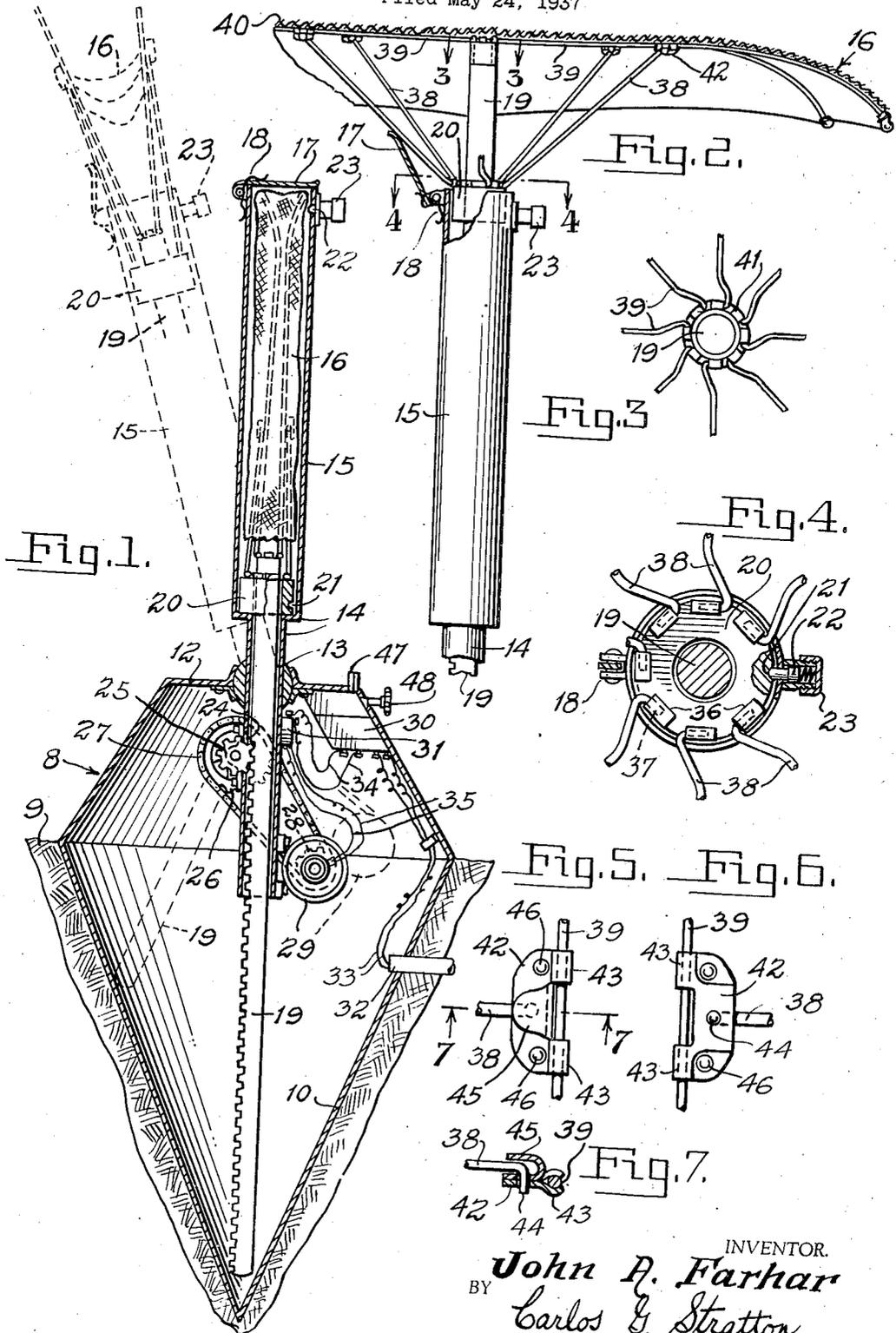


Dec. 19, 1939.

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BEACH UMBRELLA

2,183,833

Filed May 24, 1937



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# UNITED STATES PATENT OFFICE

2,183,833

## BEACH UMBRELLA

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Application May 24, 1937, Serial No. 144,458

8 Claims. (Cl. 135—20)

My invention relates to a beach umbrella. The principal object of the invention is to provide coin-controlled mechanism for raising and lowering the umbrella.

