

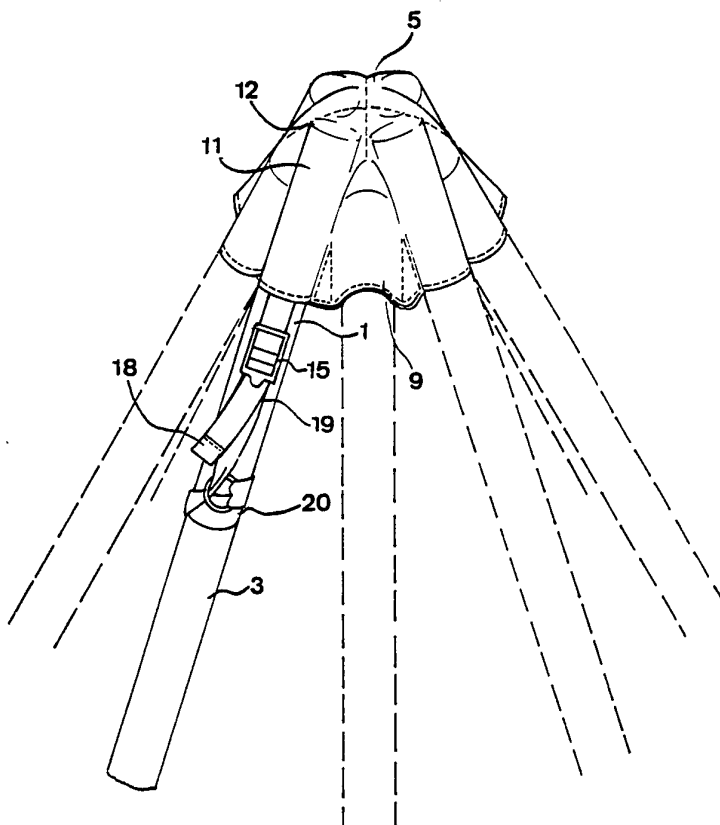


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(21) International Application Number: PCT/SE93/00853 (22) International Filing Date: 19 October 1993 (19.10.93) (30) Priority data: 9203051-9 19 October 1992 (19.10.92) SE (71) Applicant (for all designated States except US): MOSKOS- ELKÅTAN AB [SE/SE]; S-930 86 Moskosel (SE). (72) Inventor; and (75) Inventor/Applicant (for US only) : GRAHN, Bengt [SE/SE]; Abmorvågen 47, S-930 86 Moskosel (SE). (74) Agents: BJERKÉN, Jarl, Håkan et al.; Bjerkéns Patentby- rå AB, Box 304, S-801 04 Gävle (SE).		(81) Designated States: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DE (Utility model), DK, DK (Utility model), ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>In English translation (filed in Swedish).</i>

(54) Title: TOP ARRANGEMENT FOR TENTS**(57) Abstract**

A device for keeping the upper extremities (1) of rods (3) of a substantially cone-shaped tent (4) diverging downwardly towards the ground and arranged to carry a tent cloth (2) thereon together comprises a sleeve arrangement (5) having at least three interconnected sleeves (9, 11) having their openings directed in different directions and being arranged to receive one of said rods (3) each inserted therein through said openings. The sleeve arrangement is arranged to keep the rod extremities inserted therein together in the pitched state of the tent by means of the interconnection of the sleeves.



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Top arrangement for tents

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FIELD OF THE INVENTION AND PRIOR ART

The present invention relates to a device for keeping the upper ex-
tremities of rods of a substantially cone-shaped tent diverging down-
wardly towards the ground and arranged to carry a tent cloth thereon
together.

Tents of this type are generally called huts or among Indians tepees.
Rods provided with top forks or sometimes straps or strings, which are
wound around the rods at a certain distance from their upper extremity,
are used so as to obtain that said rods are kept together in the vicinity
of the top of such a tent, so that a broom-like so called "top cross"
characteristic for the appearance of such a tent is obtained at the top
of the tent. However, when using this method it is not possible to ob-
tain that the rods are steadily kept together by joining thereof before
the very pitching, which would be suitable in most cases, especially for
tents having a considerable height, so that it will not be necessary to
bind the rods together after the very pitching with the problems arising
therefrom as a consequence of the distance of the top from the
ground.

