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INFLATABLE AIR SOFT SHELL BASE FOR TENT AND TENT

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An inflatable air soft shell base for a tent, including a first inflatable air cushion (11) and a second inflatable air cushion (12) whose inner cavities are independent of each other. The first inflatable air cushion and the second inflatable air cushion are connected to each other by a connector (13) and are foldable, with the connector at the fold. The inflatable air soft shell base for a tent
- according to the present invention has the first inflatable air cushion and the second inflatable air cushion which are independent of each other and connected to each other by a connector, making it very convenient to use and store, and saving time and effort. The present invention also provides a tent using the above-described inflatable air soft shell base for a tent.

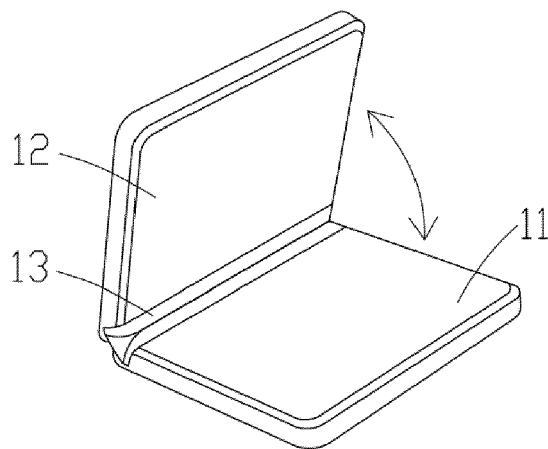


FIG. 2

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application claims priorities of China Patent Application No. 202310489063.7, filed on May 4, 2023, and China Patent Application No. 202321808985.1, filed on July 11, 2023, the contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Technical Field

[0002] The present invention relates to the field of tents, and more particularly to an inflatable air soft shell base for a tent and a tent having the inflatable air soft shell base.

2. Description of Related Art

[0003] Vehicle rooftop tents, also known as "homes" on roofs, are peripheral industries that have been developed with the vehicle manufacturing industry and have a history of fifty to sixty years. With the increase in the vehicle population around the world self-driving tourism is gradually becoming popular. A vehicle rooftop tent is one of the optional devices for outdoor self-driving tourism. With the development of vehicle rooftop tents in recent years, more and more new products appear in everyone's sight. From the streamline of the appearance to weight reduction, vehicle rooftop tents have been significantly improved, effectively increasing trip convenience.

[0004] Traditional vehicle rooftop tents have a hard shell base, large size, and heavy weight, are not easy to carry and are difficult to unfold and mount, and have poor usability. Although a vehicle rooftop tent using a single inflatable air cushion as a base has been available on the market, in practical use, It's not convenient to be packed on top the car, Therefore, the existing vehicle rooftop tent bases still have room for improvement in the ease of use. How to better improve the ease of use and ease of convenience of the vehicle rooftop tent is one of the main directions of research and development of the major manufacturers at present.

SUMMARY OF THE INVENTION

[0005] In view of the above, the present invention provides an inflatable air soft shell base for a tent and a tent which are convenient to use, carry, and store.

[0006] An inflatable air soft shell base for a tent including a first inflatable air cushion and a second inflatable air cushion having inner cavities independent of each other, the first inflatable air cushion and the second inflatable air cushion being connected to each other by a connector. The first inflatable air cushion and the second inflatable air cushion may be folded with the connector

as a rotating shaft.

[0007] The first inflatable air cushion and the second inflatable air cushion are independent of each other and are connected to each other via a connector, which is very convenient to use and store, and saves time and effort. When in use, the first inflatable air cushion and second inflatable air cushion are filled with air respectively, and then the first inflatable air cushion and second inflatable air cushion are placed flat and mounted and fixed to the vehicle roof or the ground, completing the mounting of the inflatable air soft shell base for a tent. When the inflatable air soft shell base is stored, it is not necessary to remove the inflatable air soft shell base from the vehicle roof, just folded the air soft shell base and protect by a cover.

[0008] Alternatively, as an implementation, the first inflatable air cushion includes a first inflatable inner air board and a first protective cover wrapping the first inflatable inner air board, the second inflatable air cushion includes a second inflatable inner air board and a second protective cover wrapping the second inflatable inner air board, and the connector is connected to the first protective cover and the second protective cover, respectively. The first protective cover and the second protective cover serve mainly to protect the first inflatable inner air board and the second inflatable inner air board, respectively, and at the same time serve as a connection carrier of the connector to ensure the service life of the inflatable air soft-shell base.

[0009] Alternatively, as an implementation, the connector is connected to the cover of the first inflatable air cushion and the cover of the second inflatable air cushion, respectively. In the unfolded state, the first inflatable air cushion abuts the second inflatable air cushion and the connector is in a tight state. It thus plays the role of connecting the two inflatable air cushions closely as a bed while it can also bear the weight pressed on it.

[0010] Alternatively, as an implementation, the connector is a cloth strip or a leather strip, and the connector is connected to the first inflatable air cushion and the second inflatable air cushion, respectively, by means of glue. The glue is used to bond the connector, which is easy to operate and has high connecting strength, and effectively ensures the structural strength of the inflatable air soft shell base for the tent.

[0011] Alternatively, as an implementation, when the connector is of a zipper structure, the connector specifically includes a first cloth belt connected to the first inflatable air cushion, a second cloth belt connected to the second inflatable air cushion, a first tooth chain fixed to the first cloth belt, a second tooth chain fixed to the second cloth belt, and a pulling head meshing the first tooth chain with the second tooth chain. Therefore, the first inflatable air cushion and the second inflatable air cushion may be conveniently separated for wrapping, transporting, and assembling.

[0012] Alternatively, as an implementation, the connector is hook-and-loop fastener including two loop sur-

faces and a hook surface. The two loop surfaces are fixed to the first inflatable air cushion and the second inflatable air cushion, respectively. The hook surface and the two loop surfaces stick together, or are separated. Therefore, the first inflatable air cushion and the second inflatable air cushion may be conveniently separated for wrapping, transporting, and assembling.

[0013] Alternatively, as an implementation, the connector is a hook-and-loop fastener including a first hook surface, a second hook surface, and a loop surface stuck to the first hook surface and the second hook surface, the first hook surface being connected to the first inflatable air cushion and the second hook surface being connected to the second inflatable air cushion. Therefore, the first inflatable air cushion and the second inflatable air cushion may be conveniently separated for wrapping, transporting, and assembling.

[0014] Alternatively, as an implementation, at least two sets of locking members which are capable of being slidably nestled with outer longitudinal rails which are separately fixed on the car. The operation is simpler and the stability is better than using a rope or fixed belt connection.

[0015] Alternatively, as an implementation, the inflatable air soft shell base for a tent further includes at least two bearing members configured for contact with the outer longitudinal rails; wherein at least two sets of locking members are fixed on the back surface of the first inflatable air cushion, and the at least two bearing members are fixed to the back surface of the second inflatable air cushion. So configured, when assembled, the first inflatable air cushion and the second inflatable air cushion can be in a folded state so that it is small, easy to operate and connect, and easy to operate. After the first inflatable air cushion is fixedly connected to the vehicle roof, the second inflatable air cushion is unfolded so that the bearing members at the back surface of the second inflatable air cushion are in contact with the vehicle rooftop rails and they are important bearing stressed components; and the second inflatable air cushion is stably and firmly pressed on the rails, so as to ensure that the whole foldable tent inflatable air cushion is stably and firmly fixed on the vehicle roof.

[0016] Alternatively, as an implementation, the inflatable air soft shell base for a tent further includes a hand-held portion provided at the back surface of the second inflatable air cushion convenient for the user's hand to hold, so as to facilitate the turning-over and folding of the first inflatable air cushion or the second inflatable air cushion, thereby reducing the storing and unfolding difficulty of the inflatable air cushion. The hand-held portion may also facilitate the fixed connecting operation of the locking member to the vehicle rooftop rails.

[0017] Alternatively, as an implementation, the inflatable air soft shell base for a tent further includes at least two inflatable support tubes fixed to the back surfaces or side surfaces of the first inflatable air cushion and the second inflatable air cushion. In this way, not only the

inflatable air soft shell base for a tent is an inflatable structure, which may be made of a double wall dropstitch fabric for inflatable products, but also the inflatable support tube is an inflatable structure, which is small in volume, light in weight, high in strength when being gathered and stored, and has advantages of aging resistance, puncture resistance, impact resistance, lightness, and portability. When applied to a vehicle rooftop tent, at least two inflatable support tubes may be fixed to the back surfaces of the inflatable air cushion, an inflatable frame can be used, so an unfolding difficulty of the vehicle rooftop tent in use is small, and the use experience is significantly better than traditional light and thin tents. The inflatable support tubes can well distribute the weight of the whole vehicle rooftop tent on the top of the vehicle, so that the vehicle rooftop tent can bear more pressure, bear more weight, and is not easy to deform. When applied to a ground tent, the at least two inflatable support tubes can play the role of isolating the ground moisture. The detachable inflatable support tube makes the assembly of the tent more convenient and speedier. On the other hand, it is inexpensive, lightweight, and relatively low in wrapping and transportation costs. When applied to a floating water tent, the inflatable air cushion /floating water tent can float on the water because the air cushion and the inflatable support tubes are inflatable structure. At this time, the inflatable support tubes can be arranged on the side surfaces of the inflatable air cushion, which can effectively enhance the buoyancy and increase the ability of anti-rollover, so that the stability and safety of the inflatable air cushion / tent on water are better.

[0018] Alternatively, as an implementation, the inflatable air soft shell base for a tent further includes a plurality of fixing portions fixed to the back surfaces or side surfaces of the first inflatable air cushion and the second inflatable air cushion and a plurality of fixing belts or fixing ropes connected to the plurality of fixing portions. It makes the fixing of the inflatable air cushion/tent more convenient and speedier and makes the same have low costs, and it also avoids the inflatable air cushion/tent accidentally scratching the vehicle during the mounting process.

[0019] Alternatively, as an implementation, each of the at least two inflatable support tubes includes one or more than one inflatable inner containers. At least two inflatable support tubes may be integrally connected with each other, for example, in a ring-shape or an H-shape or an E-shape or an I-shape, or in a parallel state independent of each other. In combination with the vehicle rooftop rack, the weight of the whole tent may be well distributed on the top of the vehicle, so that the vehicle rooftop can bear greater pressure, have stronger bearing capacity, and be not easily deformed. The design of a plurality of inner containers makes it easier to inflate and deflate, which allows the inflatable support tube to have a larger contact area with the rooftop of the vehicle and better contact stability so that it can bear a larger weight. On the other hand, if one of the inner containers breaks, the

remaining inner containers can remain inflated, and can continue to bear the tent, greatly improving the durability and reliability of the product.

