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(54) **SHADE SAIL**

SONNENSEGEL

TAUD DE SOLEIL

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(56) References cited:
DE-A1- 10 153 636 DE-A1-102013 104 777
US-A- 262 398 US-A- 6 012 505

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Description

[0001] The present invention relates to a shade sail. In particular, the present invention relates to a shade sail comprising two covering members that can be wound around a rotating shaft that can be mechanically actuated.

BACKGROUND TO THE INVENTION

[0002] Shade sails are well known, provided with structures wherein a panel, made of flexible material, fabric or laminate, is unwound and wound selectively around a rod, in order to vary the width of the panel exposed area and, thus, of the area to be shaded, or in order to avoid that strong winds jeopardize the operation of the shade sail, or, what would be worst, irreparably damage the structure. Document US 6,012,505 discloses a prior art shade sail according to the preamble of claim 1.

[0003] In this regard, it should be noted that the structure is shaped similarly to those used to adjust the sails in boats or ships, that, as it has been well known for along time now, comprise rotating devices, around which it is possible to reduce the surface exposed to the wind, until substantially to eliminate the area exposed to the wind. Some devices allow to wind the headsails around the respective stay; other devices allow to wind them around the respective shaft; others allow to wind them around the boom or inside it.

[0004] However, the problem to be solved in the two applications is only apparently similar; namely, sails are the motor for boats and ships and therefore there are many variables in adjusting the profile thereof, on which the aerodynamic efficiency depends, and thus the power to move the boat, whilst the shade sails do not have this problem. For this reason, the sail management in boat or ship is a task only for people skilled in the art, of proved experience, with a specific license, whilst anyone can use shade sails of adjustable width, and no proof of experience is required in this case. Therefore, the use of shade sails of adjustable width shall be as easiest as possible, wherein the aerodynamic efficiency thereof is not significant, while the safety is important in order to prevent (and avoid) even common accidents, that would make the shade sails not complying with the industry standards and, thus, impossible to be marketed.

[0005] Considering that, as it is well known, the width of the panel exposed area, on which the shaded area depends, can be adjusted by means of draw ropes, it is advisable that the extension of these ropes is as much limited as possible, in order both to minimize the risk to stumble in the free loose segment thereof and to avoid that this part of the rope is used for harmful games by children in the vicinity. Moreover, in case of strong wind, loose ropes could make the panels wave noisily, thus disturbing people below them and constituting a danger for people in the vicinity.

[0006] In view of the above description, the problem of

having available shade sails of adjustable width that are safe and easy to be used is still unsolved, and represents an interesting challenge for the applicant, aimed at increasing the demand thereof.

[0007] In view of the above description it would be desirable to have available a shade sail of adjustable width that, in addition to allow limiting and possibly overcoming the drawbacks of the prior art, defines a new standard for this kind of shade sails.

SUMMARY OF THE PRESENT INVENTION

[0008] The present invention relates to a shade sail according to the preamble of claim 1.

[0009] The object of the present invention is thus to provide a shade sail that allows to solve the above illustrated drawbacks, is easy to be installed and not expensive, and is therefore suitable to satisfy a plurality of requirements that to date have still not been addressed, and therefore suitable to represent a new and original source of economic interest. According to the present invention a shade sail is provided, whose main features will be described in at least one of the appended claims.

BRIEF DESCRIPTION OF DRAWINGS

[0010] Further characteristics and advantages of the shade sail of the invention will be more apparent from the description below, set forth with reference to the attached drawings, that illustrate some examples of embodiment, where identical or corresponding parts of the system are identified by the same reference numbers for the sake of practicality. In particular:

- figure 1 is a schematic perspective view of a first shade sail which does not fall within the scope of the claims;
- figures 2a), 2b) and 3 show details of figure 1 in enlarged scale and with some parts removed for the sake of clarity;
- figure 4 is a schematic perspective view of a second shade sail which does not fall within the scope of the claims;
- figure 5 shows a detail of figure 4 in enlarged scale and with some parts removed for the sake of clarity;
- figure 6 is a schematic perspective view of a third shade sail which does not fall within the scope of the claims;
- figure 7 is a schematic perspective view of a detail of figure 6, in enlarged scale and with some parts removed for the sake of clarity;
- figure 8 is a schematic perspective view of a fourth shade sail according to the present invention as defined by the appended claims;
- figures 9 and 10 show details of figure 8 in enlarged scale and with some parts removed for the sake of clarity.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[0011] In figure 1, number 1 indicates, in its entirety, a shade sail of adjustable width comprised of panels 30.

[0012] The shade sail 1 comprises a frame 10 carrying a rod 20 directed in a given way between a first support 12' and a second support 12", both rotating around a common longitudinal axis (A). The rod 20 is thus suitable to rotate axially. The shade sail 1 comprises a panel 30 provided with an edge 32 for fastening to the rod 20, so that it can be wound around this rod. The panel 30 is substantially triangular in shape, and has a vertex portion 34, which is provided with a fastening eyelet/element 36, that can be engaged by means of a draw rope 35', and especially by means of a first end 37' thereof, able to spread each panel 30 transversally to the rod 20 and to aid the winding and unwinding movement. The shade sail 1 comprises an actuating unit 40 supported by the frame 10 to drive the rod 20 into rotation around the axis A; the actuating unit 40 comprises a drum 44 for winding the rope 35', rigidly connected, and axial, to the rod 20. Moreover, the drum 44 is conical, as shown in figure 3, and such as to vary the length of the rope 35' wound at every turn of the rod 20. The aim thereof is to act on the tension of the rope 35' and, therefore, on the tension of the panel 30, as the rope is connected to the panel 30 in correspondence of the eyelet 36.

