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(54) **JOINT ELEMENT FOR TENT POLES**

(57) A joint element for supporting and/or connecting at least one tent pole for generating a pole structure capable of carrying a canvas, such as a tent canvas, wherein said joint element comprises at least one opening being adapted to receive an end portion of a tent pole and ensuring that said pole extends in a specific direction away from said joint element. The invention is characterised in that the joint element further comprises a preshaped shell capable of shaping a canvas resting upon said shell into a desired shape. Thereby, the joint element according to the invention is capable of connecting, supporting, and/or joining at least one tent pole, and further, is capable of supporting a canvas arranged on said joint element in a way in which said canvas conforms to the shape of the preshaped shell of said joint element, whereby said canvas is less likely to tear and wherein the weight of said canvas is distributed across a larger area, i.e. the area of the preshaped shell. In other words, once a canvas is arranged on the preshaped shell, said canvas is disposed across a large area - the spatial extension of the preshaped shell -, which ensures that the weight, including a gravitational pull, of said canvas is not transferred onto a single spot in the canvas, but rather is distributed across said larger area.

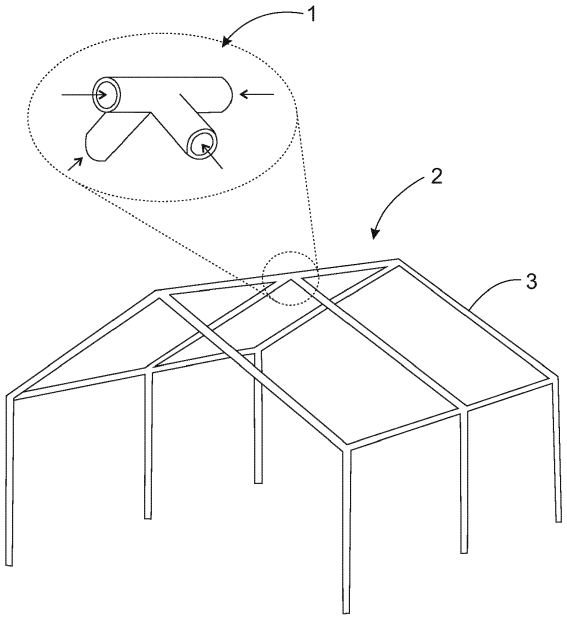

Fig. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a joint element for supporting or joining tent poles. Further, the invention relates to a tent comprising a canvas, at least one tent pole, and a joint element for supporting or joining such tent poles.

BACKGROUND OF THE INVENTION

[0002] Commonly, tents are exposed to various weather conditions, including heavy wind. In such conditions, it is of uttermost importance that the structural build of such a tent is solid and rigid, in order to prevent the tent from collapsing or in any other way become damaged. One of the weak spots of tents are the tent poles, as forces exerted on the canvas are transferred onto said poles. Especially tent poles comprising joints are prone to breaking. In the present context, a joint may likewise be the connection between the tent pole and the canvas. Tent poles may be said to form the skeleton of the tent, and as such, carries a large amount of weight from the canvas.

[0003] It is common to classify tents by their usage and/or shape. Commonly, dome tents, igloos tents, one-/two-person tents, and ridge tents are preferred for camping due to their packability and size, whereas large tents such as wagon tents and wall tents are commonly used for accommodation of larger groups, and/or for assembly purposes. Commonly, such larger tents are characterised by the use of a thicker, heavier, and more durable canvas. Due to the pronounced weakness of joints formed between tent poles, arranging such a canvas in a secure manner may be difficult and further increase the risk of said canvas being displaced by outside forces, e.g. wind.

GENERAL DESCRIPTION

[0004] It is an object of the invention to solve some of the above-mentioned problems. More specifically, the present invention discloses a joint element for supporting and/or connecting at least one tent pole for generating a pole structure capable of carrying a canvas, such as a tent canvas, wherein said joint element comprises at least one opening being adapted to receive an end portion of a tent pole and ensuring that said pole extends in a specific direction away from said joint element. The invention is characterised in that the joint element further comprises a preshaped shell capable of shaping a canvas resting upon said shell into a desired shape.

[0005] By a joint element is meant an element capable of supporting, connecting, and/or joining elongated structures, such as poles, or more specifically, tent poles. In certain cases, the joint element is meant for joining two or more tent poles, thereby increasing the extension of said tent poles and/or allowing for a change of direction in the extension of such tent poles. In other cases, the joint element may be meant for supporting a single tent pole, thereby forming an end cap for said tent pole. Using one or more joint elements according to the invention allows for the construction of a pole structure capable of carrying a canvas, e.g. a tent canvas. The pole structure may be considered the skeleton or structural build of a tent. Thus, the joint element according to the invention may be used to connect tent poles. The canvas may be of any type designed to cover such a pole structure. Preferably, the canvas is preformed/designed to cover a specific pole structure, such that said canvas perfectly fits across the tent poles. For example, the canvas comprises preformed corners and edges. Depending on the intended use of the tent, the canvas may be a lightweight canvas made of a synthetic material, or the canvas may be a heavyweight canvas made of natural fibres, e.g. cotton. When building larger pole structures intended for larger tents, e.g. wagon tents or wall tents, the use of a heavyweight canvas may be preferred to form a more stable, robust structure.

[0006] By comprising at least one opening adapted to receive an end portion of a tent pole, the joint element is capable of exhibiting the features mentioned above. For example, the tent pole may be circular in cross section and comprise a first outer diameter, and the at least one opening of the joint element may likewise be circular in cross section and comprise a first inner diameter being equal to said first outer diameter of said tent pole. Thereby, the tent pole is capable of engaging with the opening in the joint element. The opening may be any shape, e.g. circular, triangular, square/rectangular, etc. The shape of the opening should correspond to the shape/cross section of the tent pole intended for insertion. The use of different shapes in the same joint element may ease the assembly due to fast identification of which poles to use in what positions.

[0007] Once engaged, the tent pole extends in a direction away from the joint element due to a greater extension of the tent pole than a depth of the joint element. For example, the joint element may comprise an elongated and hollow tube section having an inner extension (depth) of 1 to 15 cm and the opening disposed in a first end thereof, such that said tent pole may be inserted through said opening and into the elongated and hollow tube section.

[0008] Depending on the arrangement of the opening(s), and thereby the tube section(s), of the joint element, said joint element is capable of receiving at least one tent pole and define the direction in which said tent pole extends.

[0009] Further, the joint element according to the invention comprises a preshaped shell, which may be considered an integrated preshaped shield surface. By a preshaped shell is meant a structure or surface made of a rigid material preshaped into a given or desired shape. The shape may resemble a shield or a shell, thereby

being capable of covering and enclosing at least a part of the tube section(s) adapted to accommodate an end portion of a tent pole. Thus, the preshaped shell may in certain embodiments be considered bowl-shaped, where the inner part of the bowl encloses part of the openings adapted to receive the tent poles or the tube sections adapted to accommodate said tent poles. Once a canvas is arranged, or rests, upon the surface of the preshaped shell, said canvas conforms to the shape of said shell. In other embodiments, the preshaped shell is flat. This may be useful if using the joint element in a planar section of the pole structure. However, the embodiments considered in the remaining part of this disclosure consider bowl-like preshaped shells. The preshaped shell may be made of a plastic, faux leather or a metal. A plastic or faux leather material has the ability to be slightly flexible and penetrable, such that stitches may be made in said preshaped shell, e.g. with the purpose of integrating said preshaped shell in a canvas.

