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(54) **CANTILEVERED UMBRELLA WITH ROTATION SYSTEM**

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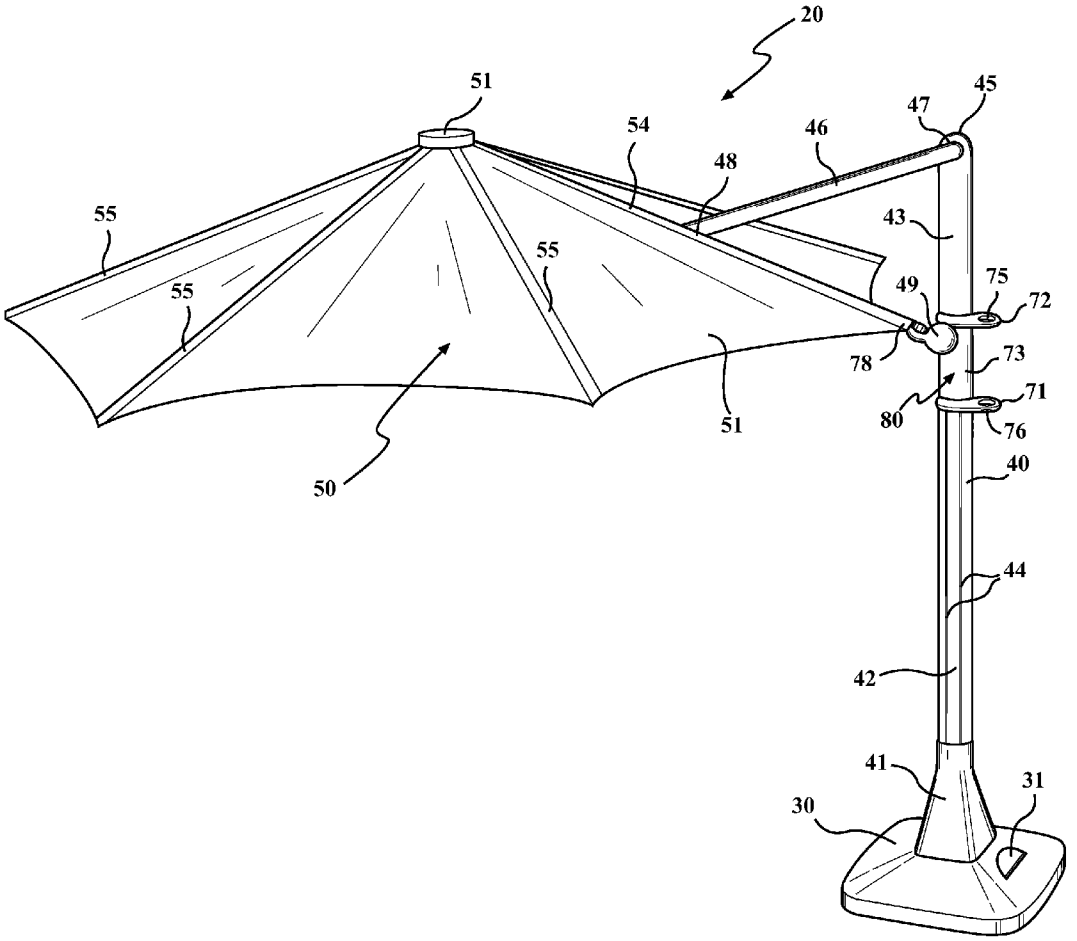
(57) **ABSTRACT**

A cantilevered umbrella having a base, a mast, a cantilevered arm, a canopy, and a rotation system. The mast has a first end connectable to the base and a second end. The cantilevered arm has a first portion pivotally connected to the second end of the mast and a second portion rotatably connected to the first portion. The canopy is connected to the cantilevered arm and has a covering and a frame. The frame is moveable between an inflated position and a deflated position. The rotation system includes a handle, a first pulley operable by the handle, a second pulley connectable to the second portion of the cantilevered arm, and a cable connecting the first pulley to the second pulley. Rotation of the handle rotates the second portion of the cantilevered arm with respect to the first portion of the cantilevered arm.



