



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
26.01.2005 Bulletin 2005/04

(51) Int Cl.7: **A45B 25/22**

(21) Application number: **04425511.5**

(22) Date of filing: **12.07.2004**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PL PT RO SE SI SK TR**
Designated Extension States:
AL HR LT LV MK

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(30) Priority: **22.07.2003 IT AR20030034**

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(54) **Sail umbrella**

(57) A structure comprising a supporting pole (1), a plurality of ribs (21) converging onto said pole, a covering canvas (4), fastened on said ribs, means apt to move said canvas (4) from the closed state to the open state and viceversa, a rope or stay rod (6) destined to bend upwards one of the ribs, as well as a jib (9) fastened to

the canvas (4) at the position of the rib (21) apt to bend and to the activation rope (6), with said jib (9), when stretched, destined to act as orienting rudder of the covering, so that in presence of wind the umbrella orients and the upward folding of a covering portion, at the inflected rib, allows the continuous exhaust of the air which is pushed by the wind under the covering itself.

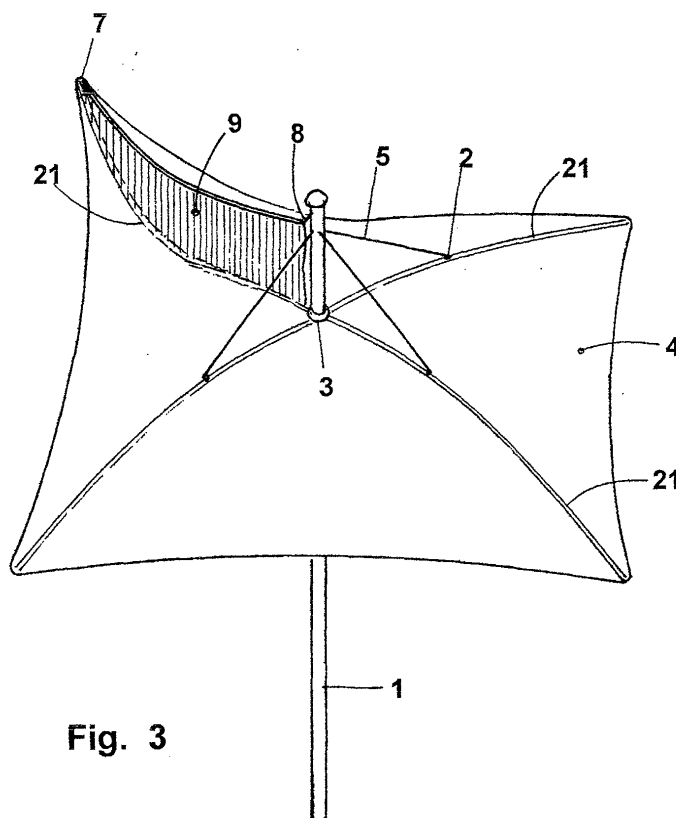


Fig. 3

Description

[0001] The invention relates to a sail umbrella apt to be utilized on the beaches, in the gardens, in the bar-restaurants in the open and in the places by hawkers, therewith a place can be sheltered from the sun and rain.

[0002] The umbrellas currently known have sizes which vary upon varying the use thereof and they can have a covering which can reach the size of few squared metres. Such covering can be circularly shaped, polygonally shaped and, in case of bigger umbrellas, they are usually rectangularly shaped with four stretching ribs. The known umbrellas have the covering structure similar to a dome or recalling the pyramidal shape. The bigger ones are frequently equipped, towards the ends of the stretching ribs, with hooking points whereon some cords are fastened to be anchored to the pedestal, to the floor or to the ground so as to prevent the umbrellas from lifting when they are stressed by the wind.

[0003] Due to their shape and structure, the known umbrellas are hurriedly closed when the air from a stillness state begins to move, by making one afraid of gusts of wind. Under these conditions, one can see lifeguards running on the beach from one umbrella to the other to close them before the wind lifts them and detaches them from the pedestal supporting them, with the danger that they fall again violently against those present.