[0010] Thereby, the joint element according to the invention is capable of connecting, supporting, and/or joining at least one tent pole, and further, is capable of supporting a canvas arranged on said joint element in a way in which said canvas conforms to the shape of the preshaped shell of said joint element, whereby said canvas is less likely to tear and wherein the weight of said canvas is distributed across a larger area, i.e. the area of the preshaped shell. In other words, once a canvas is arranged on the preshaped shell, said canvas is disposed across a large area - the spatial extension of the preshaped shell -, which ensures that the weight, including a gravitational pull, of said canvas is not transferred onto a single spot in the canvas, but rather is distributed across said larger area. Thus, the joint element according to the invention serves to connect, support, and/or joining at least one tent pole, and further to support a canvas in a way in which the weight of said canvas is better distributed in order to reduce the risk of tearing. Further, when the canvas is arranged on a preshaped shell of a joint element according to the invention, the aesthetic appearance of such a canvas, and a tent in general, is highly enhanced, since said shell reduces the tendency of said canvas to wrinkle.

[0011] In an embodiment, the at least one opening may be arranged in an elongated and hollow tube section adapted to accommodate a tent pole.

[0012] By an elongated and hollow tube section is meant a tube-like element, in which a tent pole is accommodatable once inserted through the opening as previously disclosed. Thus, the tube section comprises the at least one opening adapted to receive an end portion of a tent pole, where said tent pole may extend further into said tube section. If the joint element comprises multiple openings, it is understood that said joint element likewise comprise multiple tube sections, i.e. a 1:1 relationship between openings and tube sections exist in the joint element. Due to the extension of the tube section, the general extension of an inserted tent pole may be defined by the spatial extension of the tube section. In other words, the extension of an inserted pole may be parallel with the extension of the tube section. The extension/depth of the tube section may vary from 1 cm to 15 cm, depending on the situation.

[0013] Thereby, the joint element according to the invention is capable of fixing/maintaining/accommodating an end portion of a tent pole and further define the direction in which said tent pole extends.

[0014] In an embodiment, the tube section may be partly made of a flexible material, partly made of a reinforcement material.

[0015] By a flexible material is preferably meant a material being substantially rip-proof, yet flexible enough to allow for a slight movement of an inserted end portion of a tent pole. A preferred material is a textile member, e. g. a heavyweight cotton canvas.

[0016] By a reinforcement material is meant a material being substantially inflexible and unlikely to deform once exposed to external forces. A preferred material is hard plastic or metal.

[0017] Thereby, an end portion of a tent pole accommodated by the tube section is allowed to move slightly in position, which increases the overall strength of a pole structure and a tent, as such pole structure/tent is then allowed to move slightly in the wind. Further, the reinforcement material reinforces the tube section in areas of the tube section most likely to be exposed to external forces, e.g. from the end portion of an inserted tent pole. In a certain configuration where a tent pole is arranged in the tube section, said tent pole is likely to transfer a certain force onto a relatively small area of the interior of the tube section. Reinforcing said small area with a reinforcement material allows for increasing the overall strength of the tube section, without affecting other properties of said tube section, e.g. its flexibility.

[0018] In an embodiment, the tube section may be integrated with the preshaped shell.

[0019] By integration is meant any way in which said tube section and preshaped shell may be connected to constitute a unit. For example, the tube section and the preshaped shell may comprise plastic or metallic elements moulded into a single piece. The tube section may also be embodied as a bore in a solid (hemispherical) preshaped shell.

[0020] Thereby, the joint element experiences a greater strength, as the tube sections and the preshaped shell are made in one piece.

[0021] In an embodiment, the preshaped shell may be bowl-shaped.

[0022] By bowl-shaped in the present context is meant, that an outside surface of the preshaped shell has a convex-like shape. The interior of such a bowl may be open/unfilled, or it may be filled, such that the preshaped shell more resembles a hemisphere. In case of an open bowl-shape, the inner surface may consequently be concave-like. Thus, the bowl-shape refers to at least an outer surface of the preshaped shell.

[0023] Preferably, the openings and tube sections, or parts thereof, are disposed within/enclosed by the interior of the bowl-shape. It should be noted, that the inner and outer surface may not be entirely concave/convex, but that the overall shape of the preshaped shell is such that said shell may encapsulate/enclose at least parts of the openings/tube sections, i.e. substantially bowl-shaped. The shape of the preshaped shell may vary depending on the position in the pole structure where the joint element is intended for use - for example, the shape may vary depending on whether the joint element is to be used in a corner position or in a top position, or whether the joint is designed for receiving one, two, three or four poles.

[0024] Thereby, once the joint element is arranged in a pole structure and covered with a canvas, said canvas conforms to the bowl-shaped nature of the outer surface of the preshaped shell. Such conformity ensures a better weight distribution of the canvas on the joint, which in turn lowers the stress applied to said joint. Further, the preshaped shell ensures that the poles does not spear the canvas, and that said canvas is less prone to wrinkling, which may increase its aesthetic appearance.

[0025] In an embodiment, the preshaped shell may comprise an outer surface being convex and an inner surface being concave.

[0026] In line with the above discussion, an open-ended bowl-like shape may be described in terms of concavity and convexity. Thus, in such terms, the preshaped shell comprises a substantially convex outer surface and a substantially concave inner surface. Preferably, the concave inner surface is arranged adjacent to the previously discussed at least one opening adapted to receive an end portion of a tent pole and the accompanying tube section, such that said opening and tube section are partly enclosed or contained by the substantially concave nature of said inner surface. Again, it is to be understood, that the concavity/convexity may vary according to the exact design of the preshaped shell, but that the overall shape is best described in said terms.

[0027] Thereby, the preshaped shell may at least partly accommodate the at least one opening, being adapted to receive an end portion of a tent pole and ensuring that said tent pole extends in a specific direction away from the joint element, in its interior defined by the inner surface of the preshaped shell being concave.

[0028] In an embodiment, the preshaped shell may enclose at least a part of the at least one tube section.

[0029] By enclosing is understood, that the preshaped shell may be either open or closed as discussed above. In an open shell, i.e. where an inner surface is present, and where said inner surface is substantially concave, the at least one tube section may either be integrated or attached to said inner surface, such that at least a part of said tube section is disposed/enclosed within the interior defined by the extend/walls of said inner surface.

[0030] In a closed shell, i.e. where the preshaped shell substantially resembles a hemisphere having a convex outer surface and a filled interior having a planar surface, the tube sections may be embodied as bored tubes each having an opening in the planar surface.