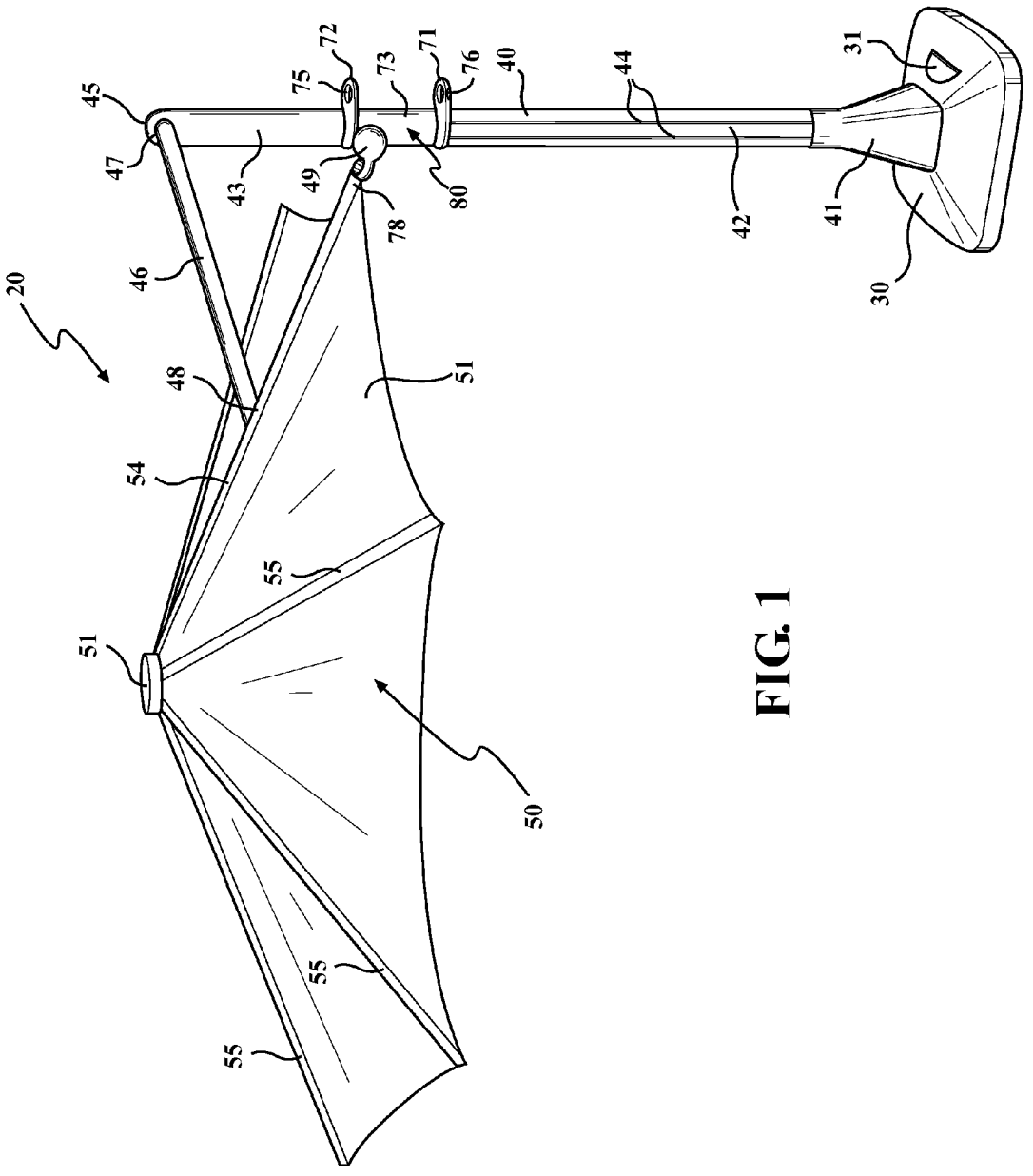


FIG. 1

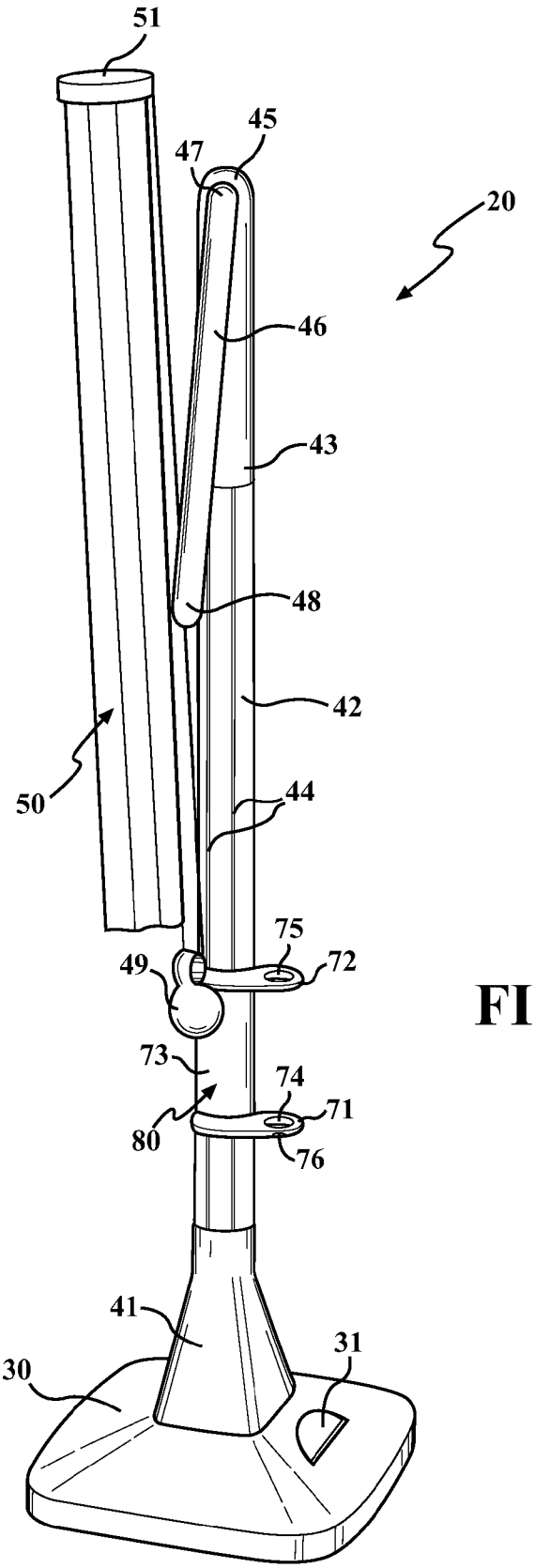


FIG. 2

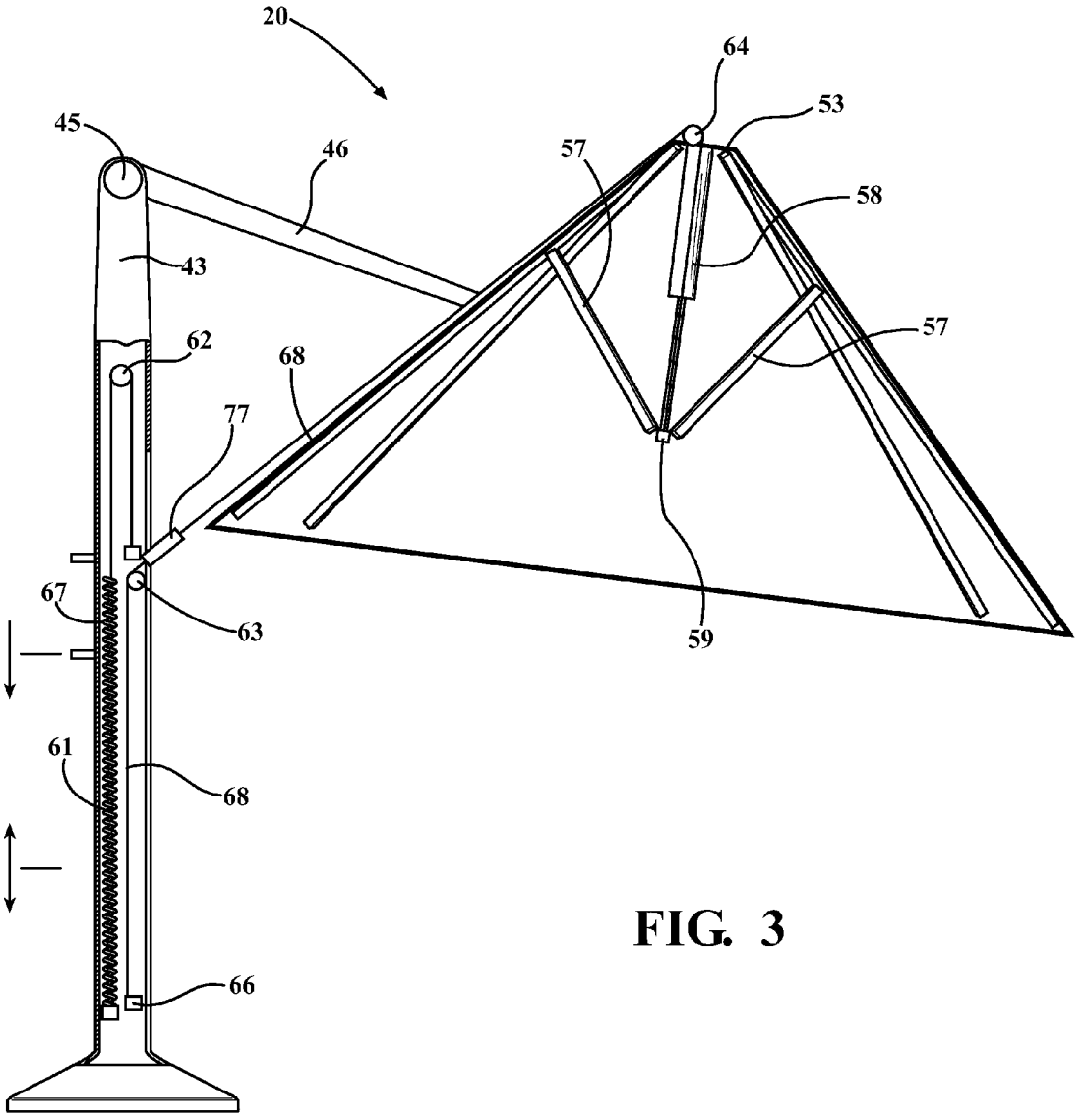


FIG. 3

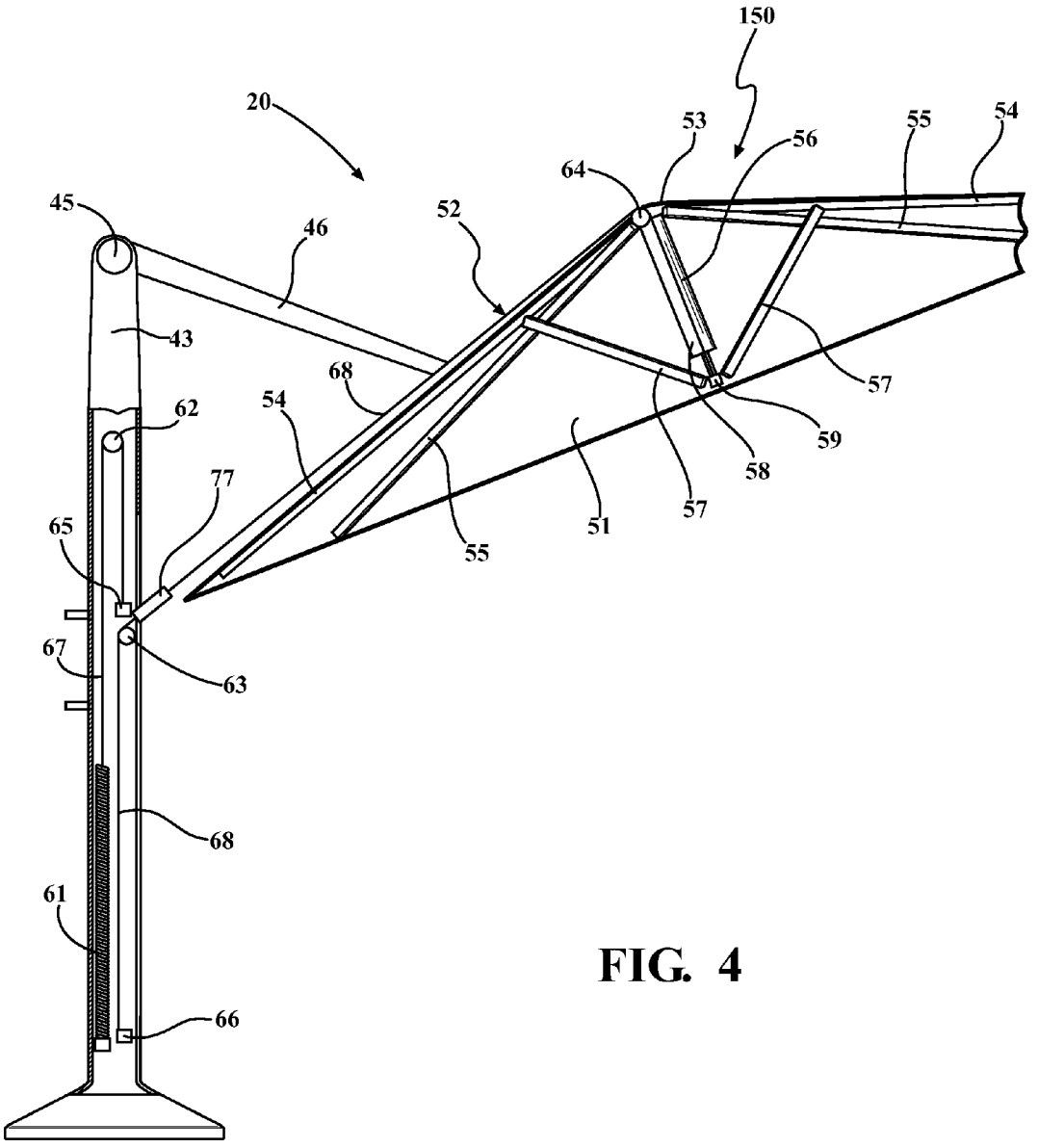

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FIG. 4

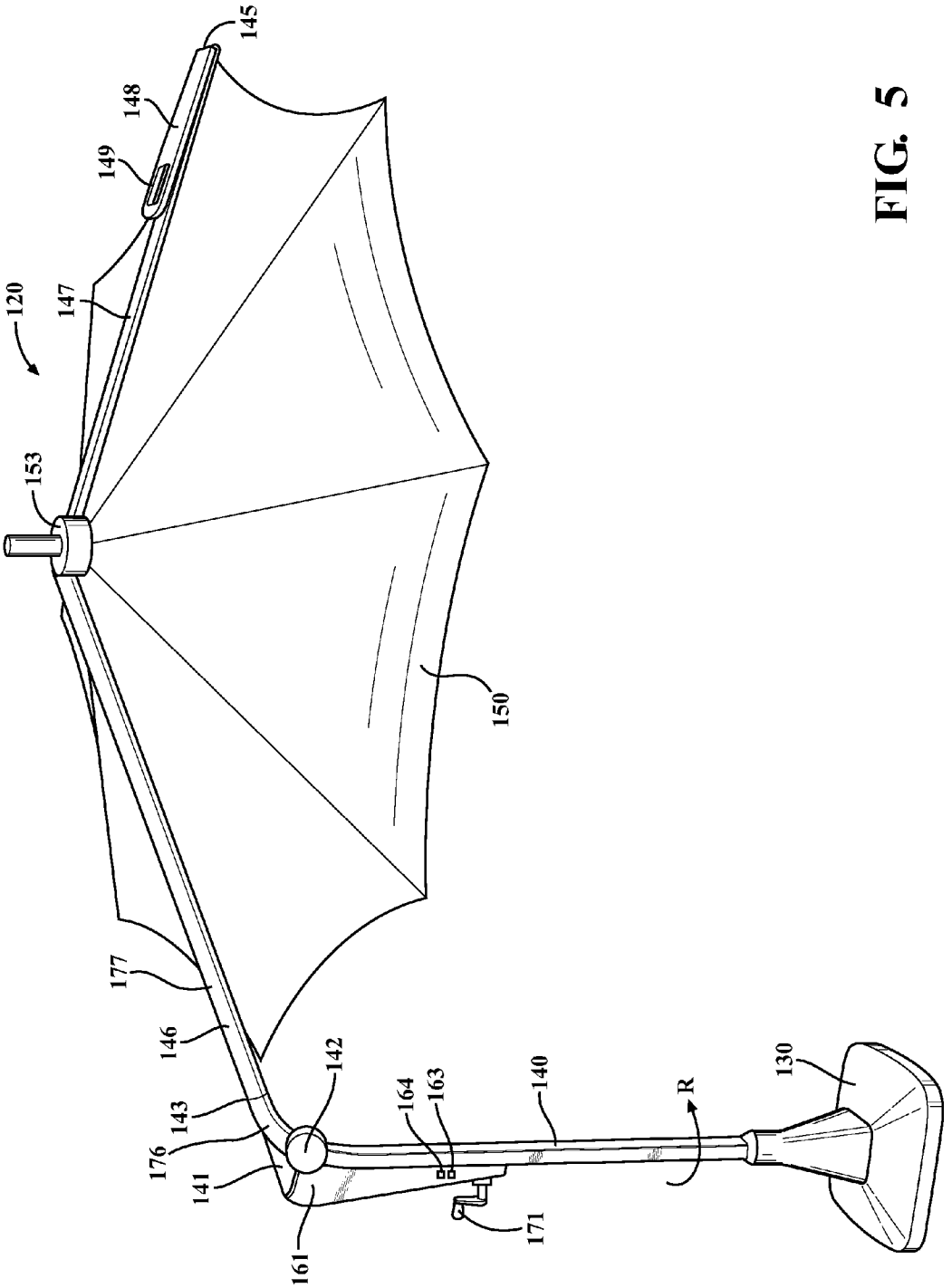
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FIG. 5

