(12) DEMANDE INTERNATIONALE PUBLIÉE EN VERTU DU TRAITÉ DE COOPÉRATION EN MATIÈRE DE BREVETS (PCT)

(19) Organisation Mondiale de la Propriété Intellectuelle
Bureau international

(43) Date de la publication internationale
09 décembre 2021 (09.12.2021)

WIPO | PCT

(10) Numéro de publication internationale
WO 2021/245002 A1

(51) Classification internationale des brevets :
E04H 15/06 (2006.01) *E04H 15/20* (2006.01)
A47C 27/08 (2006.01) *A47C 23/06* (2006.01)

(21) Numéro de la demande internationale :
PCT/EP2021/064486

(22) Date de dépôt international :
31 mai 2021 (31.05.2021)

(25) Langue de dépôt : français

(26) Langue de publication : français

(30) Données relatives à la priorité :
2005809 03 juin 2020 (03.06.2020) FR

(71) Déposant : **DECATHLON** [FR/FR] ; 4 BOULEVARD DE MONS, 59650 VILLENEUVE D'ASCQ (FR).

(72) Inventeur : **LAFOUX, Benjamin** ; 543 ROUTE DES MORETS, 74170 SAINT GERVAIS (FR).

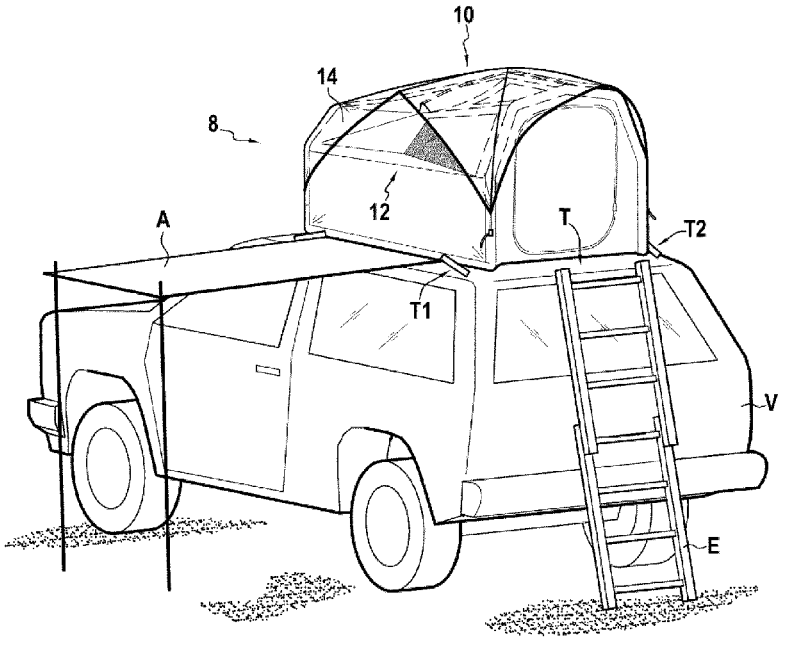
(74) Mandataire : **BEAU DE LOMENIE** ; Immeuble Eurocentre, 179 Boulevard de Turin, 59777 LILLE (FR).

(81) États désignés *(sauf indication contraire, pour tout titre de protection nationale disponible)* : AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(54) **Title:** TENT COMPRISING A BED BASE

(54) **Titre :** TENTE COMPRENANT UN SOMMIER

[Fig. 1]



(57) **Abstract:** Tent (10) comprising a tent fabric (12), a bed base (16) comprising at least one first longitudinal inflatable base portion (20) and one second longitudinal inflatable base portion (22) extending in a first, substantially horizontal plane (P1), the bed base further comprising a plurality of support elements (24) extending transversely between the first and second longitudinal inflatable base portions, and at least one first frame element (42) that connects said first and second longitudinal inflatable base portions and extends in a second plane (P2) which is transverse to the first plane, wherein said at least one first frame element cooperates with the tent fabric.

(57) **Abrégé :** Tente (10) comprenant une toile de tente (12), un sommier (16) comprenant au moins une première portion d'embase gonflable longitudinale (20) et une seconde portion d'embase gonflable longitudinale (22) s'étendant dans un premier plan (P1) sensi-

WO 2021/245002 A1

[Suite sur la page suivante]

(84) États désignés *(sauf indication contraire, pour tout titre de protection régionale disponible)* : ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), eurasien (AM, AZ, BY, KG, KZ, RU, TJ, TM), européen (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Publiée:

— *avec rapport de recherche internationale (Art. 21(3))*

— *avant l'expiration du délai prévu pour la modification des revendications, sera republiée si des modifications sont reçues (règle 48.2(h))*

blement horizontal, le sommier comprenant en outre une pluralité d'éléments de support (24) s'étendant transversalement entre les première et seconde portions d'embase gonflables longitudinales, et au moins un premier élément d'armature (42) reliant lesdites première et seconde portions d'embase gonflables longitudinales et s'étendant dans un deuxième plan (P2) transversal au premier plan, ledit au moins un premier élément d'armature coopérant avec la toile de tente.

Description

Title of the invention: Tent comprising a bed base

Technical field

The present invention relates to the field of tents for the practice of camping, intended to be folded and deployed quickly and easily, with a minimum of operations and configured to lie on different types of surfaces. The invention more specifically relates to the at least partially inflatable tents that can be in particular placed on the ground or on the roof of a vehicle.

Prior art

Tents such as the one described in document US 2 875 771 are known, comprising an inflatable element forming a mattress configured to lie directly on the ground and a reinforcement composed of a plurality of connected tubes carrying a canvas of the tent. One drawback of this tent is that the inflatable element forming a mattress is in direct contact with the surface on which the tent is disposed, such that it risks wearing out or being pierced due to friction with said surface, in particular when the tent is placed on an outdoor ground.

Moreover, insofar as the inflatable element forming a mattress lies directly on said surface, the mattress appears excessively firm for the user, which is detrimental to his comfort and risks causing significant pain, for example back pain. The imperfections, irregularities and possible unevenness of this surface are also felt by the user lying on this inflatable element. The comfort of the user is therefore highly compromised.

Moreover, the ventilation of this inflatable element forming a mattress is insufficient such that it risks being degraded by humidity, after several uses.

Furthermore, if a tent as described in this document were placed on the roof of a vehicle, the element forming a mattress would bear on the entire roof and risk deforming it and therefore damaging the vehicle. Such a tent is therefore not adapted to be placed on a vehicle roof.

Disclosure of the invention

One aim of the present invention is to propose a tent overcoming the aforementioned problems.

To do so, the invention relates to a tent configured to be disposed on a surface, for example a ground or the roof of a vehicle, the tent comprising:

- a tent canvas;
- a bed base including a base configured to lie on said surface, said base comprising at least one first longitudinal inflatable base portion and one second longitudinal inflatable base portion extending in a first substantially horizontal plane when the tent is placed in a deployed position, the bed base further comprising a plurality of elongated support elements configured to support a mattress, said support elements extending transversely between the first and second longitudinal inflatable base portions; and
- at least one first reinforcement element cooperating with the first and second longitudinal inflatable base portions, connecting said first and second longitudinal inflatable base portions and extending in a second plane transverse to the first plane, when the tent is placed in the deployed position, said at least one first reinforcement element cooperating with the tent canvas.

Preferably, the tent according to the present invention is a roof tent, particularly adapted to lie on the roof of a vehicle, such as a car or a van, without damaging it. The tent can also be disposed on a ground, for example outdoors, and in particular on a rough ground.