[0031] Thereby, the at least one tube section is covered/encapsulated/protected by the preshaped shell. When inserting a tent pole through the opening and into the tube section, the joint element naturally forms an end cap for said pole. According to the present invention, such end cap is realised by the preshaped shell, which forms an interface between the tent pole and the canvas, said interface shaping canvas and distributing the weight of said canvas.

[0032] In an embodiment, the inner surface of the preshaped shell may be arranged adjacent to the at least one tube section, such that said tube section is at least partly enclosed by said inner surface.

[0033] In line with the above discussion, the at least one tube section is contained within the interior of the bowl-shaped preshaped shell.

[0034] Thereby, the at least one tube section is covered/encapsulated/protected by the preshaped shell. When inserting a tent pole through the opening and into the tube section, the joint element naturally forms an end cap for said pole. According to the present invention, such end cap is realised by the preshaped shell, which forms an interface between the tent pole and the canvas, said interface shaping canvas and distributing the weight of said canvas.

[0035] In an embodiment, the joint element may comprise a tube section extending in a direction being normal to the concave inner surface of the preshaped shell.

[0036] Thereby, the joint element forms an end cap of a tent pole arranged in said joint element. Such type of joint elements may be preferred in tipi-like tents.

[0037] In an embodiment, the joint element may comprise at least two tube sections.

[0038] Thereby, the joint element is capable of receiving an end portion of two tent poles. The direction in which said two tent poles extend away from the joint element may be customised according to the intended use.

[0039] In an embodiment, the preshaped shell may comprise a plurality of pinholes arranged along a periphery of said shell.

[0040] By a pinhole is meant a hole or a tiny aperture. The provision of such pinholes allows for one type of integration of the joint element with a canvas, namely through sewing said joint element into the canvas by means of a thread. The periphery may be along the edge of a bowl-like preshaped shell, or a flange extending away from the joint element may be provided, where said flange comprises said plurality of pinholes.

[0041] In an embodiment, the tube section may comprise a locking mechanism reversible engagable with a locking mechanism of a pole.

[0042] One such type of locking mechanism may be a thread, such that an inner surface of the tube section is provided with a thread corresponding to a thread provided in a tent pole adapted to be inserted into said tube

section. Such type of locking mechanism provides an efficient attachment, which is unlikely to disconnect by accident. Another type of locking mechanism may be a resilient pin engageable with an aperture, such that, once engaged, the tube section and the pole are locked together, whereas said tube section and pole may be disconnected by pressing down the resilient pin. Preferably, the tube section is provided with the aperture, whereas a tent pole suitable for use with said tube section comprises the resilient pin. Such type of locking mechanism is easy to use and provides an efficient attachment. A third type of locking mechanism is the provision of a carabiner, preferably arranged in the joint element, e.g. through a loop provided in said joint element, being engagable with an opening or loop provided in/on the pole. Such a locking mechanism is highly versatile and easy to use. Further, the provision of a loop in the joint element being engagable with a carabiner is useful for multiple purposes, including attachment of equipment, lighting, etc.

[0043] Thereby, a tent pole may be securely mounted the joint element, which increases the strength of a pole structure assembled using a joint element according to the invention.

[0044] According to the invention, a tent comprising a canvas, at least one tent pole, and at least one joint element according to previous disclosures is provided.

[0045] By a tent is meant a structure built from a pole structure built from the at least one tent pole, where said pole structure is covered with a canvas. By a canvas is meant a textile member made of a synthetic or natural material. In an embodiment, the tent comprises a single tent pole, e.g. a tipi-like tent once covered with the canvas. In such an embodiment, the joint element is engaged with an end portion of said tent pole, in such a way that said joint element provides an interface between said tent pole and said canvas by means of its preshaped shell. In other words, the pole is engaged with an opening in the joint element, and the canvas is arranged across the convex/bowl-shaped preshaped shell.

[0046] In a second embodiment of a tent, said tent may comprise at least two tent poles, where said at least two tent poles are jointed or connect using a single joint element. Within the same embodiment is understood, that multiple joint elements may be used to connect further tent poles.

[0047] Thereby, the tent according to the invention benefits from the advantages of the joint element according to previous disclosures.

[0048] In an embodiment of a tent, the joint element may be integrated in the canvas. In such an embodiment, the integration may be by means of sewing.

[0049] Thereby, the user may easily install and raise the tent, simply by connecting the poles to the joint elements, and thereby the canvas. In other words, the joint elements are built into the canvas. A preferred type of integration is by means of sewing the joint element into the canvas. Either the joint element may be locked in place simply by sewing along the circumference of said joint element, i.e. sewing said joint element into a pocket, or the joint element may be provided with a plurality of pinholes allowing a thread to engage with said joint element and said canvas.

SHORT LIST OF THE DRAWINGS

[0050] In the following, example embodiments are described according to the invention, where

Fig. 1 illustrates a joint element used in a tent according to prior art.

Fig. 2 illustrates a perspective view of a joint element according to the invention, adapted to receive three tent poles.

Fig. 3 illustrates a perspective view of a joint element according to the invention, adapted to receive two tent poles.

Fig. 4 illustrates a perspective view of a joint element according to the invention, adapted to receive one tent pole, and the outline of a canvas resting upon said joint element.

Fig. 5 illustrates a side view of a joint element according to the invention.

Fig. 6 illustrates an embodiment of a joint element according to the invention.

Fig. 7 illustrates a perspective view of an embodiment according to the invention.

DETAILED DESCRIPTION OF DRAWINGS

[0051] In the following the invention is described in detail through embodiments hereof that should not be thought of as limiting to the scope of the invention.

[0052] Fig. 1 illustrates a joint element 1 according to prior art used in a pole structure, e.g. for a tent. The figure illustrates a generic pole structure 2 forming the skeleton of a wall tent. The pole structure is built from a plurality of straight, rigid poles 3 combined using a plurality of joint elements 1. The joint element 1 generally comprises a set of hollow tubes adapted to receive and accommodate end portions of said poles 3. Thus, the joint element 1 allows for the jointing of poles in a reversible manner, such that said poles may be dismounted subsequently.

[0053] Fig. 2 illustrates a perspective view of a joint element 100 according to the invention, adapted to receive three tent poles (not shown). It is noted that the joint element 100 according to the invention may be adapted to receive one, two, three, or more poles, depending on the need. Preferably, the adaption is carried out by the manufacturer, such that each joint element

100 is configured to be used in a specific configuration. Further, it is noted that the use of a joint element 100 according to the invention is best understood by rotating the figure 180 degrees. However, to highlight the features of the invention in more detail, the present orientation has been chosen.