However, a device of the type mentioned in the introduction is known,
which consists of a ring, which has been run through holes in the upper
extremities of a certain number of machined rods intended for pitching
a certain hut, whereupon both ends of the ring have been welded to-
gether, so that the rods may accordingly not be removed from the
device formed by the ring. Such a device leads to considerable

drawbacks, since it is tied up to a use of machined rods of a predetermined number and it means that it is not possible to pack the rods without the demand of a considerable space. Thus, it is not possible to use this device already known for pitching tents of this type
5 by utilizing wood material present in the country side nor other rough wood rods or even machined rods with other dimensions than exactly that to which the device is adapted for pitching a tent of this type.

BRIEF DESCRIPTION OF THE INVENTION

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The object of the present invention is to provide a device of the type mentioned in the introduction, which may be used in raising tents having rods of different dimensions and also when using rough or unmachined rods for the tent in question, so that it is in principle enough to
15 carry such a device as well as a tent cloth along for being able to pitch the tent by means of the rods which may be produced from the material present in the forest.

This object is in accordance with the invention obtained by providing a
20 device of the type mentioned in the introduction with a sleeve arrangement having at least three interconnected sleeves having their openings directed in different directions and being arranged to receive one of said rods each inserted therein through said openings, and that the sleeve arrangement is arranged to keep the rod extremities in-
25 serted therein together in the pitched state of the tent by means of the interconnection of the sleeves.

A device of this type makes it possible to also use rough rods won from the material present in the country side as rods for the tent, and it
30 is also possible to use one and the same device for tents having machined rods of different dimensions, so that it will not be necessary to possess one device of this type for each dimension of pre-manufactured rods.

35 The sleeves of the device are according to a preferred embodiment of the invention movably interconnected so as to allow optional adjustment of the inclination of the rods inserted therein with respect to each

other, the sleeves have flexible walls, and the sleeve arrangement is made of a continuous piece of flexible material having sleeves of that material carried out therein.

- 5 The device according to this embodiment of the invention gets very easy to carry along, since it has a low demand of space and an almost neglectible weight, and it gets very comfortable to insert the extremities of the rods in the respective sleeve when the sleeve arrangement is lying substantially flat on the ground and then erect the rods to the
10 mutual angular position desired while easily bending the sleeve arrangement formed by the cloth- or fabric-like material.

The device comprises according to another preferred embodiment of the invention means arranged to cooperate with the sleeves so as to
15 maintain rod extremities inserted therein therein, and the maintaining means are adaptable to the cross section dimensions of rods receivable in the sleeves for maintaining rods having different cross section dimensions in the sleeves.

- 20 Thanks to the inventional arrangement of such maintaining means it is possible to fix rods having different cross section dimensions to the sleeve arrangement at the ground level before erecting the rods in such a way that the risk that the rods will leave the sleeve arrangement during the pitching is eliminated.

25 Further advantages as well as advantageous features of the invention will appear from the following description and the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

30 With reference to the appended drawings, below follows a description of a preferred embodiment of the invention cited as an example. In the drawings:

- 35 Fig 1 is a perspective view of a tent provided with the device according to a preferred embodiment of the invention in the pitched state and with a part of the tent cloth cut away for the sake of illustration,

Fig 2 is a perspective view of the device according to said preferred embodiment of the invention, but only one maintaining means has been shown for simplifying the drawing, although each sleeve is in the practice provided with such a maintaining means, and

Fig 3 is a perspective view illustrating the device according to Fig 2 in the position of use shown in Fig 1.

10 DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

A device of the type according to the invention is used for keeping the upper extremities 1 of rods 3 of a substantially cone-shaped tent 4 diverging downwardly towards the ground and arranged to carry a tent cloth 2 thereon together, wherein the tent hereinafter will be called "hut" for the sake of simplifying.