The first and second longitudinal inflatable base portions advantageously have a tubular shape. They can each comprise an inflation valve allowing their inflation independently of each other. As a variant, the first and second longitudinal inflatable base portions can be in fluid communication. The base can then comprise only one inflation valve that allows simultaneously inflating the first and second longitudinal inflatable base portions.

The tent can be advantageously placed alternately in the folded position, corresponding to a stowage position, and in the deployed position, corresponding to a position of use of the tent.

In the folded position, the first and second longitudinal inflatable base portions are deflated and said at least one first reinforcement element no longer extends in the second plane. The longitudinal inflatable base portions and said at least one first reinforcement element can be brought together and stored, for example in a stowage cover.

In the deployed position of the tent, the first and second longitudinal inflatable base portions are inflated and can be disposed on said surface, for example a ground or the roof of a vehicle, in order to form the base of the bed base and thus support the tent.

In the deployed position of the tent, the entire base advantageously extends in said first substantially horizontal plane. The first substantially horizontal plane, in which the first and second longitudinal inflatable base portions extend, is advantageously parallel to the surface on which the tent lies.

The first and second longitudinal inflatable base portions define the side borders of the base and therefore of the tent. They are preferably parallel to each other.

In a non–limiting manner, the base can comprise additional base portions cooperating with the first and second longitudinal inflatable base portions.

In the deployed position of the tent, said at least one first reinforcement element allows maintaining the tent canvas at a distance from said surface in order to delimit an interior volume of the tent in which the user can move. In a non–limiting manner, the tent canvas can lie on said at least one first reinforcement element. As a variant, the tent canvas can be connected or fixed to said first reinforcement element.

The angle between the first plane and the second plane, in which said at least one first reinforcement element extends, in the deployed position of the tent, is preferably comprised between 70° and 110°, more preferably comprised between 80° and 100°, even more preferably approximately equal to 90°. Without departing from the scope of the present invention, the first and second planes are not necessarily perpendicular to each other. The second plane preferably extends substantially vertically, when the tent lies on said surface. In a non–limiting manner, said second plane can be slightly inclined relative to the vertical. Said at least one first reinforcement element further extends preferably perpendicularly to the first and second longitudinal inflatable base portions.

The bed base comprises at least two elongated support elements, preferably at least three elongated support elements. The elongated support elements advantageously lie on the first and second longitudinal inflatable base portions. They preferably extend in one and the same plane, said plane being advantageously parallel to the first substantially horizontal plane in which the first and second longitudinal inflatable base portions extend. Also, the elongated support elements allow maintaining a mattress substantially parallel to said surface on which the base lies. The mattress can be integrated into the tent but not necessarily.

The elongated support elements have a length much greater than their transverse dimensions. In a non–limiting manner, they can be removably connected to the first and second longitudinal inflatable base portions. The elongated support elements preferably extend perpendicularly to the first and second longitudinal inflatable base portions.

In a non–limiting manner, the elongated support elements can be slats, sections or straps extending between the first and second longitudinal inflatable base portions.

The tent according to the invention can be brought from the folded position to the deployed position by inflation of the first and second longitudinal inflatable base portions and by positioning of said at least one first reinforcement element in the second plane, in order to lift and stretch the tent canvas and form the interior volume of the tent, in which the user can position himself. The inflation can be carried out by means of a pump cooperating with one or several inflation valves, positioned on the base or on said at least one first reinforcement element.

Advantageously, the inflation of the first and second longitudinal inflatable base portions allows tensioning said at least one reinforcement element between said longitudinal inflatable base portions and causes its automatic positioning in the second plane.

Without departing from the scope of the invention, the tent can comprise a ground sheet configured to extend between the first and second longitudinal inflatable base portions and to lie on said surface.

In the conventional tents, traditionally used for camping, the use of an independent added bed base is generally not envisaged given the lack of space

inside the tent and the complexity of installation of the tent coupled to that of the bed base. The user then simply places his mattress on the ground, which compromises his comfort and risks damaging the mattress.

According to the present invention, the bed base forms an integral part of the tent, whereby the bed base is deployed together with the tent. It is therefore not necessary to connect a separate and added bed base, which facilitates the installation and allows faster deployment of the tent. The comfort of the user is further ensured compared to the conventional tents in which it is not possible or very complicated to use a bed base.

Moreover, unlike the tents of the prior art, the bed base, and more specifically the elongated support elements extending between the longitudinal inflatable base portions of the tent according to the invention, allow maintaining a mattress at a distance from the surface on which the tent lies. This has the advantage of allowing the circulation of air between said surface and the elongated support elements and therefore under the mattress. The ventilation of the mattress is therefore improved and the humidity of the mattress is reduced.

Furthermore, thanks to the bed base of the tent according to the invention, a mattress supported by the elongated support elements does not directly lie on the surface, which reduces the risks of wear of such a mattress by friction. Furthermore, this configuration allows the deformation of the mattress, which appears less firm for the user. Comfort is therefore improved.

When the tent according to the present invention is placed on the roof of a vehicle, the first and second longitudinal inflatable base portions advantageously extend along the edges of the roof, where the roof is reinforced. Furthermore, a mattress lying on the support elements and the user do not come into contact with the roof of the vehicle. The risk of damage to the vehicle is therefore reduced and the tent according to the invention is particularly adapted to be placed on the roof of a car, a truck or a van.

Preferably, the first and second longitudinal inflatable base portions are substantially parallel relative to each other, when the tent is in the deployed position. One advantage is to reduce the lateral space requirement of the tent and to place it more easily on the roof of a vehicle.

Still preferably, said first and second longitudinal inflatable base portions are substantially of the same length, so that they delimit a substantially rectangular internal surface.

According to a first advantageous variant, said at least one first reinforcement element is a flexible hoop configured to be tensioned when the first and second longitudinal inflatable base portions are inflated.

Said hoop preferably has a first end and a second end opposite the first end. Preferably, each of said first and second ends is connected to one of the first and second longitudinal inflatable base portions. Furthermore, said hoop advantageously extends perpendicularly to the first and second longitudinal inflatable base portions and its length is preferably greater than the distance separating said first and second longitudinal inflatable base portions. Also, when the tent is in the deployed position, the hoop is tensioned and flexed so as to define a curvature. In addition, said hoop is advantageously bent and brought into the second plane automatically during the inflation of said first and second longitudinal inflatable base portions, so that the user is not required to tension it and position it manually. In the deployed position of the tent, the hoop is preferably kept curved in the second plane.

According to a second particularly advantageous variant, said at least one first reinforcement element is an inflatable element configured to form an arch connecting the first and second longitudinal inflatable base portions when it is inflated. One advantage is to allow putting the tent in the deployed position quickly and easily by inflation of the first and second longitudinal inflatable base portions and of said at least one first reinforcement element. Furthermore, the space requirement of said first reinforcement element when it is deflated, in order to fold the tent, is greatly reduced, in particular compared to a rigid reinforcement element. Said first reinforcement element is preferably connected to the first and second longitudinal inflatable base portions by sewing.

The inflation of said at least one first reinforcement element advantageously allows bringing it automatically into the second plane.

Advantageously, said at least one first reinforcement element is in fluid communication with at least one of the first and second longitudinal inflatable base portions. One advantage is to allow the simultaneous inflation of said longitudinal

inflatable base portions and of said at least one first reinforcement element. The injection of air via a single inflation valve advantageously allows inflating the first reinforcement element and the first and second longitudinal inflatable base portions. The tent is therefore put in the deployed position in a minimum of operations, which is then even faster. Advantageously, the inflation allows automatically bringing said at least one first reinforcement element into the second plane, which has the consequence of stretching the tent canvas.

