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FOLDABLE CHILD CARRIER

Abstract

A foldable child carrier (200) includes a lateral support (204), an upper frame (202), a lower plate (203) and a folding mechanism (100). The lateral support (204) is connected to and located between a lower plate (203) and an upper frame (202). The lateral support (204) includes a first supporting component (2041) and a second supporting component (2042) movably connected to the first supporting component (2041). The lateral support (204) is folded or unfolded by a relative movement of the first supporting component (2041) and the second supporting component (2042). The folding mechanism (100) includes a driven component (10), a locking component (30) and an operating component (20). The operating component (20) is linked to the driven component (10) and can drive the driven component (10) to engage with the locking component (30) for allowing the relative movement of the first supporting component (2041) and the second supporting component (2042) or to disengage from the locking component (30) for restraining the relative movement of the first supporting component (2041) and the second supporting component (2042).

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Background/Summary

CROSS REFERENCE TO RELATED APPLICATIONS [0001] This application is a continuation of U.S. patent application Ser. No. 17/786,292, filed on Jun. 16, 2022, which is a U.S. National Stage Patent Application under 35 U.S.C. § 371 of International Patent Application No. PCT/EP 2020/084825, filed on Dec. 7, 2020, which claims priority to Chinese Patent Application No. 201911310604.5, filed Dec. 18, 2019, which are herein incorporated by reference in their entireties as if fully set forth.

FIELD OF THE APPLICATION

[0002] The present application relates to a foldable child carrier according to the pre-characterizing clause of claim 1.

BACKGROUND OF THE APPLICATION

[0003] With advancement of society, development of economy and improvement of technology, there are various consumer products in the market for improving material living conditions to promote qualities of people's lives. Child carriers are one of the various consumer products. Parents, who have children, may use different child carriers, such as child bassinets, child baskets, child cradles, child strollers, to carry their children instead of holding the children with their hands according to different demands for reducing burdens when going out.

[0004] Currently, in order to ensure safety of use of child carriers, most child carriers, especially child bassinets or child baskets, have fixed supporting structures which cannot be detached or folded. However, such child carriers are too bulky to transport and store. The child carriers not only need to meet requirements of comfort and safety, but also need to achieve purposes of easy transportation and storage. Therefore, there is a need to provide an improved foldable child carrier for solving the aforementioned problems.

SUMMARY OF THE APPLICATION

[0005] The present application aims at providing a foldable child carrier.

[0006] This is achieved by a foldable child carrier according to claim 1. The dependent claims pertain to corresponding further developments and improvements.

[0007] As will be seen more clearly from the detail description following below, the claimed foldable child carrier includes a lateral support, an upper frame, a lower plate and a folding mechanism. The lateral support is connected to and located between the lower plate and the upper frame. The lateral support includes a first supporting component and a second supporting component movably connected to the first supporting component. The lateral support is folded or unfolded by a relative movement of the first supporting component and the second supporting component. The folding mechanism includes a driven component, a locking component and an operating component. The locking component is configured to engage with or disengage from the driven component. The operating component is linked to the driven component. The operating

component drives the driven component to engage with the locking component for allowing the relative movement of the first supporting component and the second supporting component or drives the driven component to disengage from the locking component for restraining the relative movement of the first supporting component and the second supporting component.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] In the following, the application is further illustrated by way of example, taking reference to the accompanying drawings.

[0009] FIG. 1 is a schematic diagram of a foldable child carrier in an unfolded state according to an embodiment of the present application,

[0010] FIG. 2 is a schematic diagram of the foldable child carrier in a folded state according to the embodiment of the present application,

[0011] FIG. 3 is a schematic diagram of the foldable child carrier in the unfolded state at another view according to the embodiment of the present application,

[0012] FIG. 4 is a schematic diagram of the foldable child carrier in a state between the folded state and the unfolded state according to the embodiment of the present application,

[0013] FIG. 5 is a partial exploded diagram of the foldable child carrier according to the embodiment of the present application,

[0014] FIG. 6 is an enlarged diagram of an A portion of the foldable child carrier shown in FIG. 5 according to the embodiment of the present application, and

[0015] FIG. 7 is a partial sectional diagram of the foldable child carrier according to the embodiment of the present application.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] In order to illustrate technical specifications and structural features as well as achieved purposes and effects of the present application, relevant embodiments and figures are described as follows.