[0013] With reference to figure 1 again, the conical drum 44 is directed along the axis A so that the sides thereof slope up from the first support 12' to the second support 12". In this way, the winding turns of the rope 35' around the drum 44 have increasing radius along the axis A from the first support 12' to the second support 12" as the portion of panel 30 wound around the rod 20 increases. It is clearly understood that the function of this construction feature is to increase the tension on the rope 35' and on the panel 30 proportionally as the exposed area of the panel 30 increases, in order better to balance the stability of the panel 30 in case of use in windy areas.

[0014] Again with reference to figure 3, the actuating unit 40 comprises a rotary actuator 42, which is contained inside the rod 20 and whose drive shaft (known and not shown) is rigidly connected to the rod 20 in order to drive it into axial rotation and, therefore, to wind the panel 30 around, and/or to unwind it from, the rod, doing the same with the rope 35' with respect to the respective drum 44, as it will be better explained below. Therefore, the drum 44 is carried by the rod 20 between the support 12' and the rotary actuator 42. Obviously, it is possible to adjust the width of the unwound portion of the panel 30 by adequately acting on the actuator 42 by means of a control unit, known and therefore not shown.

[0015] The drum 44 may advantageously have a surface for winding the rope 35', wherein the surface has a first helical groove (known and not shown) for the rope 35' wound in parallel turns transverse to the axis A.

[0016] The rope 35' has a second end 37" rigidly con-

nected to the drum 44, so that the rope 35' and the respective panel 30 may be interpreted like parts of a single flexible member 38' arranged between the rod 20 and the drum 44. To adjust the tension of the flexible member 38', and therefore of each component thereof as described above, a balancing device 50 is provided, that can be arranged in any segment of the path of the flexible member 38'. For the sake of practicality, only applications have been shown in the attached figures, wherein the balancing device 50 interacts only with the rope 35'; however, also not shown solutions are possible, wherein the tension of the flexible member 38', and therefore of each component thereof, is adjusted by acting on the panel 30.

[0017] With reference to figure 1 again, the first support 12' and the second support 12" are so configured as to be wall-mounted, and the frame 10 comprises a first post 11 fixed to the floor and facing the rod 20. The rod 11 is provided with a first return pulley 110 that can be engaged by the respective rope 35' in order to actuate the panel 30. The balancing device 50 is contained inside the first post 11, comprises a hoist 52 provided with a pulley for the rope 35', and is connected to the frame 10 by means of a torsion spring 54, whose purpose is to balance the tension acting on the rope 35' in order to keep the panel 30 stretched, independently of the portion thereof unwound for shading. It should be noted that the rope 35' enters inside the first post 11 through a built-in pulley 111 carried by the head of the post 11 to engage a block 56 that, as shown in figure 2a, is carried by a hook-shaped upper end of the spring 54; then the rope exits from the first post 11 deviated by a further built-in pulley 111', arranged at the side of the pulley 111, and engages the eyelet 36 with the respective end 37'. The hoist 52 furthermore comprises (reference should be made to figure 2b) a winch block 55 that is connected, as shown in figure 5, to a hook-shaped lower end of the spring 54, so as to be movable with respect to the first post 11. Obviously, a rope 53 is associated with the hoist 52, engaging the block 55 and a further winch block 58 carried fixed by a lower portion of the first post 11 by adjusting the tension of the rope 53 it is possible to vary at will the pretensioning acting on the rope 35', and thus the tension on the panel 30, under all operative conditions. The rope 53 has an end 53' indifferently coupled to the (movable) winch block 55 or to the (fixed) winch block 58, and has a further end 53" kept outside the first post 11 so as to be fixed, in a cam cleat (known and not shown for drawing economy), to a functionally similar further device that can be actuated manually or in any other way.

[0018] According to figure 3, the frame 10 furthermore comprises a post 14 provided with an L-shaped end 16 and carries the first support 12' below the base of the end 16. The end 16 carries a pair of return pulleys 160 for the rope 35' that are arranged between the drum 44 and the built-in pulley 111. In the embodiment illustrated in figure 1, the second post 14 is so configured as to be wall-mounted at the side of the first support 12'.

[0019] The use of the shade sail 1 is clearly apparent

from the description above and does not require further explanations. However, it could be useful to specify that the frame 10 has been identified by the set of the wall-mounted supports 12', 12" and of the first post 11 carried by the floor. It is clearly apparent that, according to this embodiment of the shade sail 1, the frame 10 shall comprise members to keep the supports 12', 12" and the first post 11 in fixed positions, independently of the fact that these members comprise a wall and a floor, of which a given portion T will be taken into account. Moreover, the drum 44 may be carried by the rod 20 at opposite side from the rotary actuator 42, even if this choice requires modifications to the structure described above. Lastly, it is clearly apparent that variants and modifications can be done to the shade sail 1 described and illustrated herein without however departing from the protective scope of the invention as defined by the appended claims.

[0020] For instance, with reference to figure 4, if you want to shade a greater area, it could be useful to use the same rod 20 as a base for a pair of substantially identical panels 30 and 30' that are arranged at opposite sides with respect to the rod 20 with their respective coupling edge 32 stably coupled to the rod 20. Obviously, in this case two flexible members 38' and 38" are provided, each of which is comprised of a rope 35'/35" and a panel 30/30'. Therefore, the panel 30 can be actuated by means of the respective rope 35', while the panel 30' can be actuated by means of an analogous rope 35". In this case, the frame 10 comprises a second post 14, that is so configured, in this case again, to be wall-mounted and carries the support 12', and a substantially vertical third post 102, that is devoid of the balancing device 50 and is suitable to carry the second support 12". In view of the above description, the rod 20 may be directed at will, varying the height from the ground of the two supports 12' and 12" through the posts 14 and 102.

[0021] Considering that two substantially identical panels 30 and 30' correspond to this structure, to each of these panels corresponds an area of winding around the drum 44 that may have, at will, two adjacent conical segments 45' and 45" (figure 5) directed in the same manner, each of which is provided with a respective helical groove or, alternatively, a second helical double groove allowing, namely, to wind two draw ropes 35' and 35" on parallel turns. For the sake of economy of the drawing, the two different embodiments of the drum 44 have not been illustrated with the detail of the helical grooves, whose shapes are known.