5 A person having a concession for providing umbrellas along a beach, or a municipal or other corporation having control of a beach may provide a series of the present coin-controlled umbrellas, the use of which may be had by depositing a coin in the mechanism.

10 Another object is to provide automatic means for not only raising the umbrella when a coin is deposited in the mechanism, but also to lower the umbrella when a prescribed time has elapsed.

15 Still another object is to provide an umbrella that will collapse inside out when folded together.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description.

20 In the drawing, like reference characters designate similar parts in the several views.

Figure 1 is a vertical section through an embodiment of my invention.

25 Figure 2 is a broken elevation showing the umbrella in section.

Figure 3 is a broken plan, taken on the line 3—3 of Figure 2.

30 Figure 4 is a section taken on the line 4—4 of Figure 2.

Figures 5 and 6 are face views of opposite sides of a rib and brace joint of the umbrella.

Figure 7 is a section taken on the line 7—7 of Figure 5.

35 Referring more in detail to the drawing, the reference character 8 generally designates a housing largely embedded in the sand 9 of a beach, or other desired place. The buried portion of the housing is conical as shown at 10 with the apex down. A top 12 of the housing has a ball and socket joint 13 with a tubular standard 14.

40 The standard has an enlarged section 15 for enclosing an umbrella 16, when the latter is in its folded position. A lid 17 closes the top of the section 15 when the umbrella is in said section, to render it weatherproof. A spring 18 urges the lid closed.

45 Movable vertically in the standard 14 is a rack 19. A floating head 20 is not only movable in the enlarged section 15, but is movable on the rack. The head has a recess 21 for receiving a spring latch 22 disposed in a cup 23 at the top of the section 15.

50 The standard 14 is slotted at 24, in which a

pinion gear 25 operates in engagement with the rack 19. The gear is driven by a sprocket 26 on the same shaft. A chain 27 drives the sprocket 26 by means of a smaller sprocket 28, which in turn is operated by a reversible motor 29 mounted on the standard 14 within the housing 8.

5 A time mechanism capable of being actuated by a coin is generally designated at 30. Said mechanism may be of any desired form that initially closes the circuit for the motor 29, whereby it rotates in a counter-clockwise direction, as it is shown in Figure 1. This direction of rotation will cause the umbrella to be raised. After a predetermined time, such as, say, an hour, 15 the time mechanism 30 actuates a reversing switch 31, which reverses the motor 29, whereby it rotates in a clockwise direction, to lower the umbrella into the standard section 15. The details of the coin-controlled, time mechanism 30 and of the reversing switch 31 may be of any conventional form, known to those skilled in the art. Further illustration and description of same are, therefore, deemed unnecessary.

20 An underground conduit 32 is provided for wires 33 to and from a source (not shown). Wires 34 connect the coin-controlled, time mechanism 30 with the reversing switch 31. Wires 35 connect the reversing switch 31 with the motor 29. The circuit is thereby completed.

30 The umbrella 16 is not of conventional form. The present umbrella collapses the opposite from the usual form, to wit, inside out. The head 20 carries a series of apertured lugs 36 in which are hooked bent ends 37 of braces 38 of the umbrella. Ribs 39 support the fabric material 40 of the umbrella. Inner ends of the ribs 39 are hooked and pivoted in loops 41 at the top of the rack 19. The outer ends of the ribs are suitably fastened to the outer circumference of the fabric covering 40.

35 The outer ends of the braces 38 are pivoted in brackets 42. The brackets contain knuckles 43 that are secured in proper position along the ribs. The outer ends are bent, as best shown at 44 in Figure 7. Said bent ends are inserted in eyes in the brackets, thus obtaining a pivoted connection between the braces and the brackets. Lips 45 of the brackets are bent over to keep the bent ends of the braces from escaping. Rivets 46 fasten the knuckles 43 down, whereby they firmly grip the ribs.

40 In the use of the invention, a person drops a coin in a coin slot 47 of the coin-controlled time mechanism 30. A knob 48 is provided to move the coin into operative position in said mechanism. The circuit for the motor is closed, where- 55

by the umbrella is moved upward out of the enclosing section 15. This movement of the umbrella raises the lid 17 against the action of the spring 18.

5 Upward movement of the rack 19 draws the floating head 20 upward also, until it is caught by the spring latch 22. At this point the umbrella is still substantially collapsed inside out, as generally indicated in broken lines in Figure 1. The rack thereafter continues its upward 10 movement, which causes the umbrella to spread, since the floating head 20 is stopped in its upward movement by the top of the section 15.

