



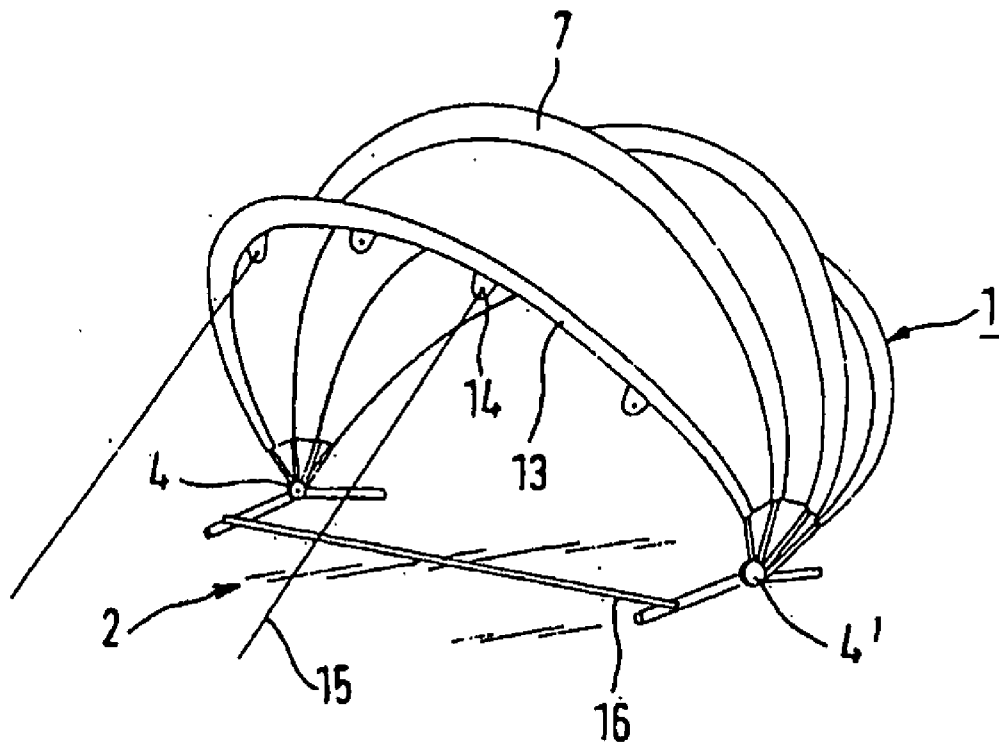
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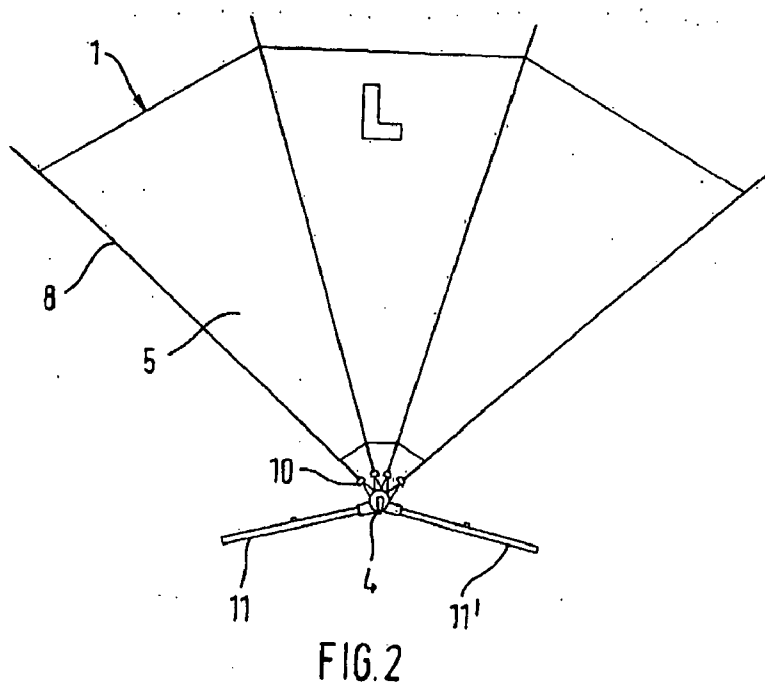
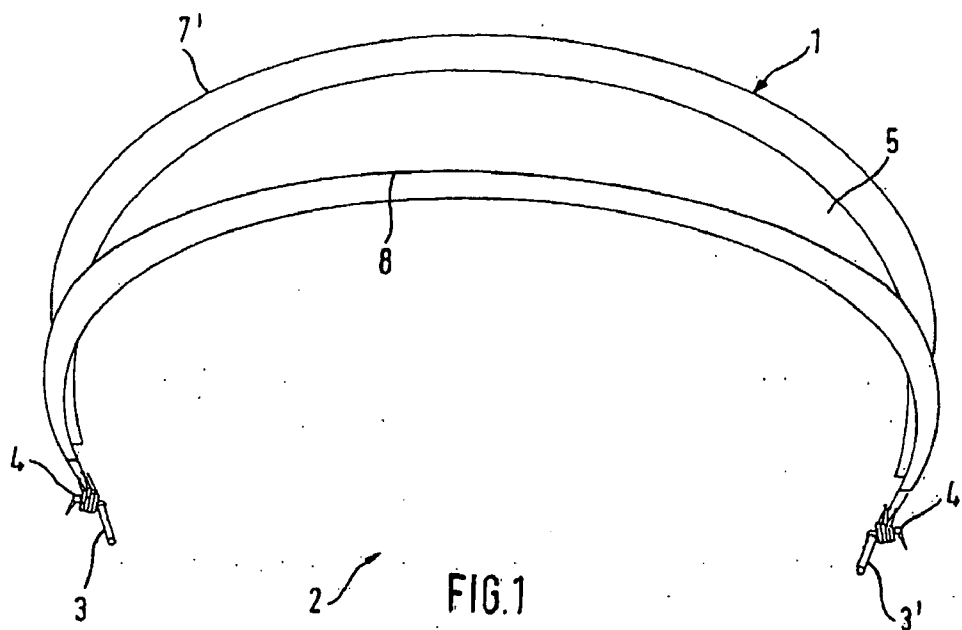
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Glaeser(10) **Pub. No.: US 2007/0295380 A1**(43) **Pub. Date: Dec. 27, 2007**(54) **PAVILION****Publication Classification**(76) Inventor: **Willi Glaeser**, Baden (CH)Correspondence Address:
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ROSLYN, NY 11576 (US)(51) **Int. Cl.**
E04H 15/38 (2006.01)(52) **U.S. Cl.** **135/133; 135/123**(57) **ABSTRACT**