[0017] In the following detailed description of the preferred embodiments, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific embodiments in which the application may be practiced. In this regard, directional terminology, such as “top”, “bottom”, “front”, “back”, etc., is used with reference to the orientation of the Figure(s) being described. The components of the present application can be positioned in a number of different orientations. As such, the directional terminology is used for purposes of illustration and is in no way limiting. Accordingly, the drawings and descriptions will be regarded as illustrative in nature and not as restrictive. Also, the term “connect” or “link” is intended to mean either an indirect or direct mechanical connection. Thus, if a first device is connected or linked to a second device, that connection may be through a direct mechanical connection, or through an indirect mechanical connection via other devices and connections.

[0018] Please refer to FIG. 1 to FIG. 4. FIG. 1 is a schematic diagram of a foldable child carrier **200** in an unfolded state according to an embodiment of the present application. FIG. 2 is a schematic diagram of the foldable child carrier **200** in a folded state according to the embodiment of the present application. FIG. 3 is a schematic diagram of the foldable child carrier **200** in the unfolded state at another view according to the embodiment of the present application. FIG. 4 is a schematic diagram of the foldable child carrier **200** in a state between the folded state and the unfolded state according to the embodiment of the present application. As shown in FIG. 1 to FIG. 2, in this embodiment, the foldable child carrier **200** can be a child bassinet. However, the present application is not limited to this embodiment. For example, in another embodiment, the foldable child carrier can be a child basket, a child cradle, a child crib or a child stroller. The foldable child

carrier **200** includes a handle **201**, an upper frame **202**, a lower plate **203**, two lateral supports **204** and two folding mechanisms **100**. The handle **201** is pivotally connected to the upper frame **202**. The two lateral supports **204** are located between and connected to the upper frame **202** and the lower plate **203**. Each of the two folding mechanisms **100** is disposed on the corresponding lateral support **204** for allowing a folding operation of the corresponding lateral support **204** to switch the foldable child carrier **200** from the unfolded state to the folded state, i.e., to reduce a height of the foldable child carrier **200** for easy transportation and storage.

[0019] However, the present application is not limited to this embodiment. In another embodiment, the folding mechanism can be disposed on the lower plate or the upper frame to reduce a length or a width of the lower plate or a length or a width of the upper frame, so as to reduce a length or a width of the entire foldable child carrier for easy transportation and storage.

[0020] Specifically, the upper frame **202** is located above the lower plate **203**, and the upper frame **202** and the lower plate **203** are arranged in parallel and spaced from each other. The two lateral supports **204** connect two opposite sides of the upper frame **202** to two opposite sides of the lower plate **203**, respectively, so as to enclose a supporting space for accommodating a child by the upper frame **202**, the lower plate **203** and the two lateral supports **204**. In another embodiment, the foldable child carrier can further include at least one clothing component or at least one cushion on at least one of the upper frame, the lower plate and the two lateral supports for improving the child's comfort. The two folding mechanisms **100** are disposed on the two lateral supports **204** respectively and symmetrical to each other, so as to fold or unfold the two lateral supports **204** synchronously to stably fold or unfold the entire foldable child carrier **200**. Since the foldable child carrier **200** has symmetrical structure at two sides, detailed description for structure of the foldable child carrier **200** at one side is provided as follows for simplicity.

[0021] As shown in FIG. **1** to FIG. **4**, the lateral support **204** includes a first supporting component **2041** and a second supporting component **2042** movably connected to the first supporting component **2041**. In this embodiment, the first supporting component **2041** and the second supporting component **2042** can be rotatably connected to each other, and the lateral support **204** can be folded or unfolded by a relative rotating movement of the first supporting component **2041** and the second supporting component **2042**. However, the present application is not limited to this embodiment. For example, in another embodiment, the first supporting component and the second supporting component can be slidably connected to each other, and the lateral support can be folded or unfolded by a relative sliding movement of the first supporting component and the second supporting component.