[0054] The joint element 100 comprises three openings 102 adapted to receive end portions of tent poles (not shown) to be jointed. Once engaged with an opening 102, the tent pole is accommodated by an elongated and hollow tube section 101. In the shown embodiment, the three tube sections 101 reflect the ability of the joint element to join or accommodate three tent poles. Each of said three tube sections 101 terminate in a common centre B, where further insertion of a tent pole is hindered by means of end walls 101'. Alternatively, the end portion of the tent pole may be inserted into a first tube section until stopped by a tent pole inserted into a second tube section or by a wall of a second tube section. The openings 102 may be reinforced by reinforcement means 104, which further eases the insertion of the tent poles, by making said openings 102 stiffer, in case said openings 102 are made of a flexible material, e.g. canvas. The tube sections 101, or parts thereof, may be made of a rigid material, such that tent poles inserted and accommodated therein are kept in place. Thus, once a tent pole is received by the opening 102 and accommodated by the tube section 101, said tent pole extends in a direction away from the joint element 100, where said direction is defined by the extension of the tube section 101. The use of a rigid material ensures that such direction of extension is maintained during use. The rigid material may be a hard plastic or a metal. In an embodiment, the tube section 101 may be reinforced by a reinforcement material having a higher stiffness than the remaining part of such tube section 101. For example, one part of the tube section may experience a greater pressure due to the constructional build of the pole structure, thereby requiring a greater strength in certain parts. For example, a majority of the tube section 101 may be made of a canvas-like material, adding flexibility to said tube section, whereas a second part of the tube section 101 is made of the reinforcement material adding stability and strength. The combination of the flexible material and the reinforcement material allows for a minor flexibility to the joint element 100, which in turn adds flexibility to the overall pole structure once tent poles are inserted into the tube sections 101. An overall, yet minor, flexibility of the pole structure increases the strength, as said structure is allowed to move/adapt slightly once exposed to external forces, e. g. wind. The use of a canvas-like material is preferred as such material is strong and rip-proof.

[0055] Further, the joint element 100 comprises a preshaped shell 110. The preshaped shell 110 is integrated with the tube sections 101, such that said preshaped shell 110 covers, encloses, or encapsulates part of said tube sections 101. Preferably, the preshaped shell 110 is made of a rigid material, such that the shape of a canvas (not shown) resting (e.g. by means of gravity) upon said preshaped shell 110 is defined by the spatial extension of said preshaped shell 110. Thus, as noted previously, the use of the joint element 100 according to the invention is best understood by rotating the figure 180 degrees. In such orientation, one more easily realises how a canvas may rest or be arranged upon an outer surface 112 (not explicitly shown) of the preshaped shell 110, whereas an inner surface 111 of said preshaped shell 110 accommodates and partly encloses the tube sections 102. The present embodiment illustrates a bowl-shaped preshaped shell 110, where the tube sections 102 are partly enclosed by the inner surface 111 of said preshaped shell 110. The outer surface 112 of the preshaped shell 110 may be considered convexly shaped, whereas the inner surface 111 may be considered concavely shaped. Although not being truly convex and concave, the overall point of such description is to illustrate that the preshaped shell 110 is bowl-shaped.

[0056] Fig. 2a illustrates a generic bowl 200 rotated 180 degrees relative to the joint element 100 shown in Fig. 2. In such illustration, the outer surface 112' corresponds to the outer surface 112 of the preshaped shell 110, and the inner surface 111' corresponds to the inner surface 111 of the preshaped shell 110. Further, Fig. 2a illustrates a canvas 201 being arranged upon the outer surface 112' of the bowl 200 by means of gravity (depicted by the arrow A). The bowl 200 of Fig. 2a does not comprise jointing means (e.g. the tube sections of Fig. 2) or mounted tent poles, and as such, the canvas 201 falls freely off the edges of the bowl 200. In a real-life situation, tent poles joined by jointing means (e.g. tube sections of Fig. 2) define the extension of the canvas 201 away from the joint element 100 according to the invention. In other words, the shape/contour/spatial extension of a canvas 201 arranged upon a pole structure formed using tent poles and joint elements 100 according to the invention is defined by the spatial extension of the preshaped shell 110 in the vicinity of the joint elements 100, whereas said shape/contour/spatial extension of the same canvas 201 is defined by the pole structure further away from said joint elements 100. Thus, the preshaped shell 110 defines the shape/contour/spatial extension of the canvas in the vicinity of the joint elements 100. Thereby, the weight of the canvas 201 is better distributed across each joint, which lowers the stresses exposed to the joints by said canvas and vice versa.

[0057] Fig. 3 illustrates a perspective view of a joint element 100 according to the invention, adapted to receive two tent poles (not shown). The overall concept is identical to the one shown in Fig. 2, and as such, similar parts are provided with similar reference numbers. Again, the preshaped shell 110 has a bowl-like shape in a way such that the tube sections 110 are partly enclosed by the inner surface 111 of said preshaped shell 110, whereas the outer surface 112 is adapted to have an canvas (not shown) resting or to be arranged thereupon. Fig. 3a illustrates a generic bowl 200 oriented similar to the joint

element 100 of Fig. 3, thereby enhancing the understanding of how the preshaped shell 110 is oriented relative to the tube sections 102.

[0058] Fig. 4 illustrates a perspective view of a joint element 100 according to the invention, adapted to receive one tent pole 202 (outlined, but should not be thought of as being included in the invention), and the outline of a canvas 201 (outlined, but should not be thought of as being included in the invention) arranged upon said joint element 100. In the shown embodiment, the tube section 101 is considerably shorter than previously disclosed in Figs. 2-3, but does comprise the opening 101 adapted to receive the tent pole 202. The present embodiment may for example be part of a tipi-like tent, where a central tent pole 202 bears the weight of the canvas 201. The tube section 101 extends in a direction being normal to the inner surface 111 of the preshaped shell 110. Once the canvas 201 is arranged on the preshaped shell 110 of the joint element 100, said canvas 201 conforms to the shape of the outer surface 112 of said preshaped shell 110 in the vicinity of the joint element 100, whereas the shape of the canvas 201 is dictated by the pole structure or a tension (e.g guy lines attached to the canvas) further away from the joint element 100.

[0059] Further, Fig. 4 illustrates a plurality of pinholes 113 arranged along the periphery of the preshaped shell 110. The pinholes 113 may be used to integrate or bond the joint element 100 to the canvas, e.g. by means of sewing. Thereby, the joint element 100 and the canvas 201 may be joined by the manufacturer, such that said joint element 100 and said canvas 201 cannot be displaced relative to each other. Such integration increases the stability of the entire tent and eases the assembly of the tent. Thus, the joint element 100 may be integrated in the canvas 201, but said joint element 100 may still be considered an individual element carrying the task of shaping said canvas 201. Another way of integrating the joint element 100 in a canvas is by fabricating the preshaped shell of a penetratable, yet stiff material, such that stitches may be made directly in said preshaped shell. Thereby, it is possible to sew/stitch the joint element 100 into a canvas directly. The material could be a plastic material or faux leather.

[0060] Fig. 5 illustrates a side view of a joint element 100 according to the invention. The preshaped shell 110 and two tube sections 101 are shown, each of said tube sections 101 comprising an opening 102 adapted to receive a tent pole 202. A tent pole 202 has been received by each of said openings 102, although it is to be understood, that said tent poles 202 are not part of the joint element 100 according to the invention. Likewise, a canvas 201 has been included in order to clarify how said canvas 201 conforms to the shape of the preshaped shell 110, despite said canvas 201 not being part of a joint element 100 according to the invention. The weight of the canvas 201 weighs down (e.g. by means of rope tension or gravity) the joint element 100, as indicated by the direction of the arrows A. Oppositely, the rigidity of the tent poles 202 forces the joint element 100 upwards. Consequently, the joint element 100 is exposed to a pressure from said tent poles 202, especially at some predictable points as indicated by the arrows C and the circles D. Therefore, the joint element 100 may be reinforced at these points D, e.g. by means of an additional sewing or by integrating a stiff object at said points.