[0020] Alternatively, as an implementation, the back surface of the second inflatable air cushion is further fixed with two buckles configured for being detachably snap-fit connected with a ladder, and a hand-held portion convenient for a user to use is further fixed at a corresponding position at a front surface of the second inflatable air cushion. It greatly improves the user's sense of security in the process of entering the tent, thereby improving the user's experience.

[0021] Alternatively, as an implementation, a third inflatable air cushion is further included. The third inflatable air cushion includes a third inflatable inner air board, the third inflatable inner air board being independent of the first inflatable inner air board and the second inflatable inner air board, and the third inflatable air cushion being interconnected with the first inflatable air cushion or the second inflatable air cushion by a second connector.

[0022] In addition to the first inflatable air cushion and the second inflatable air cushion, the third inflatable air cushion, even a fourth inflatable air cushion or more may be added according to actual needs. The inner cavity of the third inflatable air cushion is independent of the inner cavities of the first inflatable air cushion and the second inflatable air cushion. One side of the second connector is connected to the third inflatable air cushion, and the other side is connected to the first inflatable air cushion or the second inflatable air cushion. The second connector is a cloth strip or a leather strip or a zipper or hook-and-loop fastener. At that, the inflatable air soft shell base for a tent can be flexibly assembled, adapted to different-sized tents, adapted to different sized vehicle roofs, and easily folded and stored.

[0023] A tent includes a bearing platform, an inflatable frame connected to the bearing platform, and a tent canopy set up on the inflatable frame. The bearing platform is the inflatable air soft shell base for a tent as described above.

[0024] Advantageous effects of the present invention are as follows: the operation of inflatable, deflating, moving, or transporting or storing is simpler to operate, saves time and effort, and has a small storage volume. The inflatable air cushion and the tent may be used on vehicle rooftops and on the ground and on water.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0025] The foregoing and other exemplary purposes, aspects and advantages of the present invention will be better understood in principle from the following detailed description of one or more exemplary embodiments of the invention with reference to the drawings, in which:

FIG. 1 (a) is a perspective view of an inflatable air soft shell base for a tent in an unfolded state, and

FIG. 1 (b) is an exploded view of the inflatable air cushion in a double-layered structure in accordance with a first embodiment of the present invention.

FIG. 2 is a schematic view illustrating a folding-unfolding process of the inflatable air cushion in accordance with the first embodiment of the present invention.

FIG. 3 is a structural view of a back surface of the inflatable air cushion in accordance with the first embodiment of the present invention.

FIG. 4 is a perspective view of the inflatable air cushion in accordance with one modified example of the first embodiment of the present invention.

FIG. 5 is a structural view showing an unfolded state of an inflatable air soft shell base for a tent in accordance with a second embodiment of the present invention.

FIG. 6 is a schematic view showing a folding-unfolding process of the inflatable air cushion in accordance with the second embodiment of the present invention.

FIG. 7 is an enlarged view of a part A of the inflatable air cushion in FIG. 6.

FIG. 8 is a structural view showing an unfolded state of an inflatable air soft shell base for a tent in accordance with a third embodiment of the present invention.

FIG. 9 is a schematic view illustrating a folding-unfolding process of the inflatable air cushion in accordance with the third embodiment of the present invention.

FIG. 10 is an enlarged view of a part B of the inflatable air cushion in FIG. 8.

FIG. 11 is a schematic structural view of a back surface of an inflatable air soft shell base for a tent in accordance with a fourth embodiment of the present invention.

FIG. 12 is a perspective view of a tent in a position of use in accordance with a fifth embodiment of the present invention.

FIG. 13 is a perspective view of a tent in a position of use in accordance with other embodiments.

FIG. 14 is a perspective view of a tent in a position of use in accordance with other embodiments.

FIG. 15 is a perspective view of a tent in a position of use in accordance with other embodiments.

FIG. 16 is a perspective view of a tent in a position of use in accordance with one modified example of the fourth embodiment of the present invention.

FIG. 17 is a partial exploded view of a tent in accordance with a seventh embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0026] The invention will now be described in detail through several embodiments with reference to the accompanying drawings.

[0027] It should be noted that: like numbers and letters refer to like items in the following figures, and therefore, once a certain item is defined in one figure, it need not be further defined and explained in the following figures. In the description of the embodiments of the present application, it needs to be understood that orientations or positional relationships indicated by the terms "up", "down", "left", "right", "vertical", "horizontal", and the like refer to orientations or positional relationships based on what is shown in the drawings, or orientations or positional relationships customarily placed in the use of the products of the application, or orientations or positional relationships customarily understood by those skilled in the art, and are merely to facilitate the description of the application and simplify the description, and do not indicate or imply that the device or element referred to must have a particular orientation or be constructed and operated in a particular orientation, and thus can't be understood as the limitations on the present application.

[0028] The terms "first" and "second" are used for descriptive purposes only and are not to be construed as indicating or implying relative importance or implicitly indicating the number of technical features indicated. Therefore, features defining "first" and "second" may explicitly or implicitly include one or more such features. In the description of the present invention, the meaning of "a plurality" is two or more unless specifically defined otherwise.

[0029] It needs to be noted that the embodiments and features in the embodiments of the present application may be combined with one another without conflicts.

FIRST EMBODIMENT

[0030] Referring to FIGS. 1 to 2, first embodiment provides an inflatable air soft shell base for a tent, which mainly includes a first inflatable air cushion 11, a second inflatable air cushion 12, and a connector 13 connecting the first inflatable air cushion 11 with the second inflatable air cushion 12. The inner cavities of the first inflatable air cushion 11 and the second inflatable air cushion 12 are independent of each other, and can be folded with the

connector 13 as a rotating shaft, so that the operations of inflatable, deflating, moving, or transporting or storing are simple and easy.

[0031] The cavities of the first inflatable air cushion 11 and the second inflatable air cushion 12 may be mainly made of polyvinyl chloride (PVC) double wall dropstitch fabric for inflatable products, which does not absorb water, is corrosion resistant, is mildew resistant, is abrasion resistant, and has a long service life, and may further include various kinds of coatings to achieve aesthetic and more abrasion resistant effects. The inflatable air cushion made of PVC double wall dropstitch fabric has high hardness and is not easily deformed. The cavities of the first inflatable air cushion 11 and the second inflatable air cushion 12 may be a single layer only, as shown in FIG. 1 (a). The cavities of the first inflatable air cushion 11 and the second inflatable air cushion 12 may also include two layers as shown in FIG. 1 (b). The inner layer is an inflatable inner air board and a protective cover is applied to the outside. That is, the first inflatable air cushion 11 includes a first inflatable inner air board 111 that is substantially a cuboid but not limited to a cuboid when inflated and a first protective cover 112 wrapping the first inflatable inner air board 111, and the second inflatable air cushion 12 includes a second inflatable inner air board 121 that is substantially a cuboid but not limited to a cuboid when inflated and a second protective cover 122 wrapping the second inflatable inner air board 121. The first inflatable inner air board 111 and the second inflatable inner air board 121 may be made of PVC double wall dropstitch fabric, and both are independent of each other, and each has an inflation/deflation port. The first and second protective covers 122 are used for protecting the first and second inflatable inner air boards 121 from abrasion and puncture which would otherwise result in poor airtightness or easy bursting. The same may also be made of PVC or Oxford cloth materials. The upper surface may also form a skin-friendly fabric layer.

[0032] The connector 13 is in an elongated shape, and two edges thereof are respectively connected to the upper surfaces of the first inflatable air cushion 11 and the second inflatable air cushion 12, so that the first inflatable air cushion 11 and the second inflatable air cushion 12 are conveniently folded together, and after being unfolded, the first inflatable air cushion 11 and the second inflatable air cushion 12 tightly abut against each other. The connector 13 is pulled and tightened by the first inflatable air cushion and the second inflatable air cushion so that the tightened connector 13 also has a certain supporting force. Since the side face of the second inflatable air cushion 12 and the side face of the first inflatable air cushion 11 abut against each other, in addition to the supporting action of the connector 13, the side face of the second inflatable air cushion 12 is also subjected to an acting force from the side face of the first inflatable air cushion 11. Under the combined action of the acting force and the supporting action of the connector 13, the second inflatable air cushion 12 can be kept to be flush

with the first inflatable air cushion 11 such that both are on the same plane, and jointly bear the pressure above.

[0033] In this embodiment, the connector 13 may be a one-piece cloth strip or a leather strip, or may be made of the same material as the cavity or the surface of the first inflatable air cushion 11 and the second inflatable air cushion 12. The connector 13 is connected to the first inflatable air cushion 11 and the second inflatable air cushion 12, respectively, by means of glue. The glue is used to bond the connector 13, which is easy to operate and has high connecting strength, and can effectively ensure the structural strength of the inflatable air soft shell base for a tent.

[0034] The front surface or side face of the inflatable air soft shell base for a tent is further fixed with a connector 101 for connecting with a frame or skeleton of the tent, such as but not limited to a hook-and-loop fastener or a ring-shaped fixing portion or a hook-shaped fixing portion or a lock latch. In this embodiment, four hook-and-loop fasteners are pasted and fixed at four corners of the front surface of the inflatable air soft shell base for a tent as the connector 101. Two hand-held portions 102 are also fixed to the front surface of one end of the second inflatable air cushion 12 away from the first inflatable air cushion 11. In this embodiment, a handle is made of a flexible material, such as nylon, oxford, or like fabric material such that it serves as an auxiliary component for assisting the user in climbing the inflatable air soft shell base for a tent to ensure user safety. The folded view in FIG. 2 omits the connector 101 and the hand-held portion 102. In addition, the front surface or side face of the inflatable air soft shell base for a tent may be fixed with a connector for connecting to the tent canopy of the tent, such as a zipper or a rope, etc. which will not be described in detail herein.

[0035] Further, referring to FIG. 3, the back surface of the inflatable air soft shell base for a tent is further provided with a plurality of connectors and supporting members for connecting to the vehicle. In this embodiment, in order to facilitate the assembly of the inflatable air cushion to the vehicle roof, the back surface of the first inflatable air cushion 11 is fixed with two sets of locking members 15 arranged in parallel. The locking member 15 is a metal locking member in detachably and slidably nested connection with an outer longitudinal rail 14, and is adhered to the first inflatable air cushion 11. The outer longitudinal rail 14 is a rail mounted fixedly to the rooftop of the vehicle, typically on a luggage rack. At present, vehicle-rooftop longitudinal rails having a T-shaped groove are very popular, so the locking member 15 in the present embodiment employs a T-shaped locking member to increase the applicability. The locking member 15 is provided only on the back surface of the first inflatable air cushion 11, making the assembly and storage of the inflatable air cushion easier. Once the inflatable air cushion is folded, a single user can complete the fixed connection of the inflatable air cushion to the vehicle roof. Each set of locking members 14 may include a plu-

rality of spaced locking members in one line or may be a single elongated locking member. In this embodiment, a single elongated locking member is used.