The device, which is popularly called top hinge device, is shown more in detail in Fig 2, and it comprises a sleeve arrangement 5, which is formed by interconnecting two substantially equally designed pieces 7, 8 of a flexible material while covering each other by means of sewing (see dashed seams 6) (other ways of connection, such as riveting, gluing and so on are of course conceivable). This material is here cloth- or fabric-like, but it could also be any other flexible material, for instance leather or rubber. The pieces 7, 8 have been sewn together by applying the seams 6 in such a way that sleeve-like channels or sleeves 9 having openings 10 directed away from each other are formed.

The sleeves 9 are eight in number and arranged to extend radially from the mutual center of the sleeve arrangement when the extensions thereof are adjusted in substantially the same plane (as shown in Fig 2). The sleeves are then evenly distributed along the sleeve arrangement at substantially the same mutual angular distance. Furthermore, every second sleeve 11, i.e. sleeves having a mutual angular distance of 90°, are designed to extend further inwardly towards the center of

the sleeve arrangement by their ends 12 located opposite to the openings 10 than the other sleeves belonging to the sleeve arrangement and arranged therebetween, so that rods 3 inserted therein may be brought inwardly closer to the center of the sleeve arrangement with the extremities thereof, more exactly into such a position that these form supports for each other in the pitched state of the tent according to Fig 3 and thereby give the entire device and the tent steadiness. This characteristic of every second sleeve may not be that easily seen in Fig 2, but it appears all the clearer from Fig 3. However, it would be conceivable to have any other number, for instance three, of the sleeves extending further towards the center of the sleeve arrangement.

Furthermore, the device has a maintaining means 13 secured to each sleeve 9, which is formed by a first traction element part 14 in the form of a strap secured through one end thereof to the sleeve 9 and at which other free end a buckle 15 for adjustable fixing of the second traction element part 16 in the form of a strap being a part of the maintaining means is secured. On application of the maintaining means on a rod inserted through the upper extremity thereof into the sleeve (see Fig 3) the other strap 16 is intended to be brought around the rod 3 on the side of the buckle 15 remote to the sleeve and is at the end thereof not intended to be fixed to the buckle 15 provided with a ring 17 for running the other end of the second strap 16 therethrough after forming at least a loop (in the case shown two loops) around the rod before the opposite strap end 18 is introduced into the buckle 15 and the second strap 16 is tightened, so that the traction element 19 formed by the two traction element parts 14 and 15 is stretched at its extension between the loops 20 formed at a distance from the sleeve arrangement 5 around the rod and the sleeve 9 in question. All types of eye-like members are comprised by the definition ring.

When attempting to pull the upper extremity of a rod 3 tighed up in this way out of the sleeve 9 in question, the rod will through the friction force established with respect to the loops 20 try to remove the loops 29 from the sleeve arrangement 5, by which the loops 20 are tightened harder around the rod and the friction force is thereby increased. Such

a maintaining means will in this way be actuated by a tractive force aiming at pulling the rod extremity out of the sleeve to maintain the rod extremity in the sleeve by progressively increasing the friction force with respect to the envelope surface of the rod when the tractive force is increased. Thus, a very safe maintaining of the respective rod extremity in the respective sleeve is obtained in this way. The rods do not for this sake need to be machined so as to exactly fit into the sleeves, but they may have considerably smaller cross section dimensions than these or be unmachined rods produced from material present in the country side, and the maintaining device and the sleeves of the sleeve arrangement may in spite thereof cooperate for efficiently keeping the rods together.

Thus, it is possible to carry the device according to the invention and a suitable cloth along and produce suitable tent rods on arriving to the place where the tent shall be pitched, so that the marching kit may be considerably easier to carry along when huts of these types are used. It is of course also possible to use one and the same device for keeping divisible pre-manufactured rods together, wherein it keeps these together in a very safe way. The very low weight and the excellent packability thereof thanks to the material of which it is made as well as the high stability it may give rise to, primarily by the arrangement mentioned above of the four sleeves 11 extending further towards the center of the sleeve arrangement, are particularly advantageous.

