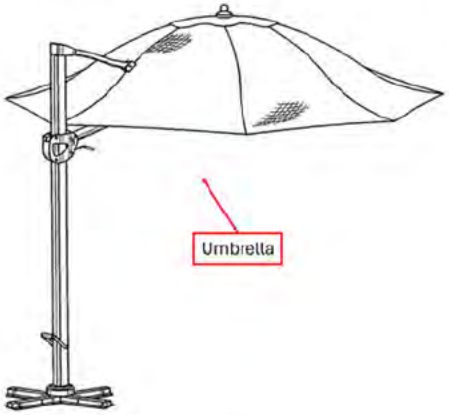
EXHIBIT 15

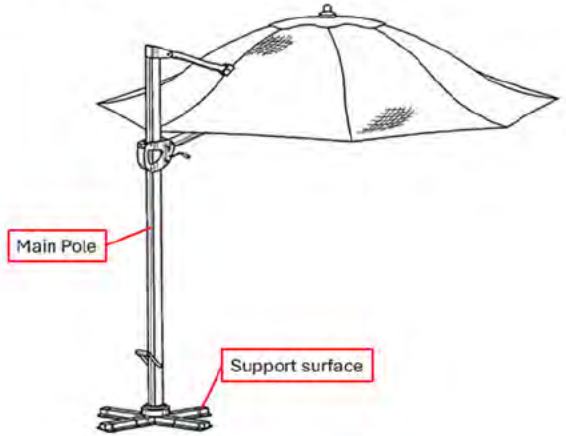
Exhibit 15 - Invalidity Chart for U.S. Patent No. 8,104,492[1] (the '492 Patent) Based on United States Patent No. D609453 (Liu '453)

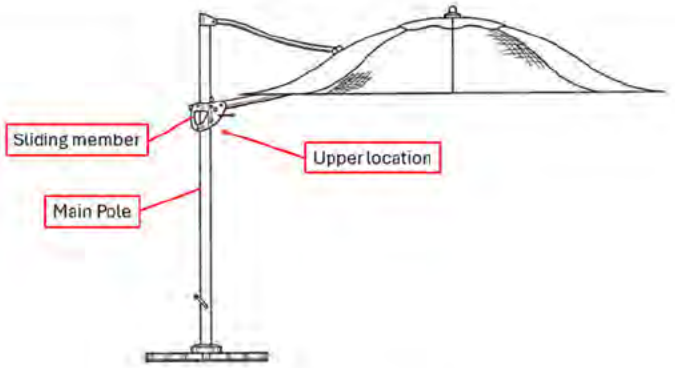
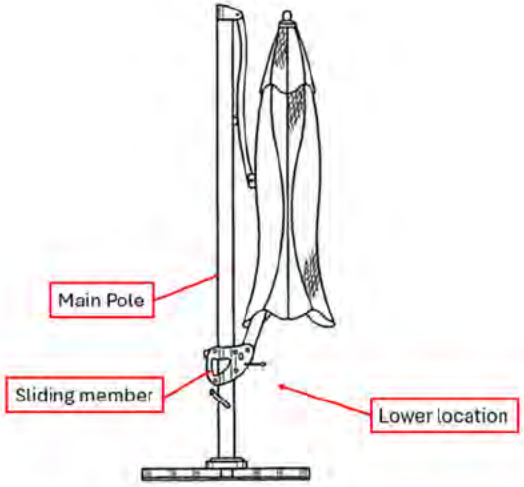
This chart is based on Plaintiff's apparent interpretations of the asserted claim(s) and Defendant's investigation to date. Citations to portions of any reference in this chart are exemplary only, and Defendant may rely on the entirety of the references cited herein to show that the asserted claims are invalid. Further, as Defendant's investigations and discovery are ongoing, Defendant reserves the right to amend or supplement this claim chart to include additional information and/or invalidity contentions identified in connection with Defendant's ongoing investigations. To the extent that every element below is not explicitly or inherently disclosed by the prior art reference, this prior art reference in combination (1) with the knowledge of one of ordinary skill in the art and/or (2) with other prior art identified in the invalidity contentions and/or otherwise herein, renders the asserted claims obvious.