[0022] With reference to figure 5, the post 14 always carries an end 16 provided with pulleys 160' for each rope 35' and 35". In this case again, each rope 35'/35" enters inside the second post 14 through a built-in pulley 111 carried by the head of the post 14 in order to engage a block 56 that, as shown in figures 4 and 5, is carried by a hook-shaped upper end of the spring 54, and exits from the post 14 deviated by a further built-in pulley 111' that is arranged at the side of the pulley 111. In this case again, the hoist 52 comprises a winch block 55 that is

connected, as in figure 5, to a hook-shaped lower end of the spring 54, so as to be movable with respect to the post 14. Obviously, a rope 53 is associated with the hoist 52, engaging the winch block 55' and a further winch block 58 carried fixed by a lower portion of the post 14. Obviously, in this case the frame 10 is provided with a pair of fourth posts 103 that are arranged at the side of, and facing, the rod 20, and have the same function as the post 102, at opposite sides with respect to the same rod 20 and devoid of the balancing device 50, that is already contained in the post 14. Each fourth post 103 is provided with a second return pulley 112 that can be engaged by a respective rope 35' or 35", according to the panel 30 taken into account.

[0023] With reference to figure 6, in this case the second post 14 has at the bottom a floor base 140 and extends longitudinally, so as to mount the shade sail 1 with the rod 20 directed at will, independently of the presence of other supports for the support 12'.

[0024] Obviously, in this case again, the frame 10 is provided with a pair of fourth posts 103.

[0025] It should be noted that the solutions described with reference to figures 4, 5 and 6 allow to have only one balancing device 50, thus simplifying the management of the shade sail 1 and limiting the purchase and maintenance costs for the shade sail 1.

[0026] According to the present invention, shown with reference to figures 8-10, the frame 10, provided again with the post 14 and the respective floor base 140, comprises an end 16 that is so modified as to have a pair of beams 105, acting like a "jockey-pole", extending at opposite sides with respect to the end 16 and carried by this latter in a respective end portion 16', similarly to two wings. In this case, the second support 12", completing the support given by means of the frame 10 to the rod 20, is carried by the end 16 through a structure comprising a first tie rod 106, driven by a strut 107 carried upwards by means of the end portion 16' (figure 9), and by a second tie rod 106', acting against the action of the first tie rod 106, drawing downwards the second support 12" so as to have a wind bracing 200 of the rod 20. Each beam 105 carries a third return pulley 114 through a respective free end 108; each third pulley 114 can be engaged by a respective draw rope 35', 35".

[0027] In this case again, the panels 30 and 30' are kept tensioned by means of a balancing device. In particular, with reference to figure 9, two balancing devices 50' are provided, one for each beam 105. In this case again, each balancing device 50' is internal and, in particular, it is contained inside a respective beam 105, and pulleys identical to the pulleys 111 are carried by each beam 105 by the end 16 in the respective end portion 16' of the joint at the end in order to drive the rope 35' and, obviously, also the rope 35", as in this embodiment there are two panels 30. On the other hand, each balancing device 50' is simplified with respect to that described above and indicated with 50, as it comprises only one spring 54'. The spring 54' interrupts the rope 35'/35" in

intermediate position. Due to the presence of two ropes 35'/35" the drum 44 shall be provided with a helical double groove, as already described above, or alternatively with two adjacent conical segments.

Claims

1. Shade sail (1) comprising two draw ropes (35', 35"); a frame (10) carrying a rod (20) directed in a given way between a first support (12') and a second support (12''), both rotating around a common longitudinal axis (A); wherein said frame (10) comprises a post (14), which is provided with an L-shaped end (16) and carries said first support (12') near said end (16); two panels (30, 30') each being provided with an edge (32), for fastening to said rod (20) so that it can be wound around this rod (20), and each panel (30, 30') with at least one angular end portion (34), which is provided with a fastening element (36), that can be engaged by means of one rope (35', 35") of said two draw ropes (35', 35") able to spread each said panel (30, 30') transversally to said rod (20); actuating means (40) being supported by said frame (10) to drive into rotation said rod (20) around said axis (A); wherein said actuating means (40) comprise a drum (44) for winding each said rope (35', 35") of said two draw ropes (35', 35") rigidly connected to, and axially carried by, said rod (20); wherein said drum (44) is conical so as to vary the rope length wound at every turn of said rod (20), **characterized in that** said frame (10) comprises a pair of beams (105) extending at opposite sides of said end (16) carried in end position like two wings, said second support (12'') is supported by said end (16) by means of a first tie rod (106) driven by a strut (107) and by a second tie rod (106'), each said beam (105) carries, at an its own free end (108), a return pulley (114) that can be engaged by a respective one of said draw ropes (35', 35"), and **in that** each said rope (35', 35") of said two draw ropes (35', 35") is subdivided into two parts connected to each other by means of a balance spring (54) contained inside said respective beam (105).
2. Shade sail according to claim 1, **characterized in that** said drum (44) is directed along said axis (A) so as to have a respective conical shape whose width increases as the portion of a said panel (30, 30') wound around said rod (20) increases.
3. Shade sail according to claim 2, **characterized in that** said conical drum (44) has a first helical groove.
4. Shade sail according to claim 2, **characterized in that** said drum (44) has two conical segments (45', 45'') adjacent to each other and directed in the same manner, each of which is provided with a respective

helical groove.

5. Shade sail according to claim 2, **characterized in that** said drum (44) has a second helical double groove to wind two said draw ropes (35', 35") around parallel turns.
6. Shade sail according to claim 1, **characterized in that** said post (14) is configured to be wall-mounted at the side of said first support (12').
7. Shade sail according to claim 1, **characterized in that** said post (14) has a floor base (140) at the bottom.