The device according to the invention may be applied to huts of very different kinds, such having no center rod, such as the one shown in Fig 1, as well as such having a stabilizing center rod. The sleeve arrangement 5 may in huts having a center rod advantageously be laced together by running a string through eye members formed by the traction element part 14 in the position shown in Fig 3, so that it forms a sleeve directed downwardly for receiving the center rod thereunder, or the sleeve arrangement may be provided with a sleeve located at the center and arranged particularly for such a center rod. The device is also applicable to huts being made for a center rod with a top sleeve, to which tent cloth straps attached to the upper end of the tent cloth

are secured. Said top sleeve may in such a case be arranged on the sleeve arrangement and the center rod may then be omitted.

5 It is shown in Fig 1 how the hut 4 has an opening at the top thereof, but this is in the practice mostly covered by a fabric-like flue gas fly and/or insect net for protection against rain and insects, respectively, with the possibility to make a fire in the tent when said flue gas fly is completely or partial moved aside.

10 The invention is of course not in any way restricted to the preferred embodiment described above, but several modifications thereof would be apparent to a man skilled in the art in this field without departing from the basic idea of the invention.

15 As a few examples of such possible modifications the following may be mentioned:

It is possible to provide the sleeve arrangement with another number of sleeves than what is shown in the figures. These sleeves may of course be dimensioned in a different way.

20

It would be possible to arrange a smaller number of maintaining means than the number of sleeves or conversely, although it will be preferred that these numbers correspond.

25

Other types of maintaining means cooperating with the envelope surface of the rods than that shown in the figures would also be conceivable.

30 It would also be conceivable to use several devices of the type according to the invention for pitching one and the same tent, for instance to combine four devices each having a sleeve arrangement with three sleeves for pitching a tent having twelve rods. Thus, two devices shown in the figures may be used to pitch a tent having sixteen rods.

35 The definition "sleeve arrangement having at least three sleeves interconnected and having their openings directed in different directions" in

claim 1 is to be interpreted in its broadest sense and comprises also the case of several members provided with only one or two sleeves and which are interconnected at the moment of use of the device so as to together form an arrangement having at least three sleeves.

Claims

1. A device for keeping the upper extremities (1) of rods (3) of a substantially cone-shaped tent (4) diverging downwardly towards the ground and arranged to carry a tent cloth (2) thereon together, **characterized** in that it comprises a sleeve arrangement (5) having at least three interconnected sleeves (9, 11) having their openings (10) directed in different directions and being arranged to receive one of said rods (3) each inserted therein through said openings, and that the sleeve arrangement (5) is arranged to keep the rod extremities inserted therein together in the pitched state of the tent by means of the interconnection of the sleeves.
2. A device according to claim 1, **characterized** in that the sleeves (9, 11) are moveably interconnected so as to allow optional adjustment of the inclination of the rods inserted therein with respect to each other.
3. A device according to claim 1 or 2, **characterized** in that the sleeves (9, 11) have flexible walls.
4. A device according to claim 3, **characterized** in that the sleeve arrangement (5) is formed by a continuous piece of flexible material having sleeves (9, 11) carried out therein from this material.
5. A device according to claim 4, **characterized** in that said continuous piece with sleeves (9, 11) is made of two material parts (7, 9) joined to each other, preferably by sewing, while covering each other while leaving sleeve-like channels (9, 11) in openings (10) directed away from each other.
6. A device according to any of the claims 1-5, **characterized** in that the sleeve (9, 11) are arranged to extend so that imagined prolongations thereof in the direction opposite to the openings (10) substantially intersect each other in a point in common.

7. A device according to claims 2 and 6, **characterized** in that the sleeves (9, 11) are arranged to extend radially from the mutual center of the sleeve arrangement (5) when the extensions thereof are adjusted to be in substantially the same plane.

5

8. A device according to any of the claims 1-7, **characterized** in that the sleeve arrangement (5) comprises first sleeves (11) evenly distributed along the sleeve arrangement with substantially the same mutual angular distance, and that these first sleeves are designed to extend further inwardly towards the center of the sleeve arrangement through their extremities (15) located opposite to the openings (10) than possibly second sleeves (9) belonging to the arrangement and when rods (3) are inserted therein to allow these to form supports for each other and give the entire device and the tent steadiness in the pitched state of the tent.

