an embodiment of the child carrier **100** may include a utility holder band **1112** attached to the waist strap **111**. Examples of suitable materials for the utility holder band **1112** may include, without limitation, fabrics and soft goods. The utility holder band **1112** can extend along the waist strap **111**, and can have two opposite ends **1112***a* and **1112***b* fixedly attached to the waist strap **111** so that an intermediate portion **1112***c* of the utility holder band **1112** between the two ends **1112***a* and **1112***b* is movable away from the waist strap **111** to form a gap **1113** between the waist strap **111** and the intermediate portion **1112***c*. When more than one gap **1113** is to be formed, the utility holder band **1112** may further be fixedly attached to the waist strap **111** at another location **1112***d* between the two ends **1112***a* and **1112***b*. The waist strap **111** can thereby receive one or more object hung on the utility holder band **1112**. For example, an object having a catch may be hung on the utility holder band **1112** with the catch received at least partially through the gap **1113**. For convenient use, the utility holder band **1112** may be positioned on the waist strap **111** at a location that can be easily accessed by a caregiver. For example, the utility holder band **1112** may be positioned on the waist strap **111** adjacent to the hip support portion **123**. In this manner, one or more objects may be hung on the utility holder band **1112** below a child supported by the child supporting part **120** in a use configuration.

Referring again to FIGS. **16** and **17**, a further utility feature of the child carrier **100** may include a storage compartment **1115** provided on the waist strap **111**. The storage compartment **1115** may be fixedly attached to the waist strap **111** at a distance from the utility holder band **1112**. For example, the storage compartment **1115** may be directly sewed onto the waist strap **111**. The storage compartment **1115** may have an opening that can be closed and opened with a fastening part **1116**. According to an example of construction, the fastening part **1116** may be a zip fastener. It will be appreciated, however, that the fastening part **1116** may include other suitable constructions including, without limitation, button fasteners, snap fasteners, hook and loop fasteners, and the like. A caregiver may place objects or items of relatively small sizes in the storage compartment **1115**, such as keys, cards, etc. According to an example of construction, the storage compartment **1115** may be disposed at a location on the waist strap **111** that corresponds to a left or a right side of a caregiver's body when the waist strap **111** is attached around the caregiver's waist.

The embodiments and constructions described herein provide multiple features that may be advantageously applied in a child carrier. These features may be implemented separately or in any suitable combinations various embodiments of the child carrier as needed.

Realization of the child carrier has been described in the context of particular embodiments. These embodiments are meant to be illustrative and not limiting. Many variations, modifications, additions, and improvements are possible. These and other variations, modifications, additions, and improvements may fall within the scope of the invention as defined in the claims that follow.

What is claimed is:

1. A child carrier comprising:

a carrying harness;

a child supporting part connected with the carrying harness and including a hip support portion and a torso support portion connected with each other; and

a panel having a first end anchored to the carrying harness, a second end anchored to the child supporting part at a location distant from the first end, and an intermediate portion between the first end and the second end that extends above the hip support portion and adjacently overlaps with the hip support portion.

2. The child carrier according to claim **1**, wherein the carrying harness includes two shoulder straps, a linking part disposed between and oppositely connected with the two shoulder straps, and a waist strap fixedly connected with the two shoulder straps, the hip support portion being connected with the waist strap.

3. The child carrier according to claim **2**, wherein the first end of the panel is located adjacent to the linking part.

4. The child carrier according to claim **1**, wherein the second end of the panel is anchored to the child supporting part at a location adjacent to a connection between the torso support portion and the hip support portion.

5. The child carrier according to claim **1**, wherein the hip support portion and the panel are adjustable between a first configuration where the hip support portion and the panel are folded so that the first end and the second end of the panel are displaced toward each other, and a second configuration where the hip support portion and the panel are extended so that the first end and the second end of the panel are displaced away from each other.

6. The child carrier according to claim **5**, wherein the child supporting part further includes a fastening structure operable to hold the hip support portion and the panel in the first configuration, the fastening structure being fastened to hold the hip support portion and the panel in the first configuration and unfastened for extension of the hip support portion and the panel.

7. The child carrier according to claim **6**, wherein the fastening structure includes a zip fastening system, button fasteners, snap fasteners, buckle fasteners, or hook and loop fasteners.

8. The child carrier according to claim 1, wherein the intermediate portion of the panel between the first end and the second end thereof is extendible apart from the hip support portion.

9. The child carrier according to claim 1, wherein the hip support portion is provided with a hip support adjustment operable to modify a width of the hip support portion, the hip support portion including a pocket configured to conceal the hip support adjustment, the pocket having an opening at a top or a side thereof through which the hip support adjustment is accessible for operation.

10. The child carrier according to claim 9, wherein the hip support adjustment includes an adjusting part that is connected with the hip support portion and is positionable inside the pocket, the adjusting part being operable to urge the hip support portion to transversally contract for reducing the width of the hip support portion.

11. The child carrier according to claim 10, wherein the adjusting part has a fixed end fixedly anchored to the hip support portion, and a distal end portion operable to detachably fasten to the hip support portion at a location distant from the fixed end.

12. A child carrier comprising:

a carrying harness including two shoulder straps, a linking part disposed between and oppositely connected with the two shoulder straps, and a waist strap fixedly connected with the two shoulder straps;

a child supporting part including a hip support portion and a torso support portion connected with each other, the hip support portion being connected with the waist strap; and

a panel having a first end anchored to the carrying harness, a second end anchored to the child supporting part at a location distant from the first end, and an intermediate portion between the first end and the second end that lines the hip support portion and is movable relative to the hip support portion.

13. The child carrier according to claim 12, wherein the panel extends above the hip support portion.

14. The child carrier according to claim 12, wherein the child supporting part further includes two thigh support portions respectively connected with the hip support portion at a left and a right side thereof, the panel lining a region of the hip support portion between the two thigh support portions.

15. The child carrier according to claim 12, wherein the first end of the panel is located adjacent to the linking part.

16. The child carrier according to claim 12, wherein the second end of the panel is anchored to the child supporting part at a location adjacent to a connection between the torso support portion and the hip support portion.

17. The child carrier according to claim 12, wherein the hip support portion and the panel are adjustable between a first configuration where the hip support portion and the panel are folded so that the first end and the second end of the panel are displaced toward each other, and a second configuration where the hip support portion and the panel are extended so that the first end and the second end of the panel are displaced away from each other.

18. The child carrier according to claim 17, wherein the child supporting part further includes a fastening structure operable to hold the hip support portion and the panel in the first configuration, the fastening structure being fastened to hold the hip support portion and the panel in the first configuration and unfastened for extension of the hip support portion and the panel.

19. The child carrier according to claim 18, wherein the fastening structure includes a zip fastening system, button fasteners, snap fasteners, buckle fasteners, or hook and loop fasteners.

20. The child carrier according to claim 12, wherein the hip support portion is provided with a hip support adjustment operable to modify a width of the hip support portion, the hip support portion including a pocket configured to conceal the hip support adjustment, the pocket having an opening at a top or a side thereof through which the hip support adjustment is accessible for operation.

21. The child carrier according to claim 20, wherein the hip support adjustment includes an adjusting part that is connected with the hip support portion and is positionable inside the pocket, the adjusting part being operable to urge the hip support portion to transversally contract for reducing the width of the hip support portion.

22. The child carrier according to claim 21, wherein the adjusting part has a fixed end fixedly anchored to the hip support portion, and a distal end portion operable to detachably fasten to the hip support portion at a location distant from the fixed end.

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