The invention relates to a pavilion, particularly for protection from the sun, light, wind and rain and for providing privacy. In contrast to conventional awnings or beach tents, the size and inclination of the transportable pavilion can be altered. To this end, a dome-like roof element is mounted in an articulated arrangement situated on both sides of the roof element in such a manner that the tensioning braces that tension the roof element are accommodated in accommodating shafts, which are mounted in a manner that enable them to rotate individually, thereby enabling the inclination of the roof element to be altered relative to the surface upon which the pavilion is placed. By moving the tensioning braces relative to one another, the tensioning angle and thus the size of the roof element can be altered.

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(2), (4) Date: **Feb. 26, 2007**(30) **Foreign Application Priority Data**

Aug. 26, 2004 (DE)..... 20 2004 013 465.9





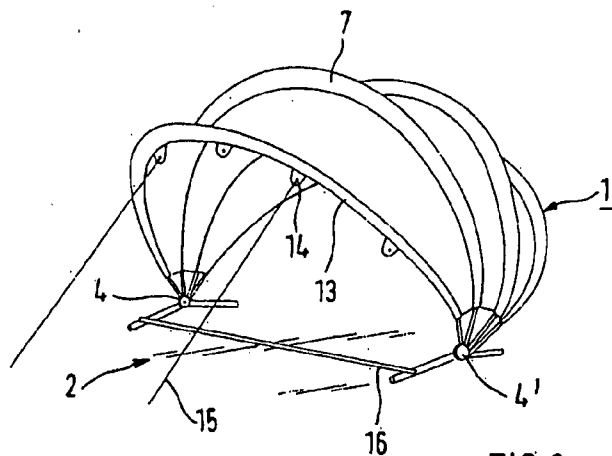


FIG. 3

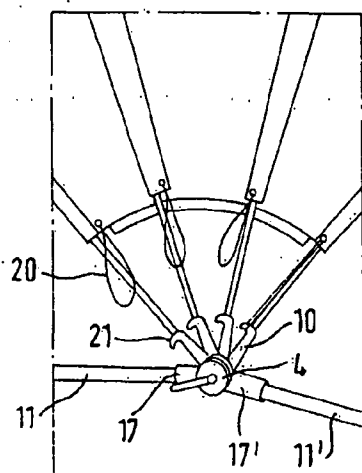


FIG. 4

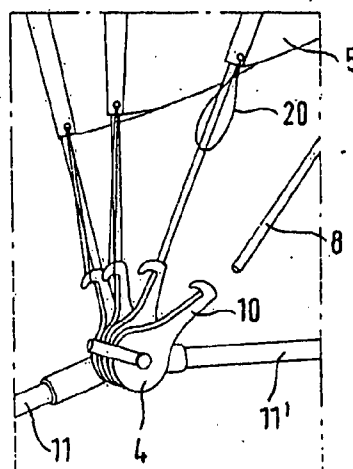


FIG. 5

PAVILION

[0001] The invention relates to a pavilion, particularly for use as sun protection, light protection, privacy protection, wind protection, and rain protection.

[0002] In recent years, a great number of alternative sun protection concepts have become known in addition to the conventional sun umbrellas known up to now, within the framework of an increasingly spreading leisure industry and an increasing relocation of leisure activities and social life into the outdoors.

[0003] For one thing, sun sail designs should be mentioned, in which a tarp-like sailcloth element is connected with a set-up of connecting rods, whereby these connecting rods can be secured on the set-up surface, if necessary, for example by means of stakes, and furthermore, the sailcloth can be spread out by means of an appropriate tensioning device, if necessary.

[0004] Furthermore, so-called "beach shells" have become known, which are small tent designs in a shell shape, which particularly serve to provide the user with sun protection that can be set up quickly and is portable. The so-called sun shells consist, in most cases, of a floor tarp having a roof element like half a dome, whereby the roof element can be set up in that a set of fiberglass connecting rods is pushed into accommodation seams or tabs that lie on the outside, whereby an accommodation opening is assigned to each seam end, in such a manner that the fiberglass connecting rods can be inserted into the accommodation openings assigned to the accommodation seams, in each instance, in such a manner that when this is done, the fiberglass connecting rod forms a round arc, in each instance, which holds up the half-dome. The half-dome set up in this manner can then be connected with the set-up surface, in each instance, by means of conventional stakes or other suitable attachment devices and tensioning ropes. The main advantage of this device lies in its portability and its low weight, so that sun protection can quickly be set up on location, at an artificial lake or a pool, which protection is often important, or even absolutely necessary, particularly also for small children, if there is strong sunshine.

[0005] However, it is a disadvantage that the previously known beach shells can only be adapted to the changing position of the sun in that they are moved, as a whole. Furthermore, the previously known sun shells are at most suitable as partial sun protection, because of their small dimensions.

[0006] Proceeding from this state of the art, the invention is based on the task of creating an improved patent that can be used simultaneously as protection against sun, light, and rain, and for providing privacy, and is easily adjustable as a function of the weather conditions, in each instance, but nevertheless remains mobile and portable.

[0007] This task is accomplished by means of a pavilion in accordance with the main claim. Advantageous embodiments can be derived from the dependent claims 2 to 15.