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9. A device according to any of the claims 1-8, **characterized** in that it comprises means (13) arranged to cooperate with the sleeves (9, 11) so as to maintain rod extremities (1) inserted therein therein.

20

10. A device according to claim 9, **characterized** in that the maintaining means (13) are made adaptable to cross section dimensions of rods (3) receivable in the sleeves (9, 11) so as to allow maintaining of rods having different cross section dimensions in the sleeves (9, 11).

25

11. A device according to claim 9 or 10, **characterized** in that each of the maintaining means (13) is connected to the sleeve arrangement (5) and may be brought into engagement with the envelope surface of a rod (3) inserted through the upper extremity thereof into the corresponding sleeve, and that the maintaining means (13) is arranged to be actuated by a tractive force aiming at pulling said rod extremity out of the sleeve to maintain the rod extremity in the sleeve by progressively increase the friction force thereof with respect to said envelope surface when said tractive force is increased.

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12. A device according to claim 11, **characterized** in that the maintaining means (13) is formed by a traction element (19), such as a

strap, secured to the sleeve arrangement (5) and which may be brought around a rod (3) received in the sleeve through the upper extremity thereof at a distance from the sleeve (9, 11) and tightened therearound so as to be arranged to be tightened around the rod upon
5 an application of said tractive force on the rod as a consequence of the tendency of said tractive force to remove the rod (3) from the sleeve arrangement (5) and thereby stretch the traction element (19).

13. A device according to claim 11 or 12, **characterized** in that the
10 maintaining means (13) is formed by a first traction element part (14) secured to the respective sleeve (9, 11), at the free end of which a member (15) for adjustable fixing of a second traction element part (16) belonging to the maintaining means is secured, and that the second traction element part (16) is intended to be brought around a rod
15 on the side of the fixing means (15) remote to the sleeve when the maintaining means is applied to a rod inserted into the sleeve through the upper extremity thereof and it is at the end not intended to be fixed to the fixing means (15) provided with an eye-like member (17) for running the other end (18) of the second traction element part there-
20 through after forming at least a loop (20) around the rod before tightly fixing the second traction element part (16) through said other end (18) to the first traction element part (14).

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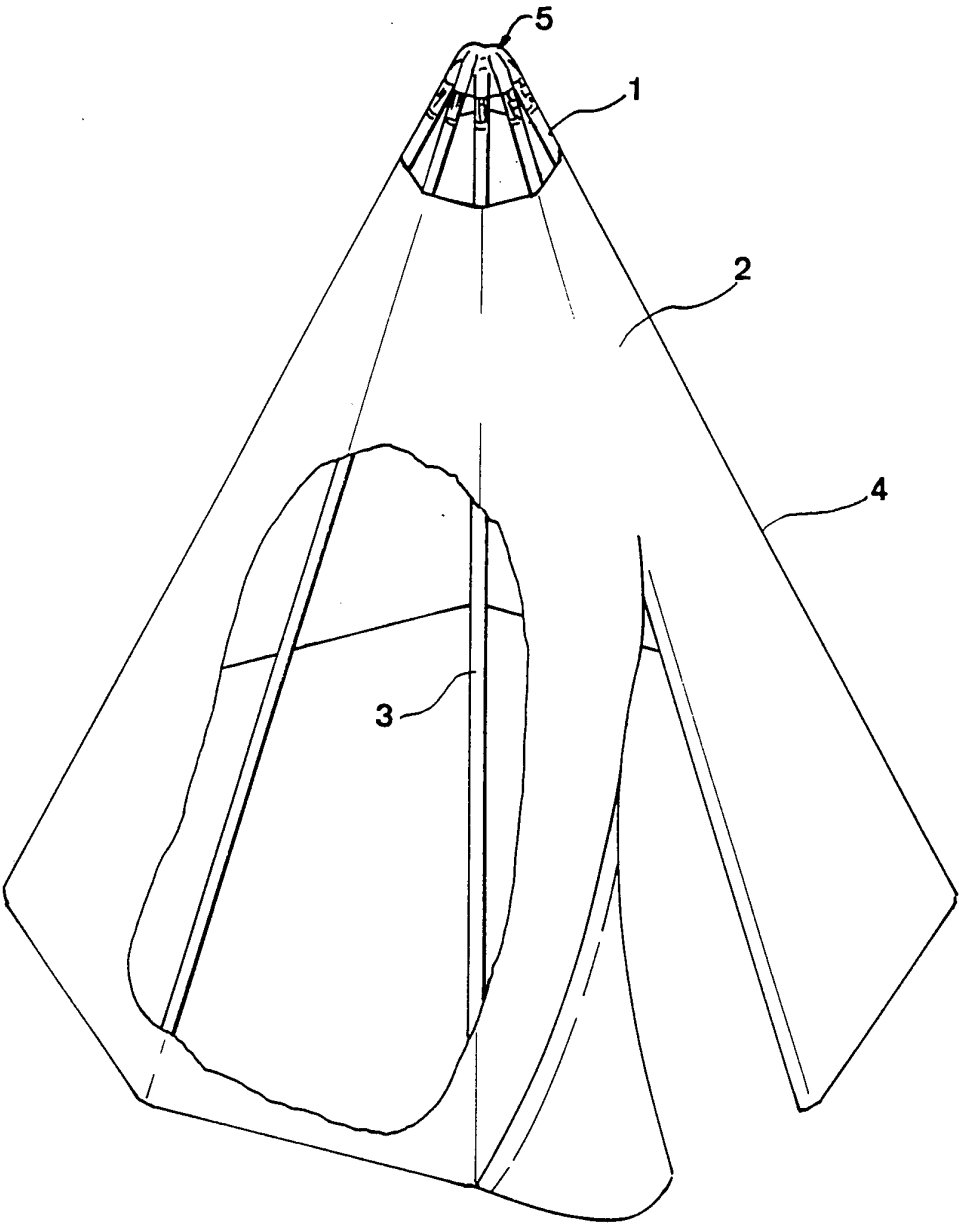