Preferably, said at least one first reinforcement element and said first and second longitudinal inflatable base portions are formed of one and the same inflatable tube, whereby the manufacture of the tent is simplified. Another advantage is to avoid the connection, for example by sewing, of several tube portions. The junction may prove to be particularly fragile. Furthermore, the overall sealing of the assembly formed by said at least one first reinforcement element and the first and second longitudinal inflatable base portions is improved.

In a non–limiting manner, said tube can be a thermoplastic polyurethane (TPU) tube. It can further be disposed in a preformed textile sleeve, making it possible to stress the tube in order to give it the chosen shape when it is inflated.

Preferably, the first and second longitudinal inflatable base portions each comprise at least one first end, and said at least one first reinforcement element connects the first end of the first longitudinal inflatable base portion and the first end of the second longitudinal inflatable base portion. One advantage is to increase the interior volume of the tent, said at least one first reinforcement element being positioned so as to maintain the tent canvas at a distance from the surface, at the level of said first ends of the first and second longitudinal inflatable base portions.

Advantageously, the tent comprises at least one second reinforcement element cooperating with the first and second longitudinal inflatable base portions, connecting said first and second longitudinal inflatable base portions, and extending in a third plane transverse to the first plane, when the tent is placed in the deployed position, said at least one second reinforcement element cooperating with the tent canvas.

One advantage is to increase the interior volume of the tent, which improves the comfort of the user. Indeed, said at least one second reinforcement element allows supporting the tent canvas, at a distance from said surface on which the tent lies.

Said at least one second reinforcement element advantageously extends perpendicularly to the first and second longitudinal inflatable base portions.

Preferably, but in a non–limiting manner, said first and second reinforcement elements are substantially identical. It can for example be two flexible hoops or two inflatable elements. As a variant, and still in a non–limiting manner, said first and second reinforcement elements can be of different nature, for example a flexible hoop and an inflatable element.

Preferably, the second and third planes in which said first and second reinforcement elements respectively extend are substantially parallel to each other. One advantage is to increase the interior volume of the tent and to improve the balance of said tent. As a variant, said second and third planes can be slightly inclined towards each other.

Advantageously, the tent further comprises a junction portion connecting the first reinforcement element and the second reinforcement element.

The junction portion allows maintaining a constant gap between said first and second reinforcement elements, in order to prevent them from moving apart and collapsing. The structure of the tent is thus reinforced. Said junction portion advantageously extends between a top of the first reinforcement element and a top of the second reinforcement element.

According to one particularly advantageous aspect, considered in said first plane, the base consists of the first longitudinal inflatable base portion and the second longitudinal inflatable base portion. In other words, considered in said first plane, the base only comprises said first and second longitudinal inflatable base portions, and has no additional base portion.

One advantage is to reduce the weight and space requirement of the base and therefore more generally of the tent in the deployed position and in the folded position. Furthermore, no base portion lies on the surface between said first and second longitudinal inflatable base portions. Also, the contact surface between the base and the surface on which it lies is reduced and the risk of damage to said surface is particularly small. This is particularly advantageous when the tent is placed on the roof of a vehicle, a central area of which is generally poorly adapted to support a load.

Advantageously, at least one of the elongated support elements comprises a slat cooperating with the first and second longitudinal inflatable base portions. One advantage is to ensure effective support of a mattress while ensuring good ventilation of said mattress thanks to the spaces maintained between said slat and the adjacent elongated support elements.

Said slat is preferably made of a rigid material, for example wood, metal, fiberglass or composite material.

Preferably, said slat is disposed in a fabric sleeve, making it possible to protect it and reduce friction, in particular with the first and second longitudinal inflatable base portions.

Advantageously, said slat of said at least one of the elongated support elements has a first end and a second end opposite to the first end, and the first and second longitudinal inflatable base portions each comprise an upper surface provided with at least one upper connection device configured to connect one of the first and second ends of said slat to the corresponding longitudinal inflatable base portion. Said slat therefore extends between an upper connection device disposed on the first longitudinal inflatable base portion and an upper connection device disposed on the second longitudinal inflatable base portion. The distance separating said slat and the surface on which the base lies is substantially equal to the thickness of the first and second longitudinal inflatable base portions.

In a non–limiting manner, said slat can be connected to the first and second longitudinal inflatable base portions in a removable manner via said upper connection devices.

Each of the upper connection devices can comprise an upper connector configured to receive one of the first and second ends of said slat. Said slat can be fitted into said upper connectors.

As a variant, the upper connection devices can comprise a flexible strip connected to the longitudinal inflatable base portion or to the tent canvas in the vicinity of said longitudinal inflatable base portion and provided with at least a first loop or hook portion and configured to cooperate with at least a second loop or hook portion disposed on the slat.

In a non–limiting manner, the ends of the slat can be connected to the first and second longitudinal inflatable base portions via the upper connection devices during the deployment of the tent, and disconnected during the folding of the tent. As a variant, in the folded position of the tent, the slat can be kept connected to the upper connection devices. In this variant, in the embodiment where a plurality of support elements comprise a slat, said slats can be rolled up along a rolling direction parallel to said slats.

Advantageously, said at least one of the elongated support elements further comprises a reinforcing piece connecting the first and second longitudinal inflatable base portions and cooperating with a central portion of said slat of said at least one of the elongated support elements. One advantage is to prevent the slat from collapsing or breaking, in order to improve the comfort of the user and prevent him from injuring himself. In a non–limiting manner, the reinforcing piece can be an elongated element, for example a slat or a section extending between the first and second longitudinal inflatable base portions.

Preferably, said reinforcing piece extends under said slat. It is understood that the reinforcing piece allows supporting the slat in order to keep it at a distance from said surface.

Preferably, said reinforcing piece has a first end part and a second end part opposite to the first end part, and the first and second longitudinal inflatable base portions each comprise a lower surface provided with at least one lower connection device configured to connect one of the first and second end parts of said reinforcing piece to the corresponding longitudinal inflatable base portion.

Advantageously, the reinforcing piece is under bending stress by the first and second longitudinal inflatable base portions when they are inflated.

The reinforcing piece advantageously has a length greater than the distance separating the first and second longitudinal inflatable base portions, so that the inflation of said first and second longitudinal inflatable base portions causes the bending of the reinforcing piece, which then describes a curvature.

Advantageously, the tent further comprises a ground sheet extending between the first and second longitudinal inflatable base portions, the ground sheet cooperating with said at least one of the elongated support elements so as to be kept

at a distance from said surface. One advantage is to prevent said sheet from coming into contact with said surface, which limits the transmission of cold from the surface to the interior of the tent. Furthermore, this allows reducing the risk of damage to the surface, in particular when it comes to the roof of a vehicle, by friction with said ground sheet.

In a non–limiting manner, the ground sheet can be provided with a sheath in which said at least one of the elongated support elements extends, which allows lifting said ground sheet.

According to one particularly advantageous aspect, the tent further comprises a fixing device connected to one of the first and second longitudinal inflatable base portions and configured to cooperate with an anchoring means of said surface. One advantage is to effectively maintain the tent on the surface and to prevent it from moving or tipping over, in particular in case of wind, in order to guarantee the safety of the users.

In a non–limiting manner, the anchoring means of the surface can be a hook or an eyelet secured to the roof of a vehicle on which the tent lies. The fixing device preferably comprises a flexible portion, such as a strap or a rope, connected to one of the first and second longitudinal inflatable base portions, and a connection member, such as a carabiner or a hook, connected to the flexible portion. The connection member is configured to cooperate with the anchoring means.

