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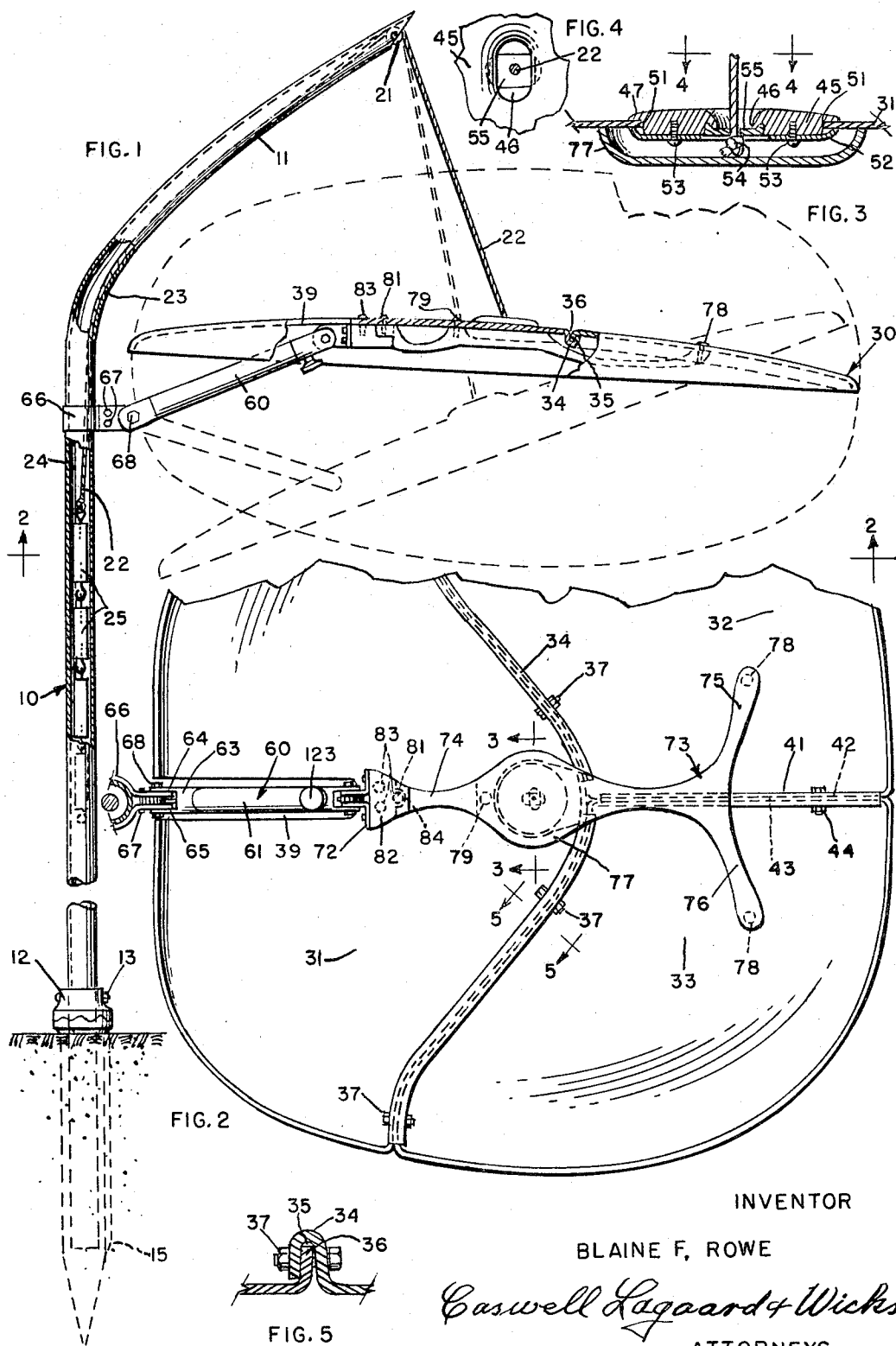
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VERTICALLY ADJUSTABLE SUNSHADE WITH LOCKING PIVOTED BRACE