[0022] Furthermore, the folding mechanism **100** includes a driven component **10**, an operating component **20** and a locking component **30** which are disposed on a connection of the first supporting component **2041** and the second supporting component **2042**. The driven component **10** is linked to the operating component **20** and can be driven to move by the operating component **20**. The driven component **10** is configured to detachably engage with the locking component **30**. The operating component **20** can drive the driven component **10** to engage with or disengage from the locking component **30** when the operating component **20** is operated. The driven component **10** engages with the locking component **30** to restrain the relative movement of the first supporting component **2041** and the second supporting component **2042**. The driven component **10** disengages from the locking component **30** to allow the relative movement of the first supporting component **2041** and the second supporting component **2042**.

[0023] In this embodiment, the first supporting component **2041** and the second supporting component **2042** can be two plate-shaped structures pivotally connected to each other, and an occupied space of the lateral support **204** can be changed by the relative rotating movement of the first supporting component **2041** and the second supporting component **2042**. However, the present application is not limited to this embodiment. For example, in another embodiment, the first supporting component and the second supporting component can be two cylindrical structures

slidably sleeved with each other, and the lateral support can be folded or unfolded by a relative sliding movement of the first supporting component and the second supporting component.

[0024] Specifically, in this embodiment, the first supporting component **2041** includes a first connecting portion **2043** and a first pivoting portion **2044**. The second supporting component **2042** includes a second connecting portion **2046** and a second pivoting portion **2045**. The first connecting portion **2043** is rotatably connected to the upper frame **202**. The first pivoting portion **2044** and the second pivoting portion **2045** are pivotally connected to each other by a first pivoting shaft **2047**. The second connecting portion **2046** is rotatably connected to the lower plate **203**.

[0025] More specifically, the first supporting component **2041** includes an accommodating chamber **204b** arranged along a longitudinal direction of the first supporting component **2041** and located between the first connecting portion **2043** and the first pivoting portion **2044**. The driven component **10** is inserted into the accommodating chamber **204b** in a loose-fitting manner. A portion of the operating component **20** extends along a traverse direction of the first supporting component **2041** from a side of the first supporting component **2041** and passes through the driven component **10** to slidably engage with an inserting hole **204a** on another side of the first supporting component **2041**. The locking component **30** is disposed on a top end of the second supporting component **2042** and for detachably engaging with the driven component **10**.

[0026] In order to connect the lateral support **204** to the upper frame **202** and the lower plate **203**, the lateral support **204** further includes a first connecting component **2048** and a second connecting component **2049**. An end of the first connecting component **2048** is rotatably sleeved on the upper frame **202**. Another end of the first connecting component **2048** is fixedly connected to the first connecting portion **2043**. An end of the second connecting component **2049** is fixedly connected to the lower plate **203**. Another end of the second connecting component **2049** is pivotally connected to the second connecting portion **2046** by a second pivoting shaft **2050**.

[0027] Please refer to FIG. 5 to FIG. 7. FIG. 5 is a partial exploded diagram of the foldable child carrier **200** according to the embodiment of the present application. FIG. 6 is an enlarged diagram of an A portion of the foldable child carrier **200** shown in FIG. 5 according to the embodiment of the present application. FIG. 7 is a partial sectional diagram of the foldable child carrier **200** according to the embodiment of the present application. As shown in FIG. 5 to FIG. 7, in this embodiment, the driven component **10** and the operating component **20** can be movably installed on the connection of the first supporting component **2041** and the second supporting component **2042**. The locking component **30** is fixed on the connection of the first supporting component **2041** and the second supporting component **2042**.

[0028] Specifically, the driven component **10** and the operating component **20** are slidably installed on the first supporting component **2041** along the longitudinal direction of the first supporting component **2041**. The locking component **30** is fixed on the second supporting component **2042**. An end of the driven component **10** is fixedly connected to the operating component **20**. Another end of the driven component **10** is for detachably engaging with the locking component **30**.