Patentansprüche

1. Sonnensegel (1), aufweisend zwei Zugseile (35', 35"); einen Rahmen (10), der eine Stange (20) trägt, die in eine bestimmte Richtung zwischen einer ersten Halterung (12') und einer zweiten Halterung (12'') gerichtet ist, wobei beide um eine gemeinsame Längsachse (A) drehen; wobei der Rahmen (10) einen Pfosten (14) aufweist, der mit einem L-förmigen Ende (16) versehen ist und die erste Halterung (12') nahe dem Ende (16) trägt; zwei Planen (30, 30'), die jeweils mit einem Rand (32) versehen sind, zum Befestigen an der Stange (20), derart dass er um die Stange (20) gewickelt werden kann, wobei jede Platte (30, 30') mindestens einen winkligen Endabschnitt (34) aufweist, der mit einem Befestigungselement (36) versehen ist, das mittels eines Seils (35', 35") der zwei Zugseile (35', 35") eingreifen kann, um jede Platte (30, 30') quer zu der Stange (20) zu spannen; Aktuatormittel (40), das von dem Rahmen (10) getragen wird, um die Stange (20) in Drehung um die Achse (A) anzutreiben, wobei das Aktuatormittel (40) eine Trommel (44) zum Winden jedes Zugseils (35', 35") der zwei Zugseile (35', 35"), aufweist, die fest mit der Stange (20) verbunden und axial davon getragen wird; wobei die Trommel (44) kegelförmig ist, derart dass die Seillänge, die bei jeder Umdrehung der Stange (20) gewickelt wird, variiert werden kann, **dadurch gekennzeichnet, dass** der Rahmen (10) ein Paar Balken (105) aufweist, die sich an gegenüberliegenden Seiten des Endes (16), das an der Endposition getragen wird, wie zwei Flügel erstrecken, wobei die zweite Halterung (12'') von dem Ende (16) mittels einer ersten Spannstange (106), die durch eine Strebe (107) angetrieben wird, und einer zweiten Spannstange (106') getragen wird, wobei jeder Balken (105) an einem seinem eigenen freien Ende (108) eine Umlenkrolle (114) trägt, die durch ein jeweiliges der Zugseile (35', 35") eingegriffen werden kann, und dadurch, dass das Seil (35', 35") in zwei Teile unterteilt ist, die mittels einer Ausgleichsfeder (54), die innerhalb des jewei-

ligen Balkens (105) enthalten ist, miteinander verbunden sind.

2. Sonnensegel nach Anspruch 1, **dadurch gekennzeichnet, dass** die Trommel (44) derart entlang der Achse (A) ausgerichtet ist, dass sie eine jeweilige kegelförmige Form aufweist, deren Breite zunimmt, wenn der Abschnitt der Plane (30, 30'), die um die Stange (20) gewickelt wird, zunimmt.
3. Sonnensegel nach Anspruch 2, **dadurch gekennzeichnet, dass** die kegelförmige Trommel (44) eine erste Spiralnut aufweist.
4. Sonnensegel nach Anspruch 2, **dadurch gekennzeichnet, dass** die Trommel (44) zwei kegelförmige Segmente (45', 45'') aufweist, die einander benachbart sind und auf die gleiche Weise ausgerichtet sind, wobei jedes davon mit einer entsprechenden Spiralnut versehen ist.
5. Sonnensegel nach Anspruch 2, **dadurch gekennzeichnet, dass** die Trommel (44) eine zweite Doppelspiralnut aufweist, um die zwei Zugseile (35', 35'') um parallele Umdrehungen zu wickeln.
6. Sonnensegel nach Anspruch 1, **dadurch gekennzeichnet, dass** der Pfosten (14) dazu ausgelegt ist, an der Seite der ersten Halterung (12') an der Wand befestigt zu werden.
7. Sonnensegel nach Anspruch 1, **dadurch gekennzeichnet, dass** der Pfosten (14) einen Bodensockel (140) an der Unterseite aufweist.

Revendications

1. Taud de soleil (1) comprenant deux cordons de traction (35', 35''); un cadre (10) portant une tige (20) orientée dans une direction donnée entre un premier support (12') et un second support (12''), tous deux tournant autour d'un axe longitudinal commun (A); ledit cadre (10) comprenant un montant (14), qui comporte une extrémité en forme de L (16) et porte ledit premier support (12') près de ladite extrémité (16); deux panneaux (30, 30') comportant chacun un bord (32), à fixer à ladite tige (20) de telle sorte qu'il peut être enroulé autour de cette tige (20), et chaque panneau (30, 30') ayant au moins une partie d'extrémité angulaire (34), laquelle comporte un élément de fixation (36) qui peut être engagé au moyen d'un cordon (35', 35'') desdits deux cordons de traction (35', 35'') aptes à étendre chaque panneau (30, 30') transversalement à ladite tige (20); des moyens d'actionnement (40) étant supportés par ledit cadre (10) pour entraîner en rotation ladite tige (20) autour dudit axe (A); lesdits moyens d'actionnement (40)

comprenant un tambour (44) pour enrouler chaque cordon (35', 35'') desdits deux cordons de traction (35', 35'') reliés de manière rigide à ladite tige (20) et portés axialement par celle-ci; ledit tambour (44) étant conique de façon à faire varier la longueur de cordon enroulée à chaque tour de ladite tige (20), **caractérisé par le fait que** ledit cadre (10) comprend une paire de poutres (105) s'étendant sur des côtés opposés de ladite extrémité (16) portées en position d'extrémité comme deux ailes, ledit second support (12'') est supporté par ladite extrémité (16) au moyen d'un premier tirant (106) entraîné par une entretoise (107) et d'un second tirant (106'), chaque poutre précitée (105) portant, à son extrémité libre (108), une poulie de rappel (114) qui peut être engagée par l'un respectif desdits cordons de traction (35', 35''), et **par le fait que** chaque cordon (35', 35'') desdits deux cordons de traction (35', 35'') est subdivisé en deux parties reliées l'une à l'autre au moyen d'un ressort d'équilibrage (54) contenu à l'intérieur de ladite poutre respective (105).