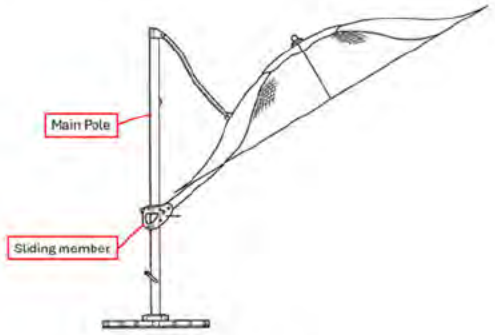
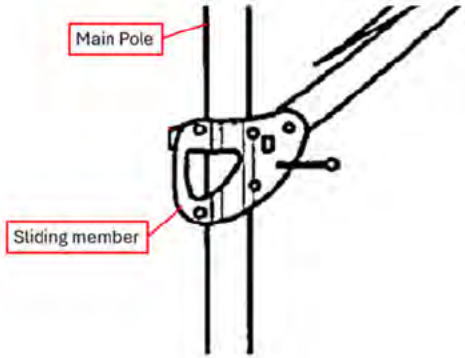
[1] As discussed in the contentions, Claim 1 of the Asserted Patent cannot claim priority to the May 5, 2008 filing date of provisional application no. 61/050,353. Instead, the priority date of Claim 1 of the Asserted Patent is May 5, 2009.

No.	Claim Limitation	Basis for Invalidity
Claim 1 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. D609453 to Liu ("Liu '453") (filed on May 2, 2008) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008) and in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994) and/or United States Patent No. 2,747,591 to Ogden ("Ogden '591") (issued May 29, 1956) and/or United States Patent No. 4,619,281 to Redl ("Redl '281") (issued October 28, 1986)		
1 [preamble][2]	An umbrella comprising:	Liu '453 discloses an umbrella. *See e.g.*, Liu '453 at Title ("Patio umbrella); Description ("FIG. 1 is a perspective view of a patio umbrella"); Claim 1 ("I claim the ornamental design for a patio umbrella, as shown and described"); Figs. 1-8  FIG.1

[2] Defendant makes no concessions or admissions regarding the claim preamble, *e.g.*, that it is or is not limiting, but reserves its right on that and other claim construction issues.

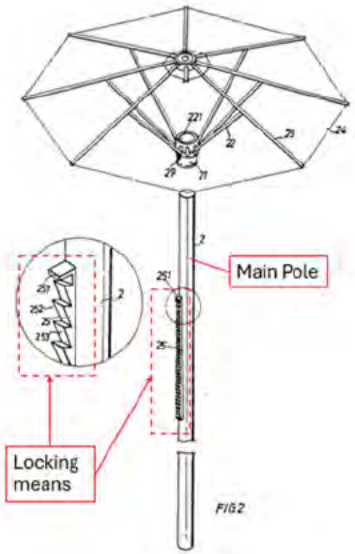
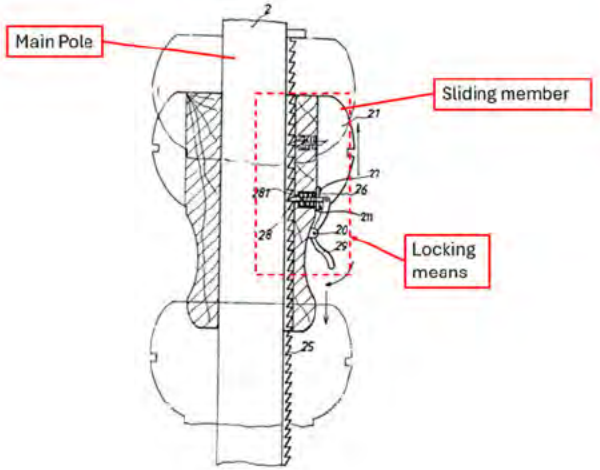
No.	Claim Limitation	Basis for Invalidity
1[a]	a main pole having a lower end for support by a support surface and extending generally upward to an upper end;	Liu '453 discloses a main pole having a lower end for support by a support surface and extending generally upward to an upper end. *See e.g.*, Liu '453 at Figs. 1-8.  FIG.1
1[b]	a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole;	Liu '453 discloses a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole. *See e.g.*, Liu '453 at Figs. 1-3 and 6-8.