[0029] However, the present application is not limited to this embodiment. For example, in another embodiment, the driven component and the operating component can be slidably installed on the second supporting component along the longitudinal direction of the second supporting component, and the locking component is fixed on the first supporting component. Alternatively, in another embodiment, the driven component and the operating component can be installed on one of the first supporting component and the second supporting component in any other movable manner, e.g., in a rotatable manner, and the locking component is fixed on another one of the first supporting component and the second supporting component.

[0030] More specifically, the driven component **10** can be a plate-shaped structure. The operating component **20** can be a plug-shaped structure. The locking component **30** can be a restraining slot. Furthermore, an opening structure of the restraining slot can include an arc-shaped guiding surface, and an engaging end of the driven component **10** for detachably engaging with the locking

component **30** can include another arc-shaped guiding surface. The two arc-shaped guiding surfaces can cooperate with each other to drive the driven component **10** to move away from the locking component **30** to prevent any interference caused by the driven component **10** during an unfolding operation of the foldable child carrier **200**.

[0031] Besides, the driven component **10** includes a fixing portion **11** and a restraining portion **12** arranged along a longitudinal direction of the driven component **10** and located at two opposite ends of the driven component **10**. The fixing portion **11** is fixedly connected to the operating component **20**. The restraining portion **12** is for detachably engaging with the locking component **30** located at the top end of the second supporting component **2042**. The fixing portion **11** can be at least one connecting hole on an upper end of the driven component **10**. The restraining portion **12** can be at least one inserting block on a lower end of the driven component **10**. A shape of the restraining portion **12** can match with a shape of the locking component **30**. When the restraining portion **12** is inserted into the locking component **30**, the first supporting component **2041** and the second supporting component **2042** are positioned to form a straight structure cooperatively to provide support for the upper frame **202** and the lower plate **203**. When the restraining portion **12** is disengaged from the locking component **30**, the first supporting component **2041** is allowed to rotate or pivot relative to the second supporting component **2042** around the first pivoting shaft **2047** to fold the foldable child carrier **200**.

[0032] Moreover, the operating component **20** includes an inserting portion **21** and an operating portion **22** arranged along a traverse direction of the operating component **20** and located at two opposite sides of the operating component **20**. The inserting portion **21** passes through the fixing portion **11** and slidably engages with the inserting hole **204a** on the first supporting component **2041**. The operating portion **22** slidably abuts against an outer wall of the first supporting component **2041** and protrudes from the outer wall of the first supporting component **2041**. The operating portion **22** can be a pushing block slidably disposed on the outer wall of the first supporting component **2041**. The inserting portion **21** can be at least one inserting column protruding away from the pushing block from a side of the pushing block attached on the first supporting component **2041**. The at least one inserting column cooperates with the inserting hole **204a**. The inserting hole **204a** can be a long hole penetrating through two opposite lateral walls of the first supporting component **2041**. An upper wall and a lower wall of the inserting hole **204a** can stop a sliding movement of the inserting portion **21**.

[0033] Additionally, the folding mechanism **100** further includes a resilient component **40**. The resilient component **40** is connected to and located between the first supporting component **2041** and the driven component **10** for driving the driven component **10** to engage with the locking component **30**. The resilient component **40** can be a compression spring. However, the present application is not limited to this embodiment. For example, the resilient component can be connected to and located between the operating component and one of the first supporting component and the second supporting component where the driven component and the operating component are installed, so as to drive the operating component to drive the driven component to engage with the locking component.

[0034] When it is desired to fold the foldable child carrier **200**, the operating component **20** can be pushed upwardly to drive the driven component **10** to slide upwardly for disengaging from the locking component **30** and to compress the resilient component **40**, so that the first supporting component **2041** is allowed to rotate or pivot relative to the second supporting component **2042** to fold the foldable child carrier **200**. When it is desired to unfold the foldable child carrier **200**, the operating component **20** can be pushed upwardly to drive the driven component **10** to slide upwardly for preventing any interference caused by the driven component **10**, and then the first supporting component **2041** can be rotated or pivoted relative to the second supporting component **2042** to unfold the foldable child carrier **200**. When the foldable child carrier **200** is completely unfolded, the operating component **20** can be released to allow the resilient component **40** to drive

the driven component **10** to slide downwardly to engage with the locking component **30** for positioning the foldable child carrier **200** in the unfolded state.