Filed Oct. 22, 1965

2 Sheets-Sheet 1



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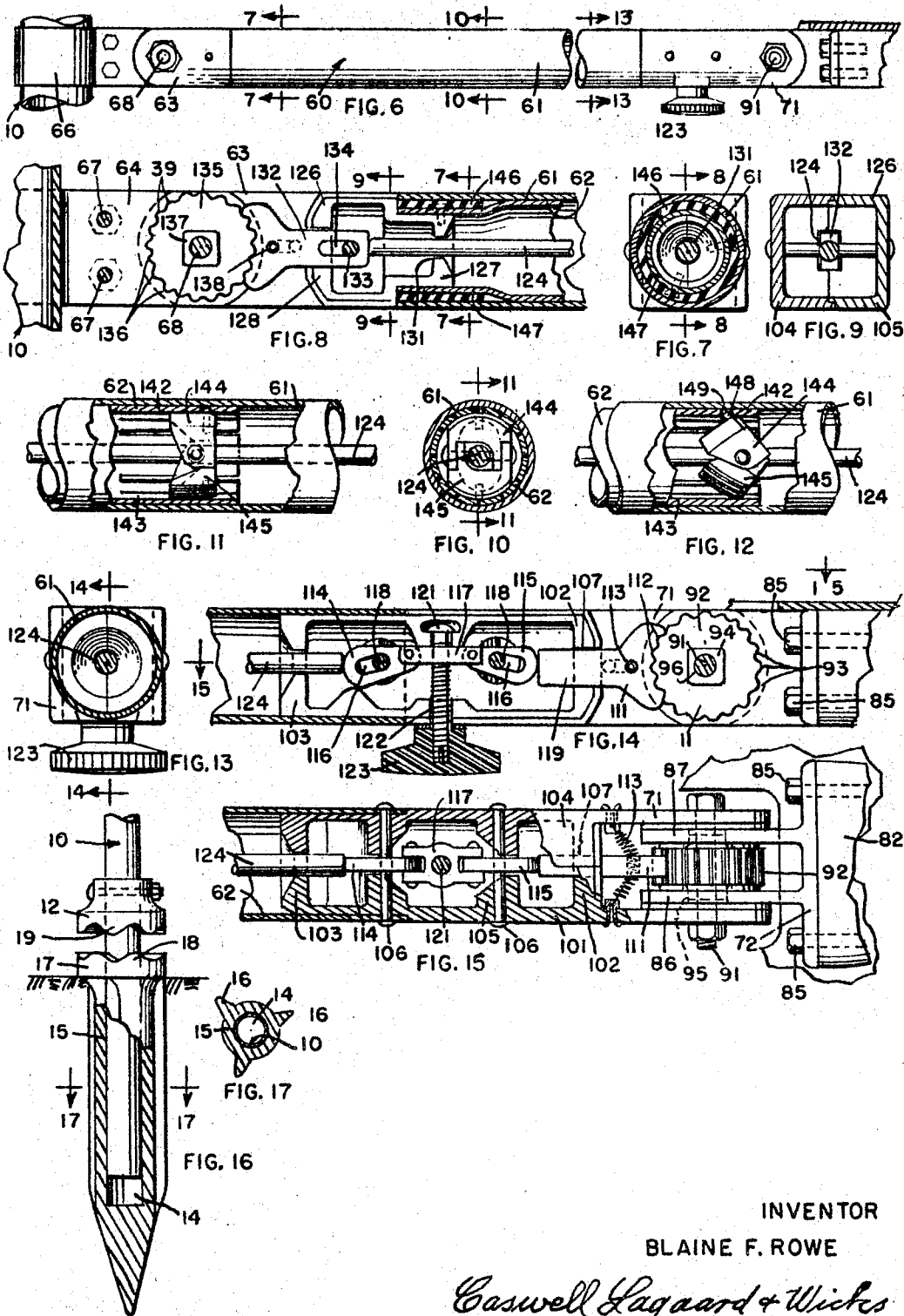
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**VERTICALLY ADJUSTABLE SUNSHADE WITH
LOCKING PIVOTED BRACE**

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ABSTRACT OF THE DISCLOSURE

A sunshade utilizing an umbrella supported by a standard having an outwardly extending arm carrying a vertically adjustable cord to which the umbrella is attached. A brace having two parts relatively rotatable about a longitudinal axis, one part being pivoted to the standard and the other part to the umbrella, together with locking means for locking said parts from movement relative to the standard and the umbrella and clamping means for restraining relative rotation between the parts and operating means for the same.