[0036] The back surface of the second inflatable air cushion 12 is fixed with a plurality of bearing members 16 for contact with the outer longitudinal rails. The bearing members 16 are fixed at the back surface of the second inflatable air cushion 12, opposite to the locking members 15; after the inflatable air cushion is unfolded, the bearing members 15 are locked with the longitudinal rails of the vehicle roof, and the bearing members 16 are in contact with the longitudinal rails of the vehicle roof. The locking members 15 and the bearing members 16 cooperate to stably support and fix the inflatable air cushion above the longitudinal rail of the vehicle roof. In this embodiment, two bearing members 16 are included. Both are elongated and made of rigid plastic, and adhered to the back surface of the second inflatable air cushion 12.

[0037] In addition, one end of the back surface of the second cushion 12 (the end away from the first cushion 11) is also fixed with two buckles 17 for a snap-fit connection with a ladder adapted to the tent. The buckles 17, which may be made of a rigid plastic or metal material, are adhered to the back surface of the second inflatable air cushion 12. During the use of the inflatable air cushion, the upper end of the ladder is in snap-fit connection with the buckles 17 and the lower end is supported on the ground to make it convenient for the user to reach a place above the inflatable air cushion. At the same time, the ladder also serves as a supporting member to stably support one end of the inflatable air soft shell base for the tent, making the inflatable air soft shell base for the tent more stable in use. Two sides of the buckles 17 are also fixed with two buckles 19 for a snap-fit connection with a support pillar 20. The buckles 19 are located closer to two corners of the second inflatable air cushion 12, respectively. The support pillars 20 are column-shaped supporting rods, the upper ends are fixedly connected to the buckles 19, and the lower ends are supported on the ground, so that the inflatable air soft shell base for a tent can be very smooth and steady for the user regardless of the position of the inflatable air soft shell base for a tent.

[0038] Since two hand-held portions 102 are provided near the end of the front surface of the second inflatable air cushion 12, when the user climbs to the upper end of the ladder, the hand-held portion 102 can be grasped instead of the walking ladder. At that, the user can climb onto the inflatable air soft shell base for a tent more safely and smoothly, so that the user has a better sense of safety and user experience.

[0039] In addition, the back surface of the first inflatable air cushion 11 may also be fixed with one or two hand-held portions 103 to facilitate the handling and movement of the inflatable air cushion by the user. The hand-held portion 103 may be a band-shaped or ring-shaped handle made of a fabric such as nylon or Oxford cloth.

[0040] The inflation and deflation ports 18 of the first inflatable air cushion 11 and the second inflatable air

cushion 12 may be provided at the corners of the respective backs or near the middle of the side edges or at the middle of one end to facilitate the user to inflate and deflate the inflatable air cushion on the vehicle rooftop while the user stands beside the vehicle. In this embodiment, the inflation and deflation ports 18 are provided at a position in the middle of the ends of the first inflatable air cushion 11 and the second inflatable air cushion 12 opposite each other.

[0041] In use, the first inflatable air cushion 11 and the second inflatable air cushion 12 are respectively inflated and stacked, or only the first inflatable air cushion 11 is first inflated, and then the first inflatable air cushion 11 is mounted and fixed to the vehicle rooftop via the locking member 15. The mounting of the inflatable air soft shell base for the tent is then completed by then turning over the second inflatable air cushion 12 (if it is not previously inflated, it may be inflated while the user stands beside the vehicle) so that the second inflatable air cushion 12 is in the same plane as the first inflatable air cushion 11. When the user does not need to use the inflatable air cushion, the inflatable air cushion can be deflated and folded first, and then one protective cover is wrapped on the inflatable air cushion or the first inflatable air cushion 11 and the second inflatable air cushion 12 is locked by using a rope or a buckle, without removing it from the vehicle roof, thus saving the storage space.

[0042] In the above embodiments, the connector is connected to the upper surfaces of the first inflatable air cushion and the second inflatable air cushion, respectively. It could be understood that, in a modified example, the connector may also be connected to the lower surfaces of the first inflatable air cushion and the second inflatable air cushion, respectively, but that the connector no longer has the function of cooperating to support the weight above the cushions.

[0043] In the embodiments described above, the first inflatable inner air board 111 and the second inflatable inner air board 112 are protected by the first protective cover 112 and the second protective cover 122. It could be understood that in a modified example, the first protective cover and the second protective cover may be omitted if the strength and wear resistance performances of the inflatable inner air board (cavity) can be comparable to that of the protective covers. At this time, the connector may be directly fixed to the upper/lower surfaces of the first inflatable inner air board and the second inflatable inner air board.

[0044] In the embodiment described above, only two sets of locking members 15 are provided on the back surface of the first inflatable air cushion 11. It could be understood that a third set of locking members 15 may be added between the two sets of locking members 15 to adapt to vehicles having three rails.

[0045] In other deformation embodiments, the bearing members may be replaced by the locking members, that is, the back of the first inflatable air cushion and the second inflatable air cushion are provided with several lock-

ing members which can be separated from the external longitudinal rails and can be slidably nesting connected, which also has a similar technical effect with that in the first embodiment.

[0046] In the above embodiment, the inflatable air soft shell base for a tent includes only the first inflatable air cushion 11 and the second inflatable air cushion 12. It could be understood that, in a modified example, the inflatable air soft shell base for the tent also includes a third inflatable air cushion not shown. For example, as shown in FIG. 4 (the connector 101 and the hand-held portion 102 are omitted), the third cushion 14 may be an inflatable air cushion having the same or similar structure and performance as the first inflatable air cushion 11 and the second inflatable air cushion 12. The inner cavity of the third inflatable air cushion 14 is independent of the inner cavities of the first inflatable air cushion 11 and the second inflatable air cushion 12. The third inflatable air cushion 14 is connected to the first inflatable air cushion 11 or the second inflatable air cushion 12 via a second connector 13'. The structure and performance of the second connector 13' may be the same as or similar to those of the connector 13. The second connector 13' may be a cloth strip, a leather strip, a zipper, a hook-and-loop fastener, etc. Of course, it is also possible to continue to expand the connected inflatable air cushion at the tail end of the third inflatable air cushion 14 according to size requirements.

[0047] It could be understood that in other embodiments, the buckles 19 may be omitted if desired (e.g., if the inflatable air cushion as a whole is narrow).

SECOND EMBODIMENT

[0048] Referring to FIGS. 5 to 7, the present embodiment provides an inflatable air soft shell base for a tent, including a first inflatable air cushion 21, a second inflatable air cushion 22, and a connector 23. Here, the structure and function of the first inflatable air cushion 21 and the second inflatable air cushion 22 are the same as or similar to those of the first inflatable air cushion 11 and the second inflatable air cushion 12 in first embodiment, which will not be described herein. The main difference between second embodiment, and first embodiment and modified examples thereof is that the connector 23 has a zipper structure. Specifically, the connector 23 mainly includes a first cloth belt 24, a second cloth belt 25, a first tooth chain 26 fixed to the first cloth belt 24, a second tooth chain 27 fixed to the second cloth belt 25, and a pulling head 28 that meshes the first tooth chain 26 and the second tooth chain 27. The first cloth belt 24 is connected to the upper surface of one end of the first inflatable air cushion 21 (such as by glue), and the second cloth belt 25 is connected to the upper surface of one end of the second inflatable air cushion 22 (such as by glue). The connector 23 may be a metal zipper, a plastic zipper, or a nylon zipper to facilitate the separation and connection of the first inflatable air cushion 21 and the

second inflatable air cushion 22. Since the zippers are all of flexible structures, it is also convenient for the first inflatable air cushion 21 and the second inflatable air cushion 22 to be folded together, and after unfolding, the first inflatable air cushion 21 and the second inflatable air cushion 22 tightly abut against each other. The connector 23 is pulled and tightened by the first inflatable air cushion and the second inflatable air cushion so that the tightened connector 23 also has a certain supporting force. Since the side face of the second inflatable air cushion 22 and the side face of the first inflatable air cushion 21 abut against each other, in addition to the supporting action of the connector 23, the side face of the second inflatable air cushion 22 is also subjected to an acting force from the side face of the first inflatable air cushion 21. Under the combined action of the acting force and the supporting action of the connector 23, the second inflatable air cushion 22 can be kept to be flush with the first inflatable air cushion 21 such that both are on the same plane, and jointly bear the pressure above.

THIRD EMBODIMENT

[0049] Referring to FIGS. 8 to 10, the present embodiment provides an inflatable air soft shell base for a tent, including a first inflatable air cushion 31 and a second inflatable air cushion 32. Here, the structure and function of the first inflatable air cushion 31 and the second inflatable air cushion 32 are the same as or similar to those of the first inflatable air cushion 11 and the second inflatable air cushion 12 in first embodiment, which will not be described herein. The main difference between third embodiment, and first embodiment and modified examples thereof is that the connector 33 has a hook-and-loop fastener. Specifically, the connector 33 includes two loop surfaces 34 adhered to the upper surfaces of ends of the first inflatable air cushion 31 and the second inflatable air cushion 32, respectively, and a hook surface 35 adhered to the two loop surfaces 34. It is thus convenient to separate and connect the first inflatable air cushion 31 and the second inflatable air cushion 32. Since the hook-and-loop fasteners are all of flexible structures, it is also convenient for the first inflatable air cushion 31 and the second inflatable air cushion 32 to be folded together, and after unfolding, the first inflatable air cushion 31 and the second inflatable air cushion 32 tightly abut against each other. The connector 33 is pulled and tightened by the first inflatable air cushion and the second inflatable air cushion so that the tightened connector 33 also has a certain supporting force. Since the side face of the second inflatable air cushion 32 and the side face of the first inflatable air cushion 31 abut against each other, in addition to the supporting action of the connector 33, the side face of the second inflatable air cushion 32 is also subjected to an acting force from the side face of the first inflatable air cushion 31. Under the combined action of the acting force and the supporting action of the connector 33, the second inflatable air cushion 32 can be kept

to be flush with the first inflatable air cushion 31 such that both are on the same plane, and jointly bear the pressure above.