[0008] According to the main claim, the invention consists in the fact that a pavilion, consisting of a roof element that is spread out by means of a tensioning support mechanism is adjustable in its incline in that at least some of the tensioning braces of the tensioning mechanism are con-

nected with articulated arrangements, in each instance, which are disposed on both sides of the roof element mentioned above. The articulated arrangements disposed on both sides of the roof element make it possible for the roof element to be adjustable relative to the set-up surface of the pavilion, as a whole. By means of the adjustment of the incline angle, it is possible to easily react to a different position of the sun, for example, or to change the function from sun protection to privacy protection or wind protection.

[0009] According to claim 2, the tensioning braces of the tensioning support mechanism are individually connected with the aforementioned articulated connections, so as to rotate. This has the advantage that the tensioning braces are also able to rotate relative to one another, so that not only can the roof element as a whole be adjusted in its incline angle, but also it is additionally adjustable, by means of the relative movements of the tensioning braces, to what extent the roof element is fanned out, i.e. stretched out. The roof element is therefore not only adjustable in terms of its incline, but also in terms of its size. This additional adjustment possibility makes it possible to utilize or use the pavilion for the most varied purposes, without thereby making complicated set-up and disassembly work necessary, in each instance.

[0010] In concrete terms, this is made possible in that, according to the main claim, each tensioning brace is inserted into a separate accommodation element of the articulated arrangement, whereby the accommodation elements are set onto a common axle of rotation of the articulated arrangement, by means of a bearing ring, whereby the tensioning braces are simply inserted into corresponding accommodation shafts of the accommodation elements.

[0011] In order to lock the pavilion in its incline and expanded size, in each instance, it has proven to be advantageous if the rotational mobility of the accommodation elements accommodated on a common axle of rotation can be inhibited and/or locked.

[0012] In an advantageous embodiment, the articulated arrangements disposed on both sides of the roof element can be connected with the foot elements of the pavilion, preferably in one piece.

[0013] In order to achieve the most stable set-up possible, it is practical if the foot elements can be provided with foot braces that project out laterally, whereby this is achieved, in simple manner, in that the corresponding foot braces can be inserted into corresponding insertion shafts of the articulated arrangements disposed on both sides. On the basis of the design explained above, the set-up surface of the pavilion is increased in size, as a whole.

[0014] A further contribution to increasing the stability of the set-up of the design is made by anchoring of the foot braces by means of conventional stakes or other attachment devices, particularly those known from the camping sector.

[0015] In another advantageous embodiment, the stability can be further improved in that the foot braces are additionally secured with additional weight elements. For this purpose, the foot braces can be inserted into corresponding insertion tabs of special sandbag elements, for example, so that the sandbag elements are firmly connected with the foot braces. The additional securing explained above can be

practical, in particular, because after all, significant wind loads have to be handled, in some instances, depending on the size of the roof element.

[0016] In connection with the pavilion according to the invention, it has proven itself if the articulated arrangements, i.e. the foot braces connected with these articulated arrangements, have spacer strips assigned to them. These spacer strips serve as a set-up aid for the pavilion. If the articulated arrangements are set up spaced apart from one another, in such a manner that the spacer strips are tensioned, it is assured that the articulated arrangements stand at their proper set-up distance, as intended. Subsequently, the tensioning braces already connected with the roof element can be inserted into the accommodation shafts that are connected with the articulated arrangements, in each instance, and thereby the pavilion can be completely set up, to a great extent.

[0017] The connection between tensioning braces and roof element is brought about, according to claim 10, in simple manner, in that the tensioning braces are pushed into accommodation seams and/or accommodation tabs of the roof element, which preferably lie on the outside. For the case that more than two tensioning braces are involved, the tensioning braces form an outside ribbing for the roof element, if they are set up as intended, whereby the advantage of the accommodation seams or accommodation tabs, respectively, are dimensioned in such a manner that the outside ribbing are disposed at a distance from the actual roof surface. Because the outside ribbing is disposed at a distance from the roof element, it is avoided that direct contact points exist between the outside ribbings and the actual roof element. Such contact points represent potential penetration points for any rainwater, so that the spacing between the roof ribbing and the roof element represents a contribution for improving the rain protection imparted by the pavilion.