The herein disclosed invention relates to sunshades and has for an object to provide an umbrella of considerable size adapted to be moved into various adjusted positions.

Another object of the invention resides in providing an umbrella which can be raised and lowered, tilted at an angle or rotated about the axis of a supporting standard.

A still further object of the invention resides in providing the standard with an arm projecting outwardly from the upper portion of said standard and from which the umbrella is suspended.

An object of the invention resides in providing an adjustable brace extending between the standard and the umbrella for holding the umbrella at various angles both with respect to an axis coplanar with the axis of the standard and with respect to an axis normal to a plane containing the axis of the standard.

Another object of the invention resides in constructing the brace in two parts each rotatable relative to each other.

A still further object of the invention resides in providing locking means for locking the parts in adjusted position.

Other objects of the invention reside in the combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

FIG. 1 is an elevational view of a sunshade with parts broken away and illustrating an embodiment of the invention.

FIG. 2 is an inverted sectional view of the invention taken on line 2—2 of FIG. 1.

FIG. 3 is a fragmentary sectional view taken on line 3—3 of FIG. 2 and drawn to a greater scale than FIG. 2.

FIG. 4 is a fragmentary plan view of the structure shown in FIG. 3.

FIG. 5 is a fragmentary sectional view of the joint between the sections of the umbrella taken on line 5—5 of FIG. 2 and drawn to a greater scale.

FIG. 6 is an elevational view of the brace shown in FIG. 1 and drawn to a greater scale than FIG. 1.

FIG. 7 is a cross-sectional view taken on line 7—7 of FIGS. 6 and 8.

FIG. 8 is an elevational sectional view of the connection between the brace and the standard and drawn to a greater scale than FIG. 6, said view being taken on line 8—8 of FIG. 7.

FIG. 9 is a cross-sectional view taken on line 9—9 of FIG. 7.

FIG. 10 is a cross-sectional view taken on line 10—10 of FIG. 6 and drawn to the same scale as FIG. 8.

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FIG. 11 is a longitudinal elevational sectional view taken on line 11—11 of FIG. 10.

FIG. 12 is a view similar to FIG. 11 showing the parts in altered position.

FIG. 13 is a cross-sectional view taken on line 13—13 of FIG. 6 and drawn to the same scale as FIG. 10.

FIG. 14 is a longitudinal sectional view taken on line 14—14 of FIG. 13.

FIG. 15 is a plan sectional view taken on line 15—15 of FIG. 14.

FIG. 16 is an elevational view of the ground support for the upright shown in FIG. 1 with parts broken away and drawn to a greater scale than FIG. 1.

FIG. 17 is a cross-sectional view taken on line 17—17 of FIG. 16.

The sunshade shown in the drawings comprises a standard 10, which is tubular in form and which has an arm 11 extending angularly upwardly therefrom. The lowermost portion of the standard has a collar 12 attached thereto by means of a bolt 13, as best shown in FIGS. 1 and 16. The lower end of the standard 12 is received in a socket 14 formed in a point 15. Point 15 is constructed with radial cleats 16. The upper end of the point 15 is formed with a collar 17 which has upwardly facing serrations 18. The point 15 is driven in the ground to a distance at about the lower portion of the collar 17. The collar 12 is similarly constructed with serrations 19 which are adapted to mesh with the serrations 18 and to offer some resistance to rotation of the standard 10 in the socket 14.

At the upper end of the arm 11 of standard 10 is a pulley 21 which has a horizontal axis and over which passes a suspension cord 22. This cord follows along the interior of the arm 11 hugging the curved portion 23 between said arm and the standard proper. Within the bore 24 of the standard 10 are a number of counterweights 25 which slide freely within said bore and are attached to one another and to the cord 22.