[0004] The bigger umbrellas, the ones adopted by some bars, restaurants and hawkers, apart from the rope with pulley for lifting the collar, the ribs-counterribs and the covering canvas, have also auxiliary ropes for anchoring to the ground both because beneath them there can be products and goods which cannot easily be put back in protected rooms in short time, thus requiring that the umbrella be left open to protect the products for a prolonged time, and because the wind, even when low, exerts on the same considerable stresses which could cause the lifting thereof and, considering the weight, a disastrous fall-down.

[0005] Hence, the need for the bigger umbrellas to have anchoring ropes and resistant points on the ground (floor) thereto anchoring said stabilizing ropes, with the nuisance, easily understandable, for the persons who have to move around them.

[0006] Due to such drawbacks suspended umbrellas have been implemented, that is with the pole supported by a rigid structure with cantilevered arms. Such structures are bulky and very expensive. Each one is usually apt to support several umbrellas arranged therearound. In such embodiment solution each covering structure, in case of wind, can oscillate to discharge the air accumulations under its own covering canvas.

[0007] However, the oscillations are so as to force the operators to close the umbrellas before the bumping of one into each other, due to the oscillating motion of the suspended coverings, causes the destruction thereof. Moreover, if such solution can be considered suitable for hotels and restaurants, and however in case of low

wind, it cannot be adopted on the beaches since the plurality of required coverings would involve considerable costs and however it would force the lifeguards to close quickly the single coverings upon the approaching of windstorms, which otherwise would cause the destruction thereof.

[0008] Such coverings are not suitable to be utilized by hawkers too, each thereof has his/her own available limited space which has to be uniformly protected by a single covering canvas.

[0009] An object of the present invention is to implement a structure shaped like an umbrella with a single covering canvas, able to have different widths in order to cover reduced surfaces, as it is required on the beaches, and bigger surfaces up to the ones required by the hawkers.

[0010] Another object of the invention is to implement a covering structure which could have a single supporting pole, in one case suitable to be supported by a pedestal, without requiring hooks or ropes for anchoring to the ground, in another case suitable to be supported by high structures thereto the supporting pole would be appended.

[0011] Still another object is to implement a covering structure very resistant to the wind action, even when it is relatively strong, so as to suggest to close the covering only when the wind becomes intense.

[0012] Finally, another object is to implement a covering structure the activation thereof, in order to bring it from the closed state to the open state and viceversa, is relatively simple and the operation thereof can be executed even by a single person.

[0013] The invention which has allowed obtaining such results implements in a structure comprising:

- a supporting pole;
- a plurality of ribs converging onto a point of said pole;
- the covering canvas anchored to said ribs;
- means apt to bring the ribs from the closed state to the open state and viceversa, an activation rope or stay-rod connecting a point placed towards the end of a folding rib with a sliding point placed towards the pole top;
- a jib fastened to the covering canvas at the position of said folding rib, and connected to the activation stay-rod, being said jib destined to act as orienting rudder of the covering canvas, so that in case of wind the umbrella orients.

[0014] The canvas upward folding, at the folding rib inflected by the activation stay rod, allows the continuous exhaust of the air which is pushed by the wind under the covering itself.

[0015] Such structure results particularly advantageous since, independently from the wind direction, the covering orients so that its jib, acting as rudder, arranges in a direction parallel to the wind. Under such conditions

the covering is stressed by the wind with two forces, one thereof pushes the umbrella towards the ground, the other one pushes the umbrella in the direction of the wind itself so that it bends until reaching the new equilibrium state, without exerting violent stresses and vibrations on the structure supporting the covering.

[0016] Another advantage of the described structure derives from the fact that it does not require additional ropes anchoring to the ground (floor), therefore the space around the pole, when it is fastened to the ground, does not require additional anchoring.

