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TILTABLE UMBRELLA

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Fig. 1.

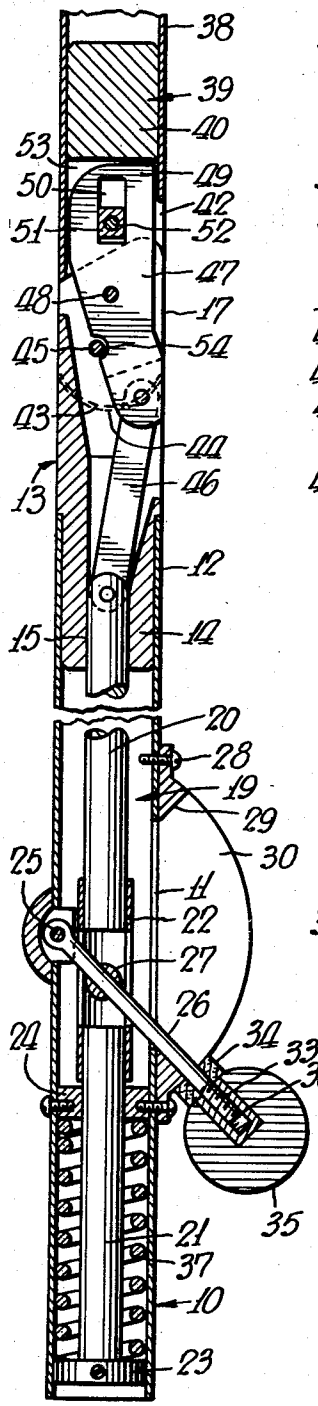



Fig. 2.

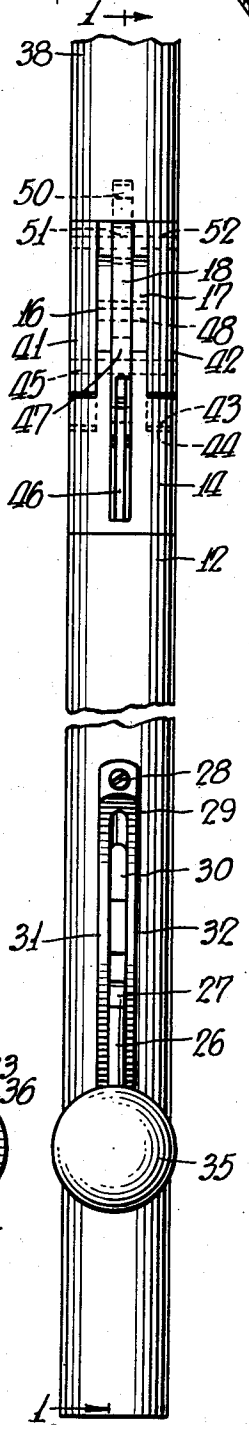
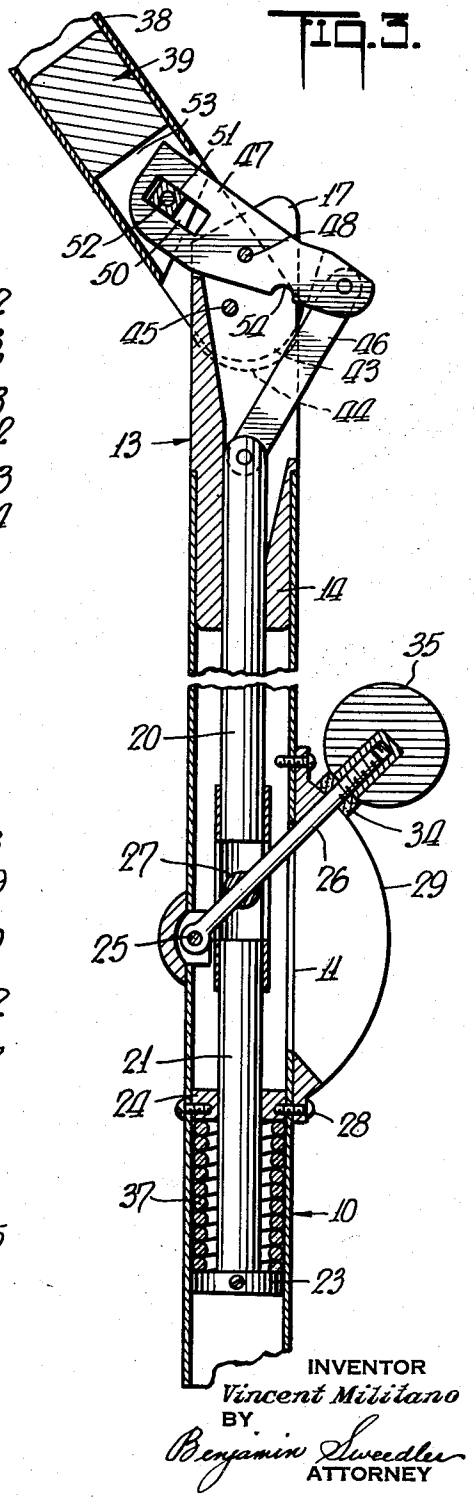



Fig. 3.