Fig 1

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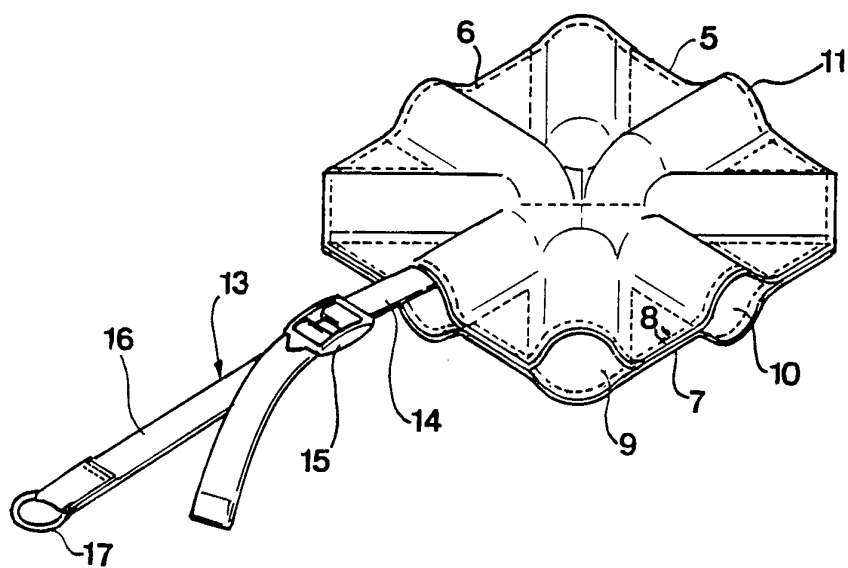