[0017] Another advantage derives from the fact that the exhaust of the air pushed under the covering canvas is continuous, therefore if the wind is constant, the covering does not oscillate, thus allowing to place such coverings even very near between them, as it is requested during summer on the beaches and in the places or streets wherein the hawkers' markets take place, without said coverings bump one into each other or damage mutually.

[0018] Another advantage derives from the fact that the wind action compresses the canvas towards the ground, by averting the danger of detaching the umbrella from the seat supporting it and thus the dangerous fall-down thereof to the ground, thus allowing the users having many umbrellas to start closing them with much tranquillity.

[0019] Other advantages will be evident, particularly to the persons skilled in the art, by reading the following detailed description referred to a practical preferred embodiment solution of the invention, reproduced by way of example only in the drawings of the enclosed figures, wherein:

- figure 1 is the front view of the umbrella in the closed state;
- figure 2 is the top perspective view of the umbrella in the open state;
- figure 3 is the top perspective view of the umbrella in the open working state, that is with a rib inflected upwards and with the orienting jib in the stretched state;
- figure 4 is the elevational side view of the umbrella of figure 3, with reproduced half covering and showing the air motion orienting the said covering;
- figure 5 is a different elevational side view of the umbrella of fig. 3;
- figure 6 is the elevational side view of the bearing structure of the umbrella in the open state and, with sketched lines, the inflected rib and the small rope causing the inflection thereof are designated.

[0020] It is understood that the drawings are exemplary only, with the only aim at facilitating the comprehension of the invention, without being a limitation therefor.

Substantially, the invention consists in an umbrella therewith open spaces are sheltered mainly from the

sun and the rain. It comprises a supporting pole 1, a plurality of ribs 21 converging onto a point 3 of the pole 1 and to which the covering canvas 4 is anchored, means 5 apt to bring the ribs 21 from the closed state, that is from the position wherein they are almost parallel to the pole 1 or however oriented towards the floor, to the open state wherein they spread the covering 4 to cover a space and protect it from the sun and the rain.

[0021] If further comprises an activation rope or stay-rod 6 connecting a point 7 placed towards the end of a rib 21 with a sliding point 8, placed towards the top of the pole 1. Said stay-rod 6 is apt to determine the upward inflection of the said rib 21.

[0022] Finally, it comprises an orienting jib 9, fastened to the covering canvas 4 at the rib 21 destined to inflect upwards and to the stay rod 6. Said jib 9, when stretched, acts as orienting rudder of the covering, then it creates an almost vertical surface whereon the wind acts in order to change the orientation of the umbrella itself.

[0023] Such functional structure comprises the supporting pole 1 characterized in that it is usually axially revolving on the means supporting it to facilitate the orientation of the umbrella when it is in the open state and in presence of wind 10. The ring nut 3 or other equivalent means, thereto the ribs 21 are hinged whereon the covering canvas 4 is fastened, is fastened onto said pole 1, at an appropriate distance from the top thereof. Therefore, the ribs 21 rotate on said ring nut 3 when they pass from the open state to the closed state and viceversa.

[0024] Said pole 1, in the preferred embodiment solution in the case wherein the umbrella is used on the beach, is destined to couple on the lower side to supporting means on the ground, not reproduced in the drawings, thus it has a length appropriate for the purpose, usually around 200-230 centimetres.

[0025] In another embodiment solution the pole 1 is coupled on the upper side to the supporting means, not reproduced in the drawings, for example to cantilever bars at 250-300 centimetres from the ground. In this solution the umbrella is widely used in bars and restaurants on the open. In this case, the pole 1 has a length suitable for receiving the sliding ring nut whereon, in the example of figure 6, the counter-ribs 11 are hinged, or in another solution the inflection points wherefrom the stay-rods 5 emerge which stress the ribs 21, towards the middle 2 thereof, in order to pull them towards the open state or to release them towards the closed state. In the pole 1 the means 15, thereto the stay-rods 5 are clamped which support the said ribs 21 in the open state, as well as the activation rope or stay rod 6 are placed.