Preferably, the tent further comprises a mat connected to said bed base and extending laterally outside the tent, so as to lie on said surface. One advantage is to protect the surface, in particular the roof of a vehicle, in order to prevent it from being damaged by the passage of the user entering or leaving the tent. The mat also protects the surface against friction between the base and said surface. The mat moreover prevents the user from slipping, thus reducing the risk of falling.

Preferably, the mat also forms a stowage cover to accommodate at least the tent canvas and the first and second longitudinal inflatable base portions when they are deflated. One advantage is to allow the quick stowage of the tent. The entire folded tent can then be transported without the need for an additional bag. The versatility of the mat thus significantly reduces production costs and allows increasing the

compactness of the tent once folded. Advantageously, the mat forming a cover allows stowing tools useful for setting up the tent, a pump or a ladder.

Advantageously, the tent further comprises a cap making it possible to shelter a user. The cap advantageously extends laterally outside the tent, for example from the tent canvas, preferably from a wall of the tent and more preferably above the entrance to the tent.

The cap preferably comprises a tension member, for example a flexible hoop, cooperating with a portion of the tent canvas in order to stretch this tent canvas portion and thus form the cap. The tension member is advantageously configured to extend between two vertical portions of the first reinforcement element or the second reinforcement element. When the tent is deployed, the tension member is tensioned, flexed, between said two vertical portions.

Particularly, when said first or second reinforcement element is inflatable, the inflation of said reinforcement element automatically causes the tensioning of the tensioning member, which then describes a curvature.

The tension member is advantageously slipped into a sheath secured to the tent canvas, so that it allows stretching this canvas portion, forming a shelter for the user.

When the tent is folded, the tension element is kept connected to the first or second reinforcement element and is released, so that it is no longer tensioned and can be stowed with the tent.

The invention also relates to an installation comprising:

- a vehicle having a roof; and
- a tent as described above,

the base of the bed base lying on the roof so that the first plane in which the first longitudinal inflatable base portion and the second longitudinal inflatable base portion extend is substantially parallel to the plane of the roof, when the tent is placed in the deployed position.

Advantageously, the installation further comprises a mattress lying on the elongated support elements.

Preferably, the installation in addition comprises a ladder, allowing access to the tent placed on the roof of the vehicle.

Advantageously, the tent further comprises a canopy extending laterally from the tent and allowing a user to take shelter, in the vicinity of the vehicle.

Brief description of the drawings

[Fig. 1] Figure 1 illustrates an installation comprising a tent according to the invention;

[Fig. 2] Figure 2 illustrates the tent of Figure 1, without the tent canvas;

[Fig. 3] Figure 3 illustrates the tent of Figure 1 without the elongated support elements;

[Fig. 4] Figure 4 illustrates a first embodiment of an elongated support element of the tent according to the invention;

[Fig. 5] Figure 5 illustrates a second embodiment of an elongated support element of the tent according to the invention;

[Fig. 6] Figure 6 illustrates the installation of Figure 1, further comprising a mattress disposed on the elongated support elements;

[Fig. 7] Figure 7 illustrates a fixing device for fixing the tent of Figure 1 on the roof of the vehicle;

[Fig. 8] Figure 8 illustrates the folding of the tent of Figure 1; and

[Fig. 9] Figure 9 illustrates the tent of figure 8 folded and stowed in the stowage cover.

Description of the embodiments

The invention relates to a tent intended to be placed on the ground or on the roof of a vehicle, said tent comprising a bed base and at least one first reinforcement element.

Figure 1 illustrates an installation 8 comprising a vehicle V, in this case a car, having a roof T and a tent 10 according to the invention, in a deployed position. The tent 10 lies on the roof T of the vehicle V, said roof forming a surface supporting the tent 10. In a non–limiting manner, the tent 10 could be placed on another surface, for

example on the ground or in a trailer. The installation moreover comprises a ladder E allowing access to the tent 10 and a canopy A extending laterally from a first edge T1 of the roof T of the vehicle V to allow the user to take shelter. The tent 10 comprises a tent canvas 12 and a cap 14. For better clarity, the cap 14 will not be represented in the following figures. A door is arranged in the tent canvas and allows access to the interior of the tent.

Figure 2 represents the tent 10 of Figure 1 in a perspective view. In this figure 2, the tent canvas 12 is represented with dotted lines, so as to show the interior of the tent 10. In this figure, it is noted that the tent 10 comprises a bed base 16 including a base 18 and a plurality of elongated support elements 24, which will be detailed later. The base 18 lies on the surface, in this case the roof T of the vehicle V.

Referring to Figure 3, in which all of the elongated support elements have been removed for greater readability, it is observed that the base 18 comprises a first longitudinal inflatable base portion 20 having a tubular shape, in contact with said roof T. The base 18 in addition comprises a second longitudinal inflatable base portion 22 also having a tubular shape and also lying on the roof T. The first and second longitudinal inflatable base portions respectively extend along the first edge T1 and a second edge T2 of the roof, along a longitudinal direction of the tent 10. The first and second longitudinal inflatable base portions 20, 22 extend parallel to each other and define two sides borders of the base 18 and therefore of the tent 10.

The first longitudinal inflatable base portion 20 has a first end 20a and a second end 20b opposite to the first end. Similarly, the second longitudinal inflatable base portion 22 has a first end 22a and a second end 22b opposite to the first end.

In a non–limiting manner, the first and second longitudinal inflatable base portions 20, 22 are each formed of an inflatable tube portion made of thermoplastic polyurethane, disposed in a textile sleeve portion. The entire base 18, and in particular the first and second longitudinal inflatable base portions 20, 22 extend in a first substantially horizontal plane P1 parallel to the plane of the roof T of the vehicle V.

In this non–limiting example, the base 18 consists of the first longitudinal inflatable base portion 20 and the second longitudinal inflatable base portion 22. Also, the base does not comprise an additional base portion, in particular between

said first and second longitudinal inflatable base portions. One advantage is to reduce the contact surface between the base 18 and the roof T of the vehicle V, in order to reduce the risk of damage to said roof. In this non–limiting example, the tent 10 is in contact with the roof only via the first and second longitudinal inflatable base portions.

The tent moreover comprises a ground sheet 26 extending between the first and second longitudinal inflatable base portions. Preferably, said ground sheet 26 is maintained at a distance from the roof by cooperation with the elongated support elements 24, as illustrated in Figure 5 and as will be described later.

Referring again to Figure 2, it is observed that the elongated support elements 24 extend transversely between the first and second longitudinal inflatable base portions 20, 22. The elongated support elements 24 are substantially parallel to each other.

Figure 4 illustrates a first embodiment of an elongated support element 24, extending between the first and second longitudinal inflatable base portions 20, 22. In this non–limiting example, the elongated support element 24 comprises a slat 28. The slat 28 can for example be made of wood, fiberglass or aluminum. The slat 28 is disposed in a textile sleeve making it possible to limit friction with the first and second longitudinal inflatable base portions 20, 22.

In this non–limiting embodiment, the first longitudinal inflatable base portion 20 comprises an upper surface 21 provided with a first upper connection device 30 comprising a first upper connector configured to receive a first end 28a of the slat 28. The second longitudinal inflatable base portion 22 comprises an upper surface 25 provided with a second upper connection device 32 comprising a second upper connector configured to receive a second end 28b of the slat 28. The slat 28 therefore extends between the first and second upper connectors respectively of the first and second connection devices 30, 32 and is kept at a distance from the roof T.