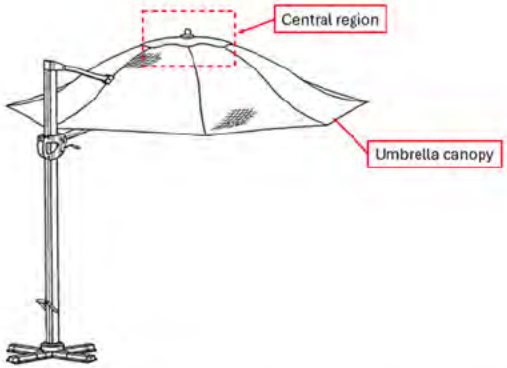
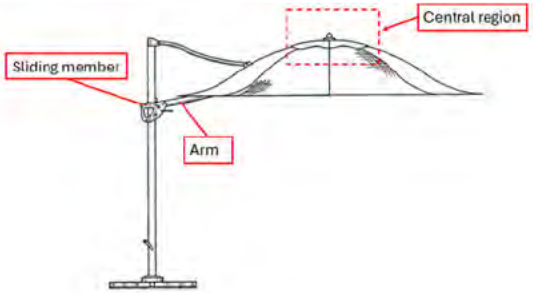
No.	Claim Limitation	Basis for Invalidity
		 FIG.3  FIG.8

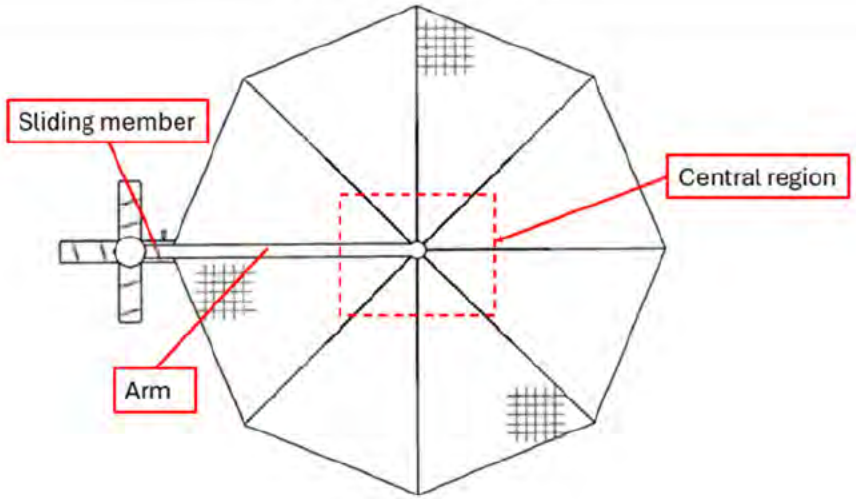
No.	Claim Limitation	Basis for Invalidity
1[c]	locking means for releasably securing the sliding member to the main pole at a selected location along the main pole;	Liu '453 discloses a locking means for releasably securing the sliding member to the main pole at a selected location along the main pole. *See e.g.*, Liu '453 at Figs. 1, 3, and 6-8.  FIG.6 

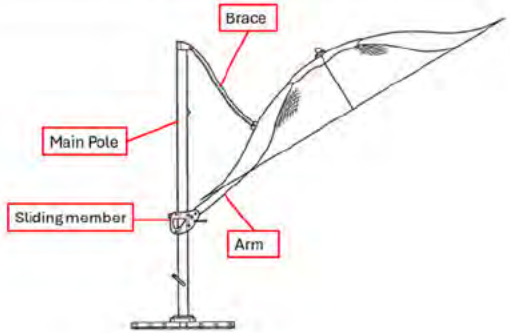
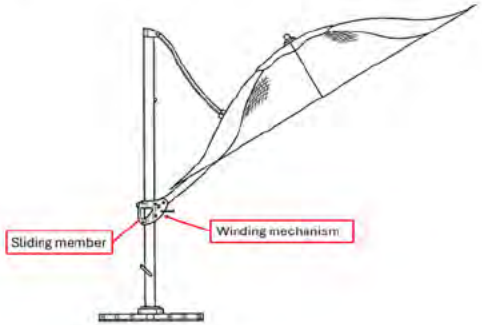
No.	Claim Limitation	Basis for Invalidity
		To the extent Liu '453 does not disclose this limitation, a person of ordinary skill in the art would readily recognize the sliding member as shown in Figs. 1, 3, and 6-8, includes a handle and a button-actuated locking means for locking and unlocking the sliding member. To the extent Liu '453 does not disclose this limitation, Liu '171 discloses a locking means (elongated rack-like member 25, groove 221, spring 26, supporting pin 28, arm 29) for releasably securing the sliding member (runner 21) to the main pole (main shaft 2) at a selected location along the main pole. *See e.g.* Liu '171 at Abstract ("An improved sunshade opening and supporting device is provided with a rack-like member disposed on the main shaft of a sunshade at a section thereof over which the runner of the sunshade travels during the opening and closing of the sunshade"); Background of the Invention at 1:6-31 ("The present invention relates to an improved opening and supporting device for a sunshade which is equipped with a rack-like member having a plurality of Z-shaped teeth disposed on the main shaft at a specific section over which the runner of the sunshade travels during the opening and closing of the same. A supporting pin housed in a cavity which is provided with a through hole at the front end thereof on the wall of the groove with a spring received therein is connected to an arc arm pivotally secured to a lug disposed on the outer wall of the runner. The bias spring is disposed between a restraint flange disposed on the front portion of the supporting pin and a lid secured to the open end of the cavity. So the actuation of the arc arm connected to the end of the supporting pin which is led through a through hole on the lid can force the supporting pin to move backward against the bias spring and the release of the arm permits the biased spring to push the supporting pin to travel in a reverse direction so as to let the front tip of the supporting pin to selectively engage with one tooth of the racklike member whereby the runner of the sunshade can be automatically retained in place when it is pushed upwardly open, and can be slidably operated downwardly when the pivot arm is actuated to make the supporting pin withdrawn in the cavity, permitting the runner to move downward.") and 1:52-2:16 ("Generally speaking, the conventional sunshade opening device using a supporting pin is able to be operated with ease, but there are still some disadvantages associated therewith in practical operation, which are given as follows: 1. The size of the sunshade is usually very large so that it can keep a wide area covered; the larger the sunshade is the heavier it becomes;