2. Taud de soleil selon la revendication 1, **caractérisé par le fait que** ledit tambour (44) est orienté le long dudit axe (A) de façon à avoir une forme conique respective dont la largeur augmente à mesure que la partie d'un panneau précité (30, 30') enroulée autour de ladite tige (20) augmente.
3. Taud de soleil selon la revendication 2, **caractérisé par le fait que** ledit tambour conique (44) a une première rainure hélicoïdale.
4. Taud de soleil selon la revendication 2, **caractérisé par le fait que** ledit tambour (44) a deux segments coniques (45', 45'') adjacents l'un à l'autre et orientés de la même manière, chacun d'eux comportant une rainure hélicoïdale respective.
5. Taud de soleil selon la revendication 2, **caractérisé par le fait que** ledit tambour (44) a une seconde rainure double hélicoïdale pour enrouler deux cordons de traction (35', 35'') en tours parallèles.
6. Taud de soleil selon la revendication 1, **caractérisé par le fait que** ledit montant (14) est configuré pour être monté sur un mur sur le côté dudit premier support (12').
7. Taud de soleil selon la revendication 1, **caractérisé par le fait que** ledit montant (14) a une base de plancher (140) à la partie inférieure.

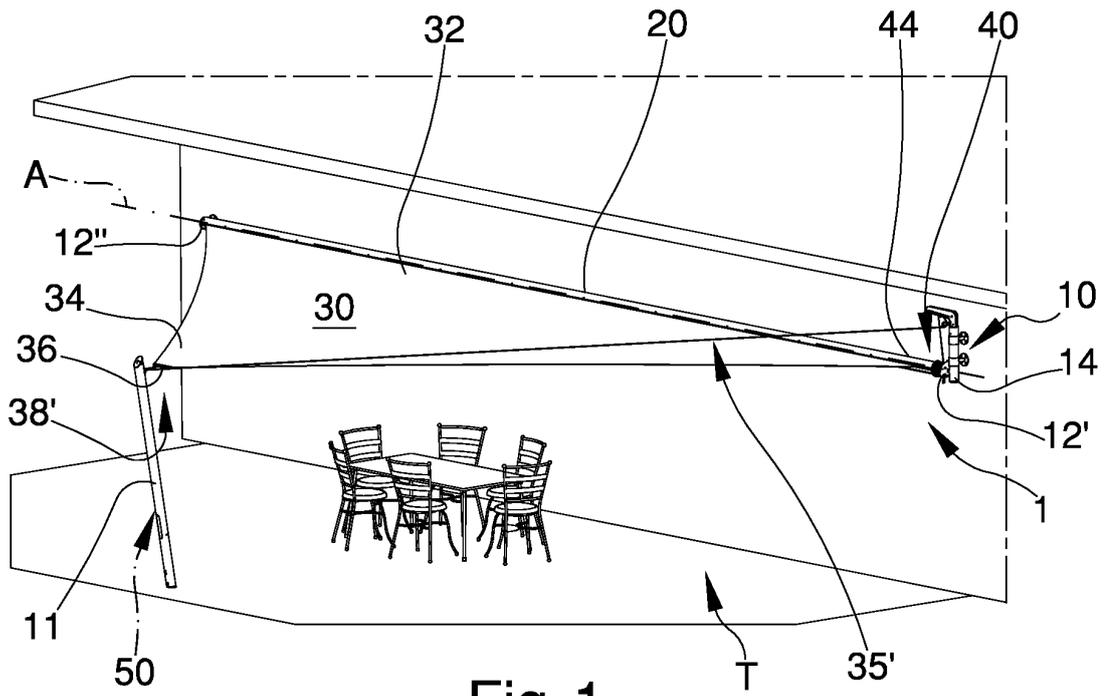


Fig. 1

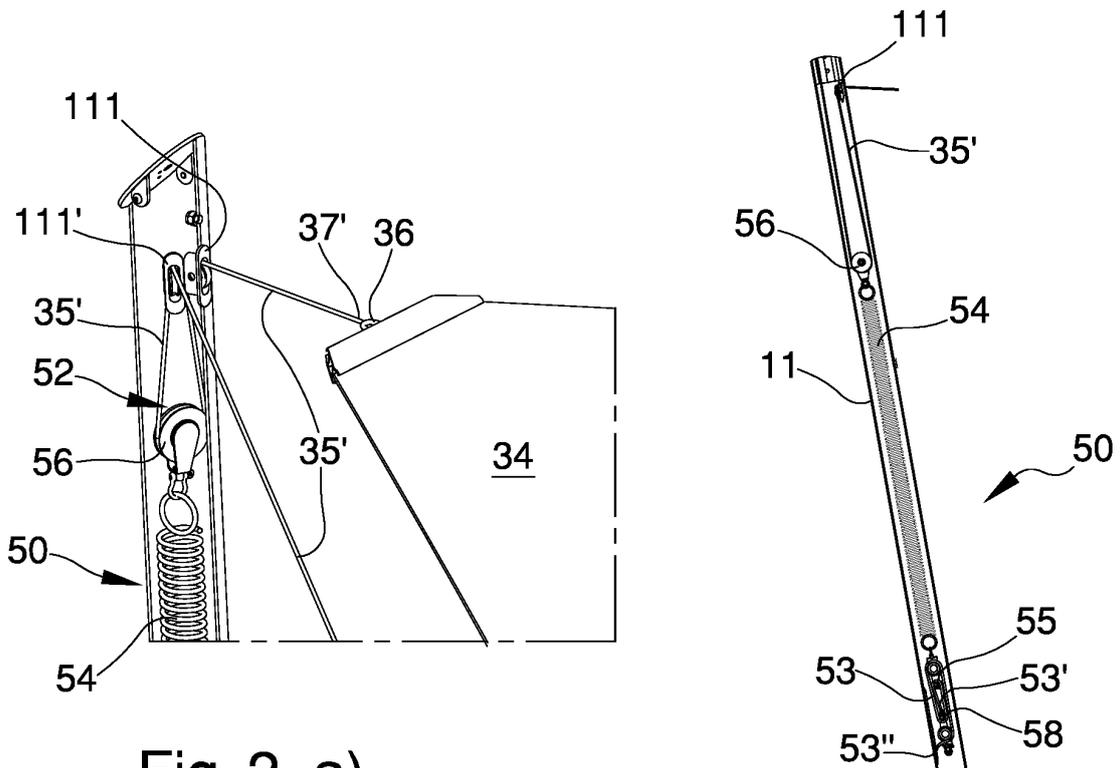


Fig. 2 a)

Fig. 2 b)

Fig. 3

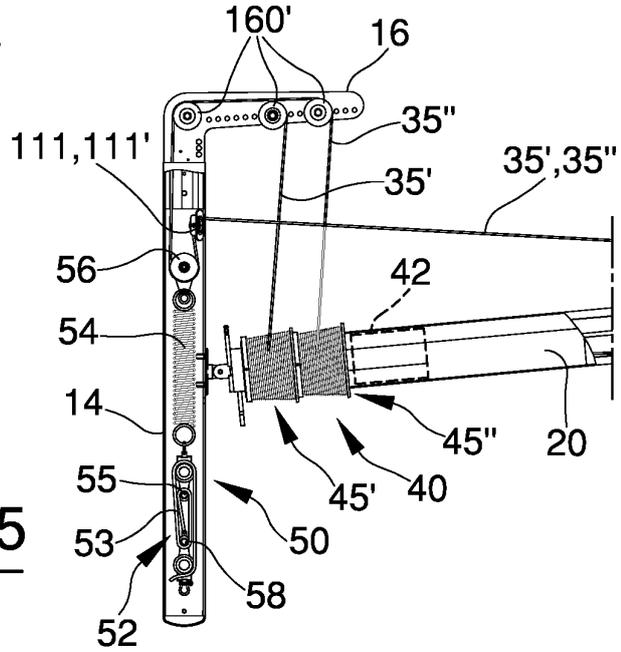
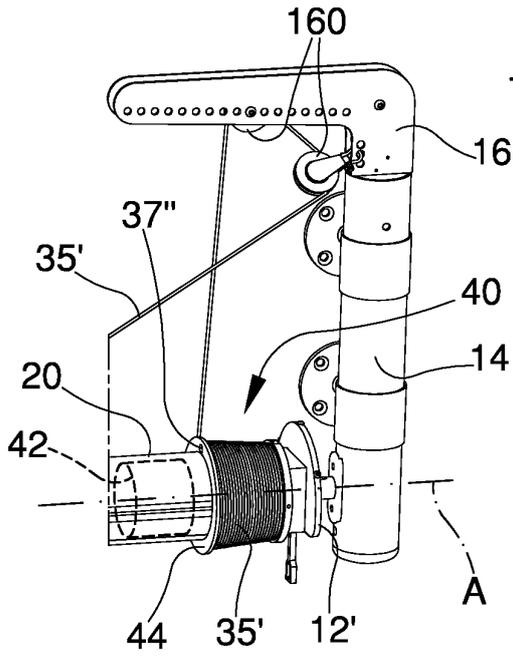