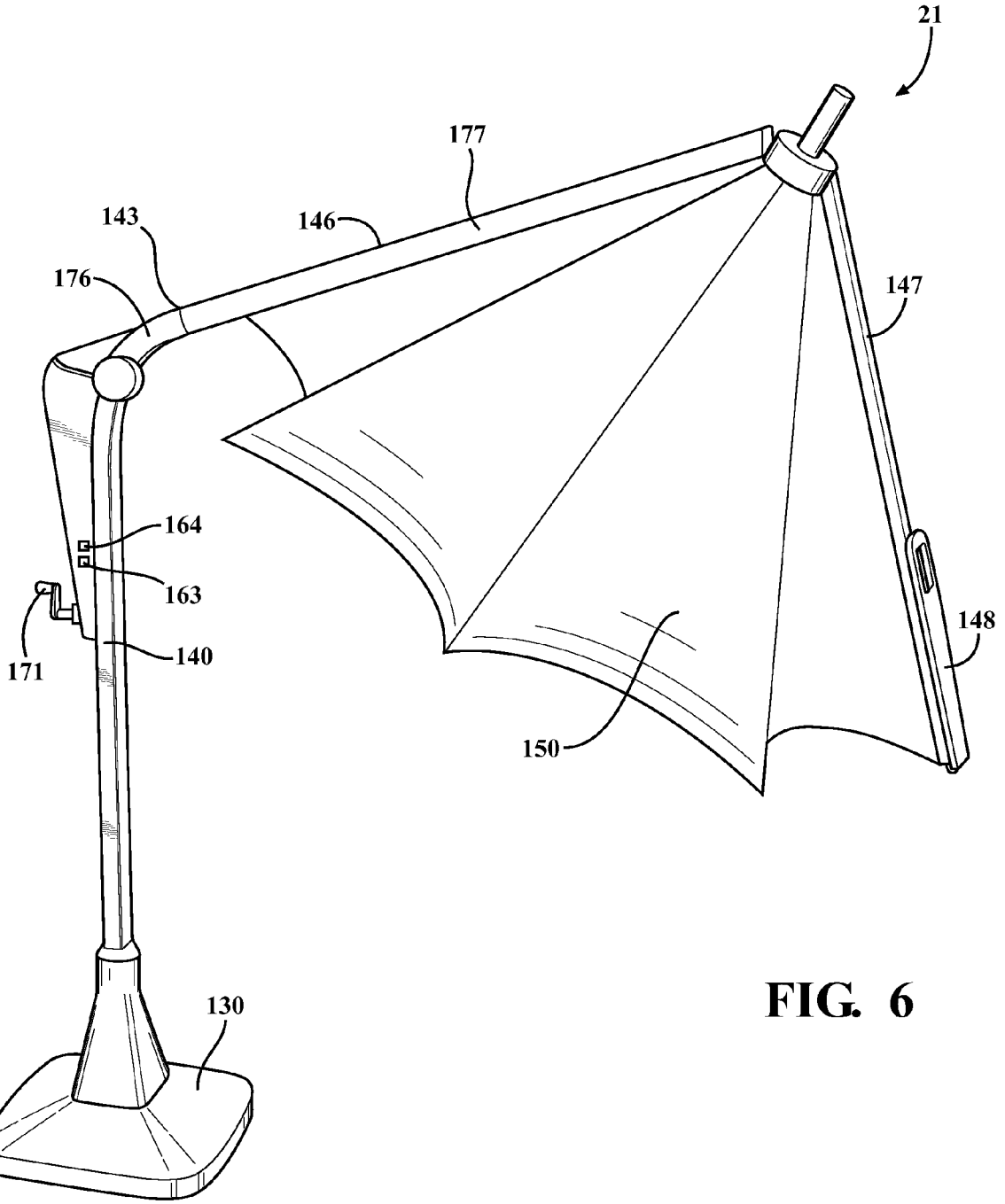


FIG. 6

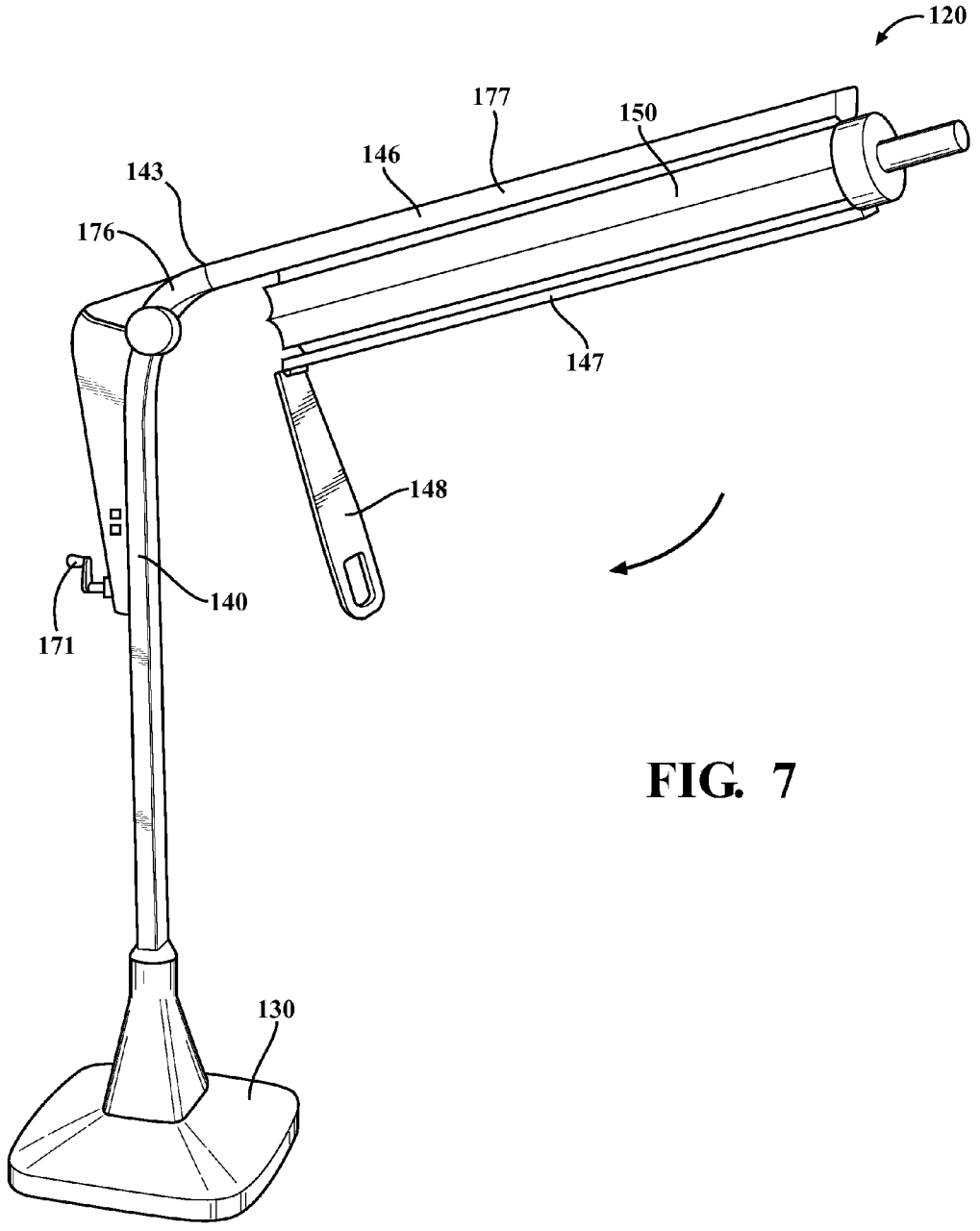
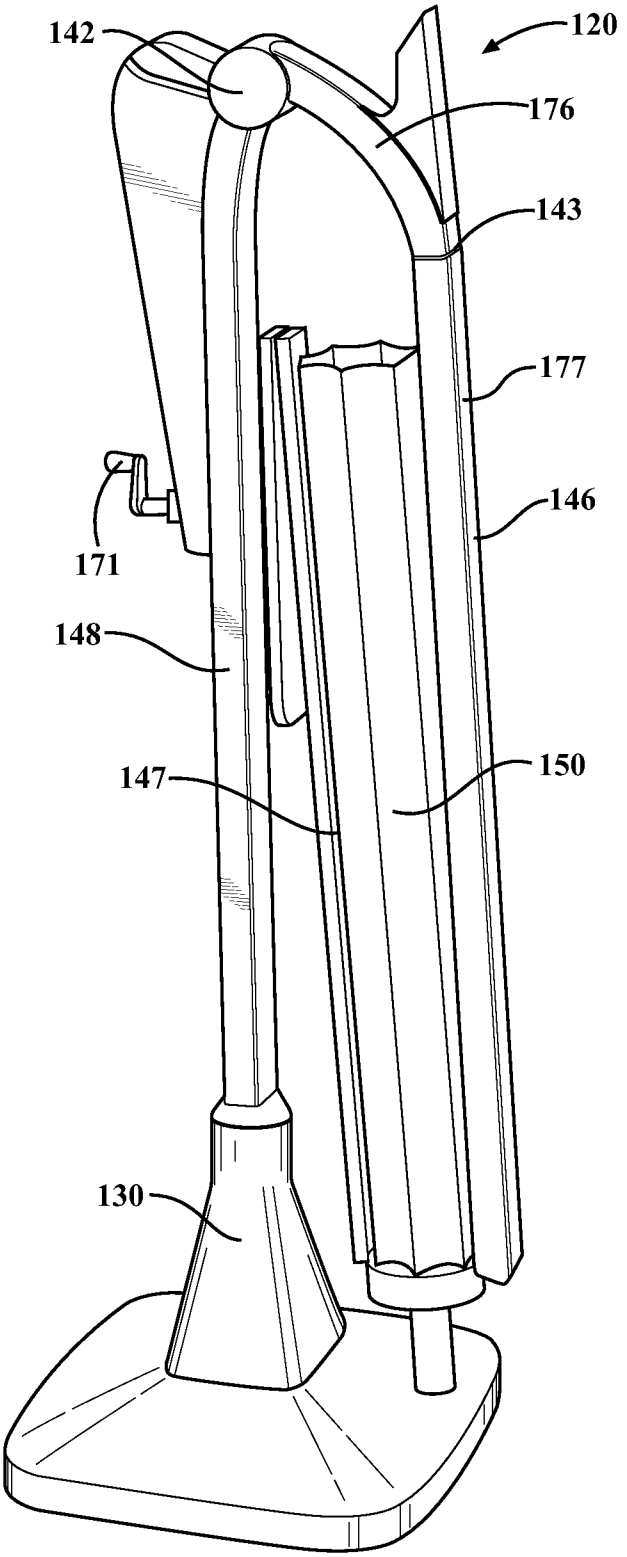