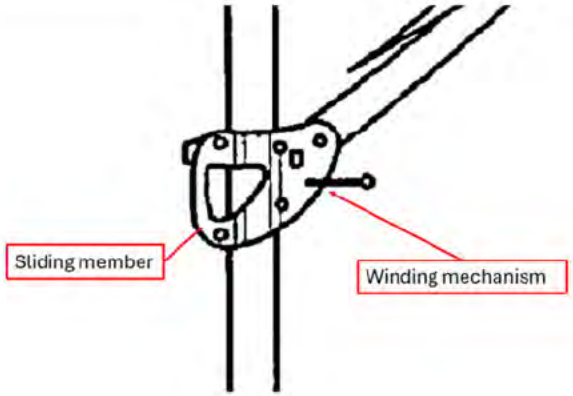
No.	Claim Limitation	Basis for Invalidity
		an operator has to push the runner upwardly with great effort first with hands and then hold the runner in place with one hand and locate the supporting pin with the other; and the supporting pin is selectively inserted into one of the locking holes as long as the runner is disposed at a desired position and the supporting pin is in alignment with the target locking hole. If not, the operator has to make some adjustments of the location of the runner and the supporting pin. To an operator who is too weak to open the heavy sunshade with one hand, the opening of the same without help from others becomes impossible, causing great inconvenience in practical operation. 2. The main shaft and the runner of the sunshade are slidably engaged with each other and the two are usually assembled together in a loose manner so that the runner can be smoothly moved; but the loose engagement of the runner with the main shaft produces crevice therebetween which can get the fingers of an operator hurt easily when the skin of the fingers is accidentally clamped in the crevice in the collapse of the sunshade. To overcome the above cited problems, the present inventor has worked out an improved opening and supporting device for a sunshade which is presented in details in the following description along with a number of drawings."); Description at 3:31-49 ("The operation of the present invention is described hereinafter. To get the sunshade opened, the runner 21 is pushed upwardly along the main shaft 2, the oblique face of the front tip of the supporting pin 28 is in abutment against the oblique face 253 of the Z-shaped teeth 252 in the upward journey, resulting in the backward withdrawal of the supporting pin 28. During the process, the spring 26 is continuously compressed with the backward movement of the runner 21, the compressed spring will pop out when the runner 21 is located at a new position and retain the runner 21 in place so as to keep the sunshade opened. To close the sunshade, the arc arm 29 is pivotally triggered and held in place, resulting in the backward pulling of the supporting pin 28 so as to make the same separate from the locking tooth of the rack-like member 25, permitting the runner 21 to travel downwardly freely to collapse the sunshade.") and 3:50-4:08 ("It can be clearly seen the present invention enables a person to open the sunshade simply by pushing the runner upwardly which is equipped with a spring biased supported pin along a rack-like member; the supporting pin will move against a Z-shaped tooth each time and will pop out and be retained in place when it passes over each tooth due to the help of a bias spring until the runner is located at a desired position so as to facilitate a person to open a heavy sunshade with no effort at all. To close or collapse the sunshade, a person only has to trigger and hold a pivotal arc arm which is pivotally connected to the end