The ball and socket connection 13 permits 15 the umbrella to be tipped into the sun in numerous directions. Tipping in one direction is indicated by the broken lines in Figure 1. When the umbrella is tipped, the motor 29, gear 25, sprocket 26 and chain 27, which are supported 20 on the standard 14, follow such movement. The flexibility for such movement is found in the wires 34.

At the end of the period paid for by the coin 25 dropped in the mechanism 30, the motor is automatically reversed by the switch 31, whereby the umbrella is lowered. If the umbrella is tipped at the time the lowering movement begins, the lower end of the rack 19 engages the sharply inclined lower sides of the housing 10, which deflects 30 the standard gradually to a vertical position.

The first lowering movement of the umbrella 35 is the descent of the rack 19. This causes a collapsing of the umbrella inside out. After the braces 38 collapse partially toward the rack, continued movement of the rack dislodges the floating head from its spring latch, due to the force applied to said head through the ribs 39 and 40 braces 38.

By the time the head 20 has reached the bottom of the section 15, the umbrella is enclosed in said section, and the spring 18 closes the lid 17. The apparatus is then ready for its next cycle of operation.

45 While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modifications without departing from the spirit of my invention. I, therefore, do not wish 50 to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications which may fall within the scope of the appended claims.

Having thus described my invention, what I 55 claim and desire to secure by Letters Patent is:

1. In combination, an umbrella having a frame, means movable in opposite directions connected 60 to open and collapse the frame by its said respective movements, a standard for the umbrella, and a housing having a ball and socket connection with the standard, whereby the umbrella may be tilted, the housing having an inclined side, said means being arranged to engage the 65 inclined side when the umbrella is tilted and to follow the side whereby to straighten up the umbrella as the frame is moved to a collapsed position.

2. In combination, an umbrella having a frame 70 comprising ribs and braces, a standard for supporting the frame, a rack movable on the stand-

ard, a head floating on the standard, separate pivotal connections between the ribs and the rack and between the braces and the head, a pinion for driving the rack, latch means for maintaining the head in a predetermined position relative 5 to the standard, the rack being mounted to be driven by the pinion relative to the maintained position of the head, whereby to move the frame toward and from an open position.

3. In combination, an umbrella having a frame 10 comprising ribs and braces, a rack connected with the ribs, a head floating relative to the rack, a standard in which the umbrella is collapsible, a spring catch to hold the head in a predetermined position when the umbrella is 15 open, and a driven pinion arranged to drive the rack, the rack collapsing the umbrella inside out and moving same within the standard, said movement releasing the head from its spring latch, to continue the collapsing movement of 20 the umbrella.

4. In combination, an umbrella having a frame 25 comprising ribs and braces, a standard for supporting the frame, a rack movable on the standard to raise and lower the frame by movement 25 of the rack in opposite directions, a head floating on the standard, connections between the frame and the rack and head, means to limit the movement of the head, and a pinion mounted to drive the rack in opposite directions, relative 30 to the limited position of the head.

5. In combination, an umbrella having a frame, driving means movable in opposite directions 35 connected to open and collapse the frame by its said respective movements, a support for the frame, an element mounting the support for tilting movement, and means tending to automatically straighten up the umbrella vertically as the driving means moves the frame to a collapsed 40 position.

6. In combination, an umbrella having a frame, 45 a normally upright member connected with the frame, a head floating on said member and connected with the frame, and means to limit the movement of the head, said member movable 45 in opposite directions, relative to the limited position of the head, whereby to move the frame toward and from an open position.

7. In an umbrella, a frame comprising ribs and 50 braces pivotally connected together, said pivotal connections having fixed axes, a standard connected with the ribs, a head movable on the standard and connected with the braces, and means to limit the movement of the head, the 55 connection of the standard with the ribs being movable from a position in which the frame is open, toward the head, to collapse the umbrella inside out.

8. In combination, an umbrella having a frame, 60 means movable in opposite directions connected to open and collapse the frame by its said respective movements, a housing having an inclined side, a standard for the umbrella having a tilt- 65 able connection with the housing, said means being arranged to engage the inclined side of the housing when the umbrella is tilted and to follow the side whereby to straighten up the umbrella as the frame is moved to a collapsed position.