[0061] Further, Fig. 5 illustrates one type of locking mechanism 109 capable of fixating a tent pole 202 to the tube section 101 and thereby the joint element 100.The locking mechanism 109 comprises a resilient pin, e.g. arranged on the tent pole 202, and an aperture provided in the tube section, such that said resilient pin may engage said aperture once said tent pole 202 is accommodated by the tube section 101. To release the tent pole, one presses down the resilient pin and removes the tent pole 202 from the tube section 101. Even further, Fig. 5 illustrates a carabiner 203 arranged in a loop connected to the joint element 100. The carabiner may be used in a second type of locking mechanism, or said carabiner may be used for other purposes, e.g. to attach equipment to the joint element 100. The joint element 100 according to the invention is especially useful for such attachment, since said joint element is stiff and is directly connected to the pole structure, and as such is capable of holding a large weight. Finally, Fig. 5 illustrates an angle V between a tube section 101 and the preshaped shell 110. Said angle V may be any angle suitable for use in a tent system, and as such, the embodiment shown in Fig. 5 should not be thought as limiting the scope of the invention. In most embodiments, the angle V may be as small as possible, reflecting the embodiments shown in Figs. 2 and 3. The angle may be 0 degrees.

[0062] Fig. 6 illustrates a different type of joint element 100 according to the invention. In this embodiment, the joint element 100 comprises a pre-shaped shell 110 having an outer surface 112 being concave or bowl-shaped, and a filled interior 114 comprising two tube sections 101, e.g. two bores, adapted to receive two tent poles 202. Thus, the shape of the joint element 100 may be considered a hemisphere having a concave outer surface 112 and a planar surface 107. The tent poles 202 and the tube sections 101 may comprise a locking mechanism embodied as a thread 109', such that said tent poles 202 may be screwed into said tube sections 101. In the shown embodiment, the openings 102 are arranged in a planar surface 107 of the filled interior.

[0063] Fig. 7 is a perspective view of a joint element 100 according to the invention, adapted to receive two tent poles in the tube section 101 openings 102. The overall concept is identical to the one shown in Fig. 3, except as described here. To ease use of the joint element 100 use for a user, pull means 103 are provided. The pull means 103 are fastened to the joint element 100 which a user can pull on while they insert the tent pole 3 into the joint element 100. This is especially useful when the joint element is made from a flexible material such

as canvas which may not in itself provide sufficient resistance to deformation when inserting the tent pole. By using pull means 103 under assembly, it is user friendly to insert tent poles 3 fully into even very flexible joint elements 100.

REFERENCE NUMBERS

[0064]

A	Direction of gravity
B	Common centre of Tube sections 101
C	Direction of application of pressure
D	Point of increased pressure
V	Angle between Preshaped shell 110 and Tube section 101
1	Joint element according to prior art
2	Pole structure
3	Tent pole
100	Joint element according to the invention
101	Tube section
102	Opening of Tube section 101
104	Reinforcement means
107	Planar surface
109	Locking mechanism
109'	Thread of Locking mechanism 109
110	Preshaped shell
111	Inner surface of Preshaped shell 110
111'	Inner surface of Bowl 200
112	Outer surface of Preshaped shell 110
112'	Outer surface of Bowl 200
113	Pinholes
114	Filled interior
200	Generic bowl
201	Canvas
202	Tent pole
203	Carabiner

Claims

1. A joint element for supporting and/or connecting at least one tent pole for generating a pole structure capable of carrying a canvas, such as a tent canvas, wherein said joint element comprises at least one opening being adapted to receive an end portion of a tent pole and ensuring that said tent pole extends in a specific direction away from said joint element, **characterised in that** said joint element further comprises an integrated preshaped shell capable of shaping a canvas resting upon said shell into a desired shape.

2. A joint element according to claim 1, wherein the at least one opening is arranged in an elongated and hollow tube section adapted to accommodate a tent pole.

3. A joint element according to claim 2, wherein the tube section is partly made of a flexible material, partly made of a reinforcement material.

4. A joint element according to claims 2-3, wherein the tube section is integrated with the preshaped shell.

5. A joint element according to any of the preceding claims, wherein the preshaped shell is bowl-shaped.

6. A joint element according to any of the preceding claims, wherein the preshaped shell comprises an outer surface being convex and an inner surface being concave.

7. A joint element according to any of the preceding claims, wherein the preshaped shell encloses at least a part of the at least one tube section.

8. A joint element according to any of the preceding claims, wherein the inner surface of the preshaped shell is arranged adjacent to the at least one tube section, such that said tube section is at least partly enclosed by said inner surface.

9. A joint element according to any of the preceding claims, wherein the joint element comprises a tube section extending in a direction being normal to the concave inner surface of the preshaped shell.

10. A joint element according to any of the preceding claims, wherein the joint element comprises at least two tube sections.

11. A joint element according to any of the preceding claims, wherein the preshaped shell comprises a plurality of pinholes arranged along a periphery of said shell.

12. A joint element according to any of the preceding claims, wherein the tube section comprises a locking mechanism reversibly engagable with a locking mechanism of a pole.

13. A tent comprising a canvas, at least one tent pole, and at least one joint element according to claim 1.

14. A tent according to claim 13, wherein said tent comprises at least two tent poles, and wherein the at least one joint element connects said at least two tent poles.