[0018] Furthermore, the durability of the pavilion is significantly increased by the fact that possible friction points outside ribbing and roof element are disposed spaced apart from the actual roof surface. Possible damage to the accommodation seam or the accommodation tab remains without any influence on the sealed condition of the roof element.

[0019] With regard to the outside ribbing formed by the support mechanism of the tensioning braces, a differentiation can be made between a first and a last outside rib and therefore also a first and a last tensioning loop, in which the tensioning braces that form the first and the last outside rib, in each instance, are accommodated. An eye element is assigned to these tensioning loops, in each instance, through which the tie-down rope runs, whereby the tie-down rope in turn can be connected with the foot element that lies the closest.

[0020] By means of the aforementioned tie-down ropes, the pavilion is additionally secured in its incline angle, in each instance, by means of the bracing that is brought about, in addition to locking of the tensioning braces in the articulated arrangement. In order to facilitate the ease of disassembly and the transport of the pavilion according to the invention, it has proven itself if the tensioning braces are not made in one piece, but rather can be put together from several tensioning brace segments. In this connection, it has proven itself to be advantageous if the tensioning brace

segments to be connected with one another for the purpose of set-up are connected by means of a tensioning cord that lies on the inside. The tensioning cord is dimensioned in such a manner that the tensioning brace segments can be released from one another, can be transported lying parallel next to one another, and are connected with one another so as not to come loose, by way of an internal, resilient tensioning cord. Because of the spring effect of the tensioning cord, the latter supports insertion of the tensioning brace segments into one another.

[0021] In a further advantageous embodiment, the accommodation loops, i.e. the accommodation seam, which the tensioning braces are inserted for a connection with the tarp-like roof element, are provided with tensioning rubber bands, in each instance, whereby these tensioning rubber bands can be connected with the articulated arrangements disposed on both sides of the roof element. In this way, it is assured that the accommodation loops and/or seams are properly tensioned when set up as intended, and for one thing, unattractive bulge formations in the region of the accommodation seams or tabs are avoided, and furthermore, hooking of the ends of the tensioning braces inside the accommodation loops and/or seams is avoided, to a great extent.

[0022] In an advantageous embodiment, the tie-down ropes already mentioned above are firmly connected with the foot braces, with those of the accommodation loops that can be connected with the foot braces, in which they are guided as an internal cord, for example. In addition, a clamping or securing device for the tie-down ropes can be assigned to the foot braces, in each instance. This first of all has the advantage that the tie-down ropes can easily be secured with the articulated arrangement, i.e. with the foot braces, after the incline angle has been adjusted as desired. Furthermore, the tie-down ropes do not have to be carried along separately, in complicated manner, and subsequently connected with the pavilion, but rather are already present at the correct location and pre-assembled, by way of pre-assembly on the foot elements.

[0023] In the following, the pavilion according to the invention will be described in greater detail using an exemplary embodiment shown only schematically in the drawing.

[0024] The figures show:

[0025] FIG. 1 a pavilion in a front view,

[0026] FIG. 2 the pavilion shown in FIG. 1 in a side view,

[0027] FIG. 3 the pavilion shown in FIG. 1 and 2 in a perspective view,

[0028] FIG. 4 a detail view of an articulation arrangement of the pavilion, and

[0029] FIG. 5 another detail view of the articulation arrangement of the pavilion.

[0030] According to the representation in FIG. 1, the pavilion of the exemplary embodiment essentially consists of a roof element 1 that covers a set-up surface 2 in the manner of a dome. The roof element 1 is set up on the set-up surface with foot elements 3, 3' on both sides, which are connected with an articulation arrangement 4, 4'. The roof element 1 consists essentially of a roof tarp 5, which is held spread out by an outside ribbing. The outside ribbing con-

sists essentially of accommodation seams 7 that lie on the outside, which are inserted into the tensioning braces 8 made of fiberglass. In this connection, the tensioning braces 8 as such are composed of several tensioning brace segments that have been inserted into one another; this cannot be seen in FIG. 1.