[0026] The ribs 21 are made of wood or metal and at least one thereof is able to inflect upwards to create the orienting rudder and the escape route of the air pushed under the umbrella itself, as reproduced in the figures 3, 4 and 5.

[0027] In the pole 1, above the ring nut 3 thereon the ribs 21 are hinged thereto the covering canvas 4 is fas-

tened, the sliding point 8 is placed theretowards the end 7 of the said rib 21 itself destined to inflect upwards is pulled, as exemplified in the figures 3 and 4.

[0028] Said sliding point 8 is placed at a level at least higher than the intersection point of the axis of the pole 1 with the line tangent to the rib to be inflected when it is in open position, but not inflected, with the tangent point on the attachment point 7 of the activation stay-rod 6, placed towards the end of the said rib to be inflected.

[0029] In this way, when the umbrella is in the open state, the pulling of the activation rope 6 determines the upward bending of the rib 21 and not a decrease in its radius of curvature and thus not its downward bending.

[0030] Once surpassed the sliding point 8, the activation rope 6 is leaning downwards in order to be grasped and activated by the user. Said rope 6 is suitable to be anchored in a stretched position onto the pole 1 in a clamping point 15 which can be reached by the user.

[0031] On the covering canvas 4, at the rib 21 destined to inflect, the jib 9 is placed, that is a voile fastened to the covering canvas 4 and, on the free side, coupled at least in some points to the activation stay-rod 6 in order to be brought and kept in a stretched configuration, particularly with the corresponding rib 21 bent upwards.

[0032] The orienting jib 9 is shaped so as to recall the triangular shape and, thus, it is so as to create a surface resistant to the wind, until arranging parallel thereto, by making the covering to rotate.

[0033] In the preferred embodiment solution the covering canvas 4 has a prolonged shape, that is it recalls the rectangular shape. In this solution, then, the umbrella has four ribs 21, with an almost equal length between them. In presence of wind 10, with the rib 21 activated by the rope 6 in a position bent upwards, the umbrella assumes the configuration reproduced in the figures 3 and 4. In such state the orienting jib 9 causes the umbrella to rotate as long as the jib is oriented in the wind direction.

[0034] Furthermore, once reached such orientation, the covering 4 on the side therefrom the wind comes is stressed by compression, that is towards the floor, whereas on the opposite side the air under the covering 4 comes out, as in the drawing exemplified in the figure 4, by making in this way the umbrella itself particularly stable.

[0035] During the implementation step, the implementation particulars could undergo wide variations, without altering the functional logic which is the basis of the invention defined by the following claims.

Claims

1. A sail umbrella, therewith spaces on the open can be sheltered from the sun and rain, comprising a supporting pole (1), a plurality of ribs (21) converg-

ing onto a point (3) of the pole (1), the covering canvas (4) is anchored to said ribs (21), means apt to bring the ribs (21) from the closed state to the open state and viceversa, **characterized by** an activation rope or stay-rod (6) connecting a point (7), placed towards the end of a rib (21), with a sliding point (8) placed toward the top of the pole (1), being said stay rod (6) apt to determine the upward inflection of the rib (21) stressed therefrom, as well as **characterized by** a jib (9) fastened both to the covering canvas (4) at the rib (21) destined to inflect, and to the activation stay-rod (6), being said jib (9) destined, when stretched, to act as orienting rudder for the covering canvas (4).