15. A tent according to claims 13 and 14, wherein the joint element is integrated in the canvas.

16. A tent according to claim 15, wherein the joint element is integrated in the canvas by means of sewing.

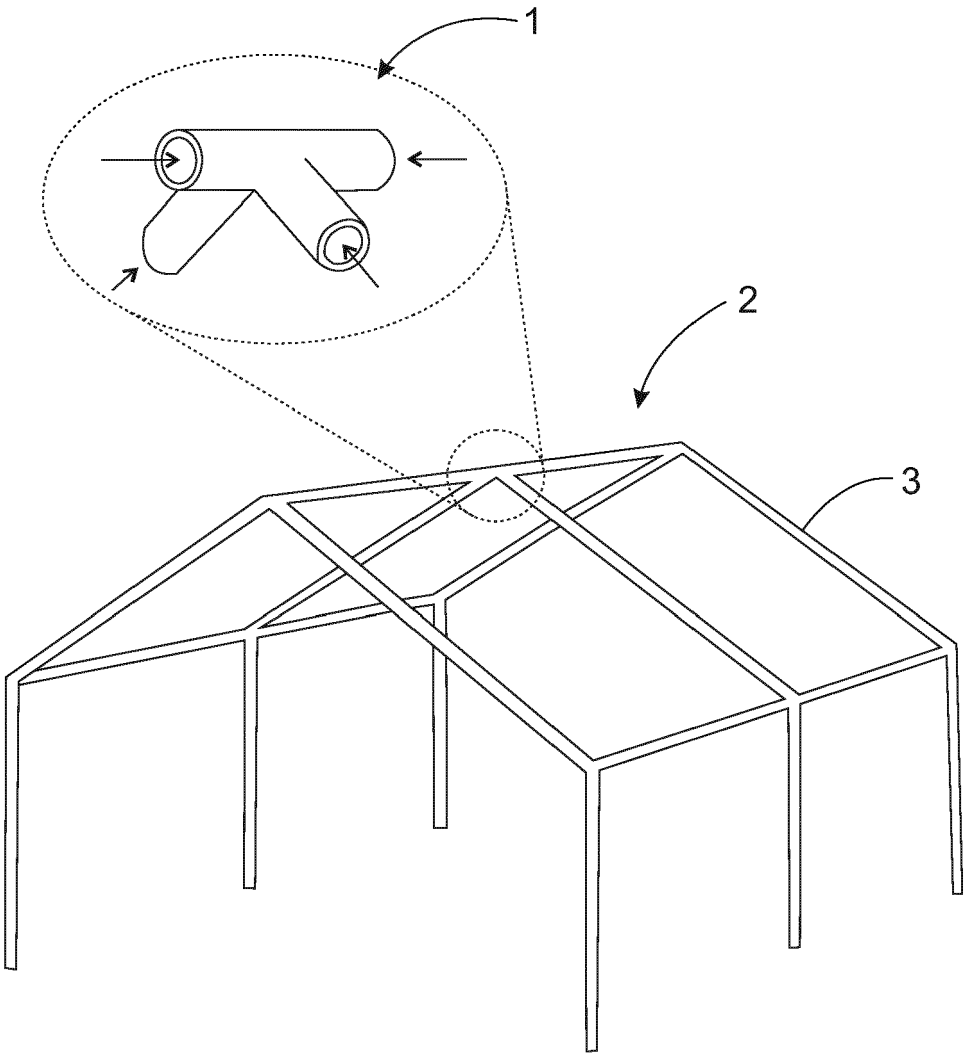

Fig. 1

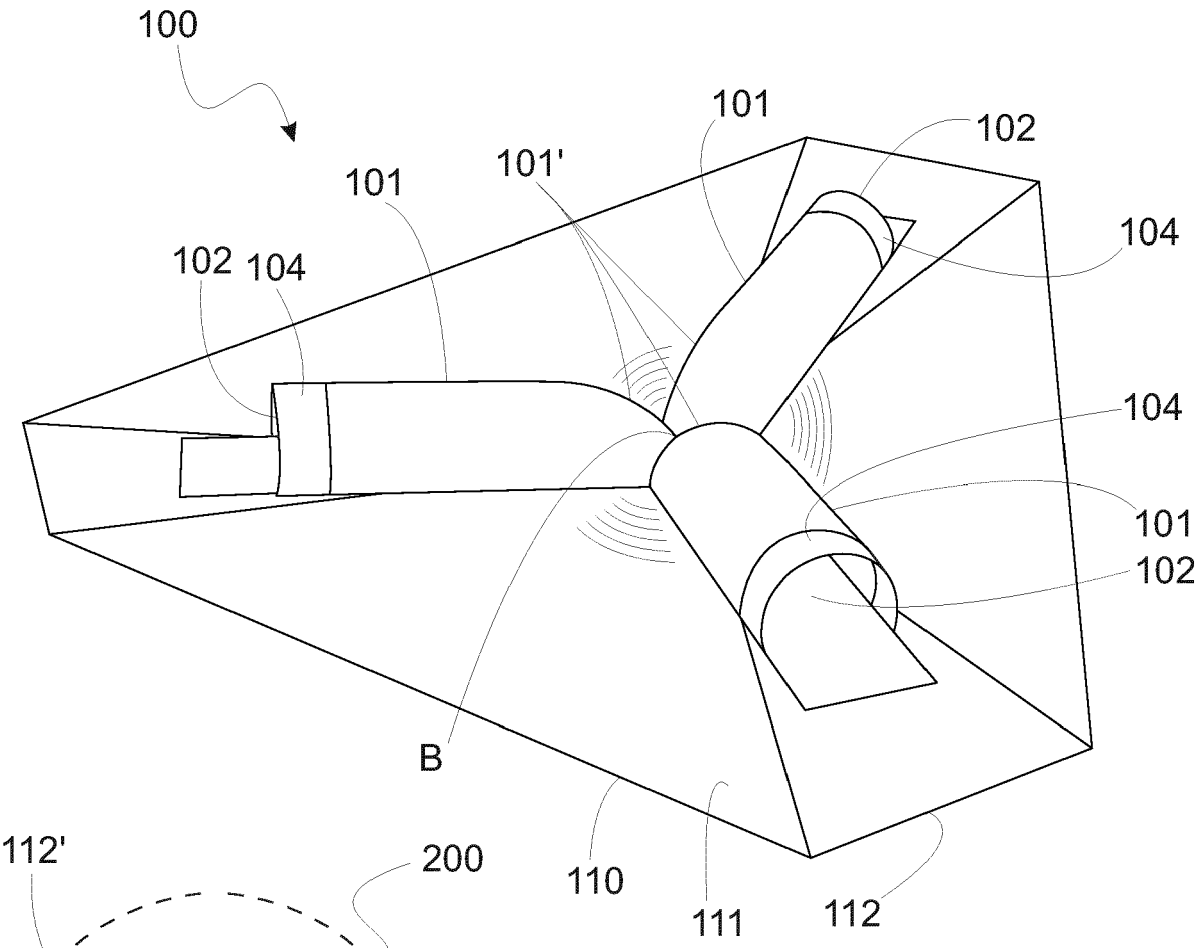
100
101
101'
102
104
101
102
104
104
101
102
B
110
111
112