FIG. 7

FIG. 8



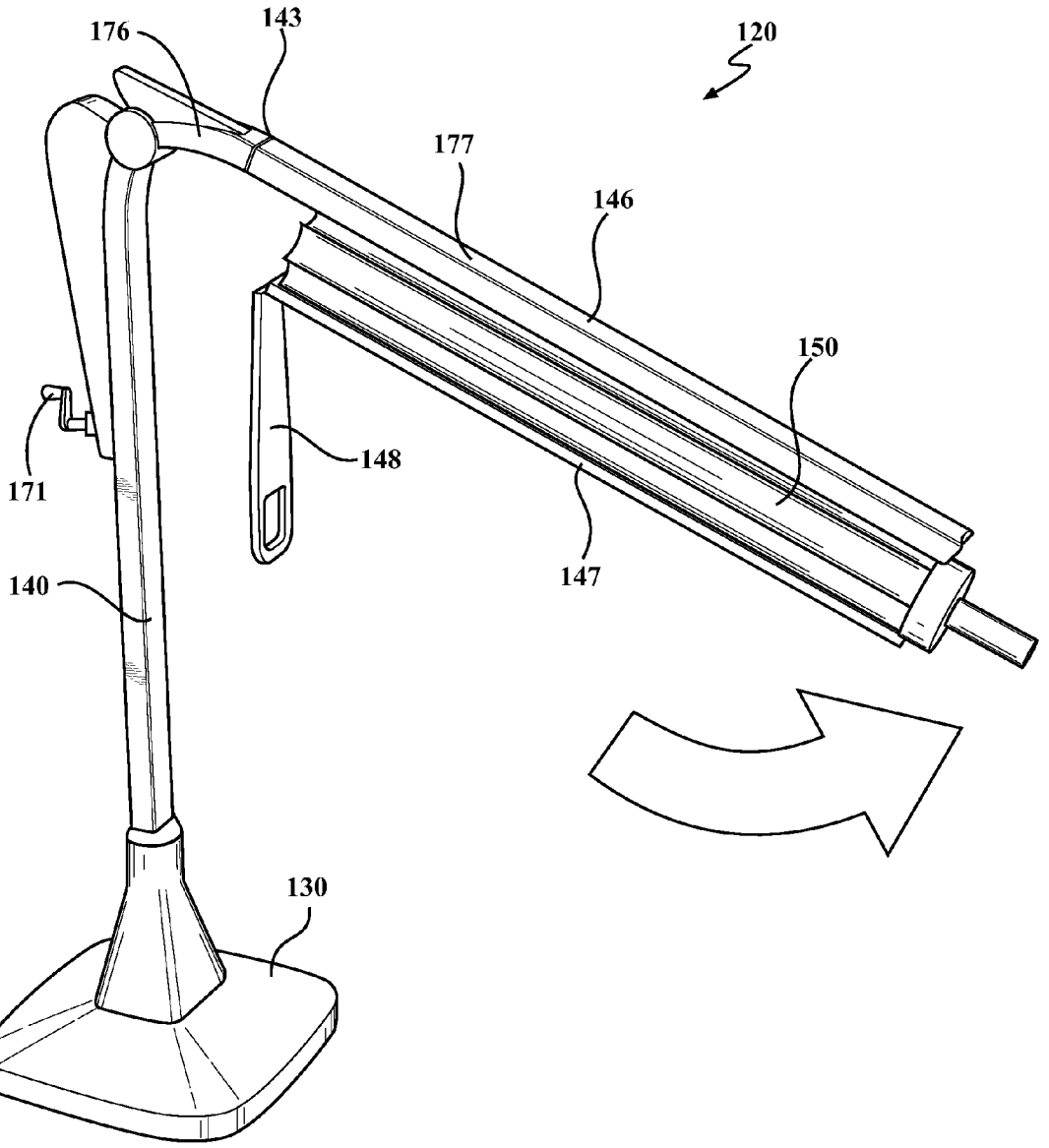


FIG. 9

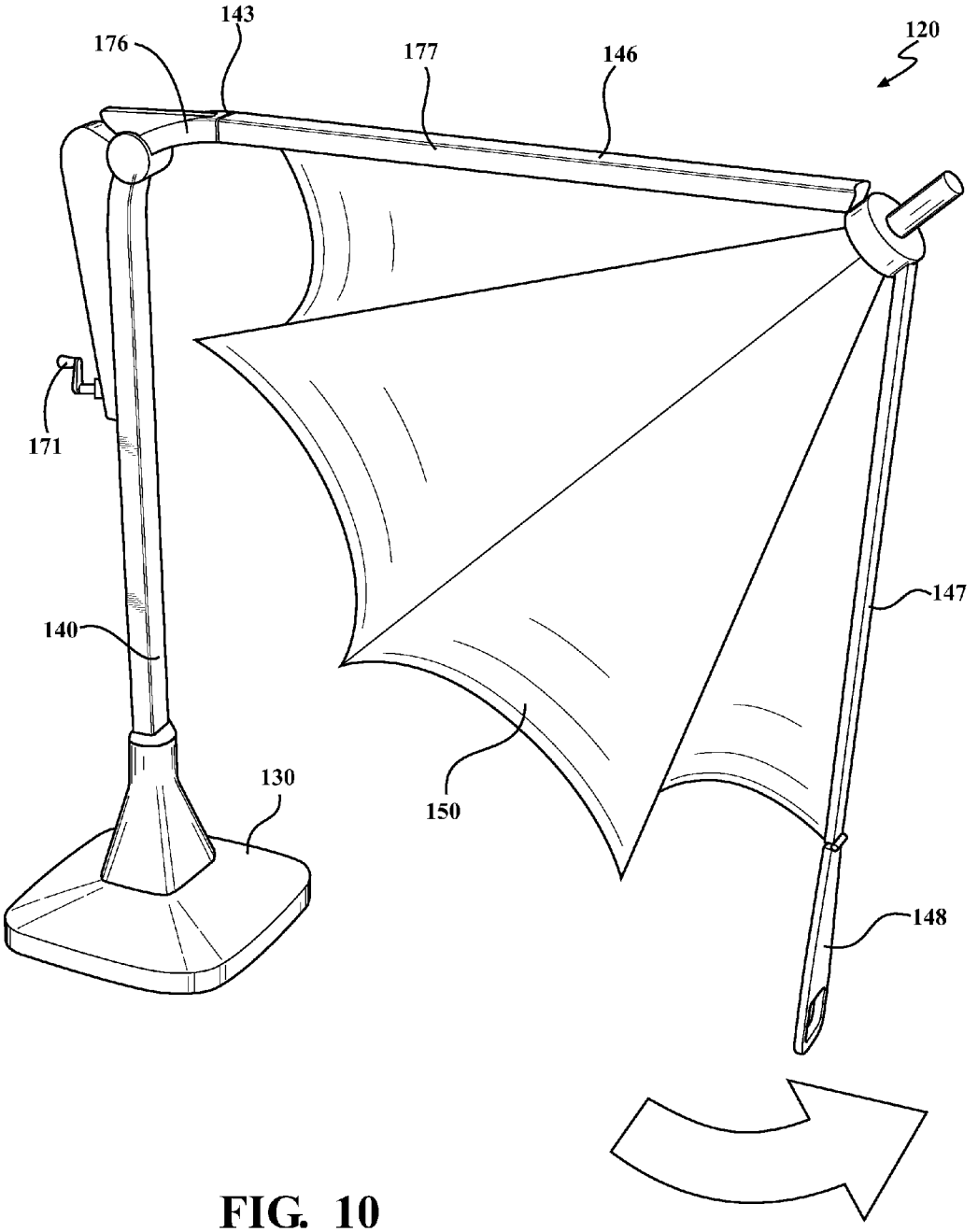


FIG. 10

FIG. 11

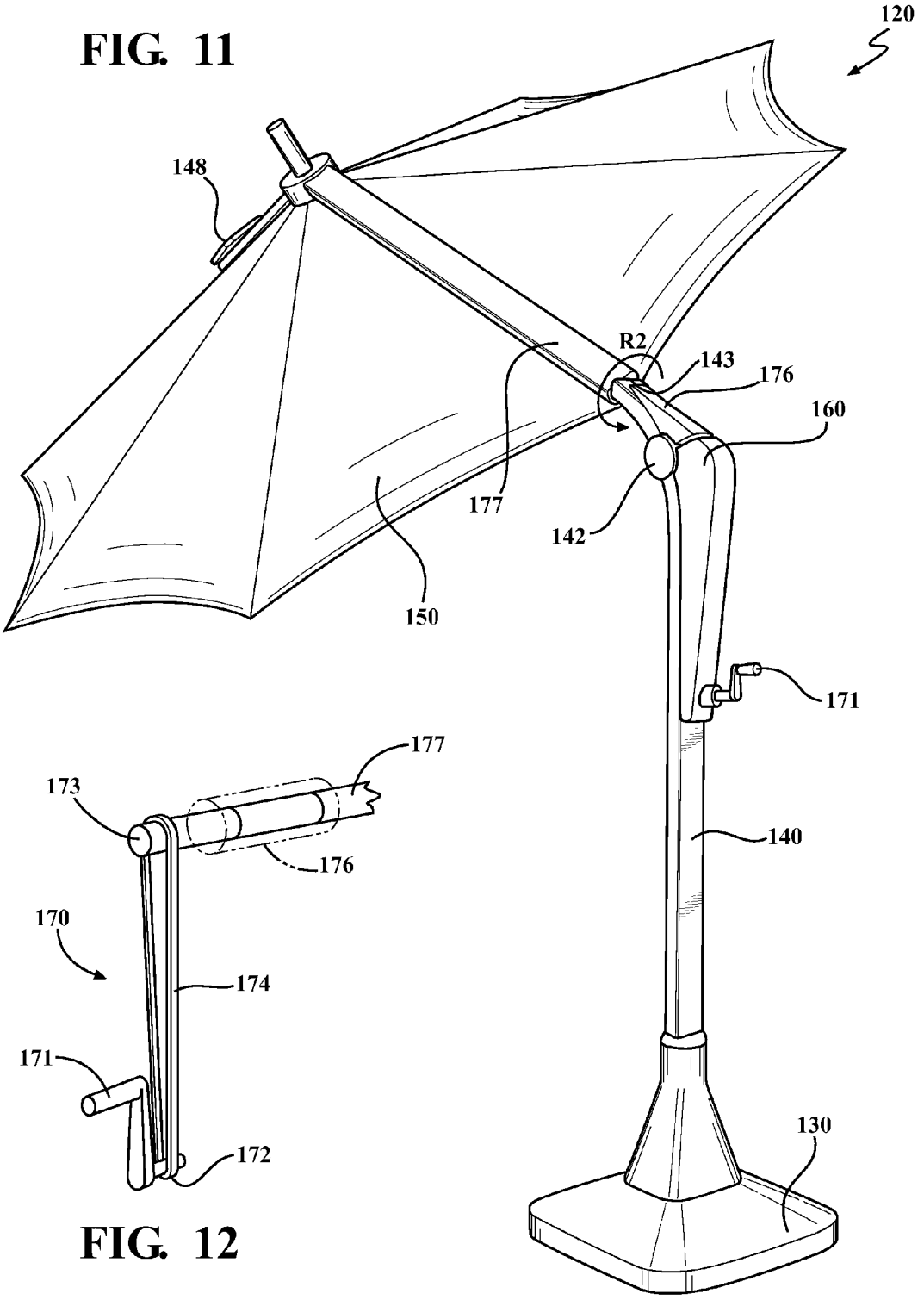

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FIG. 12