2. The sail umbrella, as claimed in claim 1, comprising a supporting pole (1) **characterized in that** it is axially revolving onto the means supporting it, as well as **characterized by** a fixed ring nut (3) placed at an appropriate distance from the top thereof and by a sliding point (8) placed at a higher level than the one of the fixed ring nut (3).
3. The sail umbrella, as claimed in claim 1, **characterized in that** the pole (1) is coupled on the lower side to supporting means on the ground or on the floor.
4. The sail umbrella, as claimed in claim 1, **characterized in that** the pole (1) is coupled on the upper side to supporting means.
5. The sail umbrella, as claimed in claim 1, **characterized by** at least one rib (21) able to inflect upwards when stressed in a point (7) placed towards its free end.
6. The sail umbrella, as claimed in claim 1, **characterized by** a sliding point (8) in the pole (1) wherefrom the end (7) of the rib (21) destined to inflect upwards is pulled, said sliding point (8) being placed at a level at least higher than the intersection point of the pole with the line tangent to the attachment point (7) on the rib (21) to be inflected when it is in open but not inflected position.
7. The sail umbrella, as claimed in claim 1, **characterized in that** the activation stay-rod (6) is leaning downwards starting from the sliding point (8) and it has means for its anchoring in a stretched position on the pole in a point which can be reached by the user.
8. The sail umbrella, as claimed in claim 1, **characterized by** an orienting jib (9) on one side fastened to the covering canvas (4), on the other side coupled, at least in some points, to the activation stay-rod (6) to be kept in a stretched configuration when said stay-rod (6) is stretched and the rib (21), with which

it is joined, is in the inflected state.

9. The sail umbrella, as claimed in claim 1, **characterized in that** the orienting jib (9) has a shape recalling the triangular shape.

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10. The sail umbrella, as claimed in claim 1, **characterized by** four ribs (21) almost with equal length.