Still in a non–limiting manner, the elongated support element 24 further comprises a reinforcing piece 34, in this case a flexible section, extending under the slat 28. The first longitudinal inflatable base portion 20 comprises a lower surface 19 provided of a first lower connection device 36 comprising a first lower connector configured to receive a first end 34a of the reinforcing piece 34. The second

longitudinal inflatable base portion 22 comprises a lower surface 23 provided with a second lower connection device 38 comprising a second lower connector configured to receive a second end 34b of the reinforcing piece 34.

The length of the reinforcing piece 34 is greater than the distance separating the first and second longitudinal inflatable base portions 20, 22 when they are inflated and when the tent 10 is in the deployed position, so that the inflation of the first and second longitudinal inflatable bases portions 20, 22 causes the bending of the support piece 34. Also, as illustrated in Figure 4, when the tent 10 is deployed, the support piece 34 is maintained under bending stress by the first and second longitudinal inflatable base portions and describes an upward curvature. The reinforcing piece 34 then cooperates with a central portion 40 of the slat 28 so as to support it and thus prevent it from collapsing, in particular when a mattress M lies on the slat 28.

Figure 5 illustrates a second embodiment of an elongated support element 24, extending between the first and second longitudinal inflatable base portions 20, 22. In this non–limiting example, the slat 28 lies on the upper surfaces of the first and second longitudinal inflatable base portions 20, 22. The upper connection devices 32' each comprise at least one flexible strip 54 connected to the longitudinal inflatable base portion 22 or to the tent canvas 12 in the vicinity of said longitudinal inflatable base portion. Said flexible strip 54 is provided with at least a first loop or hook portion configured to cooperate with a second loop or hook portion 29 disposed on the slat 28, in order to hold the slat 28 in position, connected to the first and second longitudinal inflatable base portions.

In this figure 5, it is moreover observed that the tent comprises a sheath 52 secured to the ground sheet 26 and traversed by the elongated support element, here the slat 28. An upper part of the sheath 52 lies on the slat 28, so that the ground sheet 26 is lifted and held at a distance from the roof T of the vehicle V.

As a variant, the slat 28 could be replaced by a strap stretched between the first and second longitudinal inflatable base portions when they are inflated.

Referring again to Figure 3, it is observed that the tent furthermore comprises a first reinforcement element 42 and a second reinforcement element 44, which in this example are inflatable elements. The first reinforcement element 42 and the second

reinforcement element 44 cooperate with the first and second longitudinal inflatable base portions and connect said first and second longitudinal inflatable base portions 20, 22.

More specifically, in this deployed position of the tent 10, the first reinforcement element 42 forms an arch extending between the first ends 20a, 22a of the first and second longitudinal inflatable base portions, in a second plane P2 transverse to the first plane P1. This second plane P2 is slightly inclined relative to the vertical. Similarly, in this deployed position of the tent 10, the second reinforcement element 44 forms an arch extending between the second ends 20b, 22b of the first and second longitudinal inflatable base portions, in a third plane P3 transverse to the first plane P1. This second plane P3 is slightly inclined relative to the vertical. The second and third planes P2, P3 are slightly inclined towards each other.

In this non–limiting example, the first and second reinforcement elements 42, 44 are also inflatable elements, each being formed of an inflatable tube portion made of TPU, disposed in a textile sleeve portion. The textile sleeve portion is preformed for stressing the inflatable tube portion and giving it the desired shape. The first and second reinforcement elements 42, 44 each describe a curvature between the first and second longitudinal inflatable base portions and each have a top 42a, 44a.

The first reinforcement element 42 has a length greater than that of the second reinforcement element 44. Also, the distance between the top 42a of the first reinforcement element 42 and the roof T is greater than the distance between the top 44a of the second reinforcement element 44 and said roof T.

In this non–limiting example, the first and second longitudinal inflatable base portions 20, 22, the first reinforcement element 42 and the second reinforcement element 44 are in fluid communication, so that a single inflation valve 46 allows inflating them simultaneously. A pump 50 can in particular be connected to the inflation valve 46 to allow the inflation. In addition, the first and second longitudinal inflatable base portions 20, 22 and said first and second reinforcement elements 42, 44 are formed of one and the same tube disposed in the same preformed textile sleeve.

The tent further comprises an inflatable junction portion 48 connecting the top 42a of the first reinforcement element 42 and the top 44a of the second

reinforcement element 44. This junction portion 48 is also formed of a tube portion disposed in a preformed textile sleeve portion. It allows maintaining a constant gap between the first and second reinforcement elements and improves the stability of the tent.

As observed in Figure 3, the tent is further provided with a mat 52 extending outside the tent, from one edge of the tent 10. The mat 52 allows protecting the roof T of the vehicle V. The mat 52 also forms a stowage cover to accommodate at least the tent canvas, and the first and second longitudinal inflatable base portions 20, 22 and the first and second reinforcement elements 42, 44 when they are deflated.

Also, in the folded position of the tent 10, the first and second longitudinal inflatable base portions 20, 22, the first and second reinforcement elements 42, 44 and the junction portion are deflated. They can then be rolled up around the elongated support elements 24 and can be stored in a stowage cover formed by the mat 52. To deploy the tent 10, the latter is unrolled on the surface, for example on the ground or the roof, then air is injected via the inflation valve 46, for example by means of the pump 50.

The inflation results in automatically bringing the first reinforcement element 42 into the second plane P2 and the second reinforcement element 44 into the third plane P3 up to the deployed position illustrated in Figure 2. Indeed, the textile sleeve stresses the tube and gives the tent its deployed shape.

Figure 6 illustrates the installation of Figure 1 further comprising a mattress M lying on the elongated support elements 24 of the tent 10, at a distance from the roof T. Thanks to the invention, the mattress is not in contact with the roof, so that the comfort of the user and the ventilation of the mattress are improved. Furthermore, the risk of damage to the roof T is reduced.

Figure 7 illustrates a fixing device 62 for fixing the tent 10 on the roof T of the vehicle. The fixing device 62 comprises a carabiner 64, forming a connection member, and a strap 66 extending between one of the first and second longitudinal inflatable base portions 20, 22 and said carabiner 64. The carabiner 64 is configured to be connected to an anchoring means 68 of the vehicle.

Figure 8 illustrates the folded position of the tent 10 from the deployed position of Figures 1 to 3. The valve 46 is open, so as to let the air escape. The tube forming

the first and second longitudinal inflatable base portions 20, 22 and the first and second reinforcement elements 42, 44 deflates so that the tent 10 collapses and its space requirement is greatly reduced. Furthermore, the tent canvas 12 is then no longer supported and stretched. The carabiner 64 is moreover disconnected from the anchoring means 68 of the vehicle.

As illustrated in Figure 9, once deflated, the entire base 18, and therefore the first and second longitudinal inflatable base portions as well as the first and second reinforcement elements can be rolled up and disposed inside the mat 52, with the tent canvas. In a non–limiting manner, the support elements 24 can be disconnected from the base 18 or maintained connected and rolled up on themselves.

The mat 52 can then be folded back on itself in order to form a cover receiving the tent and allowing the latter to be transported.