FIG. 13

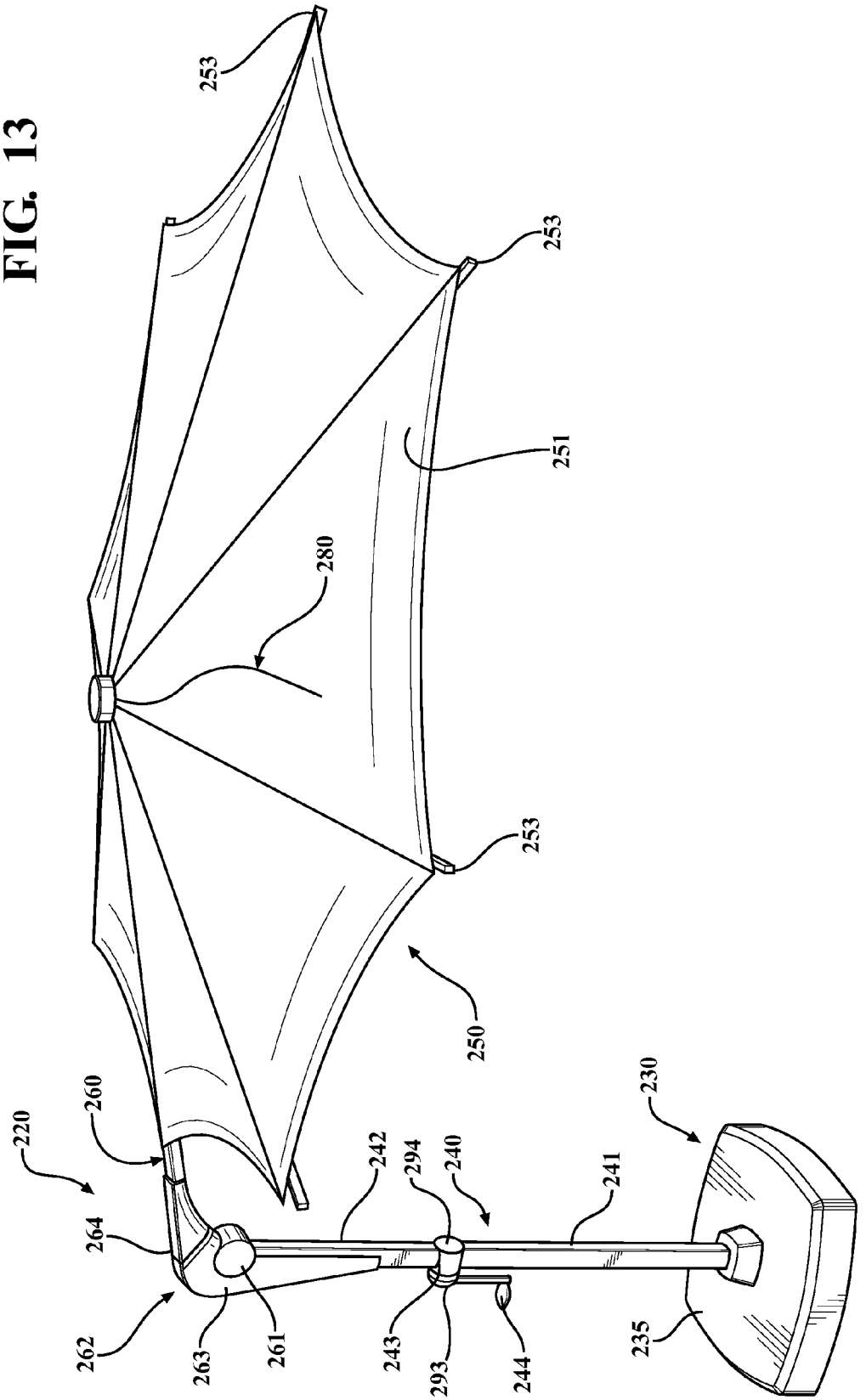
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FIG. 14

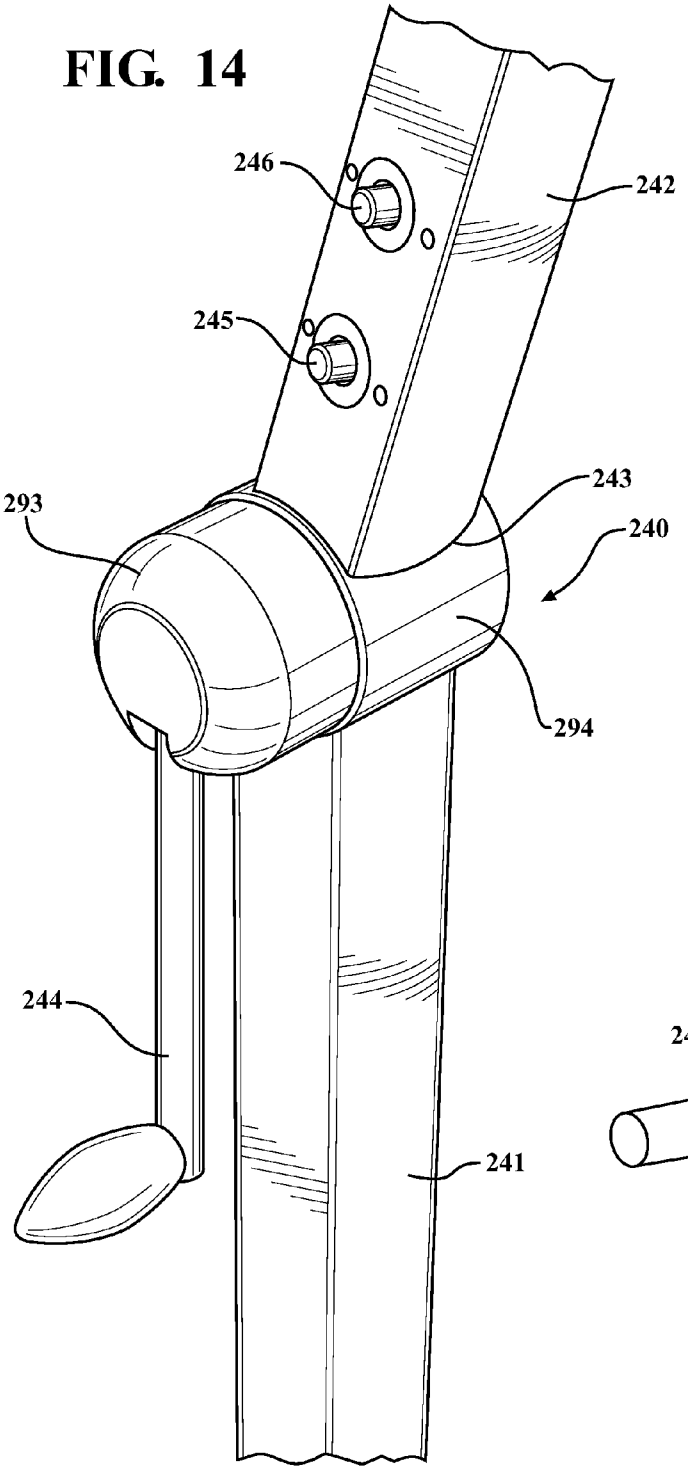
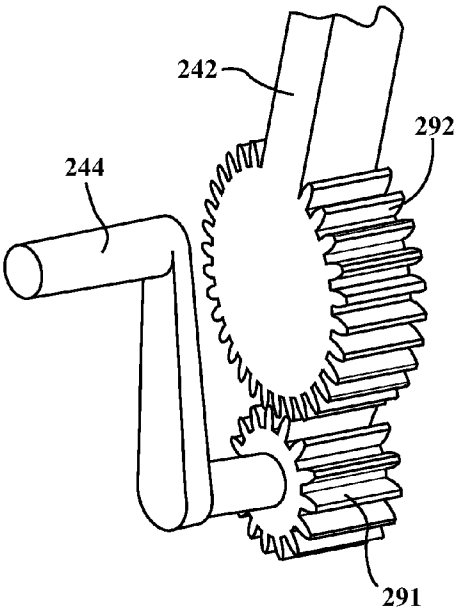