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## TILTABLE UMBRELLA

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7 Claims. (Cl. 135—46)

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This invention relates to improvements in tiltable outdoor umbrellas such as the well known garden and beach umbrellas.

It is an object of this invention to provide a tiltable umbrella which can be readily and quickly operated to tilt the umbrella canopy to a desired angle, and which is of rugged design.

Other objects and advantages of the invention will be apparent from the following detailed description thereof.

In accordance with this invention, a tiltable umbrella is provided having the lower end of an upper pole carrying the canopy pivoted to the upper end of a hollow lower pole. Disposed within this hollow lower pole is a vertically reciprocable actuating shaft or rod which is connected through links with the upper pole, this connection being at a point above the pivot between the two poles. Pivotally mounted on the hollow lower pole and connected to the reciprocable rod is an operating tilt shaft, actuation of which through the rod and links effects tilting of the umbrella canopy. This tilt shaft moves in a vertical plane about its pivot and thus can readily and quickly be moved to impart any desired angle of tilt to the canopy. Desirably a coil spring is mounted in the hollow lower pole associated with the reciprocable rod and is arranged to counterbalance the weight of the superstructure, chiefly the canopy thus resulting in smoother operation of the tilt mechanism.

In the accompanying drawing, forming a part of this specification and showing, for purposes of exemplification, a preferred form of this invention, without limiting the claimed invention to such illustrative instance:

Figure 1 is a fragmentary vertical section through the upper and lower poles of a tiltable umbrella, embodying this invention and taken in a plane passing through line 1—1 of Figure 2, in this figure these two poles are shown in vertically aligned position;

Figure 2 is a fragmentary side elevation of the upper and lower poles of the umbrella also in vertically aligned position; and

Figure 3 is a fragmentary vertical section showing the upper pole in an inclined position relative to the lower pole.

Referring to the drawing, 10 indicates a lower hollow pole provided with a longitudinally extending slot 11. Disposed in the upper end 12 of this pole is a casting 13 formed with a lower cylindrical portion 14 snugly fitting within the upper end 12, a cylindrical bearing 15 the axis of which is coaxial with that of pole 10 and two

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upwardly extending projections 16 and 17 extending beyond the top of pole 10 and separated from each other by a longitudinally extending slot 18 (Figure 2).

Centrally mounted for reciprocatory movement within the hollow lower pole 10 is a reciprocable actuating rod or shaft 19 composed of rods 20 and 21 connected by a sleeve 22. Actuating shaft 19 is guided and supported during its reciprocatory movement by collar 23 pinned to the lower end thereof, the bearing member 24 suitably secured to the interior of the hollow shaft 10 and the bearing 15 in casting 14.

Pivoted as at 25 to the interior of the hollow shaft 10 is a rod 26 extending through a pivot pin 27 carried by the sleeve 22. Pin 27 is mounted for pivotal movement in sleeve 22 and the rod 26 is in sliding engagement with this pin permitting relative movement between the pin 27 and the rod 26. Suitably secured as by bolts 28 to the outside wall of pole 10 is a guide quadrant 29 provided with a guide slot 30 defined by the curved walls 31 and 32 of the quadrant 29. Slot 11 in hollow tube 10 and slot 30 are aligned, as clearly shown in Figures 1 and 3. Threaded end 33 of rod 26 extends through these two slots 11 and 30 and has thereon a washer 34 and a control ball 35 in threaded engagement with the threaded end 33 of rod 26.

Washer 34, it will be noted, rests on the curved walls 31 and 32 of the quadrant 29. Threaded interior 36 of ball 35 extends beyond the threaded end 33 of rod 26. In this way the ball 35 may be moved so that it exerts no pressure on the washer 34 permitting easy and quick movement of rod 26 about pivot 25 to reciprocate the actuating shaft 19. Once this shaft is moved to a position imparting a desired angle of tilt to the umbrella canopy, as hereinafter more fully explained, ball 35 is rotated to clamp the washer 34 between walls 31 and 32 and the ball to maintain the actuating shaft in this position. A coil spring 37 is disposed at the base of hollow pole 10, encircling rod 21 and confined between collar 23 and bearing member 24. This spring counterbalances the weight of the superstructure which is chiefly the canopy and in accordance with the well known function of such springs, results in smoother, i. e., non-jerky tilting movement of the canopy. The curved shape of the quadrant, control ball and the coil spring result in a quick acting attractive structure requiring little energy for its operation, i. e., for tilting the umbrella and maintaining the umbrella in desired tilted position.