[0050] In a modified example of third embodiment, the loop surface and the hook surface are interchangeable in positions. That is, the upper surfaces of ends of the first inflatable air cushion and the second inflatable air cushion are respectively fixed with a hook surface 35, and one loop surface 34 is bonded to two hook surfaces 35, thereby connecting the first inflatable air cushion to the second inflatable air cushion.

FOURTH EMBODIMENT

[0051] Referring to FIG. 11, the present embodiment provides an inflatable air soft shell base for a tent, including a first inflatable air cushion 41, a second inflatable air cushion 42, and a connector 43. Here, the structures and functions of the first inflatable air cushion 41, the second inflatable air cushion 42, and the connector 43 are the same as or similar to those of the first inflatable air cushions 11, 21, 31, the second inflatable air cushions 12, 22, 32, and the connectors 13, 23, 33 in embodiments 1 to 3, which will not be described herein. The main difference between fourth embodiment, and first embodiment and modified examples thereof is that a plurality of connectors and supporting members on the back surface of the inflatable air cushion are different. Specifically, a plurality of inflatable support tubes 3 and a plurality of fixing portions 6 are substituted for the locking members 15 and the bearing members 16 in embodiments 1 to 3.

[0052] In fourth embodiment, the back surfaces of the first inflatable air cushion 41 and the second inflatable air cushion 42 are detachably fixed to two inflatable support tubes 3 arranged side by side (the hook surface of the hook-and-loop fastener assembly is fixed to the back surface of the support tubes 3) by means of a hook-and-loop fastener assembly 7 (for example, a loop surface). The inflatable support tube 3 is used to be mounted on the vehicle rooftop rack or the ground to support the inflatable air cushion more stably.

[0053] The inflatable support tube 3 may include a single inflatable inner container or a plurality of inflatable inner containers covered by a protecting case, so that the strength is more uniform and the support effect is better. The material of inflating inner container may be TPU (Thermoplastic Urethane, thermoplastic polyurethane) material, and the protective cover made of Oxford cloth and other materials may be wrapped on the outside.

[0054] The fixing portions 6 are fixedly or detachably connected to a plurality of fixing belts or fixing ropes (refer to the fixing belts or fixing ropes 4 of FIG. 12). The fixing portions 6 may be ring-shaped or hook-shaped fixing portions affixed to the air cushion. The fixing belts or fixing ropes may be connected to the vehicle body or tent pegs to stably fix the inflatable air cushion to the vehicle roof.

[0055] In the fourth embodiment described above, the inflatable support tubes 3 are arranged substantially par-

allel to the long edges of the inflatable air cushion, a length of the tubes 3 may be slightly wider than an average width of the vehicles, but shorter than a length of a long side of the air cushion, and most of it is fixed on the back of the first air cushion 41 and a small part is fixed on the back of the second air cushion 42 to facilitate the air cushion to be fixed on the rooftop in a lateral manner, refer to figure 12. In another modified example of fourth embodiment, the inflatable support tube may be parallel to the short edge of the inflatable air cushion, at this point, one or more support tubes can be fixed under the first inflatable air cushion and the second inflatable air cushion, respectively, so that the air cushion can be fixed on the roof longitudinally, as shown in figure 16.

[0056] The inflatable air soft shell base for a tent in embodiments 1 to 4 described above may further include a ladder (refer to the ladder 5 of FIG. 12). The ladder is preferably detachably connected to the first inflatable air cushion or the second inflatable air cushion to facilitate storing and transporting.

FIFTH EMBODIMENT

[0057] Referring to FIG. 12, the fifth embodiment provides a tent which may be used on vehicle rooftops and on the ground. The tent may include a bearing platform 1, an inflatable frame 9 detachably connected to the bearing platform 1, and a tent canopy 2 set up on the inflatable frame 9. The bearing platform 1 is the inflatable air soft shell base for a tent as described in the above-mentioned fourth embodiment. The inflatable air soft shell base for a tent is detachably connected to the inflatable frame 9 via a connector 101. The tent canopy 2 covers the outside of the inflatable frame 9, and the lower end of the tent canopy can be connected to the bearing platform 1 via a connector such as a zipper or a rope, so that the tent is stronger and does not scatter in bad weather. The material of the inflatable frame 9 may be the same as that of the inflatable support tube 3, and the structures may be similar. An inflatable support tube 3 is connected to the back surface of the bearing platform 1, and the bearing platform 1 is fixedly connected to the vehicle via a plurality of fixing belts or fixing ropes 4 connected to a plurality of ring-shaped fixing portions or hook-shaped fixing portions 6, and the inflatable support tube 3 can well distribute the weight of the entire tent over the top of the vehicle.

[0058] The fixing belts or fixing ropes 4 may be a nylon or terylene or chinlon or an aramid or a steel riband or rope object. In this embodiment, one end of the fixing belts or the fixing ropes 4 is connected to a ring-shaped fixing portion or a hook-shaped fixing portion 6, and the other end is fixed at a vehicle hub 03.

[0059] In other modified embodiments, the fixing belts or fixing ropes 4 can also be fixed at the vehicle tire 02 or the rear-view mirror 04 or the door handle 05 or the vehicle door 06. As shown in FIG. 15, a set of the fixing belts or fixing ropes 4 is fixed at the rear-view mirror, and

another set of the fixing belts or fixing ropes 4 is fixed to the tent stakes/pegs; alternatively, as shown in FIGS. 13 and 14, a set of the fixing belts or the fixing ropes 4 is connected to each other after passing through the vehicle, forming a ring-shaped lock latch for fixing the tent, and the other set of the fixing belts or fixing ropes 4 is fixed to the wheel hubs.

[0060] The vehicle rooftop rack 01 mainly provides a fulcrum function for the fixing of the tent, and the fixing belts or the fixing ropes 4 can effectively ensure the firmness of the tent fixing. It is generally recommended to bind it to the tire or hub or rearview mirror or door handle to maximize the stability of the tent fixation.

[0061] It needs to be noted that in the fifth embodiment, the two inflatable support tubes 3 are elongated in shape and placed laterally on the vehicle rooftop rack 01. In other embodiments, three or more inflatable support tubes 3 may be used, with the bearing platform 1 being more evenly stressed.

[0062] A ladder 5 is also connected to the back surface of the bearing platform 1. The ladder 5 greatly facilitates access to the tent fixed on the rooftop of a vehicle. In fifth embodiment, the ladder 5 is made of metal, and is located at a side of the vehicle, and can be snap-connected to the buckle hand-held portion 17 while supporting the rear end (the suspended end) of the bearing platform 1. In other embodiments, the ladder may be mounted to the rear of the vehicle according to actual needs, the positional relationship of the ladder to the vehicle being shown in FIG. 16.

SIXTH EMBODIMENT

[0063] The sixth embodiment provides a tent which may be used on rooftops of the vehicles. The tent may include a bearing platform, an inflatable frame detachably connected to the bearing platform, and a tent canopy set up on the inflatable frame. The bearing platform may be the inflatable air soft shell base for a tent described in any one of embodiments 1 to 3 described above. The inflatable air soft shell base for a tent is detachably connected to the inflatable frame by a connector 101. The tent canopy can also be connected to the bearing platform by means of a connector such as a zipper, so that the tent is stronger and does not scatter in bad weather. The materials and structures of the inflatable frame and tent canopy may be the same as or similar to those in fifth embodiment. The bearing platform is connected to the rails of the vehicle rooftop by means of the locking members 15, thereby fixedly connecting the tent to the vehicle. The operation process is simple and easy and can be operated by one person.

SEVENTH EMBODIMENT

[0064] Referring to FIG. 17, the seventh embodiment provides a tent which may be used on water. The tent may include a bearing platform, an inflatable frame de-

tachably connected to the bearing platform, and a tent canopy set up on the inflatable frame. The bearing platform may be an inflatable air soft shell base for a tent which is similar to the inflatable air cushion described in the embodiment 4 described above. The main difference between the inflatable air cushion of the seventh embodiment and the air cushion in the fourth embodiment is that the inflatable support tube 3' is detachably fixed on the side of the air cushion by the fixing belts of fixing ropes 4. Moreover, the back surface of the inflatable support tubes 3' should be lower than the back surface of the air cushion, and the diameter or height of the inflatable support tubes 3' is greater than the thickness of the air cushion. In this way, because the air cushion and the inflatable support tubes are inflatable structures, the tent can float on the water. Setting the inflatable support tubes 3' on the sides of the air cushion can effectively enhance the buoyancy and increase the ability to prevent rollover, making the tent stabler and safer when used on water.

[0065] While the invention has been described in terms of several exemplary embodiments, those skilled on the art will recognize that the invention can be practiced with modification within the spirit and scope of the appended claims. In addition, it is noted that, the Applicant's intent is to encompass equivalents of all claim elements, even if amended later during prosecution.

Claims

1. An inflatable air soft shell base for a tent comprising a first inflatable air cushion (11, 21, 31, 41), **characterized by** further comprising a connector (13, 23, 33, 43) and a second inflatable air cushion (12, 22, 32, 42) connected to the first inflatable air cushion (11, 21, 31, 41) via the connector (13, 23, 33, 43); wherein inner cavities of the first inflatable air cushion (11, 21, 31, 41) and the second inflatable air cushion (12, 22, 32, 42) are independent of each other, and the first inflatable air cushion (11, 21, 31, 41) and the second inflatable air cushion (12, 22, 32, 42) can be folded with the connector (13, 23, 33, 43) as a rotating shaft.
2. The inflatable air soft shell base for a tent according to claim 1, **characterized in that** the first inflatable air cushion (11, 21, 31, 41) comprises a first inflatable inner air board (111) and a first protective cover (112) wrapping the first inflatable inner air board (111), the second inflatable air cushion (12, 22, 32, 42) comprises a second inflatable inner air board (121) and a second protective cover (122) wrapping the second inflatable inner air board (121), and the connector (13, 23, 33, 43) is connected to the first protective cover (112) and the second protective cover (122), respectively.
3. The inflatable air soft shell base for a tent according to claim 1, **characterized in that** the connector (13, 23, 33, 43) is connected to an upper surface of the first inflatable air cushion (11, 21, 31, 41) and an upper surface of the second inflatable air cushion (12, 22, 32, 42), respectively, and in an unfolded state, the first inflatable air cushion (11, 21, 31, 41) abuts against the second inflatable air cushion (12, 22, 32, 42), and the connector (13, 23, 33, 43) is in a tight state.
4. The inflatable air soft shell base for a tent according to claim 3, **characterized in that** the connector (13, 23, 43) is a cloth strip or a leather strip, or a zipper structure; when the connector (13, 43) is a cloth strip or a leather strip, the connector (13, 43) is respectively connected to the first inflatable air cushion (11, 21, 31, 41) and the second inflatable air cushion (12, 22, 32, 42) via a glue; and when the connector (23) is of a zipper structure, the connector (23) specifically comprises a first cloth belt (24) connected to the first inflatable air cushion (11, 21, 31, 41), a second cloth belt (25) connected to the second inflatable air cushion (12, 22, 32, 42), a first tooth chain (26) fixed to the first cloth belt (24), a second tooth chain (27) fixed to the second cloth belt (25), and a pulling head (28) meshing the first tooth chain (26) with the second tooth chain (27).
5. The inflatable air soft shell base for a tent according to claim 3, **characterized in that** the connector (33) is a hook-and-loop fastener comprising two loop surfaces (34) fixed to the first inflatable air cushion (31) and the second inflatable air cushion (32), respectively, and one hook surface (35) detachably adhered to the two loop surfaces (34).
6. The inflatable air soft shell base for a tent according to claim 3, **characterized in that** the connector (33) is a hook-and-loop fastener comprising two hook surfaces fixed to the first inflatable air cushion (31) and the second inflatable air cushion (32), respectively, and one loop surface bonded to the hook surface.
7. The inflatable air soft shell base for a tent according to claim 1, **characterized by** further comprising at least two locking members (15) which are capable of being slidably nestled with outer longitudinal rails (14).
8. The inflatable air soft shell base for a tent according to claim 7, **characterized by** further comprising at least two bearing members (16) configured for contact with the outer longitudinal rails (14); wherein the at least two locking members (15) are fixed on a back surface of the first inflatable air cushion (11, 21, 31), and the at least two bearing members (16) are fixed to a back surface of the second inflatable air cushion (12, 22, 32).