FIG. 15



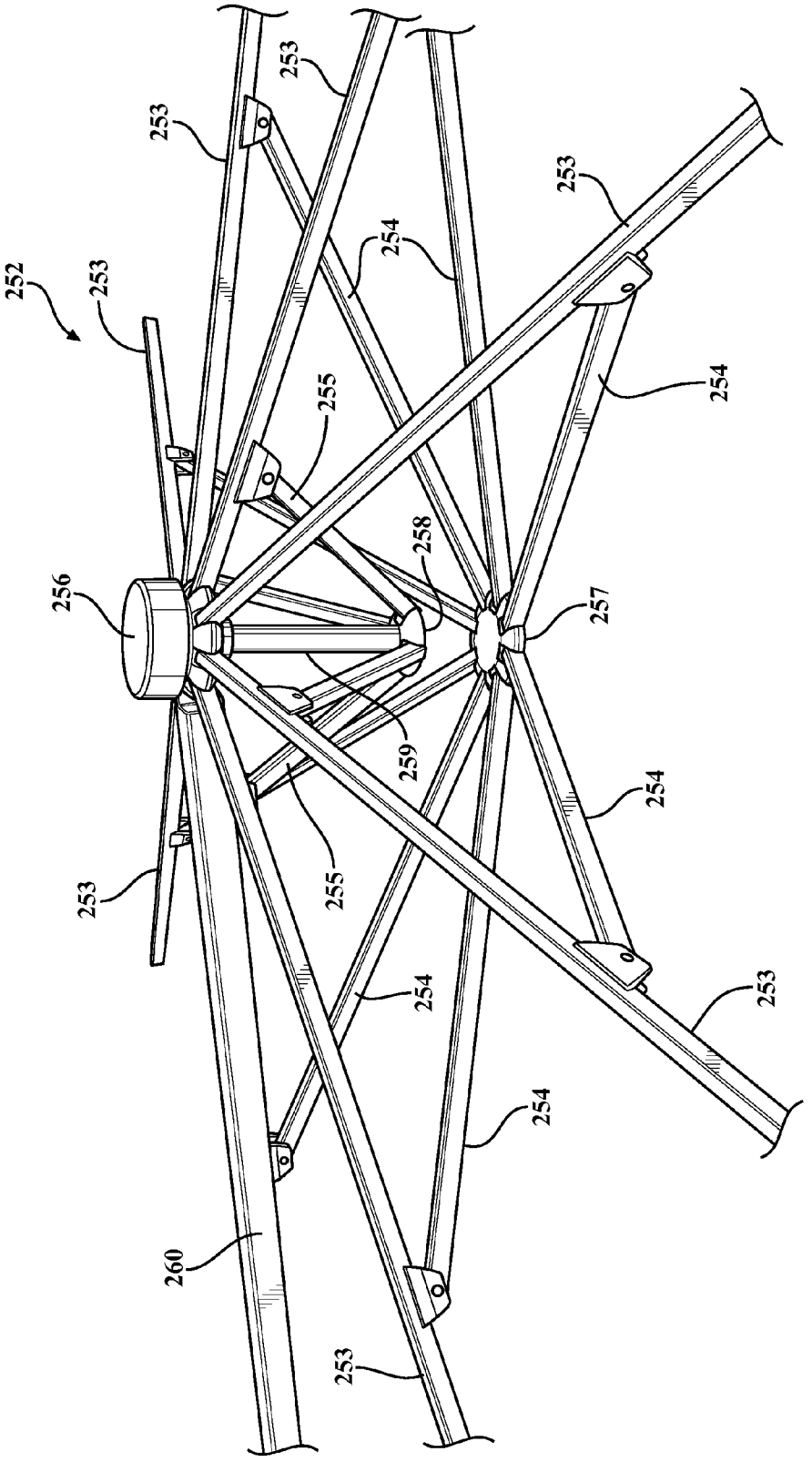

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FIG. 16

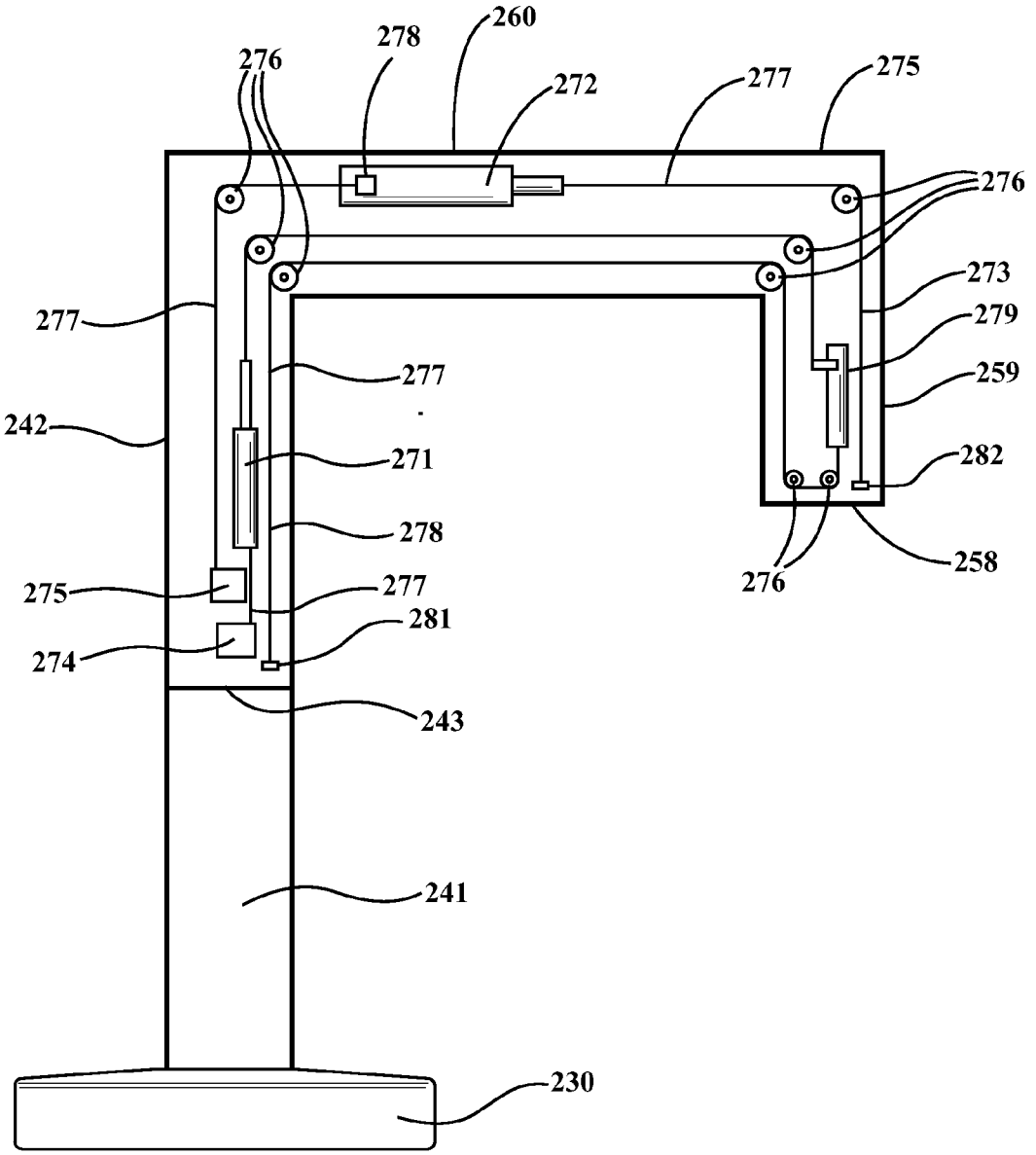
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FIG. 17

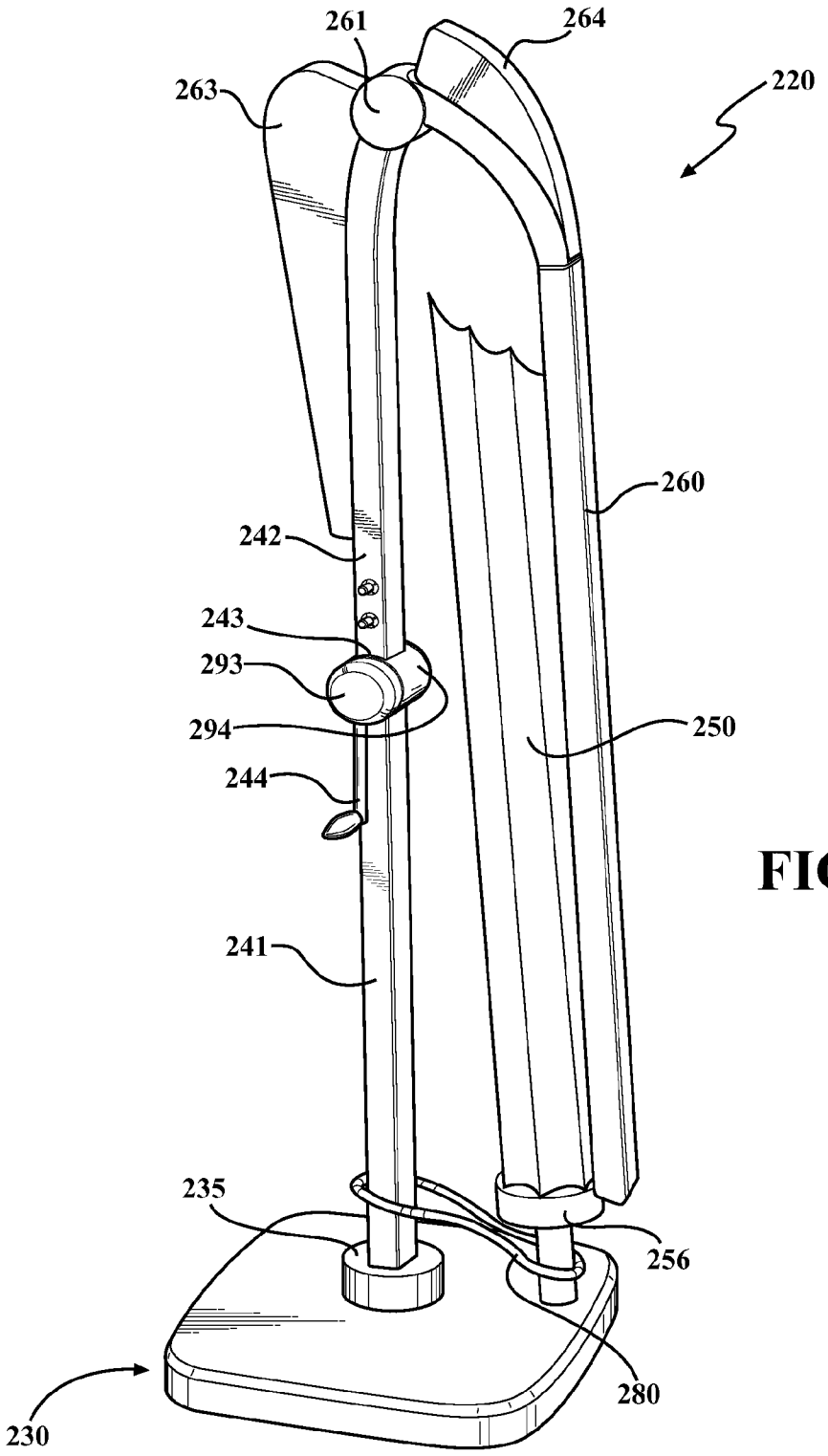

FIG. 18

CANTILEVERED UMBRELLA WITH ROTATION SYSTEM

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims benefit of U.S. Provisional Application Ser. No. 62/068,797 filed on Oct. 27, 2014, which is incorporated herein in its entirety by reference.

TECHNICAL FIELD

[0002] This disclosure relates generally to umbrella rotational systems, and more particularly, cantilevered umbrellas utilizing rotational systems.

BACKGROUND

[0003] Cantilevered umbrellas are well known in the art. Traditional cantilevered umbrellas have a dome-shaped canopy that is suspended from a cantilevered arm. Because of this suspension, traditional cantilevered umbrellas can be cumbersome to operate and position to ensure that coverage is maximized.

SUMMARY

[0004] According to a first embodiment, a cantilevered umbrella having a base, a mast, a cantilevered arm, a canopy, and a rotation system. The mast has a first end and a second end. The first end of the mast is connectable to the base. The cantilevered arm has a first portion pivotally connected to the second end of the mast and a second portion rotatably connected to the first portion. The canopy is connected to the cantilevered arm and has a covering and a frame. The frame is moveable between an inflated position and a deflated position. The rotation system includes a handle, a first pulley operable by the handle, a second pulley connectable to the second portion of the cantilevered arm, and a cable connecting the first pulley to the second pulley. Rotation of the handle rotates the second portion of the cantilevered arm with respect to the first portion of the cantilevered arm.

[0005] According to a second embodiment, a cantilevered umbrella having a base, a mast, a cantilevered arm, a canopy, and a rotation system. The mast has a first portion connectable to the base and a second portion rotatable with respect to the first portion. The cantilevered arm is pivotally connected to the mast. The canopy is connectable to the cantilevered arm and has a covering and a frame. The frame is moveable between an inflated position and a deflated position. The rotation system has a handle, a first gear connectable to the handle, a second gear connectable to the first portion of the mast, and a third gear connectable to the second portion of the mast. Rotation of the handle rotates the second portion of the mast with respect to the first portion of the mast.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The various features, advantages, and other uses of the present apparatus will become more apparent by referring to the following detailed description and drawings, in which:

[0007] FIG. **1** is a side view of a cantilevered umbrella in an open state;

[0008] FIG. **2** is a side view of the cantilevered umbrella in a closed state;

[0009] FIG. **3** is a schematic drawing that illustrates how the cantilevered umbrella is lowered and closed;

[0010] FIG. **4** is a schematic drawing that illustrates how the cantilevered umbrella can be tilted;

[0011] FIG. **5** is a side view of an alternative embodiment of the cantilevered umbrella in an open state;

[0012] FIG. **6** is a side view of the alternative embodiment of the cantilevered umbrella in a first partially closed state;

[0013] FIG. **7** is a side view of the alternative embodiment of the cantilevered umbrella in a second partially closed state;

[0014] FIG. **8** is a side view of the alternative embodiment of the cantilevered umbrella in a closed state;

[0015] FIG. **9** is a side view of the alternative embodiment of the cantilevered umbrella in a first partially opened state;

[0016] FIG. **10** is a side view of the alternative embodiment of the cantilevered umbrella in a second partially opened state;

[0017] FIG. **11** is a side view of the alternative embodiment of the cantilevered umbrella with a rotator lever;

[0018] FIG. **12** is a schematic drawing showing a rotation system housed within the alternative embodiment of the cantilevered umbrella.

[0019] FIG. **13** is a perspective view of a second alternative embodiment of the cantilevered umbrella in an opened position;

[0020] FIG. **14** is a fragmentary, detail view of a mast of the second alternative embodiment of the cantilevered umbrella in a rotated position;

[0021] FIG. **15** is a schematic drawing representing a rotation system that allows the mast to rotate as shown in FIG. **14**;

[0022] FIG. **16** is a fragmentary, perspective view of a frame of the second alternative embodiment of the cantilevered umbrella in the opened position;

[0023] FIG. **17** is a schematic drawing representing the inner workings of a mast, a cantilevered arm, a connecting member of the second alternative embodiment of the cantilevered umbrella in the opened position; and

[0024] FIG. **18** is a perspective view of the second alternative embodiment of the cantilevered umbrella in a closed position.

DETAILED DESCRIPTION

[0025] FIGS. **1-2** show a cantilevered umbrella **20** having a base **30**, a mast **40**, and a canopy **50**. FIG. **1** shows the cantilevered umbrella **20** in an open state, while FIG. **2** shows the cantilevered umbrella **20** in a closed state. The base **30** may be made of any suitable material, such as plastic or metal. The base **30** may have a rectangular-shape with an opening **31**. The opening **31** allows a dense material, such as sand, to be placed in the base **30**, which can help prevent the cantilevered umbrella **20** from leaning or tipping over from a gust of wind.

[0026] The mast **40** is elongated and extends longitudinally upward from the base **30**. The mast **40** can extend vertically or substantially vertically. The mast **40** is substantially hollow, which allows for the mast **40** to house a pulley system **60**. The mast **40** may be made of any suitable material, such as plastic or metal.