Upper pole 38 carries any conventional umbrella canopy (not shown on the drawing) comprising a cover, umbrella ribs, sliding spreader ring or collar for opening or closing the umbrella, etc. Pole 38 has fixed to the lower end thereof a casting 39. This casting comprises a cylindrical portion 40 fitting snugly within pole 38, and two spaced extending arms 41 and 42. The projections 16 and 17 of casting 13 fit snugly within the space between arms 41 and 42, as shown in Figure 2. Extremities of arms 41 and 42 are of convex or rounded shape as indicated by the reference character 43. Casting 13 is provided with concave or complementary rounded shoulders 44. Desirably castings 13 and 39 are shouldered so as to abut in flush relationship against the ends of the poles 10 and 38, respectively. The outer surfaces of the assembled castings, as best shown in Figures 1 and 2, are cylindrical and of uniform diameter, the outside diameter being the same as that of the poles. The castings may be fixed to the poles in any suitable manner.

Casting 39 is pivoted to casting 13 by a pivot pin 45 which passes through arms 41 and 42 and projections 16 and 17. Thus, the upper pole 38 carrying the canopy is pivotally mounted on the top of the hollow lower pole 10 provided with the actuating mechanism for tilting the umbrella canopy. It will be understood that while the drawings show castings associated with the poles, which is preferred because of ease of manufacture, casting 13 and pole 10 may be formed integrally and likewise casting 39 and pole 38 may be made integral. In other words, the assembly of pole 10 and casting 13 may be considered the lower pole to which is pivoted the top pole consisting of pole 38 and casting 39.

A link 46 has one end pivotally connected to the top of rod 26 and the other end pivotally connected to one end of a second link 47. A pivot pin 48 passes through this link 47 and the projections 16 and 17 of casting 13, thus pivotally securing this link to these two projections. End 49 of link 47 is provided with a slot 50 in which is slidably disposed a shoe 51. A pin 52 passes through this shoe and is suitably mounted in the casting 39; shoe 51 is free to rotate on pin 52 and vice versa so that these two parts can move relatively to each other.

The lower portion of link 47 is positioned in slot 18 and the upper portion of this link 47 fits within interior opening 53 in casting 39. Link 46 fits within slot 18 and the lower extension thereof shown in Figure 2 in casting 13. In this way when the umbrella is in the non-tilted position the linkage mechanism is disposed within the cylindrical confines of the castings. Desirably link 47 is provided with a cut-away portion 54 in the area near the pivot pin 45 to permit link 47 to be moved to the position shown in Figure 1 without contacting this pivot pin 45.

In operation, when it is desired to tilt the umbrella, it is only necessary to loosen ball 35, should it have been tightly screwed on rod 26, and then move lever 26 upwardly from the position shown in Figures 1 and 2. This will raise the actuating rod 19 and link 46 causing the latter to move outwardly from the casting 13 through slot 18. This movement of link 46 effects pivotal movement of link 47 about its pivot 48 exerting a thrust on shoe 51 carrying pin 52 mounted in casting 39 which effects tilting movement of upper pole 38. As the movement continues, link 47 moves outwardly relative to casting 39 to the position shown in Figure 3, with the shoe 51 sliding in the slot 50. The above described movement results in further compression of coil spring 37 which thus tends to counterbalance the weight of the superstructure, chiefly the canopy and results in smoother operation than would take place in the absence of the spring. Once the desired tilt has been imparted to the upper pole the ball 35 is tightened on threaded end 33 of rod 26 to clamp washer 34 against the walls 31 and 32 of the quadrant. This clamping pressure, the action of the spring 37 and the linkage mechanism disclosed, firmly maintain the umbrella canopy fixed in the desired tilted or straight position.



It will be noted the umbrella of this invention can readily and quickly be tilted in that a simple movement of pivoted rod 26 after loosening ball 35 is all that is necessary to effect the tilting. Accordingly, applicant's umbrella can be adjusted to the desired angle of tilt much more quickly than prior known tiltable umbrellas. It will be further noted that applicant's umbrella is of rugged design.

Since different embodiments of the invention could be made without departing from the scope of this invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In a tiltable umbrella, in combination, a hollow lower pole, a vertically reciprocable actuating shaft disposed within said hollow pole, a member having a portion disposed within said hollow pole, pivoted thereto, connected to said shaft and having another portion extending exteriorly of said hollow pole and arranged to be actuated about said pivot to reciprocate said shaft, an upper pole pivoted to said lower pole, and pivoted links connecting the upper end of said shaft to said upper pole, the connection between said links and the upper pole being disposed above said pivotal connection between the upper and lower poles.