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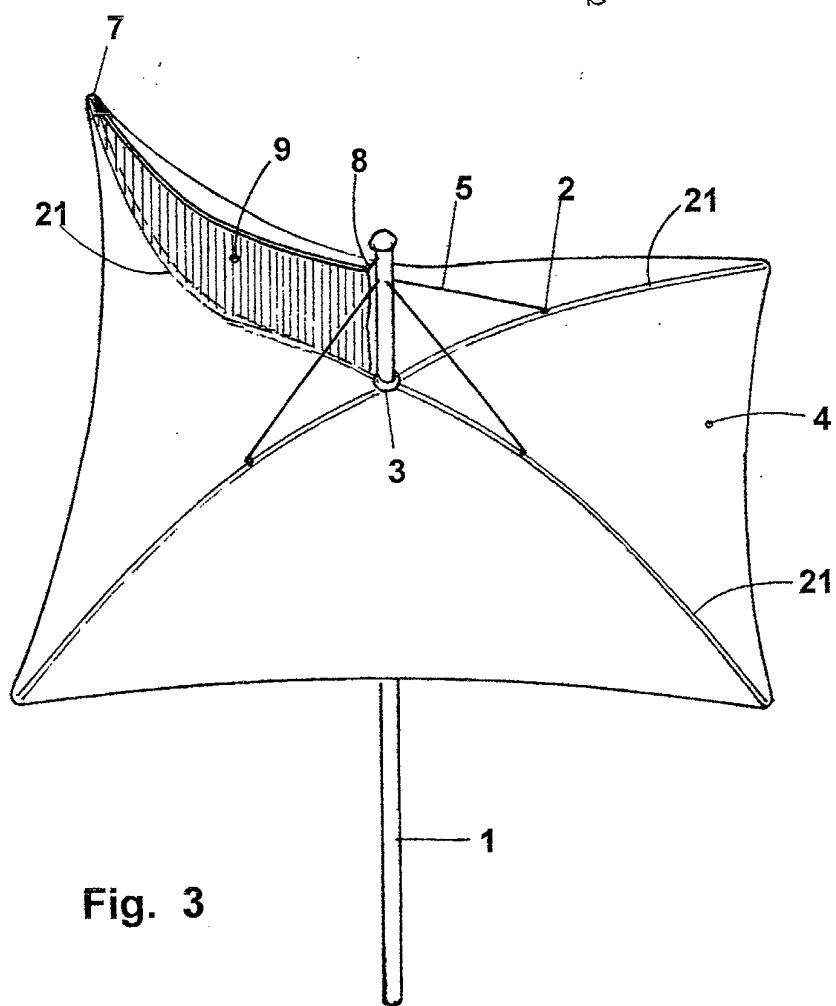
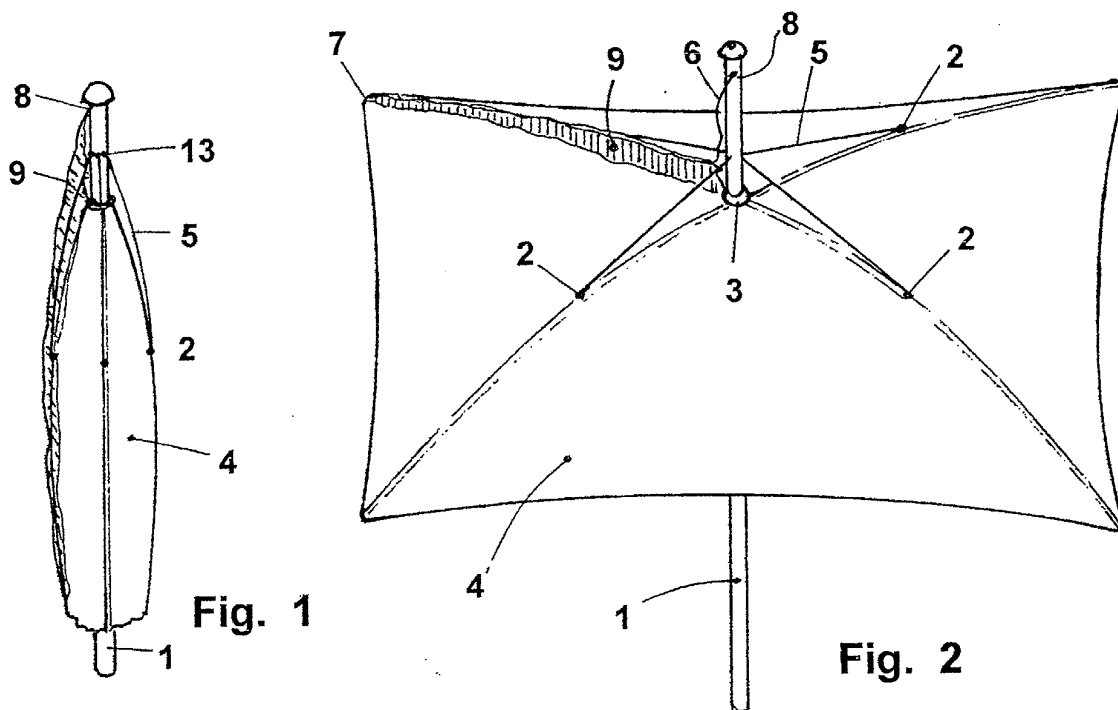
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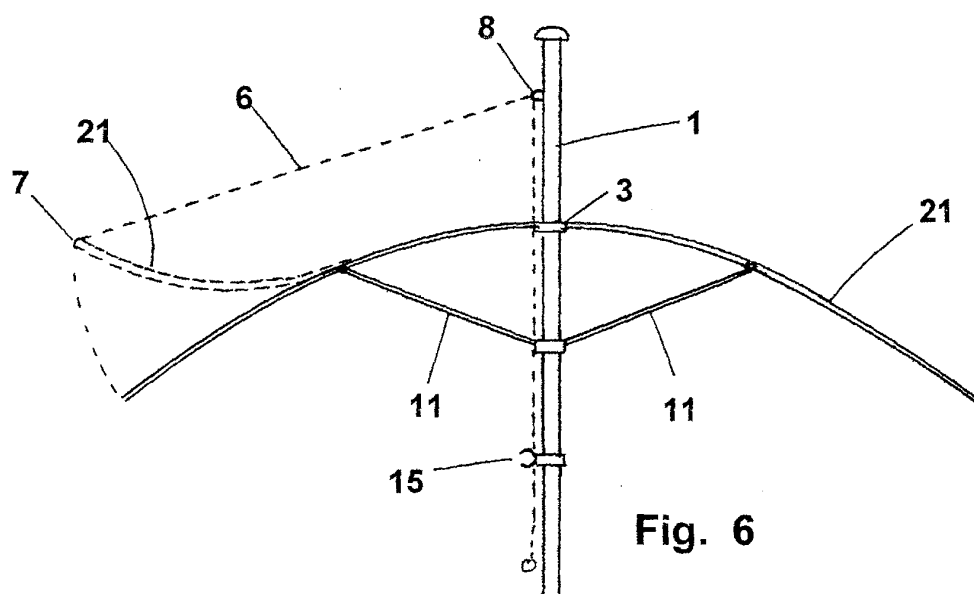
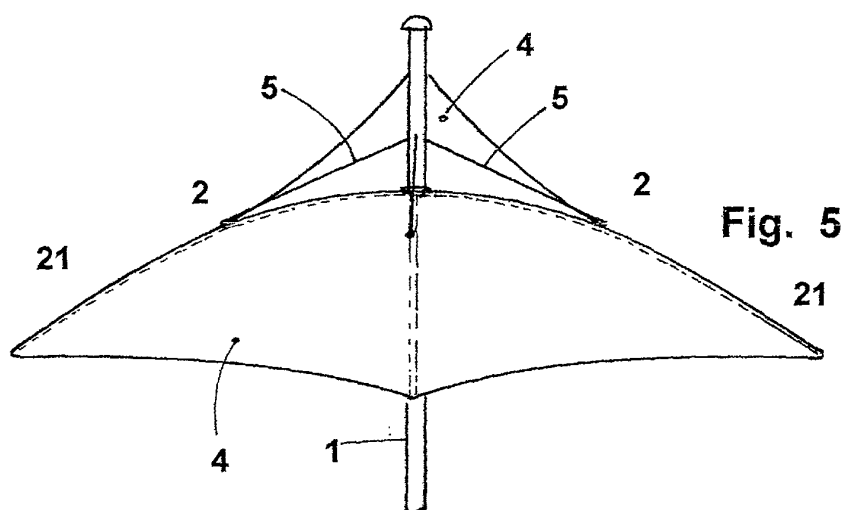
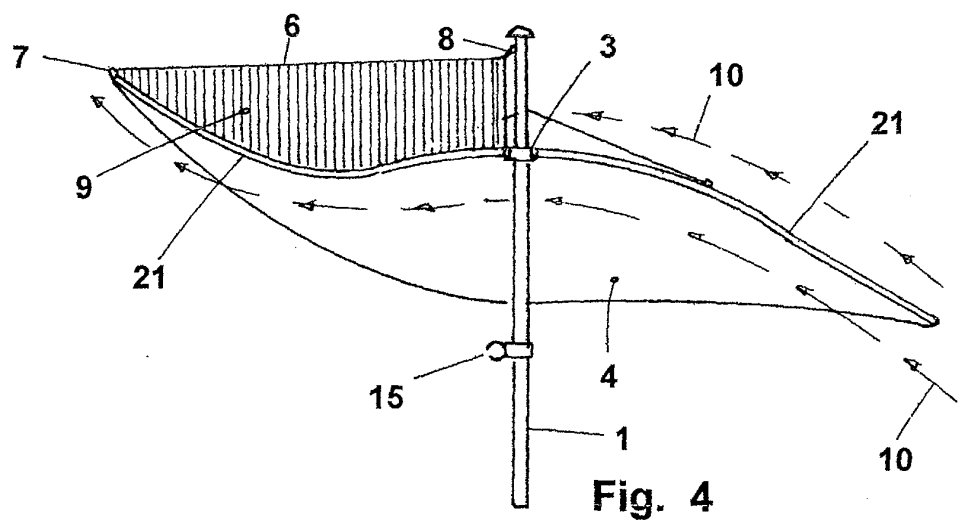
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EUROPEAN SEARCH REPORT

Application Number
EP 04 42 5511

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Place of search Munich		Date of completion of the search 10 November 2004	Examiner Acerbis, G
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