[0027] The mast **40** is comprised of a first portion **41**, a second portion **42**, and a third portion **43**. The first portion **41** is spaced a longitudinal distance from the second portion **42**, and the second portion **42** is spaced a longitudinal distance from the third portion **43**. The first portion **41** is positioned closest to the base **30**, and the third portion **43** is positioned furthest away from the base **30**. The second portion **42** is positioned between the first portion **41** and the third portion

43. The cross-section of first portion 41 is largest near the base 30 and tapers near the second portion 42, such that the cross-section of the first portion 41 has the same general size as the cross-section of the second portion 42. The cross-section of the second portion 42 may have a generally circular shape to allow for rotation of the second portion 42 in relation to the first portion 41. A plurality of elongated grooves 44 extend longitudinally on the second portion 42. The plurality of elongated grooves 44 are used by a slide assembly 70 for engagement.

[0028] The slide assembly 70 has a first handle 71, a second handle 72, and a center portion 73. The first handle 71 is spaced a longitudinal distance from the second handle 72. The center portion 73 is between the first handle 71 and the second handle 72. The first handle 71 is closer to the first portion 41 of the mast 40 than the second handle 72, and the second handle 72 is closer to the third portion 43 of the mast 40 than the first handle 71. The first handle 71, the second handle 72, and the center portion 73 have a substantially hollow area that surrounds the second portion 42 of the mast 40 that must be large enough for the slide assembly 70 to be slid longitudinally along the second portion 42 of the mast 40. The first handle 71 and the second handle 72 each have an aperture 74, 75 that extends longitudinally through it. These apertures 74, 75 create the handles that assist with the operation of the cantilevered umbrella 20.

[0029] The first handle 72 has a lowering button 76 and a tilt button (not shown). The lowering button 76 and the tilt button are substantially similar and may be oval buttons that extend out of the first handle 71 on opposite sides. The tilt button releases only the slide assembly 70 so that cantilevered umbrella 20 remains in the open state. The lowering button 76 releases both the slide assembly 70 and the pulley system 60 so that the cantilevered umbrella 20 may be returned to the closed state. These functions will be discussed further later.

[0030] At a free end 45 of the mast 40, a cantilevered arm 46 extends away from the mast 40 toward the canopy 50. The cantilevered arm 46 is attached to the free end 45 of mast 40 and the middle of a primary external arm 54 of the canopy 50 using fixed hinges 47, 48. A free end 78 of the primary external arm 54 is also attached to the slide assembly 70 near the second handle 72 using a fixed hinge 49. The fixed hinges allow the canopy 50 to be tilted using the slide assembly 70 when the canopy 50 is in the open state.

[0031] As shown in FIGS. 3-4, the canopy 50 is comprised of a covering 51 and a frame 52. The frame 52 has an external end cap 53, the primary external arm 54, a plurality of secondary external arms 55, a center arm 56, and a plurality of internal arms 57. Five secondary external arms 55 are shown and six internal arms 57, although this number could vary as long as the number of external arms 54, 55 and the number of internal arms 57 are the same. The external arms 54, 55 extend away from the external end cap 53 and are equidistant from one another. The center arm 56 is hollow and extends downward away from the external end cap 53. Near a free end 58 of the center arm 56, an internal end cap 59 rests when the cantilevered umbrella 20 is in the open state. Each of the internal arms 57 are hingedly attached to the internal end cap 59 and to one of the external arms 54, 55 so that the angle between the external arms 54, 55 and the internal arms 57 can change when the internal end cap 59 is extended away from the center arm 56 by the pulley system 60.

[0032] The covering 51 is attached to the frame 52 so that covering 51 is between the external arms 54-55 and the internal arms 57. The covering 51 may also be attached so that it is between the external end cap 53 and the center arm 56. The covering 51 may be made of any suitable material that provides adequate protection from the sun, such as nylon. The covering 51 could also contain a waterproof material to provide protection from rain.

[0033] The pulley system 60 that is housed inside the mast 40 is comprised of a spring 61, a first pulley 62, a second pulley 63, a third pulley 64, a first fixed end 65, a second fixed end 66, a first cable 67, and a second cable 68. The spring 61 is attached in the first portion 41 of the mast 40 near the base 30 and extends toward third portion 43 of the mast 40. The first pulley 62 is located near the location where the second portion 42 and the third portion 43 meet. The second pulley 63 is located in the slide assembly 70 near the location where the primary external arm 54 attaches to the slide assembly 70. The third pulley 64 is located between the external end cap 53 and the center arm 56 of the canopy 50. The first fixed end 65 is located in the first portion 41 of the mast 40 near the base 30 and the location where the spring 61 is attached. The second fixed end 66 is located in the slide assembly 70 near the location where the primary external arm 54 attaches to the slide assembly 70. The first cable 67 is attached to the spring 61 on one end, loops over the first pulley 62, and is attached on the other end at the first fixed end 65. The second cable 68 is attached to the second fixed end 66, loops over the second pulley 63 and the third pulley 64, and is attached on the other end at the internal end cap 59 of the canopy 50.

[0034] FIGS. 3-4 show the operation of the cantilevered umbrella 20. To open the cantilevered umbrella 20 from the closed state, the slide assembly 70 is pulled upwards toward the free end 45 of the mast 40 using the first handle 71 and second handle 72. This causes the first cable 67 to stretch the spring 61, which provides the energy needed to raise the cantilevered umbrella 20. This also causes the second cable 68 to pull the internal end cap 59 toward the center arm 56, which opens the canopy 50 and moves the cantilevered arm 46 away from the mast 40. Once the canopy 50 is fully opened to provide the maximize amount of coverage, a latch 77 in the slide assembly locks the second cable 68 into place so that no movement of the second cable 68 is possible between the second pulley 63 and the internal end cap 59. This latch 77 is released when the lowering button 76 is pressed. Once the latch 77 is engaged, the cantilevered umbrella 20 may be tilted by pressing the tilt button and raising or lowering the slide assembly 70 along the second portion 42 of the mast 40. The tilt button must be pressed while the slide assembly 70 is raised or lowered.

[0035] To return the cantilevered umbrella 20 to the closed state, the lowering button 76 on the slide assembly 70 is pressed and held while the slide assembly 70 is lowered toward the base 30. This causes the internal end cap 59 to move away from the center arm 56, the canopy 50 to collapse, and the cantilevered arm 46 to toward the mast 40. When the cantilevered umbrella 20 is fully closed, the external arms 54, 55 of the canopy 50 will be substantially parallel to the mast 40.

[0036] An alternative embodiment of a cantilevered umbrella 120 is in FIGS. 5-12. In the cantilevered umbrella 120, an air shock system (not shown) is used to open and lower the cantilevered umbrella 120. The cantilevered umbrella 120 has a base 130, a mast 140, and a canopy 150. A cantilevered arm 146 is attached to the mast 140 via a connecting body 141. Away from the connecting body 141, the

cantilevered arm **146** is attached to an end cap **153**. A secondary arm **147** extends from the end cap **153**, such that the secondary arm **147** is direct across from the cantilevered arm **146** on the opposite side of the end cap **153**. An arm bar **168** is attached to a free end **145** of the secondary arm **147**. An aperture **149** extends through the arm bar **168** on the end that is away from where the arm bar **168** is attached to the secondary arm **147**.

[0037] A control system **160** is located near a joint **142** between the mast **140** and the connecting body **141**. The control system **160** has a body **161**, a handle **162**, a first lever **163**, and a second lever **164**. The body **161** has a substantially triangular shape and is attached flush to the mast **140** near the connecting body **141**. The handle **162** also has a substantially triangular shape and is attached flush to the body **161**. An aperture **165** is formed in the handle **162** away from the joint **142** between the mast **140** and the connecting body **141**. The first lever **163** and the second lever **164** are formed within the body **161** of the control system **160** away from the joint **142** between the mast **140** and the connecting body **141**. The first lever **163** allows the cantilevered umbrella **120** to collapse, and the second lever **164** allows the cantilevered umbrella to collapse at the joint **142** between the mast **140** and the connecting body **141**.

[0038] The control system **160** partially houses a rotation system **170** that enables rotational movement of the cantilevered arm **146** at a joint **143** as illustrated in FIG. **11**. The rotation system **170** is shown in detail in FIG. **12** and includes a handle **171**, a first pulley **172**, a second pulley **173**, and a cable **174**. The first pulley **172** can be smaller than the second pulley **173**. The handle **171** is connected to the first pulley **172**, which can be a drive pulley. The first pulley **172** and the second pulley **173** are connected to one another via the cable **174**. The cable **174** can be a chain, flexible belt, or other type of similar object.

[0039] The second pulley **173**, which can also be a drive pulley, is attached to a second portion **177** of the cantilevered arm **146** such that movement of the second pulley **173** also moves the second portion **177** of the cantilevered arm **146**. To accomplish this, the second portion **177** extends through a first portion **176** of the cantilevered arm **146** to reach the second pulley **173** housed within the control system **160**. The second portion **177** should have enough clearance within the first portion **176** of the cantilevered arm **176** for the second portion **177** to rotate as the handle **171** is rotated. The body **161** of the control system **160** serves as a cover for the rotation system **170** to protect the rotation system **170** from contaminants and eliminate pinch points that could cause injury to a user of the cantilevered umbrella **120**.

[0040] To close the cantilevered umbrella **120**, as shown in FIGS. **6-8**, the first lever **163** is twisted, which allows air to slowly exit from a one-way valve (not shown) in the air shock system. As gravity slowly collapses the canopy **150**, the secondary arm **147** moves toward the cantilevered arm **146** until the secondary arm **147** is substantially parallel to the cantilevered arm **146** and the canopy **150** is collapsed between the secondary arm **147** and the cantilevered arm **146**. The arm bar **148** is then used to push the secondary arm **147** into the canopy **150** until the canopy **150** locks into the cantilevered arm **146** and the secondary arm **147** through the use of a snapping mechanism (not shown) on the canopy **150**. Once the snapping mechanism is activated to lock the canopy **150** into the cantilevered arm **146** and the secondary arm **147**, the second lever is twisted to release the joint **142** between the mast **140** and the connecting body **141** and fully close the cantilevered umbrella **120**. The air shock system is used to ensure that the cantilevered arm **146**, the secondary arm **147**, and the canopy **150** fall slowly and safely.

[0041] Referring to FIGS. **9-10**, the cantilevered umbrella **120** may be opened from the closed state by raising the cantilevered arm **146**, the secondary arm **147**, and the canopy **150** until a latch (not shown) in the joint **142** between the mast **140** and the connecting body **141** is engaged. This holds the cantilevered arm **146** into position. The arm bar **148** is then pulled away from the cantilevered arm **146** until the angle between the cantilevered arm **146** and the secondary arm **147** is approximately 180 degrees and the secondary arm **147** locks into place through the use of a latch (not shown). The arm bar **148** may then be moved so that it is flush with the secondary arm **147** and is out of view.

[0042] With the cantilevered umbrella **120** fully inflated, the second portion **177** of the cantilevered arm **146** can be rotated with respect to first portion **176** of the cantilevered arm along rotational path R**2** by rotating the handle **171**. This allows a user of the cantilevered umbrella **120** to position the canopy **150** such that maximum coverage is achieved. The cantilevered umbrella **120** can also be rotated from the base **130** by moving the mast **140** along rotational path R**1**.