No.	Claim Limitation	Basis for Invalidity
		of the supporting pin, causing the spring biased supporting pin to withdraw from the engagement with the tooth of the rack-like member so as to permit the runner to slide down all the way, resulting in the collapse of the sunshade."); Figs. 2 and 3. *See also e.g.* Liu '171 at Claim 1.  FIG2  FIG3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in Liu '171 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '171 and Liu '453 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Liu '171. Liu '171 explains how the teeth disposed on the main shaft of the sunshade (i.e. umbrella) provide several advantages, including: (1) allowing operation by operators who are too weak to open a heavy sunshade with one hand; (2) reducing the danger that a user will injure their fingers in the crevice formed by the main shaft and runner; (3) making operation of the umbrella more convenient; and (4) reducing the effort required to operate the sunshade. Liu '171 at 1:57-2:11, 2:38-42, 3:50-4:8.

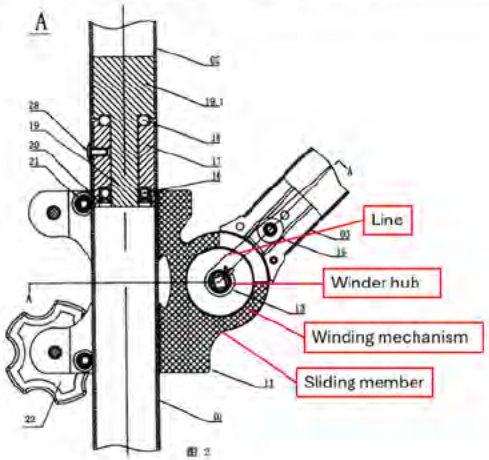
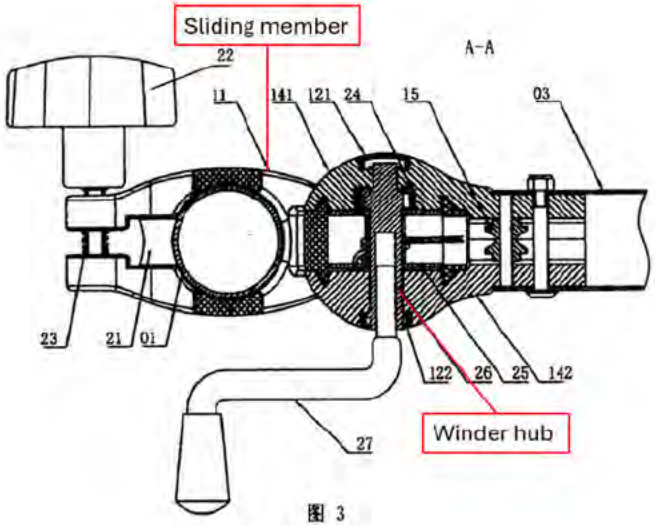
No.	Claim Limitation	Basis for Invalidity
1[d]	an umbrella canopy having a central region;	Liu '453 discloses an umbrella canopy having a central region. *See e.g.*, Liu '453 at Figs. 1-8.  FIG.1
1[e]	an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member;	Liu '453 discloses an arm associate with the central region and extending radially therefrom to an outer end operatively associated with the sliding member. *See e.g.*, Liu '453 at Figs. 1, 3, and 5-8.  FIG.3

No.	Claim Limitation	Basis for Invalidity
		 FIG.5
1[f]	a brace having a first end pivotably attached to an upper portion of the pole above the sliding member and a second end pivotably attached to the arm;	Liu '453 discloses a brace having a first end pivotably attached to an upper portion of the pole above the sliding member and a second end pivotably attached to the arm. *See e.g.*, Liu '453 at Figs. 1, 3, 4, and 6-8.