9. The inflatable air soft shell base for a tent according to claim 1, **characterized by** further comprising a hand-held portion (103) provided at a back surface of the second inflatable air cushion (12, 22, 32, 42) to facilitate a user for hand holding. 5

10. The inflatable air soft shell base for a tent according to claim 1, **characterized by** further comprising at least two inflatable support tubes (3, 3') fixed to back surfaces or side surfaces of the first inflatable air cushion (41) and the second inflatable air cushion (42). 10

11. The inflatable air soft shell base for a tent according to claim 10, **characterized by** further comprising a plurality of fixing portions (6) fixed to back surfaces or side surfaces of the first inflatable air cushion (41) and the second inflatable air cushion (42), and a plurality of fixing belts or fixing ropes (4) connected to the plurality of fixing portions (6). 15
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12. The inflatable air soft shell base for a tent according to claim 10, **characterized in that** each of the at least two inflatable support tubes (3) comprises one or more than one inflatable inner air boards. 25

13. The inflatable air soft shell base for a tent according to claim 1, **characterized in that** a back surface of the second inflatable air cushion (12, 22, 32, 42) is further fixed with two buckles configured for being detachably snap-fit connected with a ladder (5), and a hand-held portion (102) convenient for a user to use is further fixed at a corresponding position at a front surface of the second inflatable air cushion. 30
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14. The inflatable air soft shell base for a tent according to any one of claims 1 to 13, **characterized by** further comprising a third inflatable air cushion (14) and a second connector (15), wherein an inner cavity of the third inflatable air cushion (14) is independent of the inner cavities of the first inflatable air cushion (11, 21, 31, 41) and the second inflatable air cushion (12, 22, 32, 42); one side of the second connector (15) is connected to the third inflatable air cushion (14), and the other side is connected to the first inflatable air cushion (11, 21, 31, 41) or the second inflatable air cushion (12, 22, 32, 42); and the second connector (15) is a cloth strip or a leather strip or a zipper or a hook-and-loop fastener. 40
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15. A tent, comprising a bearing platform, an inflatable frame connected to the bearing platform, and a tent canopy set up on the inflatable frame, **characterized in that** the bearing platform is the inflatable air soft shell base for a tent according to any one of claims 1 to 13. 55

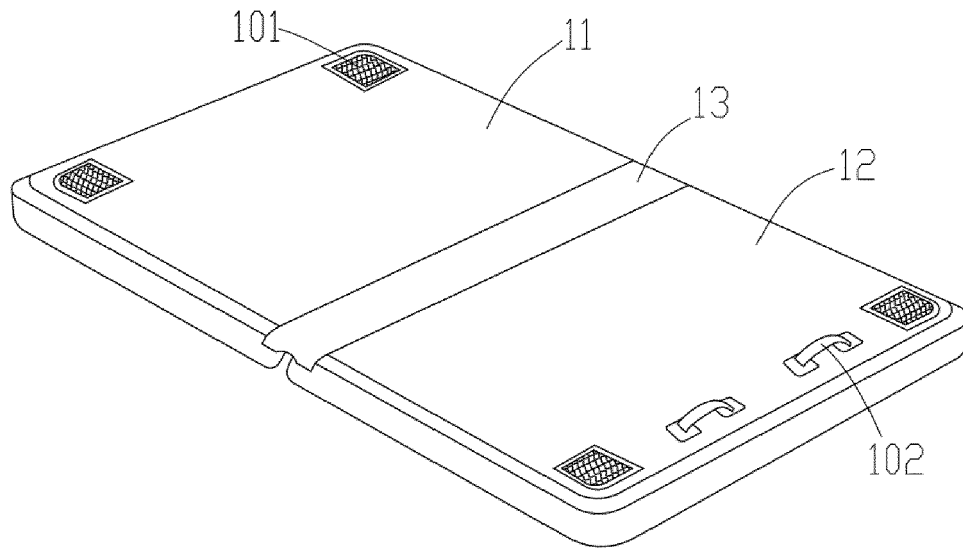


FIG. 1(a)

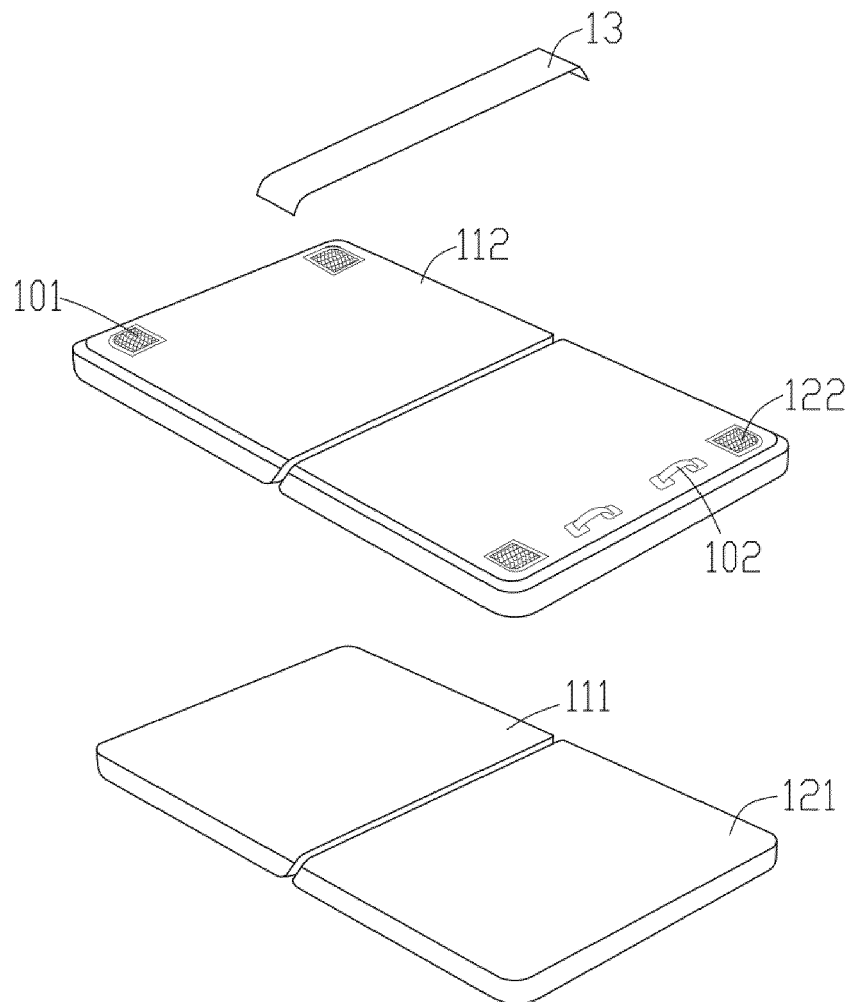


FIG. 1(b)