[0035] It should be noticed that in this embodiment, the driven component **10** and the locking component **30** includes the corresponding arc-shaped guiding surfaces, respectively. Therefore, the driven component **10** can be driven to move away from the locking component **30** and to compress the resilient component **40** by a cooperation of the corresponding arc-shaped guiding surfaces for preventing any interference during the unfolding operation of the foldable child carrier **200**.

Afterwards, the resilient component **40** can drive the driven component **10** to engage with the locking component **30** for positioning the foldable child carrier **200** in the unfolded state once the driven component **10** is aligned with the locking component **30**. In other words, operation of the operating component **20** is not necessary during the unfolding operation of the foldable child carrier **200**. Therefore, the present application is convenient in use.

[0036] In contrast to the prior art, in the present application, the operating component can drive the driven component to disengage from the locking component for allowing the relative movement of the first supporting component and the second supporting component or drive the driven component to engage with the locking component for restraining the relative movement of the first supporting component and the second supporting component. Therefore, the lateral support can be folded by the relative movement of the first supporting component and the second supporting component to fold the entire foldable child carrier to reduce an occupied space of the entire foldable child carrier for easy transportation and storage when the driven component is driven to disengage from the locking component. Furthermore, the relative movement of the first supporting component and the second supporting component can be restrained by engagement of the driven component and the locking component to prevent an accidental folding movement of the foldable child carrier, which improves safety in use. Besides, the present application has simple structure and easy operation.

[0037] Those skilled in the art will readily observe that numerous modifications and alterations of the device and method may be made while retaining the teachings of the application. Accordingly, the above disclosure should be construed as limited only by the metes and bounds of the appended claims.

Claims

1. A foldable child carrier comprising a lateral support, an upper frame, a lower plate and a folding mechanism, the lateral support being connected to and located between the lower plate and the upper frame, the lateral support comprising a first supporting component and a second supporting component movably connected to the first supporting component, the lateral support being folded or unfolded by a relative movement of the first supporting component and the second supporting component, wherein the folding mechanism comprises: a driven component; a locking component configured to engage with or disengage from the driven component; and an operating component linked to the driven component, the operating component driving the driven component to engage with the locking component for allowing the relative movement of the first supporting component and the second supporting component or driving the driven component to disengage from the locking component for restraining the relative movement of the first supporting component and the second supporting component, wherein the operating component comprises an inserting portion and an operating portion, the inserting portion and the operating portion are arranged along a traverse direction of the operating component and located at two opposite sides of the operating component.

2. The foldable child carrier of claim 1, wherein the driven component and the operating component are movably installed on one of the first supporting component and the second supporting component, and the locking component is fixed on the other of the first supporting

component and the second supporting component.

3. The foldable child carrier of claim 2, wherein an end of the driven component is fixedly connected to the operating component, and another end of the driven component is for detachably engaging with the locking component.

4. The foldable child carrier of claim 3, wherein the operating component and the driven component move along a longitudinal direction of the one of the first supporting component and the second supporting component.

5. The foldable child carrier of claim 3, wherein the driven component is a plate-shaped structure.

6. The foldable child carrier of claim 3, wherein the driven component comprises a fixing portion and a restraining portion, the fixing portion and the restraining portion are arranged along a longitudinal direction of the driven component and located at two opposite ends of the driven component, the fixing portion is fixedly connected to the operating component, and the restraining portion is for detachably engaging with the locking component.

7. The foldable child carrier of claim 6, wherein the fixing portion is at least one connecting hole on an upper end of the driven component, and the restraining portion is at least one inserting block on a lower end of the driven component.