Claims

[Claim 1] A tent (10) configured to be disposed on a surface (T), for example a ground or the roof of a vehicle, the tent comprising:

- a tent canvas (12);
- a bed base (16) including a base (18) configured to lie on said surface, said base comprising at least one first longitudinal inflatable base portion (20) and one second longitudinal inflatable base portion (22) extending in a first substantially horizontal plane (P1) when the tent is placed in a deployed position, the bed base further comprising a plurality of elongated support elements (24) configured to support a mattress (M), said support elements extending transversely between the first and second longitudinal inflatable base portions; and
- at least one first reinforcement element (42) cooperating with the first and second longitudinal inflatable base portions, connecting said first and second longitudinal inflatable base portions and extending in a second plane (P2) transverse to the first plane, when the tent is placed in the deployed position, said at least one first reinforcement element cooperating with the tent canvas.

[Claim 2] The tent according to claim 1, wherein said at least one first reinforcement element (42) is an inflatable element configured to form an arch connecting the first and second longitudinal inflatable base portions (20, 22) when it is inflated.

[Claim 3] The tent according to claim 2, wherein said at least one first reinforcement element (42) is in fluid communication with at least one of the first and second longitudinal inflatable base portions (20, 22).

[Claim 4] The tent according to claim 3, wherein said at least one first reinforcement element (42) and said first and second longitudinal inflatable base portions (20, 22) are formed of one and the same inflatable tube.

[Claim 5] The tent according to any one of claims 1 to 4, wherein the first and second longitudinal inflatable base portions (20, 22) each comprise at least one first end (20a, 22a), and wherein said at least one first reinforcement element (42) connects the first end of the first longitudinal inflatable base portion and the first end of the second longitudinal inflatable base portion.

[Claim 6] The tent according to any one of claims 1 to 5, comprising at least one second reinforcement element (44) cooperating with the first and second longitudinal inflatable base portions (20, 22), connecting said first and second longitudinal inflatable base portions, and extending in a third plane (P3) transverse to the first plane, when the tent is placed in the deployed position, said at least one second reinforcement element cooperating with the tent canvas (12).

[Claim 7] The tent according to claim 6, further comprising a junction portion (48) connecting the first reinforcement element (42) and the second reinforcement element (44).

[Claim 8] The tent according to any one of claims 1 to 7, wherein, considered in said first plane (P1), the base consists of the first longitudinal inflatable base portion (20) and the second longitudinal inflatable base portion (22).

[Claim 9] The tent according to any one of claims 1 to 8, wherein at least one of the elongated support elements (24) comprises a slat (28) cooperating with the first and second longitudinal inflatable base portions (20, 22).

[Claim 10] The tent according to claim 9, wherein said slat (28) of said at least one of the elongated support elements (24) has a first end (28a) and a second end (28b) opposite to the first end, and wherein the first and second longitudinal inflatable base portions (20, 22) each comprise an upper surface (21, 25) provided with at least one upper connection device (30, 32, 32') configured to connect one of the first and second ends of said slat to the corresponding longitudinal inflatable base portion (20, 22).

[Claim 11] The tent according to claim 9 or 10, wherein said at least one of the elongated support elements (24) further comprises a reinforcing piece (34) connecting the first and second longitudinal inflatable base portions (20, 22) and cooperating with a central portion (40) of said slat (28) of said at least one of the elongated support elements (24).

[Claim 12] The tent according to claim 11, wherein said reinforcing piece (34) extends under said slat (28).

[Claim 13] The tent according to claim 12, wherein the reinforcing piece (34) is under bending stress by the first and second longitudinal inflatable base portions (20, 22) when they are inflated.

[Claim 14] The tent according to any one of claims 1 to 13, further comprising a ground sheet (26) extending between the first and second longitudinal inflatable base portions (20, 22), the ground sheet cooperating with said at least one of the elongated support elements (24) so as to be kept at a distance from said surface (T).

[Claim 15] The tent according to any one of claims 1 to 14, further comprising a fixing device (62) connected to one of the first and second longitudinal inflatable base portions (20, 22) and configured to cooperate with an anchoring means (68) of said surface (T).

[Claim 16] The tent according to any one of claims 1 to 15, further comprising a mat (52) connected to said bed base (16) and extending laterally outside the tent (10), so as to lie on said surface (T).

[Claim 17] The tent according to claim 16, wherein the mat (52) also forms a stowage cover to accommodate at least the tent canvas (12) and the first and second longitudinal inflatable base portions (20, 22) when they are deflated.

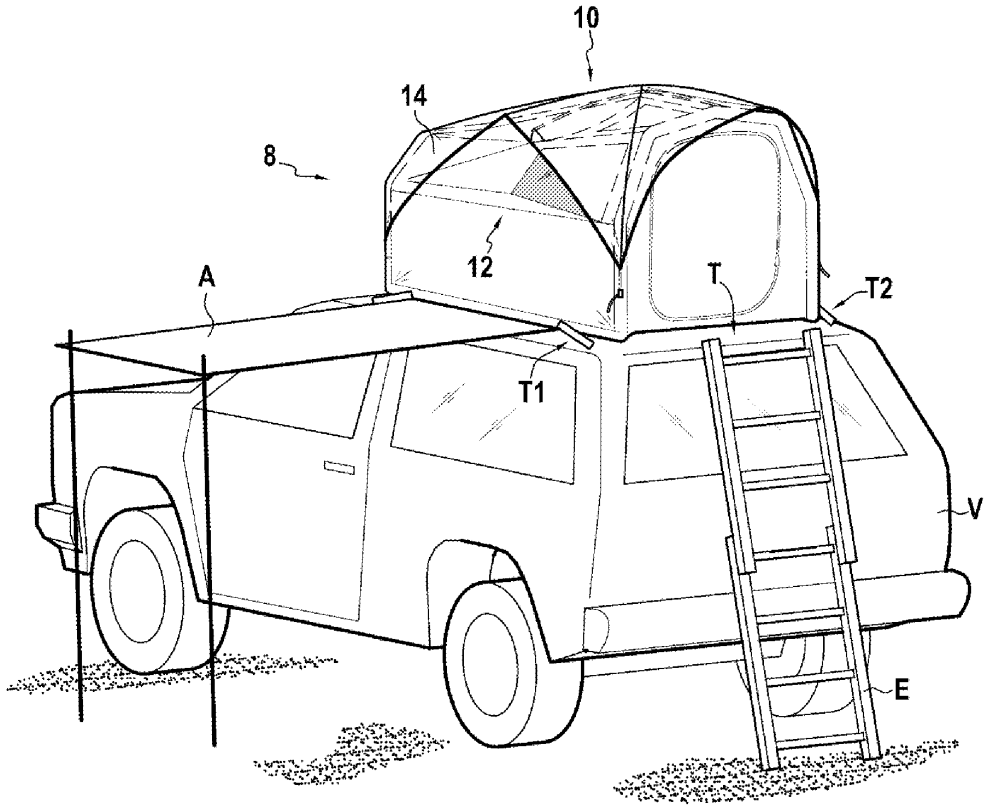
[Claim 18] An installation (8) comprising:

- a vehicle (V) having a roof (T); and
- a tent (10) according to any one of claims 1 to 17,