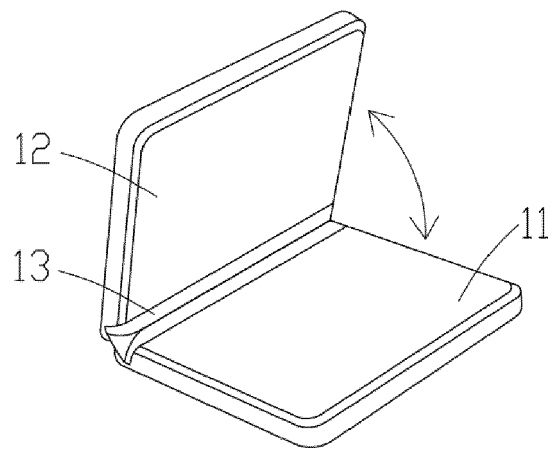


FIG. 2

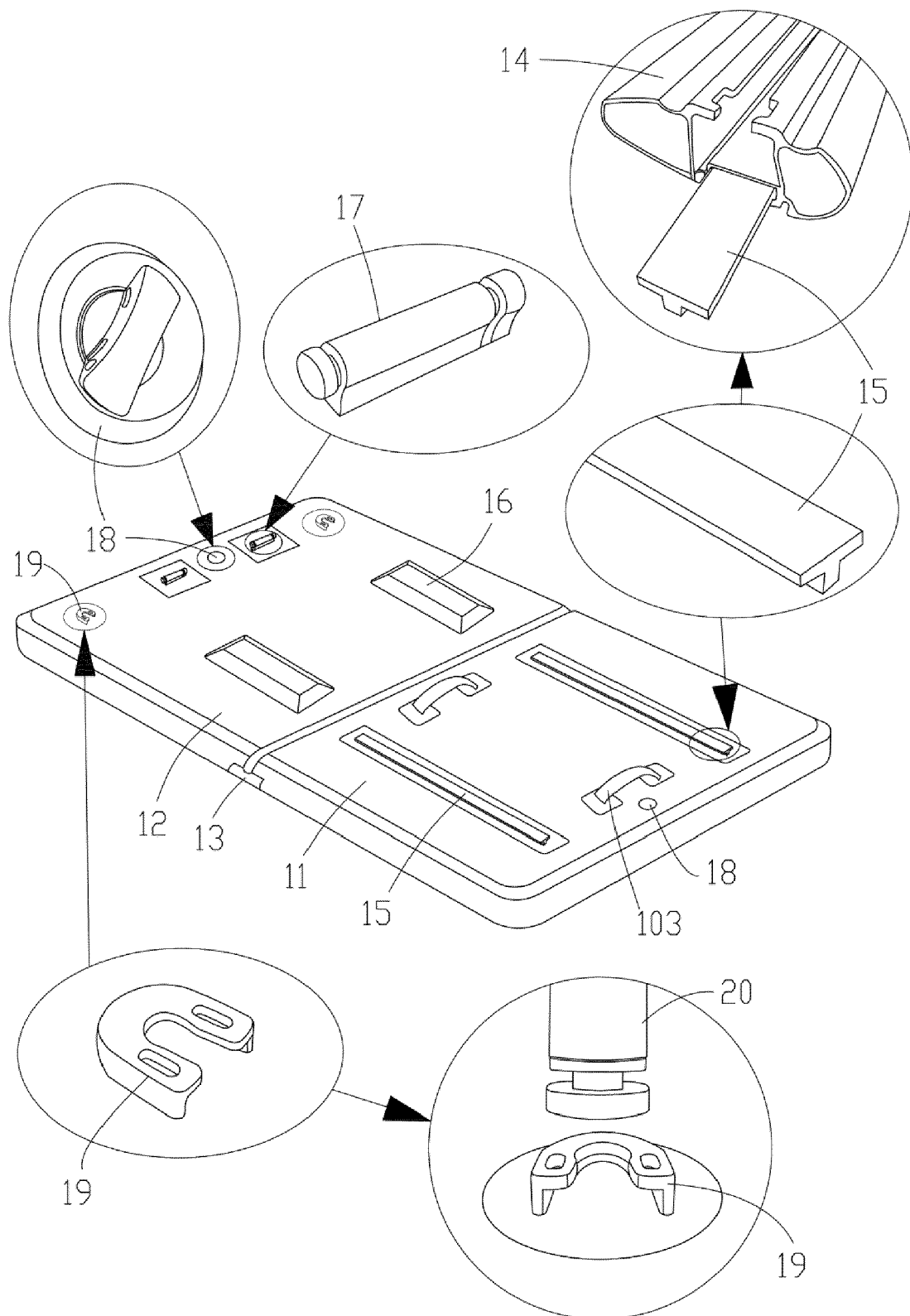


FIG. 3

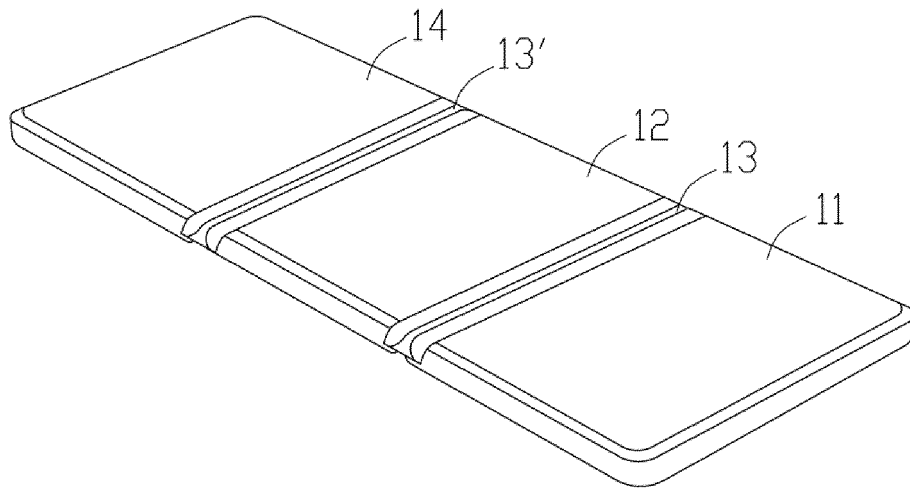


FIG. 4

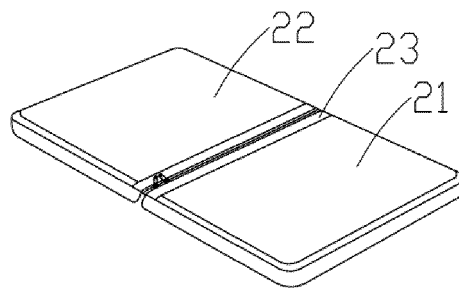


FIG. 5

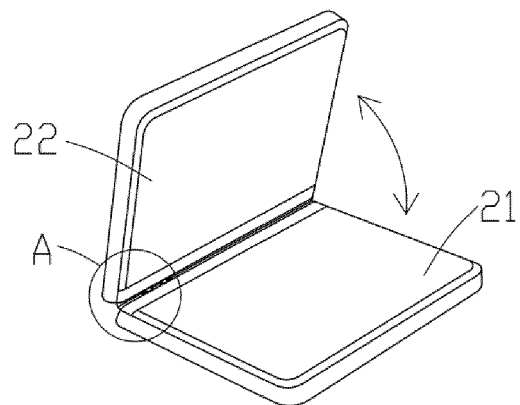


FIG. 6

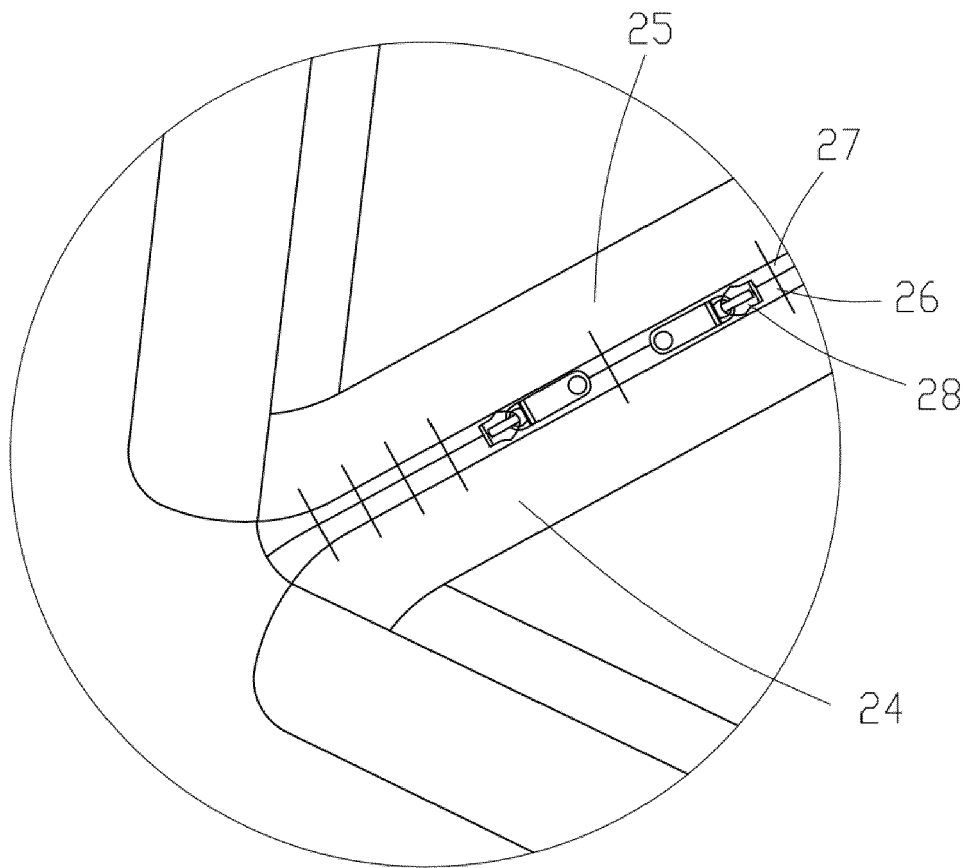


FIG. 7

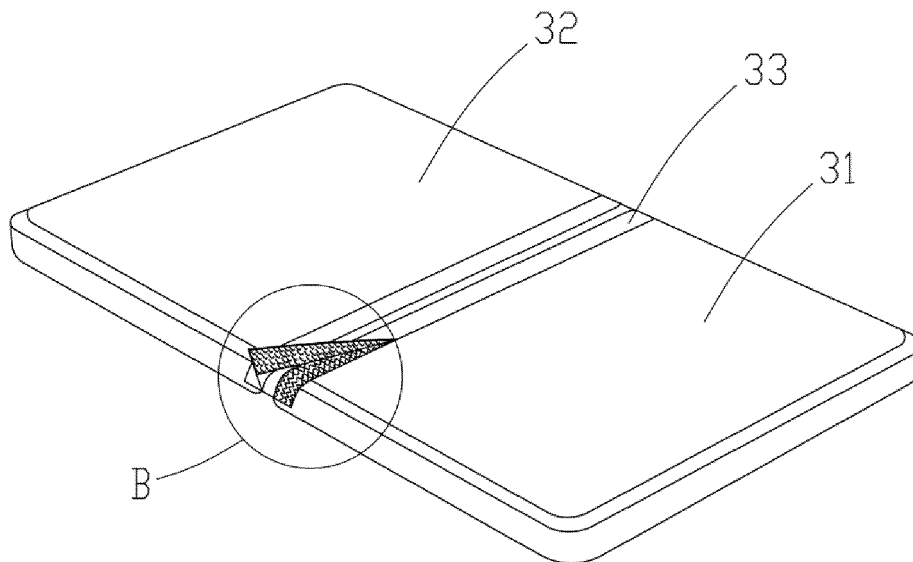


FIG. 8

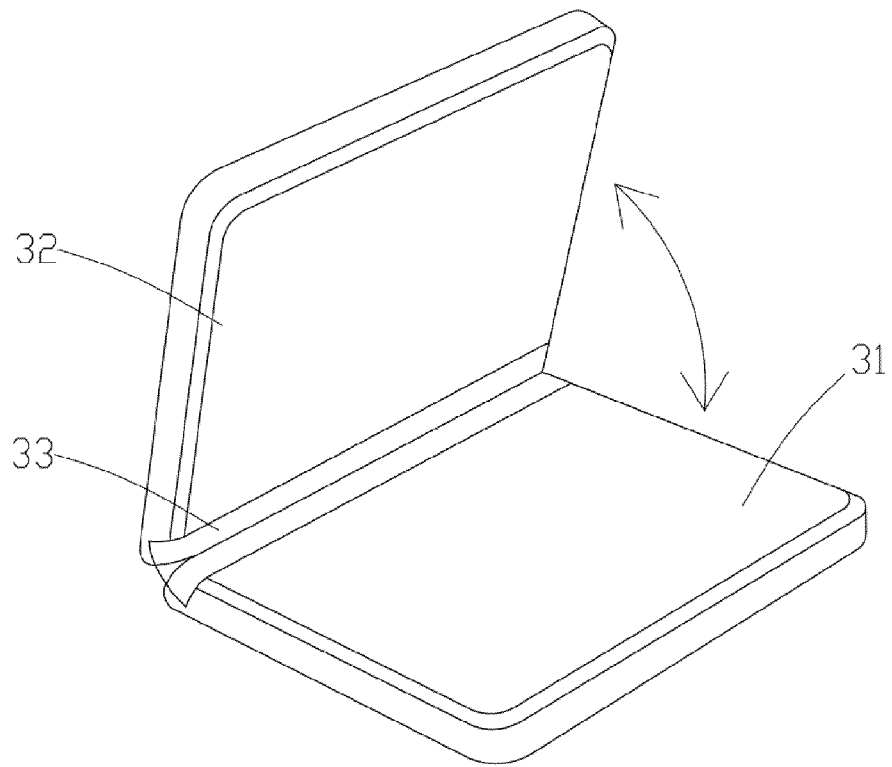


FIG. 9

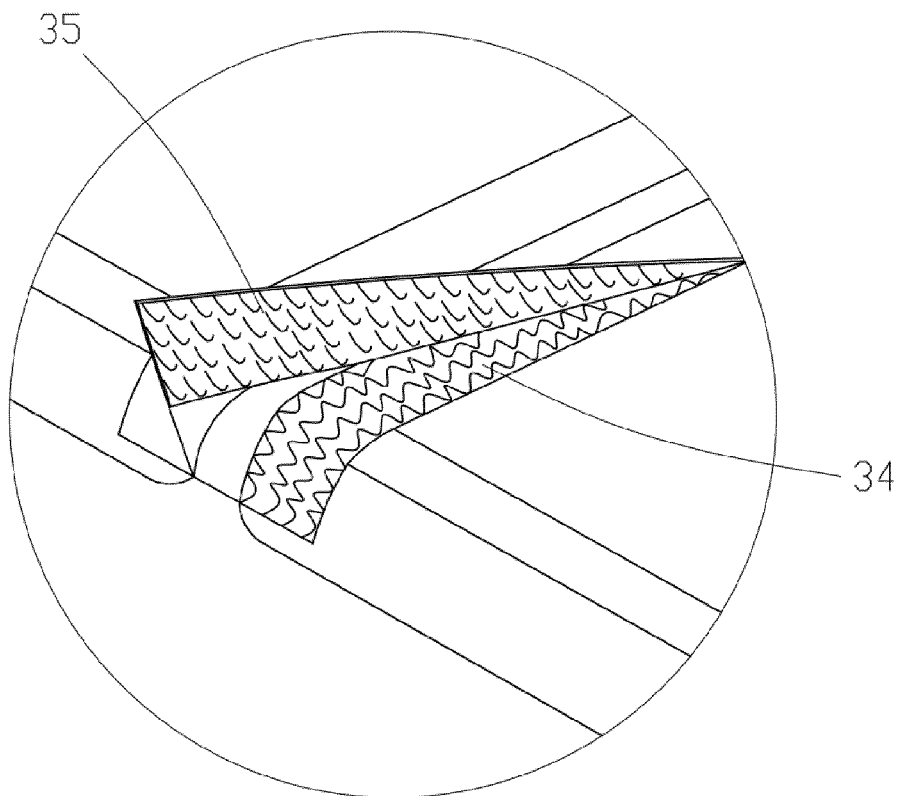