The sunshade includes an umbrella 30. This umbrella is made in three sections 31, 32 and 33. The sections may be constructed out of fairly rigid plastic material or of metal, as desired. The section 31 has a U-shaped marginal portion 34 which is formed with an upstanding groove 35. Both the sections 32 and 33 have depending flanges 36 which fit into the groove 35. Bolts 37 extend through the marginal portion 34 and the flanges 36 and bolt the sections together. In addition, the section 32 is constructed with a U-shaped marginal portion 41 which is formed with a groove 42 similar to the groove 35. Also the section 33 is formed with a flange 43 which fits into the groove 42. A bolt 44 passes through the said marginal portion and the said flange and clamps the parts together in the same manner as the bolts 37. It will be noted that the joint between the section 31 and the other two sections intersect at a locality outwardly of the center of the umbrella. While the umbrella shown is ovalar in form, any desired shape may be employed.

The cord 22 is attached to the umbrella as best shown in FIGS. 3 and 4. Located at the center of the umbrella which lies in section 31 is a casting 45 which has an ovalar hole 46 extending through the same. The casting 45 has a flange 47 which overlies the upper surface of the section 31 and covers an opening 51 in the said section. The casting is held in place by means of a clamping disk 52 which engages the underside of the said section and is attached to the casing 45 by means of screws 53. At the end of the cord 22 is a knot 54 which has an ovalar plate 55 encircling the cord above the knot. This plate is of dimensions to extend through the opening 46 in casting 45 when turned in one direction and when turned in the other direction crosswise of the hole 46 engages the marginal portion of said casting at the hole and serves to suspend the umbrella from the cord 22.

For holding the umbrella in adjusted position a brace 60 is employed. This brace is tubular in form and includes two telescoping tubes 61 and 62. The tube 62 is attached to a clevis 63 which spans the arms 64 and 65 of a pipe clamp 66. Bolts 67 extend through the arms 64 and 65 and clamp the clamp to the standard 10. Another bolt 65 extends through the arms 64 and 65 and also through the clevis 63 and supports the brace 60 for up and down swinging movement. The section 31 of the umbrella 30 has a slot 39 in it and in which brace 30 may travel.

The tube 61 as shown in FIGS. 6, 14 and 15 is attached to a clevis 71. This clevis is pivoted to a bracket 72 which, in turn, is attached to a casting 82 which is connected to an inverted tripod 73. This tripod has three legs 74, 75 and 76. Legs 75 and 76 are attached to the sections 32 and 33 of the umbrella by means of screws 78 while the leg 74 is attached to the section 31 of the umbrella by means of a screw 79. The center of the leg 74 is formed with an enlargement 77 which encloses casting 45, the clamping disk 52 and the knot 54. The outer end of the arm 74 is free from the section 31 of the umbrella and is formed with a socket 81. A casting 82 is secured to the underside of the section 31 by means of screws 83. This casting has a projection 84 which fits into the socket 81 and locks tripod 73 from movement with respect to the section 31. Bracket 72 is bolted to this casting by means of bolts 85, as best shown in FIG. 15. The bracket 72 is formed with two-spaced arms 86 and 87. A bolt 91 passes through these arms and the clevis 71 and supports the outer end of the brace 60 and the umbrella 30 for relative axial swinging movement. Due to the two tubes the umbrella may also rotate angularly with respect to the brace by the turning of the inner tube 62 within the outer tube 61.

For holding the brace 60 in the adjusted position with respect to bolt 91, a ratchet wheel 92 having rounded teeth 93 is employed. This ratchet wheel has a square hub 94 on each side of the same and which fits into a square hole 95 in each of the arms 86 and 87. This construction holds the said ratchet wheel from rotation. The bolt 91 extends through a bore 96 in said ratchet wheel.

Mounted on the bolt 68 is a ratchet wheel 135 similar to the ratchet wheel 92. This wheel has rounded teeth 136 similar to the ratchet wheel 92 and a square hub 137 on each side received in square holes in the arms 64 and 65 similar to the holes 95 in arms 86 and 87 but not shown.