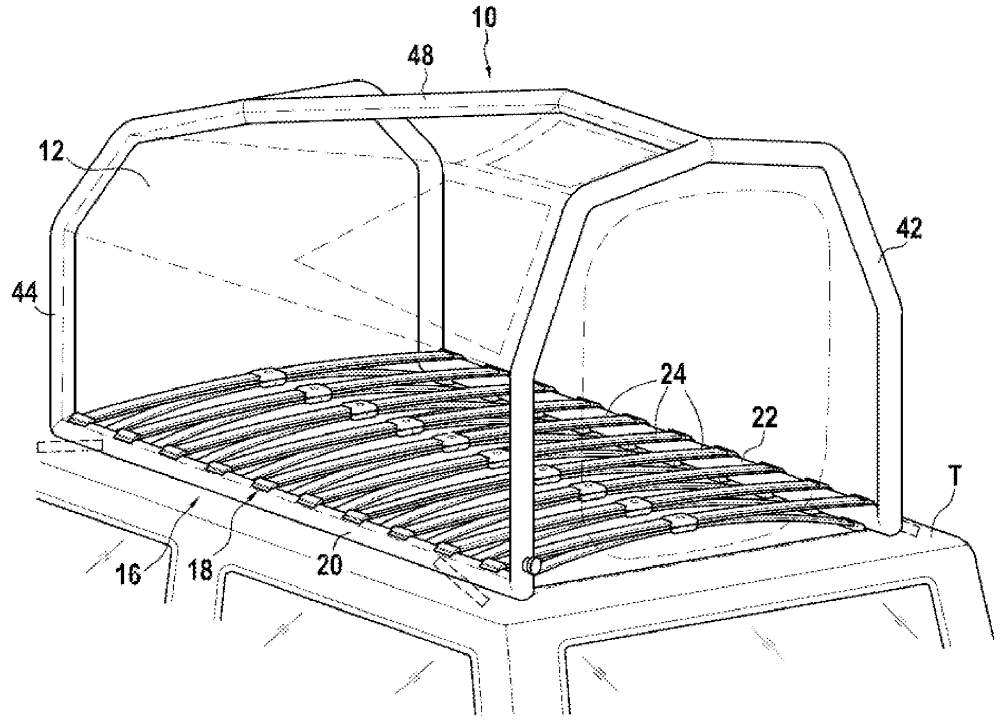
the base (18) of the bed base (16) lying on the roof so that the first plane (P1) in which the first longitudinal inflatable base portion and the second longitudinal inflatable base portion extend is substantially parallel to the plane of the roof, when the tent is placed in the deployed position.

[Claim 19] The installation according to claim 18, further comprising a mattress (M) lying on the elongated support elements.

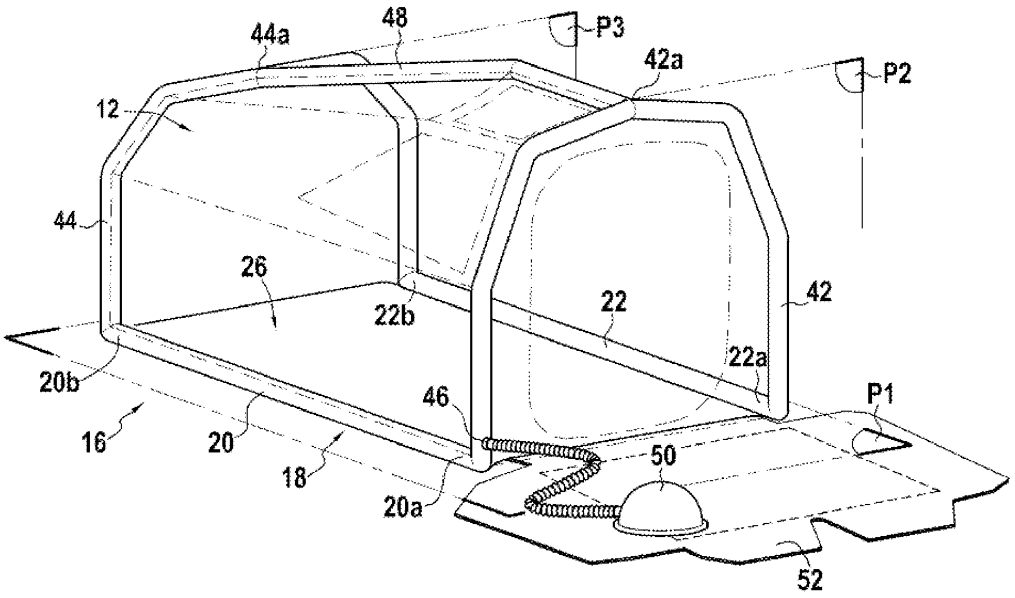
[Fig. 1]



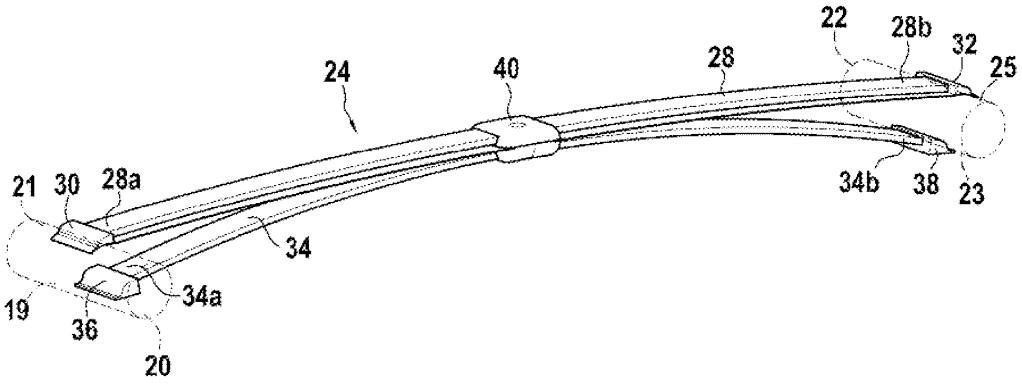
[Fig. 2]


10
48
12
42
44
24
22
T
16
18
20

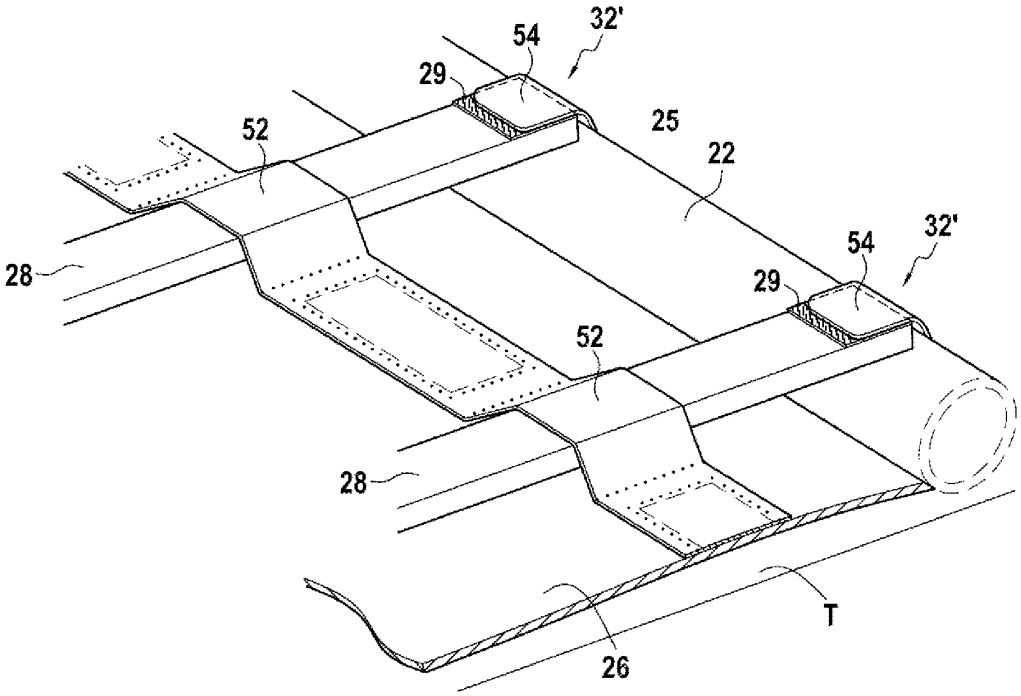
[Fig. 3]