Fig 2

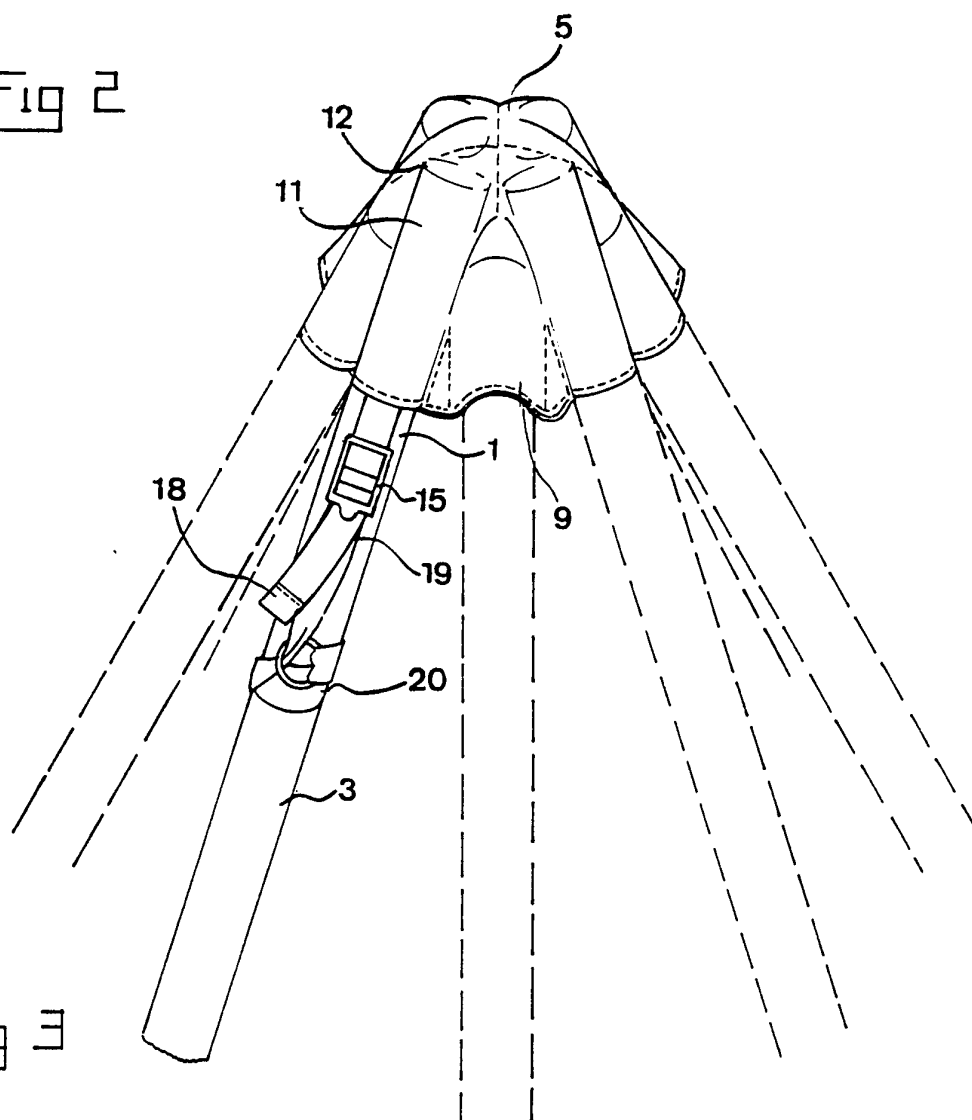


Fig 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 93/00853

A. CLASSIFICATION OF SUBJECT MATTER

IPC5: E04H 15/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC5: E04H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 4981387 (L. YOUNJAE), 1 January 1991 (01.01.91), figures 1,3, abstract --	1,6,7
X	DE, A1, 2739931 (T.A. PELSUE CO.), 15 March 1979 (15.03.79), figures 4,8-10, detail 48c -- -----	1-4,6,7

☐

Further documents are listed in the continuation of Box C.

☒

See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search

Date of mailing of the international search report

30 December 1993

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INTERNATIONAL SEARCH REPORT

Information on patent family members

27/11/93

International application No.

PCT/SE 93/00853

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A- 4981387	01/01/91	AT-B- 392316	11/03/91
		AU-B- 597860	07/06/90
		BE-A- 1002918	13/08/91
		CH-A- 678554	30/09/91
		DE-U- 8902451	13/04/89
		FR-A- 2641022	29/06/90
		GB-A,B- 2226831	11/07/90
		NL-A- 8900615	16/07/90
		SE-B- 469945	11/10/93
		SE-A- 8900677	28/06/90
DE-A1- 2739931	15/03/79	NONE	