Fig. 5

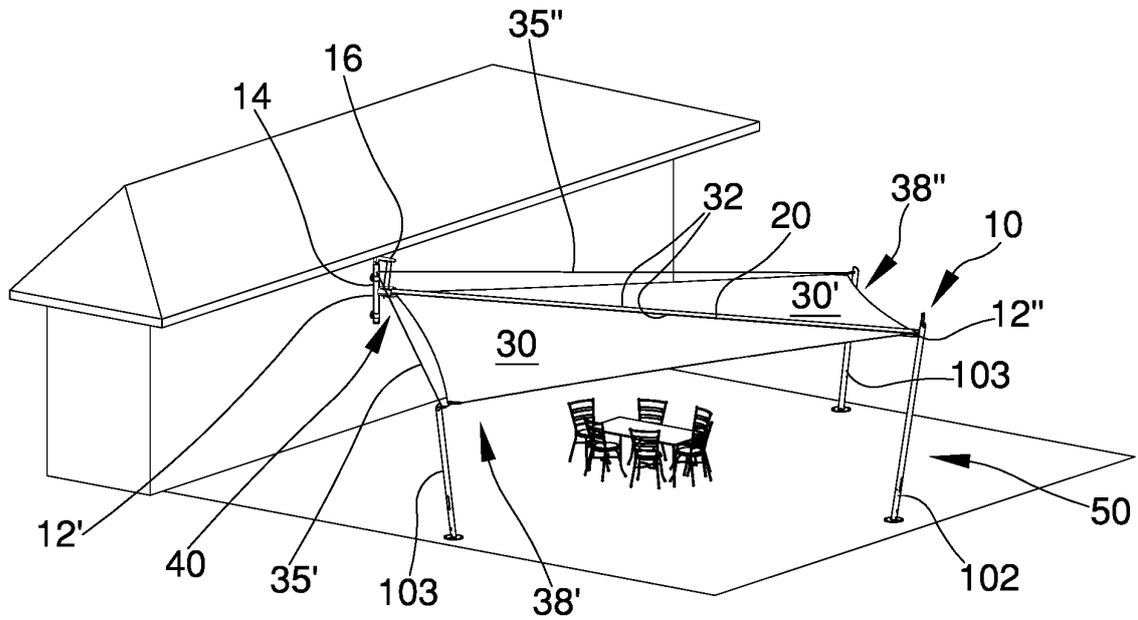


Fig. 4

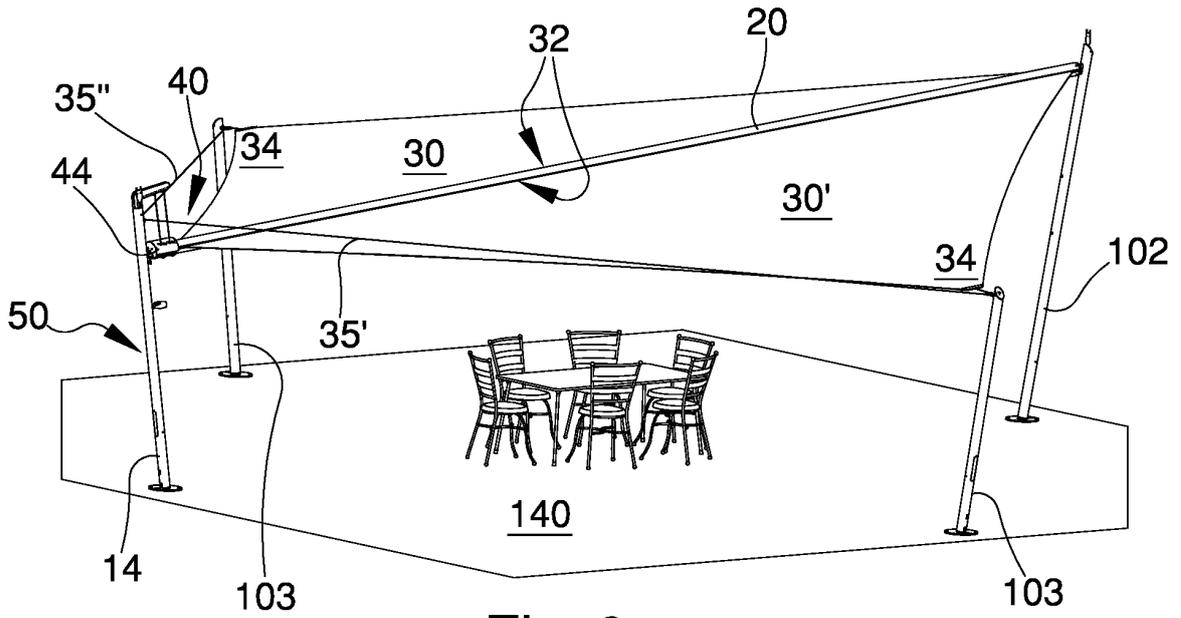


Fig. 6

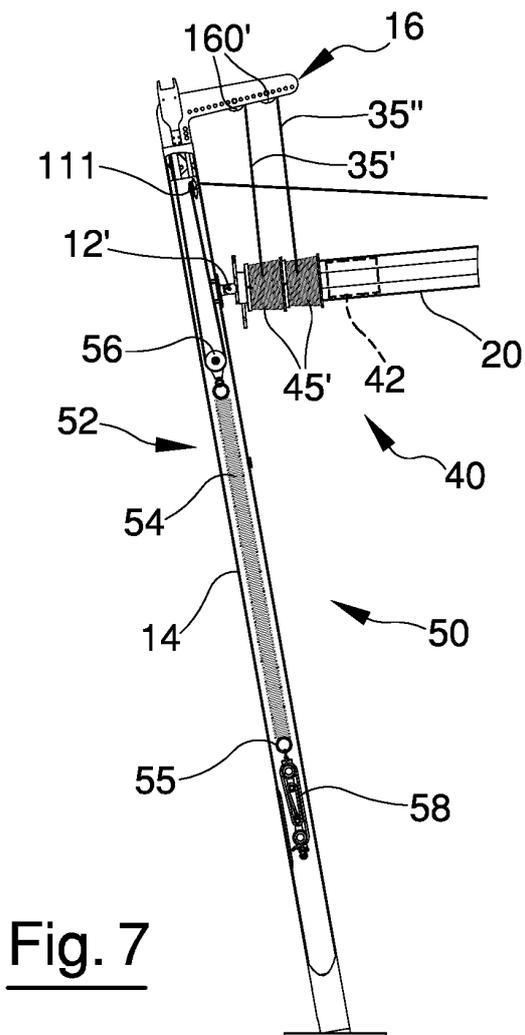


Fig. 7

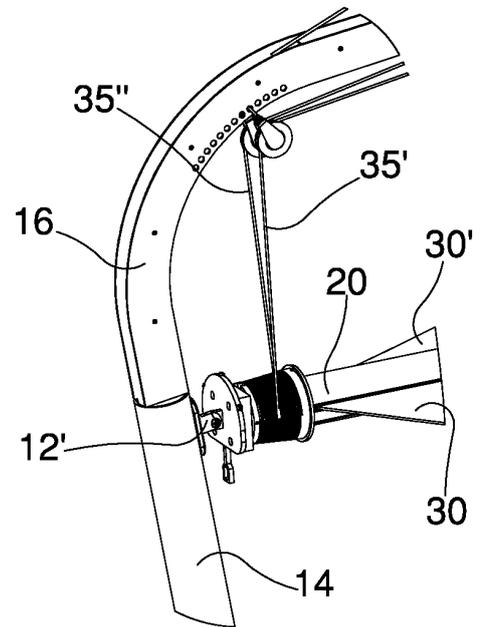