The clevis 71 forms part of a tubular case 101 to which the tube 61 is connected. This case has an outer end wall 102 forming part of the clevis 71 and an inner end wall 103. The case 101 and clevis 71 are constructed in two parts 104 and 105 held together by the tube 61 and two rivets 118 and also by bolt 91. The end wall 102 has a rectangular hole 107 in the same and in which is slidably mounted a pawl 111. This pawl has teeth 112 which mesh with the teeth 93 on ratchet wheel 92 to hold the parts from relative rotational swinging movement about the axis of bolt 91. A spring 113 anchored to the flanges of the clevis 71 urges the teeth of pawl 111 away from the teeth 93 of ratchet wheel 92.

Pivoted and slidably mounted on the two rivets 118 are two cams 114 and 115 which have slots 116 through which the rivets 106 extend. These cams are pivoted to a yoke 117 which is threaded to receive a screw 121. This screw extends through a hole 122 in the case 101 and has attached to the outer end of the same a knob 123 which engages the outer surface of case 71. A rod 124 extends through a hole 125 in end wall 103 and serves a purpose to be presently described. When the knob 123 is rotated cam 115 engages the end of pawl 111 and drives the teeth of said pawl into engagement with the teeth 93 of ratchet wheel 92.

At the end of the brace 60 nearest the standard 10 is

provided a case 126, FIG. 8 which has an inner end wall 127 and an outer end wall 128. In the end wall 127 is formed a hole 131 through which the rod 124 extends. Cooperating with the ratchet wheel 135 is a pawl 132 similar to the pawl 92. This pawl is guided by the end wall 128 as well as by a pin 133 extending through case 101 and through a slot 134 in the shank of pawl 132. A spring 138 similar to spring 113 urges pawl 132 out of engagement with the ratchet wheel 135. Rod 124 engages this pawl and moves said pawl into engagement with ratchet wheel 135 at the same time that pawl 111 is moved into engagement with the ratchet wheel 92.

For clamping the two tubes 61 and 62 together the inner tube 62 terminates short of the end of the tube 61. At this end of the tube 62 are slots 141 which weaken the tube and permit of spreading the separated parts 142 and 143 apart. This is accomplished by means of a pair of toggle jaws 144 and 145 which are pivoted to the rod 124. In normal position as shown in FIG. 12 the parts 142 and 143 are free to rotate and tubes 61 and 62 have relative rotational movement restricted somewhat by a friction sleeve 146 disposed between the tube 61 and a reduced end 147 of the tube 162 shown in FIG. 8. When the rod 124 is moved toward the standard 10 the jaws 144 and 145 are moved from the positions shown in FIG. 12 to those shown in FIG. 11. In the latter position the two tubes 61 and 62 are restrained from relative rotational movement. To prevent the jaws 144 and 145 from sliding along the interior of the tube 62 a projection 148 on jaw 144 enters a notch 149 on tube 62. This construction serves as a hinge which causes said jaws to move in the desired manner.

The manner of using the invention is as follows: The point 15 is driven into the ground the desired distance or set in concrete. The standard 10 with arm 11 are next inserted into socket 14 of said point. Plate 55 engaged by knot 54 prevents the cord 22 from slipping back in the arm 11. The sections 31, 32 and 33 and tripod 73 are all separate and brace 60 while carried by standard 10 is free from casting 82. The clevis 71 is next bolted to bracket 31. Cord 22 is next attached to section 31 by inserting plate 55 through opening 46 and turning the same 90 degrees as shown in FIG. 4. Section 31 is now suspended. The three sections are next assembled and bolted together with bolts 37 and 44. Tripod 73 is thereafter placed in position with projection 84 received in socket 81. The screws 78 and 79 are next screwed into the tripod to hold the parts assembled.