[0031] According to the side view in FIG. 2, the tensioning braces 8 are inserted into accommodation shafts 10 of the articulated arrangement 4, in each instance, in order to spread the tarp-like roof surface 5 out. The accommodation shafts 10 are an integral part of accommodation elements for the tensioning braces 8, which essentially consist of the accommodation shaft 10 and a bearing eye, which are set onto a common axle of rotation of the articulated arrangement 4, in each instance. The bearing eyes are mounted to rotate relative to one another in the articulated arrangement 4, so that the tensioning braces 8 can be moved relative to one another, and therefore the spread angle of the roof element 1 can be varied. If one leaves the distance between the tensioning braces 8 unchanged, the incline angle of the roof element 1 as a whole can be changed by means of moving the tensioning braces 8 as a whole in the articulated arrangement 4.

[0032] As is also evident from FIG. 2, foot braces 11, 11' that project laterally are inserted into corresponding insertion shafts 15, 15' articulation arrangements 4, 4'. Thus the set-up surface of the pavilion as a whole is increased in size.

[0033] According to the perspective view in FIG. 4, the pavilion is secured, in a preferred embodiment, by means of four tensioning braces 8, which are individually inserted into corresponding accommodation shafts 10 of the articulated arrangement 4, 4'. The first and last accommodation seam for the tensioning braces 8, in each instance, is referred to as a so-called "tensioning seam" 12. This designation comes from the fact that this tensioning seam 12 is additionally provided with tensioning eyes 14 for attaching tie-down ropes 15. The tie-down ropes can be connected with the set-up surface in conventional manner, using stakes.

[0034] Set-up of the pavilion can take place in simple manner, in that first the articulated arrangements 4, 4' are set up on the set-up surface 2. Finally, the articulated arrangements can be connected with the foot braces 11, 11' that project laterally, as can also be seen in FIG. 4, for example. For this purpose, the foot braces 11, 11' are pushed into corresponding insertion shafts 15, 15' of the articulated arrangement 4 or 4', respectively.

[0035] Set-up of the pavilion as a whole is facilitated due to the fact that the foot braces 11, 11' have spacer strips 18, 18' assigned to them, as shown in FIG. 4, which predetermine the intended space between the articulated arrangements 4, 4', i.e. the foot elements 3, 3'. The articulated arrangements 4, 4' can therefore be set up at a correct distance from one another simply by stretching out the spacer strips 18, 18' connected with the foot elements 3, 3'. Subsequently or before, the tensioning braces 8 are each inserted into an accommodation seam 7 or into a tensioning seam 12 of the roof element 1, and thus an outside ribbing for the roof element 1 is created, whereby the roof element 1 is connected with the articulated arrangements 4, 4' disposed on both sides of the roof element in that the tensioning braces 8 are subsequently inserted into their accommodation shafts 10, in each instance, and by doing so

the fiberglass connecting rods of the tensioning braces 8 are arced, so that the roof element 1 is forced into a dome shape.

[0036] According to the representation in FIG. 4, a tensioning rubber band 20 are disposed in the region of the introduction opening of the accommodation seams, tensioning seams 7, 13, in each instance, for accommodating the outside ribbing of the tensioning and accommodation seams 7, 13, i.e. the roof element 1, which rubber band can be connected with a hook element 21 of the accommodation shaft 10, in each instance. As soon as the tensioning rubber bands 20 have been connected with the hook elements 21, it is assured that the tensioning seams or accommodation seams, respectively, are tensioned over the entire width of the roof element 1, so that an unattractive bulge formation in the region of the roof element 1 is avoided.