No.	Claim Limitation	Basis for Invalidity
		 FIG.6
1[g]	a winding mechanism having a winder hub around which a line can be wound, the winder hub being mounted to the sliding member and movable therewith;	Liu '453 discloses a winding mechanism having a winder hub around which a line can be wound, the winder hub being mounted to the sliding member and movable therewith. *See e.g.*, Liu '453 at Figs. 1-8.  FIG.6

No.	Claim Limitation	Basis for Invalidity
		 To the extent Liu '453 does not disclose this limitation, a person of ordinary skill in the art would readily recognize the mechanism of Liu '453 as a crank/line mechanism frequently used with umbrellas for opening and closing the canopy. To the extent Liu '453 does not disclose this limitation, Wang '460 discloses a winding mechanism having a winder hub (rope reel 26) around which a line (pull rope 13) can be wound, the winder hub (rope reel 26) being mounted to the sliding member (sliding sleeve 11) and movable therewith. *See e.g.*, Wang '460 at Abstract ("the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is table; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection

No.	Claim Limitation	Basis for Invalidity
		structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc") and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-3

No.	Claim Limitation	Basis for Invalidity
		  图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in Wang '460 would yield predictable results to

No.	Claim Limitation	Basis for Invalidity
		improve collapsable umbrella products. Indeed, Liu '453 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '453 does not disclose this limitation, Huali '640 discloses a winding mechanism (control device 5) having a winder hub (crank shaft 6) around which a line can be wound (sheathed cable/Bowden control 4), the winder hub (crank shaft 6) being mounted to the sliding member (control device 5 and the connecting piece 7) and movable therewith. *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device. The control device is attached to the telescopic pipe so that the opening/closing movement of the umbrella canopy is uncoupled from the telescopic mechanism of the umbrella."); Field of the Invention at [0002] ("The invention relates to a telescopic umbrella, in particular a sunshade with a lower upright stand pipe and a moveable and lockable telescopic pipe arranged in it with an umbrella canopy attached to the telescopic pipe, where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe.") and [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and

No.	Claim Limitation	Basis for Invalidity
		displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("a control device for the sheathed cable or Bowden control"); Claim 8 ("wherein the control unit comprises one of a crank shaft or an electrically driven reeling/unreeling device or similar mechanism"); Figs. 1 and 3

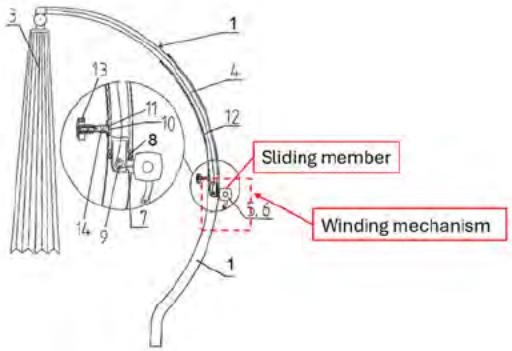


Fig. 1

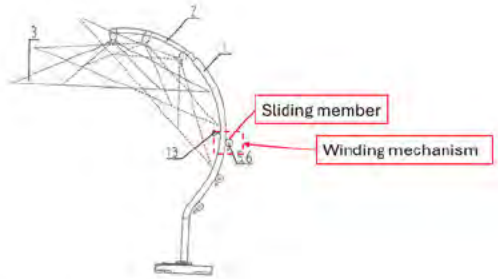
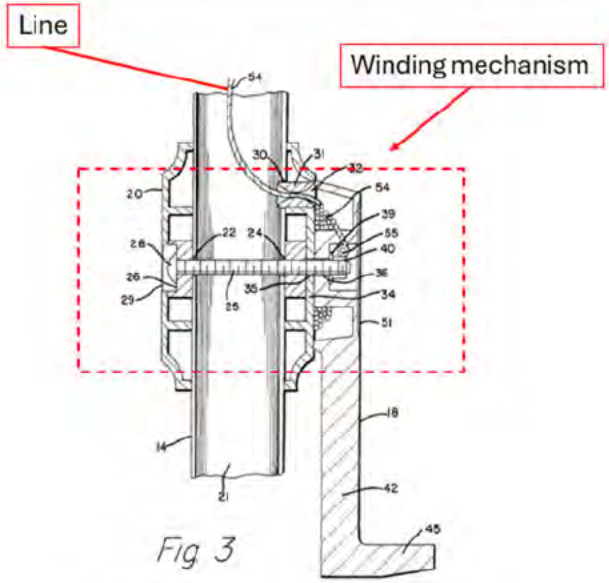
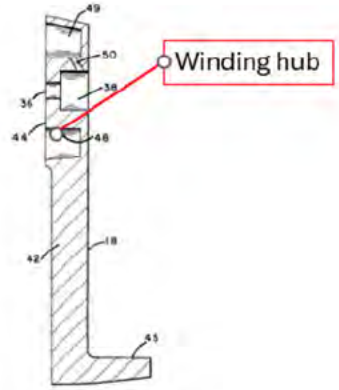
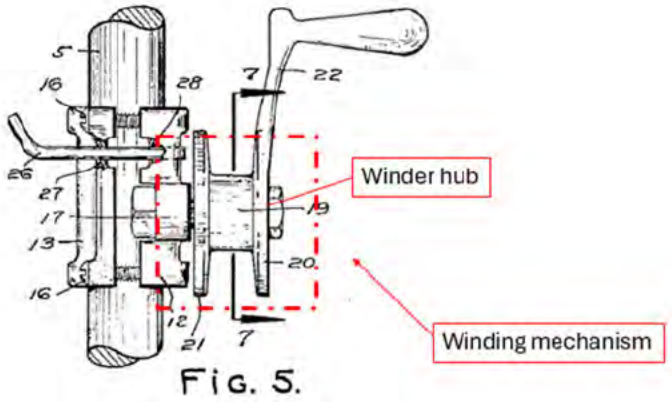
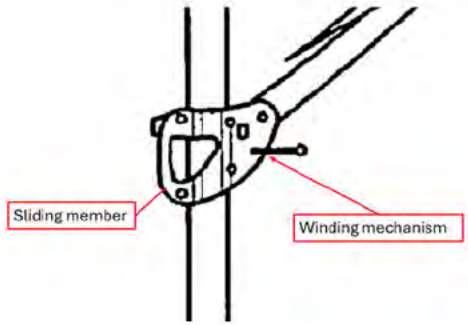