FIG. 10

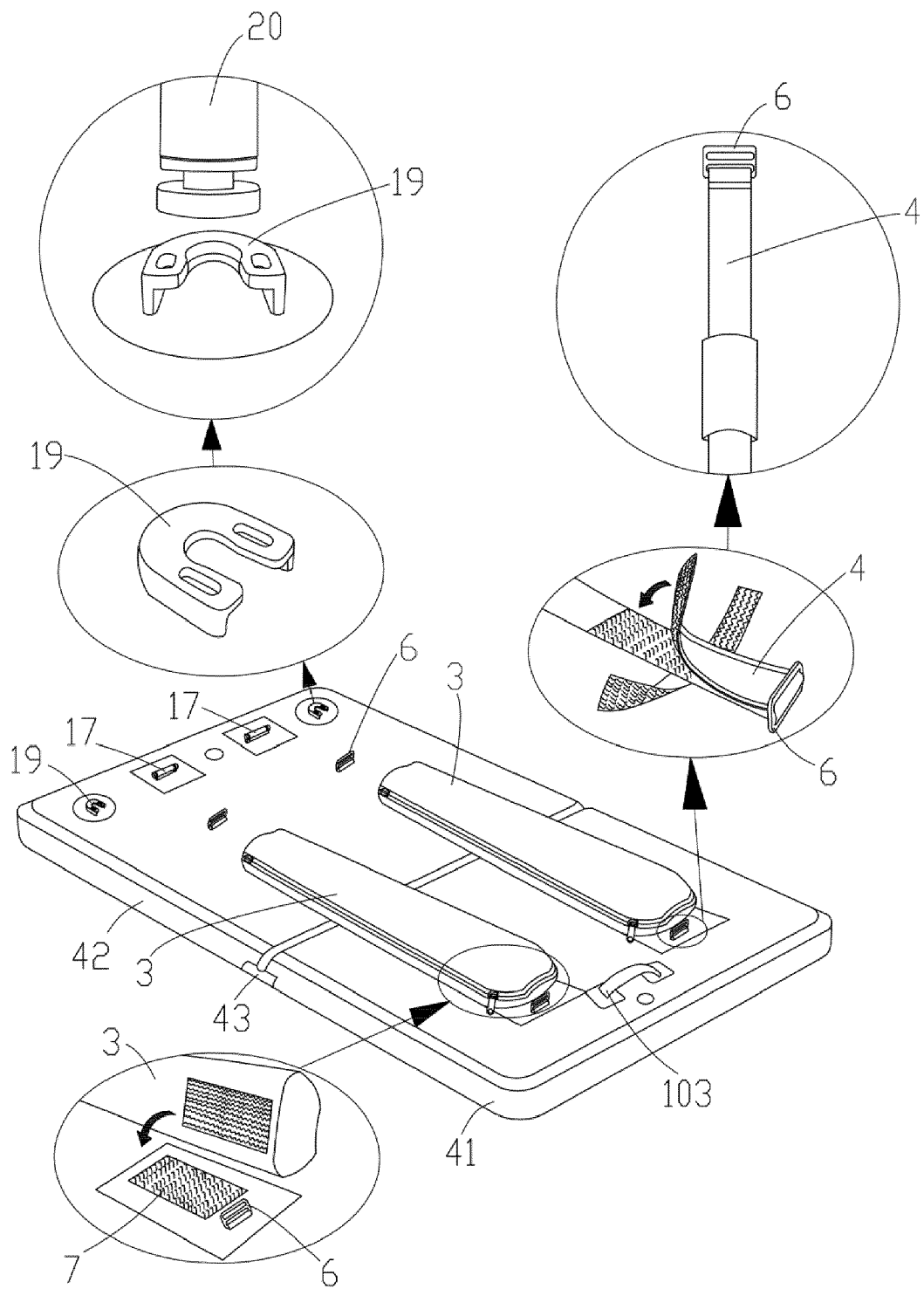


FIG. 11

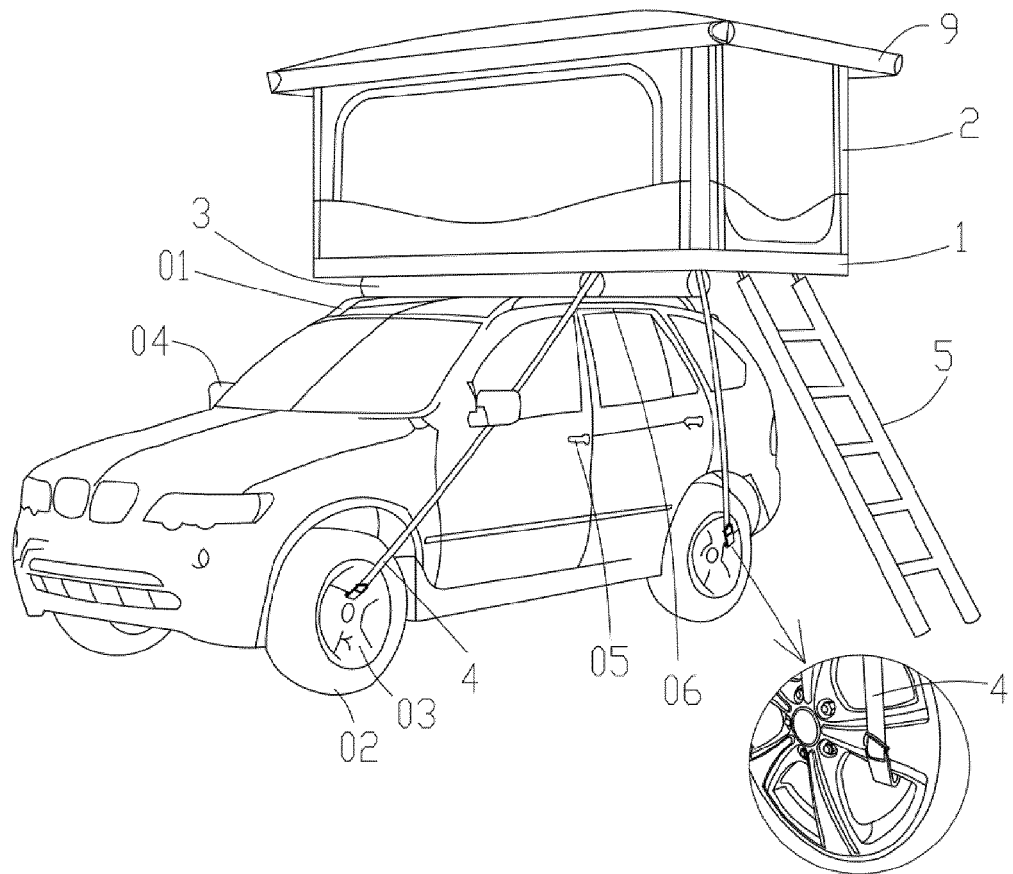


FIG. 12

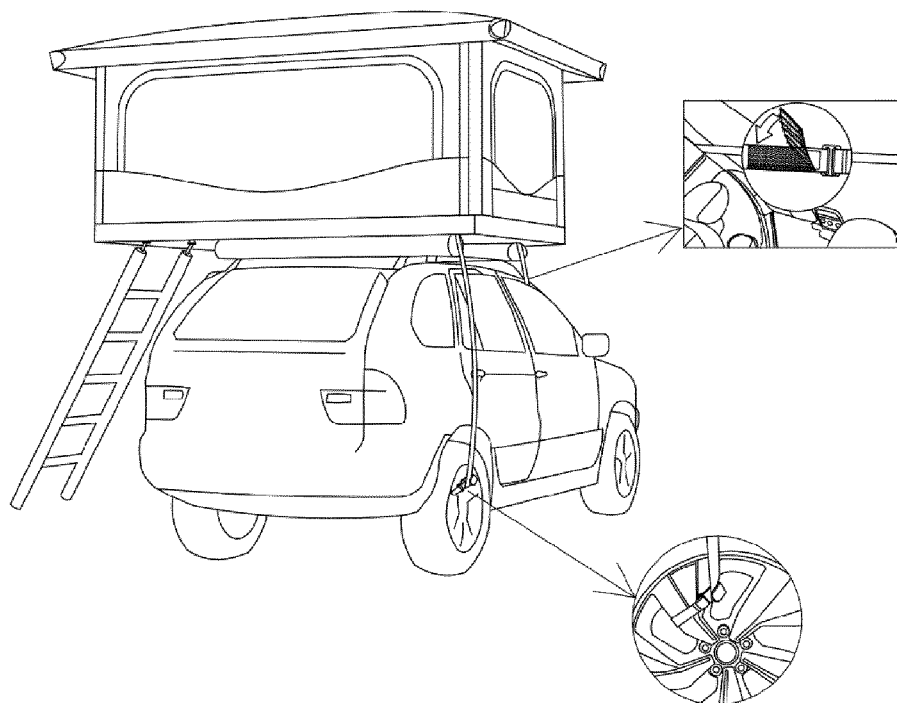


FIG. 13

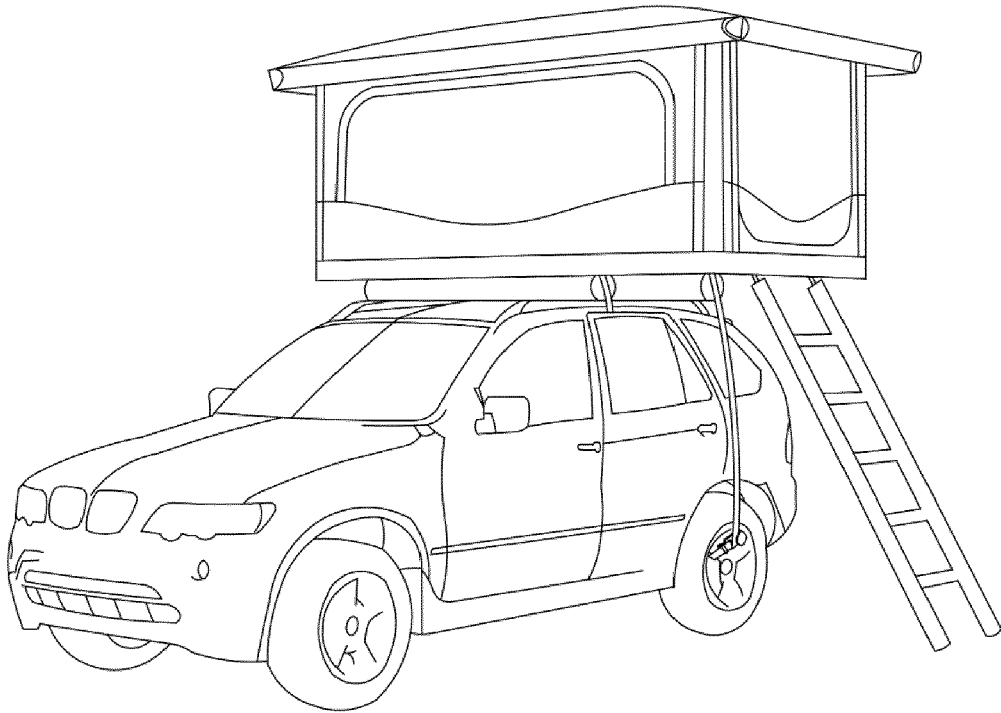


FIG. 14

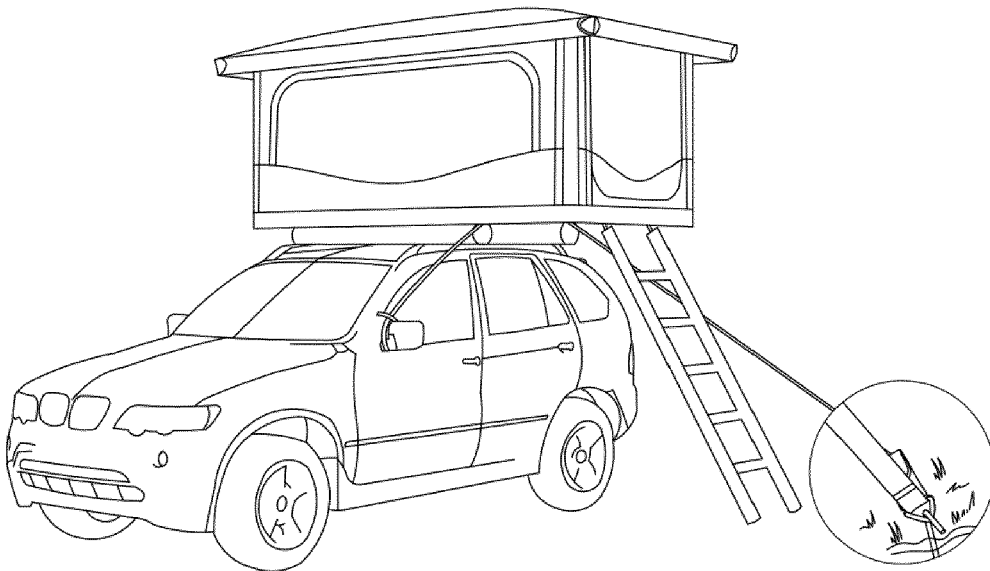


FIG. 15

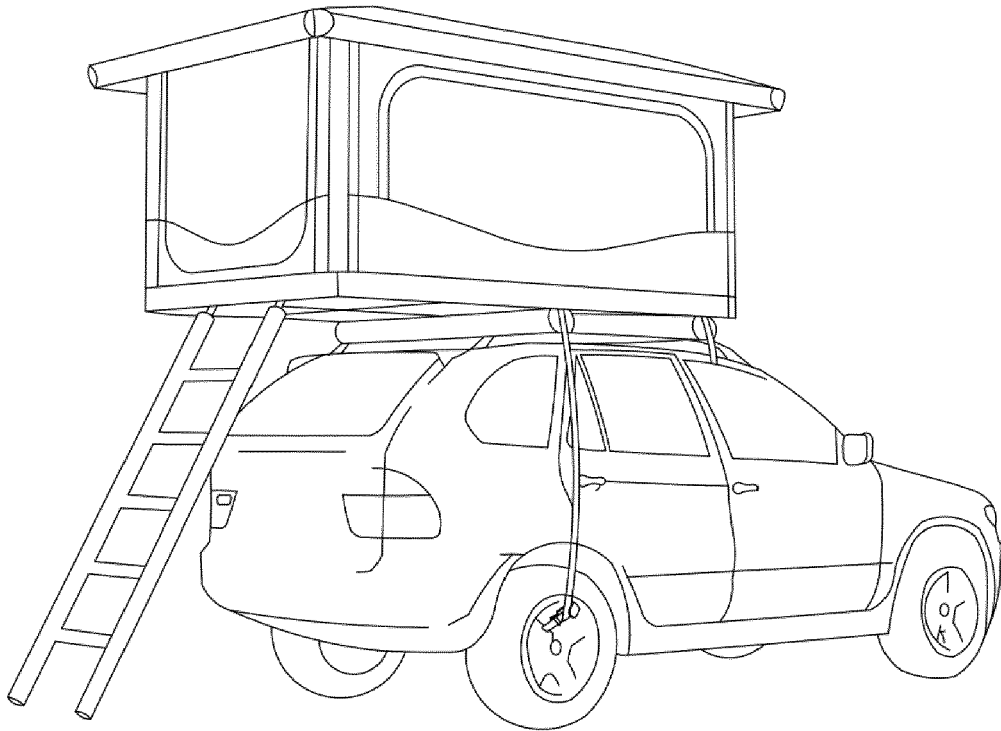


FIG. 16

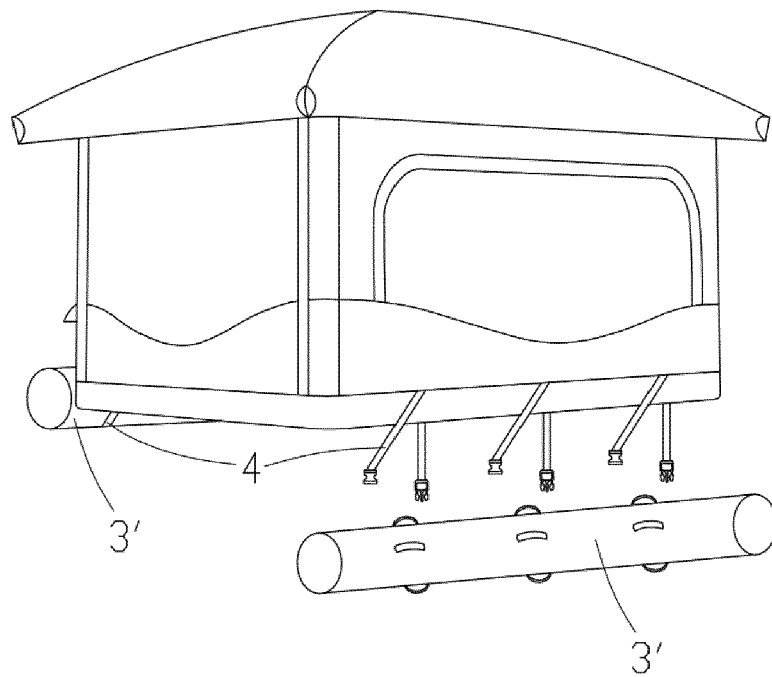


FIG. 17



EUROPEAN SEARCH REPORT

Application Number

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 February 2024	Examiner Rosborough, John
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Place of search		Date of completion of the search	Examiner
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T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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

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