44a
48
P3
42a
P2
12
44
26
22b
22
42
22a
20b
46
P1
16
20
50
18
20a
52

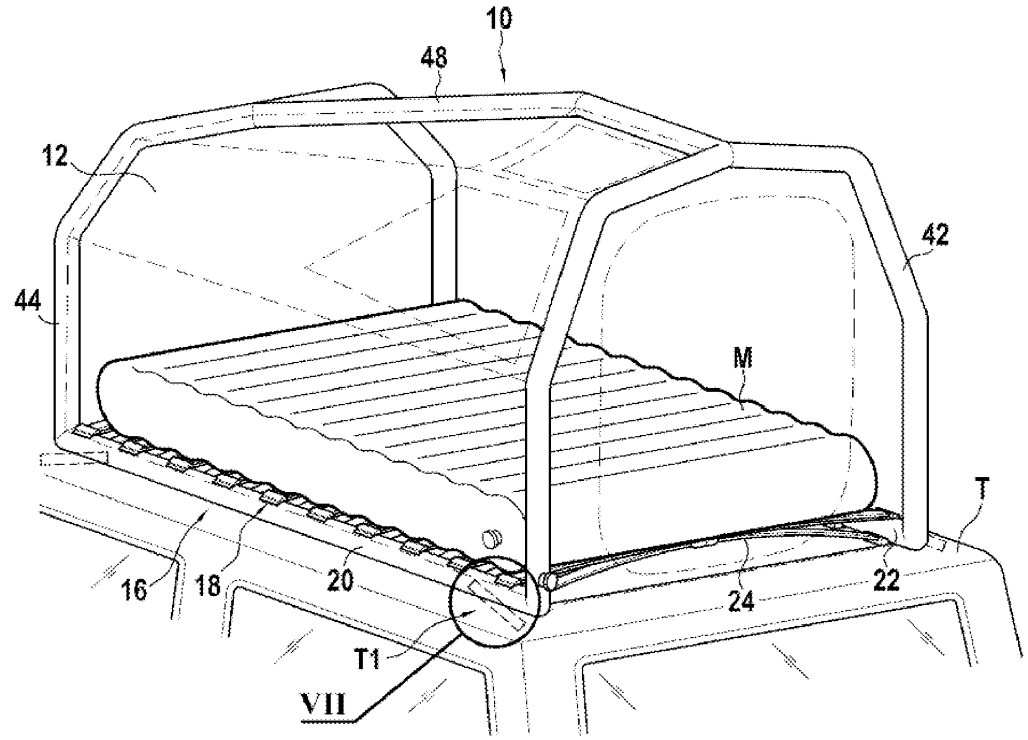
[Fig. 4]


22
28b
32
25
24
40
28
21
30
28a
34b
38
23
34
34a
19
36
20

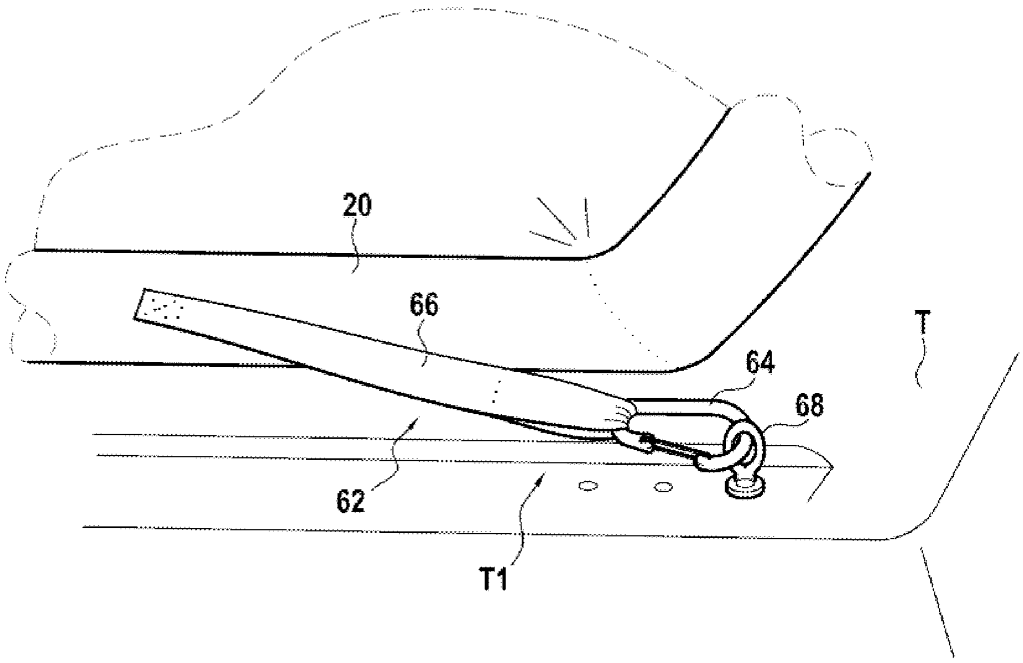
[Fig. 5]


32'
54
29
52
25
22
28
54
32'
29
52
28
T
26

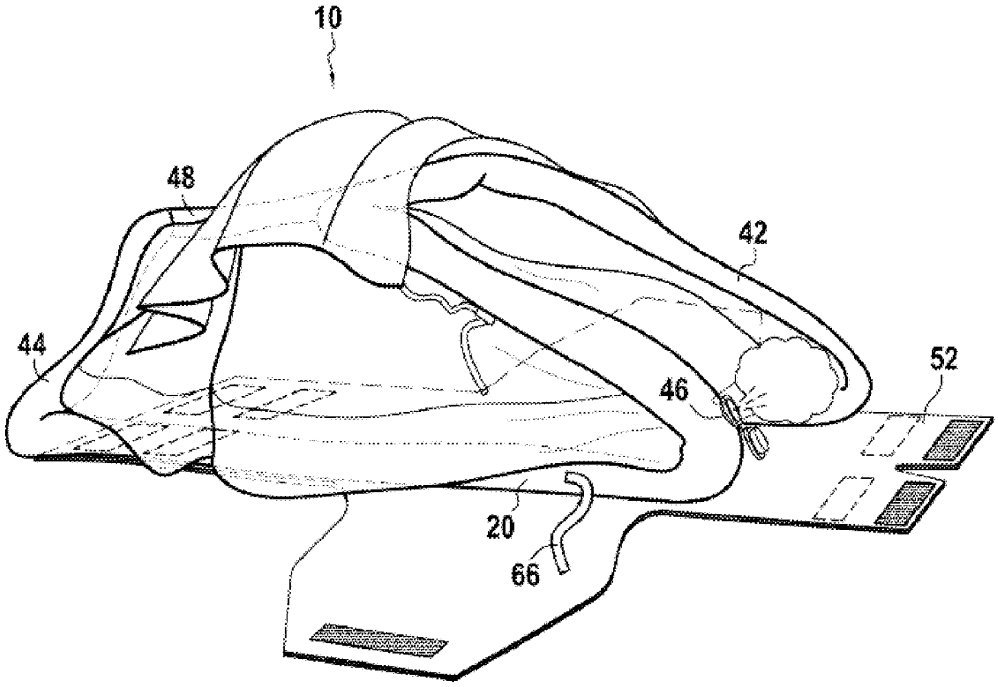
[Fig. 6]



[Fig. 7]



[Fig. 8]



[Fig. 9]