Fig. 3

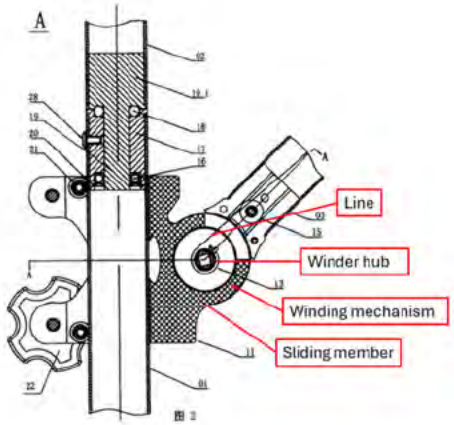
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Liu '453 does not disclose this limitation, Redl '281 discloses a winding mechanism (wind-up mechanism) having a winder hub (spool 48) around which a line (flexible cable 54) can be wound. *See e.g.*, Redl '281 Description 3:11-18 ("[a] cord extends within the hollow pole, one end of the cord being connected to the … operative means" for "moving the cover between open and closed positions."); 6:17-40 ("A flexible cable 54, such as a cord or the like, is utilized to cause the raising and lowering of umbrella cover 12 in conjunction with the wind-up mechanism herein described. One end of cord 54 is connected to collar 15 and framework 16 (not shown in the drawings), in a fashion which is well-known and understood by those skilled in the art of lawn and beach umbrellas. Cord 54 extends within hollow interior 21 of the pole, where it is not only out of view to users of the umbrella, but is also protected from the elements by being so enclosed. The other end of cord 54 extends through passageway 32 of the wear-bushing, through cavity 49 and then through slot 50 of the handle into recess 38. A knot 55 is typically provided at that end of the cord so that the cord is anchored to spool 48. Of course, other affixing mechanisms, besides a knot, may be employed to hold the cord in place with respect to the spool. By virtue of the interior formation of the spool 48 and its associated cavity 49, as well as cover plate 51, cord 54 is completely unseen by the user. Moreover, since the cord is completely confined within the pole and the wind-up mechanism as herein described, there is no possibility for the cord being snagged or caught by objects lying exterior to the umbrella."); Figs. 1-3