Fig. 10

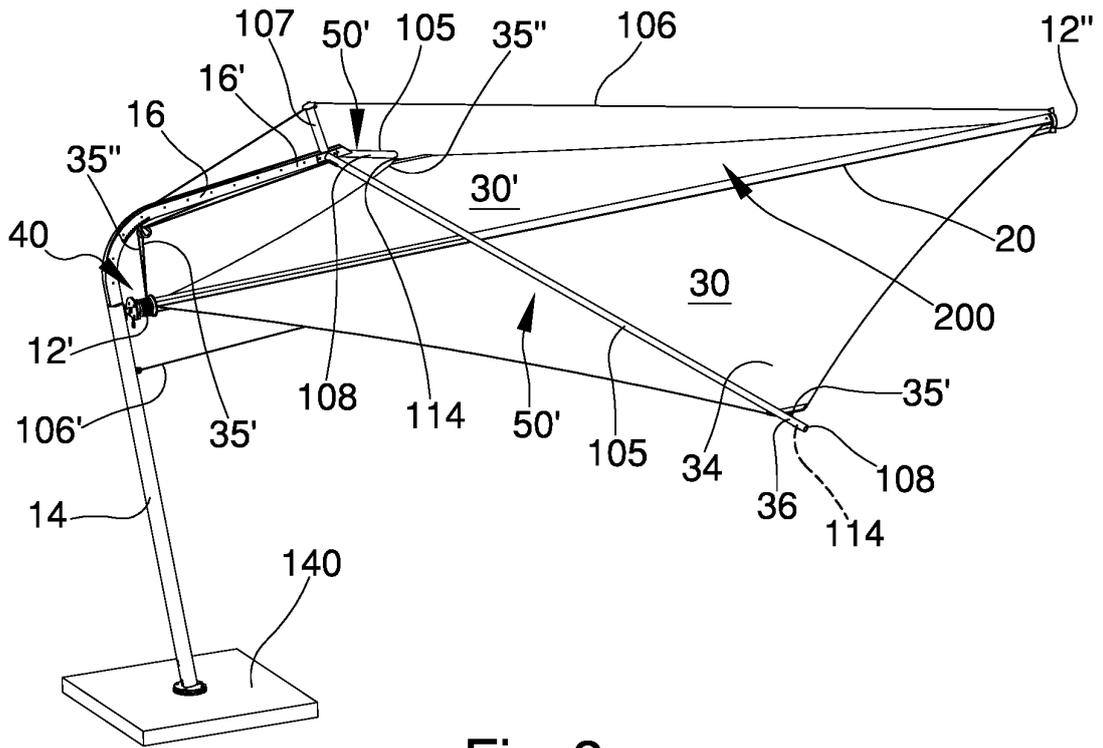


Fig. 8

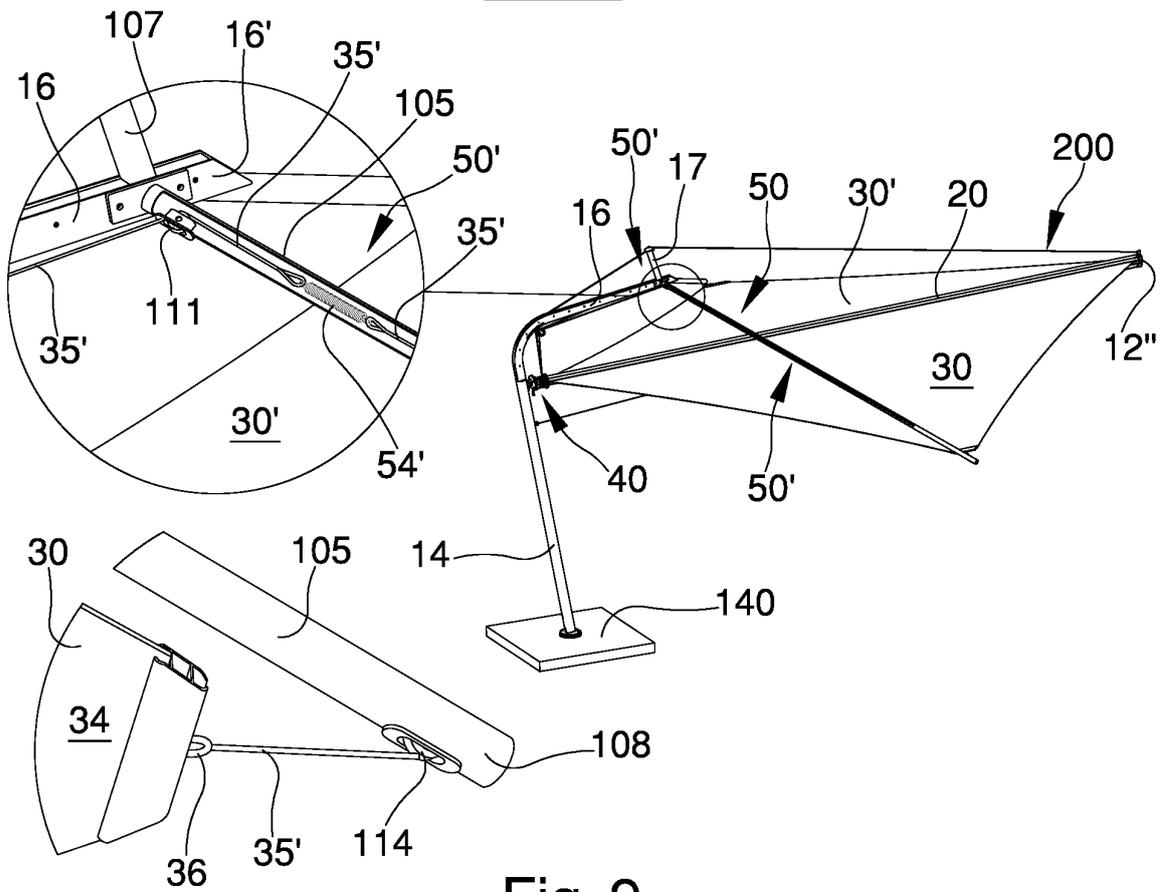


Fig. 9

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 6012505 A [0002]