[0037] In the detail view according to FIG. 5, the articulated arrangement 4 with the inserted foot elements 11, 11' can be seen once again. Furthermore, it is shown how the tensioning braces 8 can be inserted into their accommodation element, in each instance, i.e. into the accommodation shaft 10, in each instance, which is assigned to the tensioning brace 8, in each instance. Above, the set-up of a pavilion has therefore been described, which can easily be carried along in a bag, completely broken down. For this purpose, the tensioning braces 8 can be broken down into individual tensioning brace segments, and the articulated arrangements 4, 4' can be disassembled from the foot braces 11, 11', and the tarp of the roof element 1 can be carried along folded up or rolled up. The pavilion can then simply be set up in that the articulated arrangements 4, 4' are connected with the foot braces 11, 11', set up at the intended distance from one another, and the roof element 1, spread out by means of the tensioning braces 8, is connected with the articulated arrangement. Various tie-down devices can be used for additional securing. Furthermore, the foot brace elements can be additionally secured with weight elements, such as special sandbags.

[0038] The advantage of the pavilion according to the invention consists in the fact that a large-area sun protection, light protection, or rain protection and wind protection, respectively, is created with the pavilion, which can be easily adjusted in its incline, by means of the articulated arrangements 4, without any disassembly or relocation of the pavilion being required for this purpose. Furthermore, the size of the sun protection can also be adapted to the individual wishes of the user, in simple manner, by means of the relative mobility of the tensioning braces relative to one another. The pavilion according to the invention combines the design and the appearance of a parachute with the design of a concert shell or beach shell, to create a novel, high-quality design object for the outdoor sector.

REFERENCE SYMBOL LIST

- [0039] 1 roof element
- [0040] 2 set-up surface
- [0041] 3, 3' foot elements
- [0042] 4, 4' articulated arrangements
- [0043] 5 roof tarp
- [0044] 7 accommodation seams

- [0045] 8 tensioning brace
- [0046] 10 accommodation shaft
- [0047] 11, 11' foot brace
- [0048] 12 tensioning seam
- [0049] 14 tensioning eye
- [0050] 15 tie-down rope
- [0051] 16 additional tie-down rope
- [0052] 17, 17' insertion shaft
- [0053] 18, 18' spacer strip
- [0054] 20 tensioning rubber band
- [0055] 21 hook

1-17. (canceled)

18. Pavilion, particularly for use as sun protection, light protection, privacy protection, wind protection, and rain protection, in which a planar tarp-like roof element (1) is spread open by means of a tensioning support mechanism having tensioning braces (8), in such a manner that at least a part of the tensioning braces is connected with two articulated arrangements (4, 4'), in each instance, which are disposed on both sides of this roof element (1), and whereby the incline angle of the roof element (1) is adjustable by means of the articulated arrangement (4, 4'), relative to a set-up surface (2) of the pavilion, as a whole, in that each tensioning brace (8) is individually mounted to rotate in the articulated arrangement (4, 4'), in such a manner that each tensioning brace is able to rotate individually, and in this way, the distance of the tensioning braces (8) that hold up the roof element (1), relative to one another, can be changed, whereby the articulated arrangements (4, 4') disposed on both sides of the roof element (1) are connected with the foot elements (3, 3') that face the set-up surface of the pavilion, in each instance, preferably in one piece, wherein the pavilion can be broken down and transported in that the tensioning braces (8) can be released from the articulated arrangements (4, 4') and the tarp-like roof element (1), and the one-piece or multi-piece tensioning braces are only arced to form the dome-shaped roof element (1) when they are connected with the articulated arrangements (4, 4'), as intended.

19. Pavilion according to claim 18, wherein the articulated arrangement (4, 4') has an axle of rotation onto which a number of accommodation elements corresponding to the number of tensioning braces (8) is set, whereby the accommodation elements each comprise a bearing eye and an accommodation shaft (10), and these bearing eyes sit on the axle of rotation of the articulated arrangement (4, 4') so as to rotate, in each instance, and each bearing eye makes a transition into the accommodation shaft (10) for accommodating a tensioning brace segment of the tensioning braces (8), in each instance.