Fig. 2

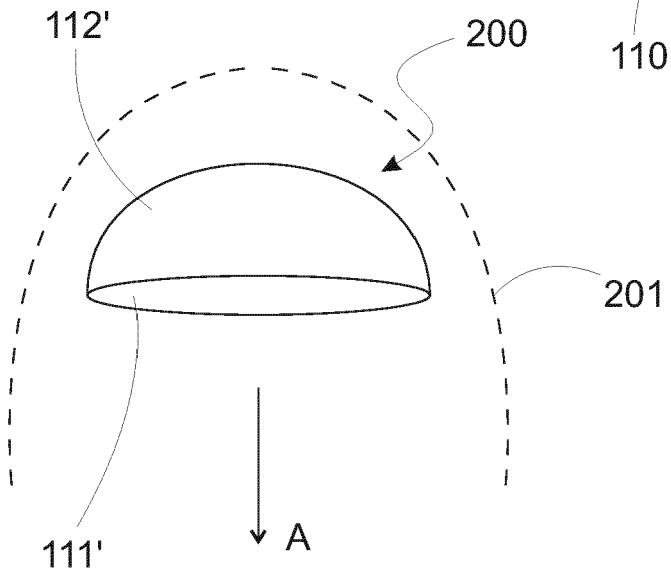
112'
200
201
111'
A

Fig. 2a

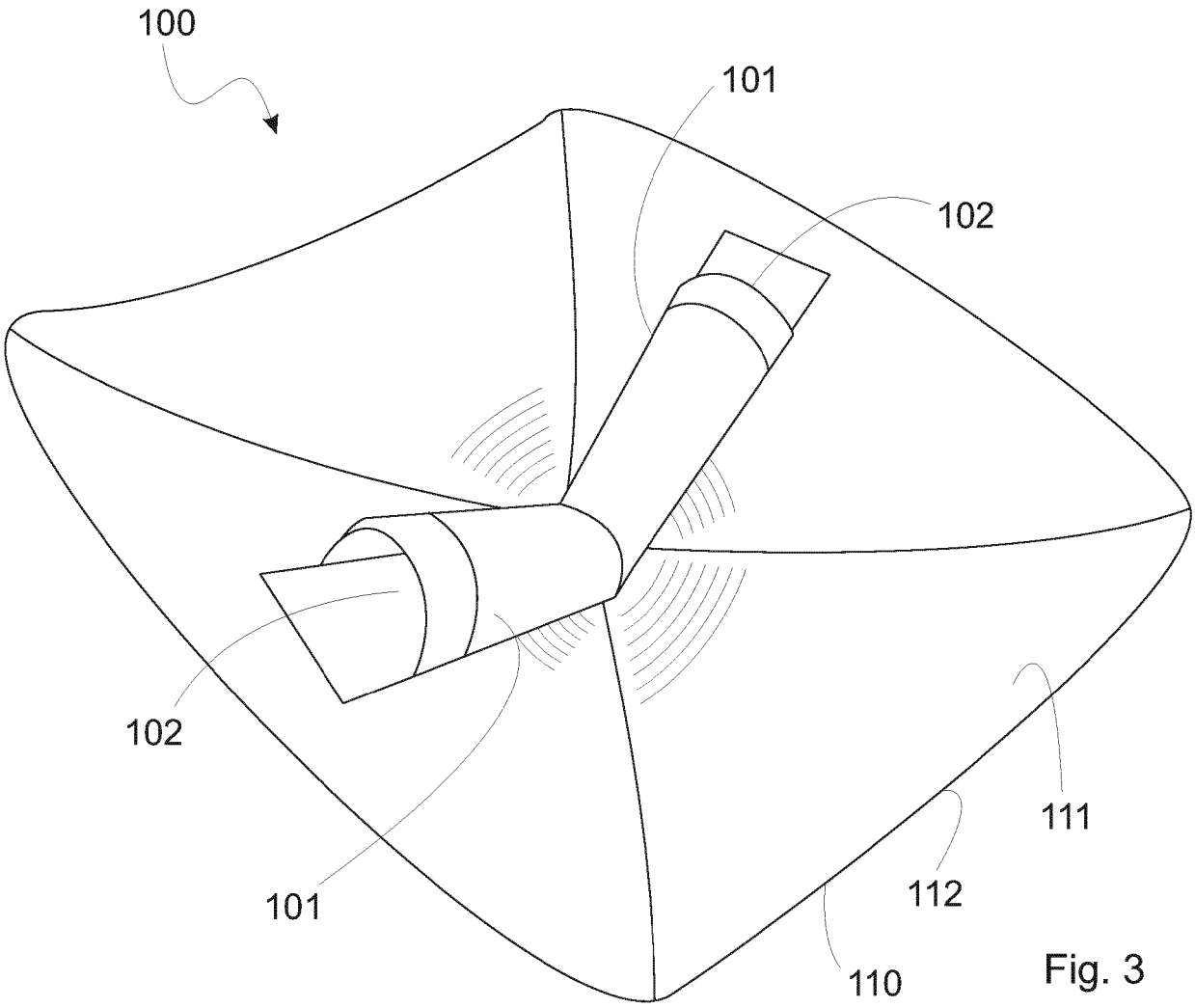

Fig. 3

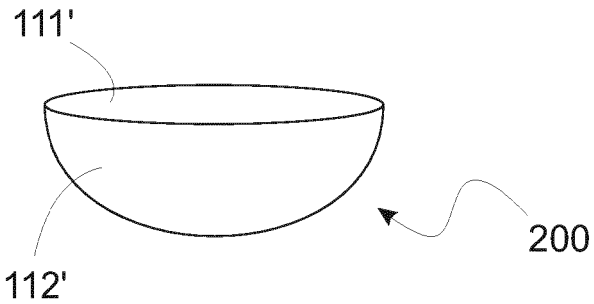

Fig. 3a

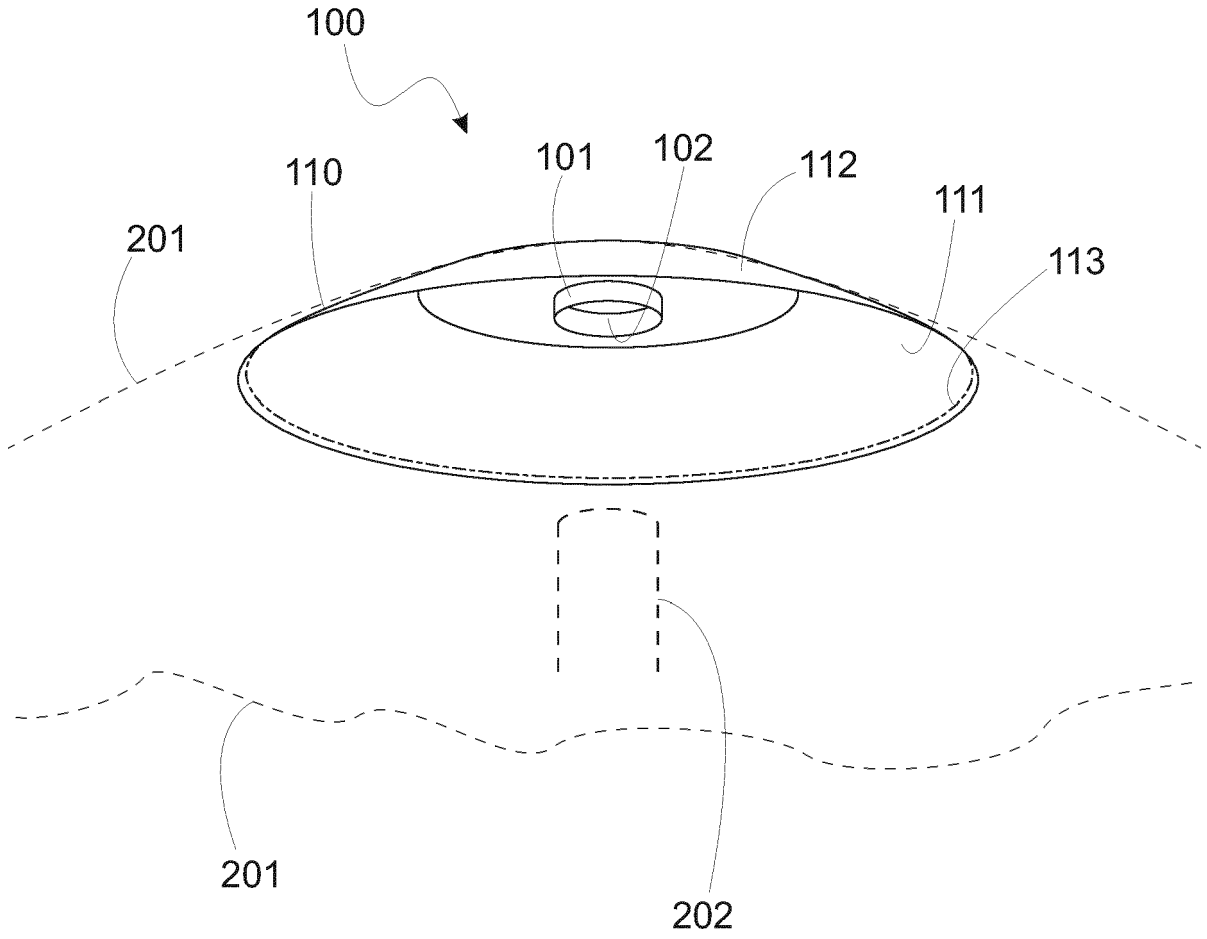

Fig. 4

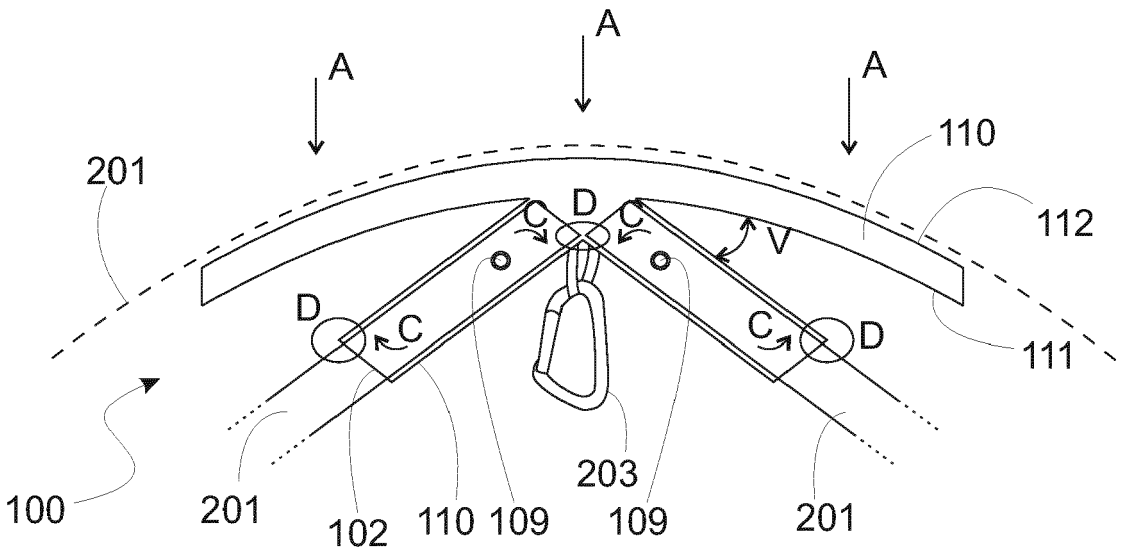

Fig. 5

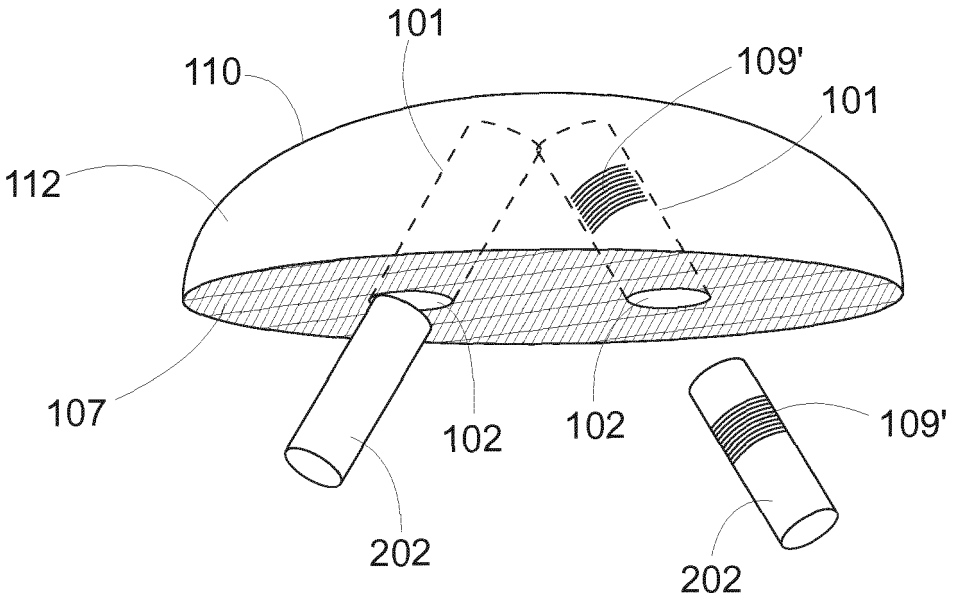
101
110