8. The foldable child carrier of claim 3, wherein the operating component is a plug-shaped structure.

9. The foldable child carrier of claim 3, wherein the inserting portion passes through the driven component and slidably engages with an inserting hole on the first supporting component, and the operating portion slidably abuts against an outer wall of the first supporting component and protrudes from the outer wall of the first supporting component.

10. The foldable child carrier of claim 9, wherein the operating portion is a pushing block slidably disposed on the outer wall of the first supporting component, and the inserting portion is at least one inserting column protruding away from the pushing block from a side of the pushing block attached on the first supporting component.

11. The foldable child carrier of claim 9, wherein the inserting hole is a long hole penetrating through two opposite lateral walls of the first supporting component.

12. The foldable child carrier of claim 3, wherein the folding mechanism further comprises a resilient component connected to and located between the operating component and the one of the first supporting component and the second supporting component or connected to and located between the driven component and the one of the first supporting component and the second supporting component for driving the driven component to move toward the locking component to engage with the locking component.

13. The foldable child carrier of claim 1, wherein the locking component is a restraining slot.

14. The foldable child carrier of claim 1, wherein the first supporting component comprises a first pivoting portion, the second supporting component comprises a second pivoting portion, and the first pivoting portion is pivotally connected to the second pivoting portion by a first pivoting shaft, wherein the first supporting component comprises an accommodating chamber, the accommodating chamber is arranged along a longitudinal direction of the first supporting component and located between the first connecting portion and the first pivoting portion, the driven component is inserted into the accommodating chamber, and a portion of the operating component extends along a traverse direction of the first supporting component from a side of the first supporting component and passes through the driven component to slidably engage with an inserting hole on another side of the first supporting component.

15. The foldable child carrier of claim 1, wherein the first supporting component is rotatably or slidably connected to the second supporting component.

16. The foldable child carrier of claim 1, wherein the first supporting component comprises an accommodating chamber, the accommodating chamber is arranged along a longitudinal direction of the first supporting component, the driven component is inserted into the accommodating chamber,

a portion of the operating component extends along a traverse direction of the first supporting component from a side of the first supporting component and passes through the driven component to slidably engage with an inserting hole on another side of the first supporting component, and the locking component is disposed on a top end of the second supporting component and for detachably engaging with the driven component.

17. The foldable child carrier of claim 1, wherein the first supporting component comprises a first pivoting portion, the second supporting component comprises a second pivoting portion, and the first pivoting portion is pivotally connected to the second pivoting portion by a first pivoting shaft.

18. The foldable child carrier of claim 17, wherein the first supporting component comprises a first connecting portion, the second supporting component comprises a second connecting portion, the first connecting portion is rotatably connected and configured to selectively attach and detachably engage the first supporting component onto the upper frame, and the second connecting portion is rotatably connected and configured to selectively attach and detach the second supporting component onto the lower plate.

19. The foldable child carrier of claim 17, wherein the lateral support further comprises a first connecting component and a second connecting component, an end of the first connecting component is rotatably sleeved on the upper frame, another end of the first connecting component is fixedly connected to the first connecting portion, an end of the second connecting component is fixedly connected to the lower plate, and another end of the second connecting component is pivotally connected to the second connecting portion by a second pivoting shaft.

20. A foldable child carrier comprising a lateral support, an upper frame, a lower plate and a folding mechanism, the lateral support being connected to and located between the lower plate and the upper frame, the lateral support comprising a first supporting component and a second supporting component movably connected to the first supporting component, the lateral support being folded or unfolded by a relative movement of the first supporting component and the second supporting component, wherein the folding mechanism comprises: a driven component; a locking component configured to engage with or disengage from the driven component; and an operating component linked to the driven component, the operating component driving the driven component to engage with the locking component for allowing the relative movement of the first supporting component and the second supporting component or driving the driven component to disengage from the locking component for restraining the relative movement of the first supporting component and the second supporting component, wherein a portion of the operating component extends along a traverse direction of the first supporting component and passes through the driven component to slidably engage with an inserting hole on the first supporting component.