By rotating knob 123 in a clockwise direction the jaws 144 and 145 and pawls 111 and 135 are set free and the tubes 61 and 62 may have relative rotational movement about the axis thereof and may also swing on the axes of bolts 68 and 91 thus the angularity and tilt of the umbrella may be adjusted. To get the umbrella at the proper height above the ground the same is merely raised or lowered. Weights 25 counterbalance the weight of the umbrella and the umbrella stays where left, suspended by cord 22. Upon screwing knob 123 in a counter-clockwise direction the parts become locked and the umbrella remains in its adjusted position. The cams 114 and 115 are preferably moved into an overcenter position, as disclosed in FIG. 14, to lock the parts in position.

The advantages of the invention reside in that the umbrella may be raised or lowered, tilted in any direction and swung about an axis through the center thereof so as to direct the umbrella to any desired position. In addition the entire shade may be rotated around the axis of the standard. All adjustments are easily and quickly made and the parts locked in position by means of a single screw and knob. The sunshade can be made at an economical cost and when collapsed occupies a minimum amount of space. The standard is to one side of the umbrella and hence does not interfere with the use of the same.

The construction disclosed represents a single embodi-

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ment of the invention and it will be understood that modifications thereof may be made within the scope of the appended claims without departing from the spirit of the invention.

Having described the invention what I claim as new and desire to protect by Letters Patent is:

1. In a sunshade comprising
 - (a) elongated supporting means extending upwardly from the ground,
 - (b) an umbrella,
 - (c) vertically adjustable suspending means operating in conjunction with said supporting means for suspending the umbrella,
 - (d) a brace,
 - (e) pivot means between one end of said brace and the supporting means and having an axis extending transversely of said supporting means and brace,
 - (f) pivot means between the other end of said brace and having an axis extending transversely of said brace and substantially parallel to the surface of the umbrella,
 - (g) said second named pivot means being located remotely from the locality of attachment of the suspending means to the umbrella.
2. A sunshade according to claim 1 in which:
 - (a) the umbrella is constructed in three sections having joints diverging from a locality near the center of the umbrella and
 - (b) the umbrella is supported from one of said sections.
3. A sunshade according to claim 2 in which:
 - (a) the second named pivot means is attached to one of said sections.
4. A sunshade according to claim 1 in which:
 - (a) locking means for each pivot means are provided to hold the brace from movement at either end in any direction.
5. A sunshade according to claim 4 in which:
 - (a) operating means is provided for simultaneously manually operating both operating means.
6. A sunshade according to claim 1 in which:
 - (a) the umbrella is formed with a slot in which the brace moves.
7. A sunshade according to claim 4 in which:
 - (a) the locking means for each part includes:
 - (b) a toothed arcuate ratchet held from movement and
 - (c) a slidable pawl carried by the brace and engageable with said ratchets.
8. In a sunshade comprising:
 - (a) elongated supporting means extending upwardly from the ground,
 - (b) an umbrella,
 - (c) vertically adjustable suspending means operating in conjunction with said supporting means for suspending the umbrella,
 - (d) a brace pivoted to said supporting means and to said umbrella,

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- (e) said sunshade comprising two relatively rotatable tubular parts disposed in axial alignment and
 - (f) separate clamping means within each of said parts for restraining relative movement therebetween.
9. A sunshade according to claim 8 in which:
 - (a) the clamping means includes
 - (b) jaws engageable with the parts and
 - (c) movable from engaging position to disengaging position.
 10. In a sunshade comprising
 - (a) a standard extending upwardly from the ground,
 - (b) an arm projecting outwardly from the standard,
 - (c) an umbrella,
 - (d) flexible suspending means in conjunction with said arm for suspending the umbrella,
 - (e) a brace having two parts relatively rotatable about a longitudinal axis,
 - (f) one of said parts being pivoted to said standard and
 - (g) the other of said parts being pivoted to said umbrella remotely from the locality of attachment of the suspending means to the umbrella,
 - (h) locking means between the part pivoted to said standard, and having a movable piece,
 - (i) locking means between the part pivoted to said umbrella and having a movable piece,
 - (j) clamping means between said parts and restraining relative rotational movement between said parts and having a movable piece,
 - (k) manually controlled toggle means acting therebetween for simultaneously moving all of said pieces to simultaneously lock the brace from rotational movement about their pivots and to clamp the parts of the brace from rotational movement.

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