109'
101
112
107
102
102
109'
202
202

Fig. 6

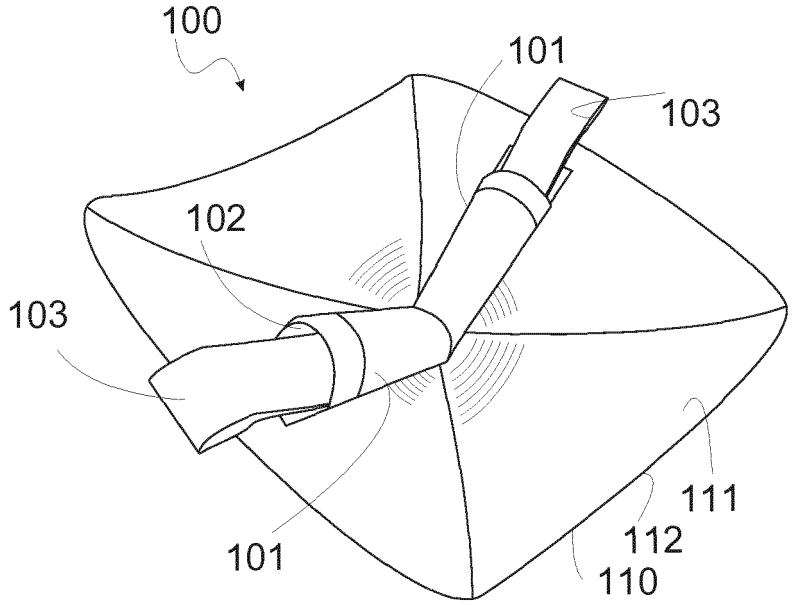
100
101
103
102
103
101
111
112
110

Fig. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 18 21 2604

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	14 June 2019	Valenta, Ivar

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