2. In a tiltable umbrella, in combination, a hollow lower pole, a vertically reciprocable shaft disposed in said hollow pole, a rod having one end pivoted to said hollow pole, having an intermediate portion connected with said shaft through a sliding joint and having the opposite end extending exteriorly of said hollow pole, a top pole having its lower end pivoted to the top of said lower pole, a link having one end pivoted to the top of said shaft, a second link pivoted at an intermediate point of its length on said lower pole above the pivotal connection between said poles and having one end pivoted to the other end of said first mentioned link, the other end of said second mentioned link being connected through a sliding connection with the lower end of said top pole.

3. In a tiltable umbrella, in combination, a hollow lower pole, having a longitudinally extending slot therein, a vertically reciprocable actuating shaft disposed within said hollow pole, a quadrant having a slot therein mounted on said hollow pole with the said slot therein in alignment with the slot in said pole, a rod having one end pivoted to the interior of said hollow pole, having an intermediate portion connected with said shaft and having the other end threaded and extending through said slots, a clamping ball in threaded engagement with the threaded end of said rod, a casting in the upper end of

said hollow pole providing a bearing support for said shaft and having a pair of spaced upwardly extending projections, a top pole, a casting in the lower end of said top pole having a pair of arms disposed contiguous to said projections and pivoted thereto, a pair of links disposed to move in the space between said projections, one of said links having one end pivotally connected to the top of said shaft and the other end pivotally connected to one end of the other link, said other link being pivoted to said arms at a point intermediate the length of said other link and above the pivotal connection between said arms and said projections and having the other end connected through a sliding joint with the said casting in the lower end of said top pole.

4. In a tiltable umbrella, in combination, a hollow lower pole, having a longitudinally extending slot therein, a vertically reciprocable actuating shaft disposed within said hollow pole, a quadrant having a slot therein mounted on said hollow pole with the said slot therein in alignment with the slot in said pole, a rod having one end pivoted to the interior of said hollow pole, having an intermediate portion connected with said shaft and having the other end threaded and extending through said slots, a clamping ball in threaded engagement with the threaded end of said rod, a casting on the upper end of said hollow pole providing a bearing support for said shaft and having a pair of spaced upwardly extending projections, a top pole, a casting on the lower end of said top pole having a pair of arms disposed contiguous to said projections and pivoted thereto, a pair of links disposed to move in the space between said projections, one of said links having one end pivotally connected to the top of said shaft and the other end pivotally connected to one end of the other link, said other link being pivoted at an intermediate point of its length to said arms at a point above the pivotal connection between said arms and said projections and having the other end connected through a sliding joint with the said casting on the lower end of said top pole, and a coil spring in the base of said lower pole arranged to be further compressed when the vertically reciprocably actuating shaft is moved upwardly and to counterbalance the weight of the superstructure carried by the top pole.

5. In a device of the class described, in combination, a hollow lower pole, a vertically reciprocable shaft disposed in said hollow pole, a rod having one end pivoted to said hollow pole, having an intermediate portion connected to said said shaft through a sliding joint and having the opposite end extending exteriorly of said hollow pole, a top pole having its lower end pivoted to the top of said lower pole, a link having one end pivoted to the top of said shaft, a second link pivoted on said lower pole above the pivotal connection between said poles and having one end pivoted to the other end of said first-mentioned link, the other end of said second-mentioned link being connected through a sliding connection with the lower end of said top pole.



6. In a tiltable umbrella, in combination, a hollow lower pole, a vertically reciprocable actuating shaft disposed within said hollow pole, an upper pole pivoted to the upper end of said lower pole, a link having one end pivoted to the top of said shaft, and a second link, said first link having its other end connected to one end of said second link, said second link being pivoted to the top of the lower pole at a point above the pivotal connection between the two poles, the other end of said second link being connected through a sliding connection with the lower end of said upper pole.

7. In a tiltable umbrella, in combination, a hollow lower pole, a vertically reciprocable actuating shaft disposed within said hollow pole, a casting on the upper end of said hollow pole providing a bearing support for said shaft and having a pair of spaced upwardly extending projections, an upper pole, a casting on the lower end of said upper pole having a pair of arms disposed contiguous to said projections and pivoted thereto, a pair of links disposed to move in the space between said projections, the lower of said links having one end pivotally connected to the top of said shaft and the other end pivotally connected to one end of the other link, said other link being pivoted at an intermediate point of its length to said arms at a point above the pivotal connection between said pair of arms and said projections, said other link having the other end thereof connected through a sliding joint with the said casting on the lower end of said upper pole.

VINCENT MILITANO.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 374,004 | Riblet | Nov. 29, 1887 |
| 2,238,571 | Scott | Apr. 15, 1941 |
| 2,475,406 | Russell | July 5, 1949 |

FOREIGN PATENTS

| Number | Country | Date |
|---|---|---|
| 219,341 | Germany | Feb. 24, 1910 |