20. Pavilion according to claim 19, wherein the rotational mobility of the bearing eyes accommodated on the axle of rotation of the articulated arrangement (4, 4') can be inhibited and/or locked by means of corresponding clamping and/or gearing.

21. Pavilion according to claim 20, wherein the foot elements (3, 3') are provided with insertion shafts (17, 17') for foot braces (11, 11'), preferably ones that project laterally, on the side that faces the set-up surface (2).

22. Pavilion according to claim 21, wherein the foot elements (3, 3') are equipped with an articulation for folding down the foot braces (11, 11') that are connected with the foot elements (3, 3') in fixed or releasable manner, on the side facing the set-up surface, in each instance.

23. Pavilion according to claim 21, wherein the foot braces (11) can be anchored in the set-up surface (2), preferably by means of conventional stakes.

24. Pavilion according to claim 23, wherein the foot braces (11) are additionally secured additionally with weight elements, whereby for this purpose, the foot braces (11, 11') can preferably be connected with a corresponding sandbag element, by way of a corresponding insertion tab, in each instance.

25. Pavilion according to 22, wherein the articulated arrangements (4, 4') and/or the foot braces (11, 11') connected with these articulated arrangements (4, 4') have at least one, preferably two spacer strips (18, 18') assigned to them, the length of which marks the preferred set-up distance between the foot elements (3, 3').

26. Pavilion according to claim 18, wherein the roof element (1) has at least two, preferably four tensioning braces (8) assigned to it, whereby the roof element (1) is connected with the tensioning braces (8) in that the tensioning braces (8) are pushed into an accommodation seam (7), preferably a continuous one, and/or one or more accommodation tabs, in each instance, which are disposed lying on the outside, in each instance, preferably on the side of the roof element (1) that faces away from the set-up surface (2).

27. Pavilion according to claim 26, wherein the accommodation loops and/or seams (7) are configured in such a manner that the tensioning braces (8) engage over the roof element (1) in the manner of an outside ribbing, whereby the tensioning braces (8) are disposed at a distance from the roof surface essentially formed by the tarp-like roof element (1).

28. Pavilion according to claim 26, wherein the roof element (1) extends between a first and a last tensioning brace (8), whereby the first tensioning brace (8) is accommodated in a first tensioning seam (12), and the last tensioning brace (8) is accommodated in a last tensioning seam, and at least one tensioning eye (14) for attaching a tie-down rope (15) is assigned both to the first and to the last tensioning seam, in each instance, in order for this tie-down rope (15) can be connected with the foot element (3) that lies closest, in each instance, for purposes of additional set-up security.

29. Pavilion according to claim 26, wherein the tensioning braces, (8) can be put together from releasable tensioning brace segments, preferably made of plastic or fiberglass, in each instance, whereby the tensioning brace segments that supplement one another to form a tensioning brace (8) are connected with one another, so as not to come loose, by means of a flexible tensioning cord that lies on the inside.

30. Pavilion according to claim 26, wherein an attachment element for attaching a tensioning rubber band (20) is assigned to each accommodation loop and/or seam (7, 12) of each tensioning brace (8), in the region of the insertion opening into the accommodation loop and/or seam, whereby this tensioning rubber band can be hooked into a hook (21) attached to the accommodation element of the rotational articulated arrangement, so that the accommodation loops and/or seams (7, 12), with the inserted tensioning braces (8),

are tensioned at least approximately tightly over the entire length of the tensioning braces (8), when the pavilion is set up as intended.

31. Pavilion according to claim 28, wherein the tie-down ropes (15) are connected with the laterally projecting foot braces (11) so as not to come loose, whereby the foot braces (11, 11') are preferably configured as pipe elements and these tie-down ropes (15) are guided within the foot braces (11) as an internal cord, and the foot brace (11, 11') have an

attachment device, preferably a clamping device for the tie-down rope (15), in each instance.

32. Pavilion according to claim 31, wherein the pavilion is secured by means of additional tie-down ropes (16), which are firmly connected with the set-up surface by means of additional attachment devices.

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