[0043] Yet alternative embodiment of a cantilevered umbrella **220** is shown in FIGS. **13-19**. In the cantilevered umbrella **220**, an air shock system **270** is used to open and close the cantilevered umbrella **220**. FIG. **13**. shows the cantilevered umbrella **220** in an opened position, where the canopy **250** is inflated and the cantilevered arm **260** is substantially perpendicular to the mast **240**. The cantilevered umbrella **220** has a base **230**, a mast **240**, a canopy **250**, and a cantilevered arm **260**. The base **230** is similar to the base **30**. The base **230** may include a locking collar **235** positioned on the outer surface of the base **230** adjacent to and surrounding the mast **240**. The locking collar **235** allows the mast **240** to be rotated relative to the base **230** when the locking collar **235** is loosened.

[0044] The mast **240** is similar to the mast **40**. The mast **240** may include a first portion **241** adjacent to the base **230** and a second portion **242**. Between the first portion **241** and the second portion **242**, a joint **243** can be present that allows the second portion **242** to be rotated in respect to the first portion **241** when a handle **244** is rotated, which is shown in FIG. **14**. This rotation is facilitated by a rotation system **290** that is partially housed within mast **240**.

[0045] The rotation system **290** includes a first gear **291**, a second gear **292**, and the handle **244**, which is shown in FIG. **15**. The handle **244** is connected to the first gear **291**, which can be housed within the first portion **241** of the mast **240**. The first gear **291** can be smaller in size than the second gear **292**. The first gear **291** interlocks the second gear **292** such that rotation of the first gear **291** by the handle **292** moves both the first gear **291** and the second gear **292**. The second gear **292** is attached to the second portion **242** of the mast, either directly or indirectly, such that movement of the second gear **292** by the first gear **291** also moves the second portion **242** of the mast. The first gear **291** and the second gear **292** can be enclosed in a first cover **293** and a second cover **294**, respectively, to protect the first gear **291** and the second gear **292** from contaminants. Alternatively, the first gear **291** and/or the second gear **292** could be housed within the mast **240**.

[0046] The cantilevered arm **260** is pivotally connected to an end of the mast **240** that is opposite the base **230**. A joint

261 may be positioned between the cantilevered arm 260 and the mast 240. Adjacent to the joint 261, a support collar 262 may be provided that includes a first portion 263 and a second portion 264. The first portion 263 of the support collar 262 is adjacent to the mast 240, and the second portion 264 of the support collar 262 is adjacent to the cantilevered arm 260. The first portion 263 and the second portion 264 may individually have a generally triangular shape but cumulatively have a substantially L-shaped configuration to provide addition support when the cantilevered umbrella 220 is in an opened position.

[0047] The canopy 250 is similar to the canopy 50 and is comprised of a covering 251 and a frame 252. The covering 251 is similar to the covering 51 and may be provided on top of the frame 252. FIG. 16 shows the frame 252, which is comprised of a plurality of first ribs 253, a plurality of second ribs 254, a plurality of third ribs 255, a first hub 256, a second hub 257, a third hub 258, and a connecting member 259. A rope 280 may be attached to the canopy 250 near the first hub 256 on top of the covering 251 to assist with opening and closing the canopy 150.

[0048] Although the length of each individual rib in each plurality of ribs may vary, the plurality of first ribs 253 are generally the longest ribs and the plurality of third ribs 255 are generally the shortest ribs when comparing the plurality of ribs to one another. The length of each individual first ribs 253 may gradually increase around the canopy 250, such that the first rib 253 that is directly opposite the cantilevered arm 260 is the longest. The number of ribs in each set of plurality of ribs may vary. As shown, there are seven first ribs 253, eight second ribs 254, and four third ribs 255. There is one less first rib 253 in the exemplary embodiment because the cantilevered arm 260 is functioning as the eighth first rib 253. It is anticipated that the frame 252 could include the additional first rib 253, in which case the cantilevered arm 260 would not need to serve as the additional first rib 253 and the frame 252 would instead be suspended from the cantilevered arm 260.

[0049] To assemble the frame 252, one end of each first rib 253 is pivotally connected to the first hub 256. The plurality of first ribs 253 may be spaced in an equidistant manner around the circumference of the first hub 256. The first hub 256 is connected to one end of the connecting member 259, and the other end of the connecting member 259 is connected to the third hub 258. The connecting member 259 may be telescoping to assist with the opening and closing of the cantilevered umbrella 220.

[0050] One end of each third rib 255 is pivotally connected to the third hub 258. The plurality of third ribs 255 may be spaced in an equidistant manner around the circumference of the third hub 258. The other end of the each third rib 255 is pivotally connected to one first rib 253 and positioned near the first hub 256. In the exemplary embodiment, there are twice as many first ribs 253 as third ribs 255, so only every other first rib 253 has a third rib 255 connected to it. Similar to first ribs 253 and the third ribs 255, one end of each second rib 254 is pivotally connected to the second hub 257. The other end of each second rib 254 is pivotally connected to one first rib 253 and positioned near the distal end of the first rib 253. Once assembled, the centers of the first hub 256, the second hub 257, and the third hub 258 may be coaxially aligned.

[0051] To assist with the opening and closing of the cantilevered umbrella 220, the air shock system 270 may be provided, which is shown in FIG. 17. The air shock system 270 may include a first gas spring 271, a second gas spring 272, a third gas spring 273, a first actuator 274, and a second actuator 275. The first actuator 274 corresponds to a first button 245 on the mast 240, and the second actuator 275 corresponds to a second button 246 on the mast 240. The first button 245 and second button 246 may be used to operate the cantilevered umbrella 220. The first gas spring 271 may be affixed within the second portion 242 of the mast 240, the second gas spring 272 may be affixed within the cantilevered arm 260, and the third gas spring 273 may be affixed within the connecting member 259 of the canopy 250. The first gas spring 271 and the third gas spring 273 may each have a one-way air valve 278, 279 that is moveable between an opened position, where air can escape the gas spring 271, 273 to allow the gas spring 271, 273 to contract, and a closed position, where air cannot escape the gas spring 271, 273 and the gas spring 271, 273 will elongate as force is applied to it.

[0052] The first gas spring 271, the second gas spring 272, and the third gas spring 273 are connected by a plurality of pulleys 276 and a plurality of cables 277. As shown, one cable 277 connects the first actuator 274 to the one-way air valve 279 of the third gas spring 273. A second cable 277 connects an end of the third gas spring 273 to a fixed point 283 in the connecting member 259 near the third hub 258. A third cable 277 connects the third gas spring 273 to a fixed point 284 in the mast 240. A fourth cable 277 connects the first gas spring 271 to a point 285 on the cable 277 that connects the first actuator 274 to the one-way air valve 279 of the third gas spring 273. A fifth cable 277 connects the second actuator 275 to the one-way air valve 278 of the second gas spring 272. A sixth cable 277 connects an end of the second gas spring 272 to a fixed point 282 in the connecting member 259 near the third hub 258. The pulleys 276 assist with guiding the cables 277 through the second portion 242 of the mast 240, the cantilevered arm 260, and the connecting member 259 of the canopy 250.

[0053] FIG. 18 shows the cantilevered umbrella 220 in a closed position, where the canopy 250 is deflated and the cantilevered arm 260 is substantially parallel to the mast 240. To keep the cantilevered umbrella 220 in the closed position, the rope 280 is tied around the mast 240 near the base 230. To open the cantilevered umbrella 220, the rope 280 is untied. When the rope 280 is untied, the first gas spring 271 will expand to urge the cantilevered arm 260 upward toward the opened position, where the cantilevered arm 260 is substantially perpendicular to the mast 240. This occurs because the natural state of the first gas spring 271 is uncompressed. The second button 246 is then pressed to activate the second actuator 275, which in turn opens the one-way air valve 278 on the second gas spring 272. As air exits through the one-way air valve 279 on the second gas spring 272, the second gas spring 272 contracts to inflate the canopy 250 by decreasing the length of the connecting member 259, which raises the plurality of first ribs 253. Once the canopy 250 is fully inflated, the second portion 242 of the mast 240 can be rotated with respect to the first portion 241 of the mast 240 by rotating the handle 244.

[0054] To close the cantilevered umbrella 220, the second portion 242 of the mast 240 should first be returned to a substantially vertical position by rotating the handle 244 of the rotation system 290 in the opposite direction. The first button 245 and the second button 246 are then pressed, which can be done at the same time. Because this is the second time the second button 246 has been pressed, the second actuator

275 will deactivate, which in turn closes the one-way air valve **278** on the second gas spring **272**. When first button **245** is pressed, the first actuator **274** is activated, which in turn closes the one-way air valve **279** on the third gas spring **273** to allow the third gas spring **273** to expand. As the third gas spring **273** expands, the connecting member **259** of the canopy **250** increases in length, which lowers the plurality of first ribs **253**. The cantilevered arm **260** and the canopy **250** can then be manually pushed toward the mast **240** until the cantilevered arm **260** is substantially parallel with the mast **240**. The rope **280** on the canopy **250** can then be tied around the mast **240** near the base **230** to secure the cantilevered umbrella **220** in the closed position.

[0055] While the invention has been shown and described with reference to a certain specific embodiments, modification may now suggest itself to those skilled in the art. Such modifications and various changes in form and detail may be made herein without departing from the spirit and scope of the invention. Accordingly, it is understood that the invention will be limited only by the appended claims.

What is claimed is:

1. A cantilevered umbrella, comprising:

a base;

a mast having a first end connectable to the base and a second end;

a cantilevered arm having a first portion pivotally connected to the second end of the mast and a second portion rotatably connected to the first portion;

a canopy connectable to the cantilevered arm and having a covering and a frame, wherein the frame is moveable between an inflated position and a deflated position; and

a rotation system having a handle, a first pulley operable by the handle, a second pulley connectable to the second portion of the cantilevered arm, and a cable connecting the first pulley to the second pulley, wherein rotation of the handle rotates the second portion of the cantilevered arm with respect to the first portion of the cantilevered arm.

2. The cantilevered umbrella of claim **1**, further comprising:

a cover at least partially surrounding the rotation system to protect the rotation system from contaminants.

3. The cantilevered umbrella of claim **1**, wherein the first pulley is smaller than the second pulley.

4. The cantilevered umbrella of claim **1**, wherein the cable is a chain.

5. The cantilevered umbrella of claim **1**, wherein the cable is a flexible belt.

6. The cantilevered umbrella of claim **2**, wherein the first pulley is smaller than the second pulley.

7. The cantilevered umbrella of claim **6**, wherein the cable is a chain.

8. The cantilevered umbrella of claim **6**, wherein the cable is a flexible belt.

9. A cantilevered umbrella, comprising:

a base;

a mast having a first portion connectable to the base and a second portion rotatable with respect to the first portion;

a cantilevered arm pivotally connected to the mast;

a canopy connectable to the cantilevered arm and having a covering and a frame, wherein the frame is moveable between an inflated position and a deflated position; and

a rotation system having a handle, a first gear connectable to the handle, and a second gear connectable to the second portion of the mast, wherein rotation of the handle rotates the second portion of the mast with respect to the first portion of the mast.

10. The cantilevered umbrella of claim **9**, wherein the first gear and the second gear interlock one another.

11. The cantilevered umbrella of claim **9**, wherein the first gear is smaller than the second gear.

12. The cantilevered umbrella of claim **9**, wherein the first gear is protected by a first cover.

13. The cantilevered umbrella of claim **9**, wherein the second gear is protected by a second cover.

14. The cantilevered umbrella of claim **13**, wherein the second cover is connected to the second portion of the mast.

15. The cantilevered umbrella of claim **10**, wherein the first gear is smaller than the second gear.

16. The cantilevered umbrella of claim **15**, wherein the first gear is protected by a first cover.

17. The cantilevered umbrella of claim **16**, wherein the second gear is protected by a second cover.

18. The cantilevered umbrella of claim **17**, wherein the second cover is connected to the second portion of the mast.

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