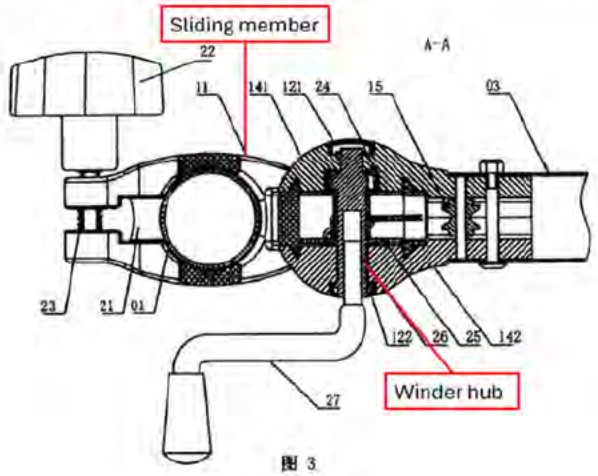
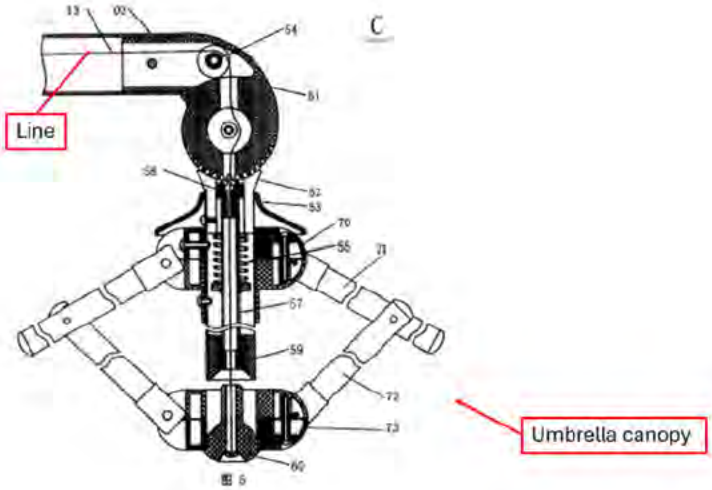
No.	Claim Limitation	Basis for Invalidity
		 Fig. 3  Fig. 4 A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.* To the extent Liu '453 does not disclose this limitation, Ogden '591 discloses a winding mechanism (winding device 10, winding drum 19, flanges 20 & 21, winding handle 22)

No.	Claim Limitation	Basis for Invalidity
		housing having a winder hub (winding drum 19) around which a line (winding cable 24) can be wound. *See, e.g.*, Ogden '591 at 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); Figs. 1-7  Fig. 5.

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with the handle and drum structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on devices that are engaged with the usual standard or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[h]	a line having a first end that winds around the winder hub, an intermediate portion extending from the winder hub along the arm to the umbrella canopy, and a second end that engages the umbrella canopy;	Liu '453 discloses a line having a first end that winds around the winder hub, an intermediate portion extending from the winder hub along the arm to the umbrella canopy, and a second end that engages the umbrella canopy. *See e.g.*, Liu '453 at Description ("Fig. 6 is a side view thereof starting to retract; FIG. 7 is a side view thereof continuing to retract; and FIG. 8 is a side view thereof fully retracted."); Figs. 1-8. 

No.	Claim Limitation	Basis for Invalidity
		To the extent Liu '453 does not disclose this limitation, a person of ordinary skill in the art would readily recognize the crank connected to the winding mechanism as being a necessary component for opening and closing the umbrella canopy. The disclosed winding mechanism necessarily also includes a line/cable that extends from the winding mechanism and engages the umbrella canopy. Such a mechanism is indeed required for the shown design, which includes an umbrella canopy that opens and closes. Such mechanisms are well known in the art. To the extent Liu '453 does not disclose this limitation, Wang '460 discloses a line (pull rope 13) having a first end that winds around the winder hub (rope reel 26), an intermediate portion extending from the winder hub (rope reel 26) along the arm to the umbrella canopy (parasol cover 112), and a second end that engages the umbrella canopy (parasol cover 112). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc" and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop

No.	Claim Limitation	Basis for Invalidity
		chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5. 

No.	Claim Limitation	Basis for Invalidity
		 图 3  图 5

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '453 does not disclose this limitation, Huali '640 discloses a line (a sheathed cable/Bowden control 4) having a first end that winds around the winder hub (crank shaft 6), an intermediate portion extending from the winder hub (crank shaft 6) along the arm to the umbrella canopy (umbrella canopy 3), and a second end that engages the umbrella canopy (umbrella canopy 3). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a

No.	Claim Limitation	Basis for Invalidity
		long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3

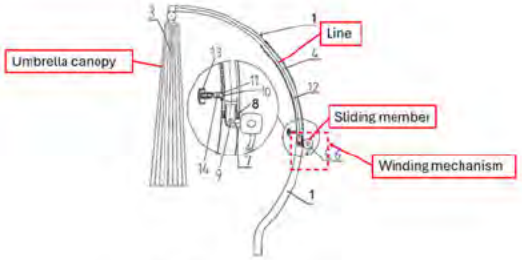


Fig. 1

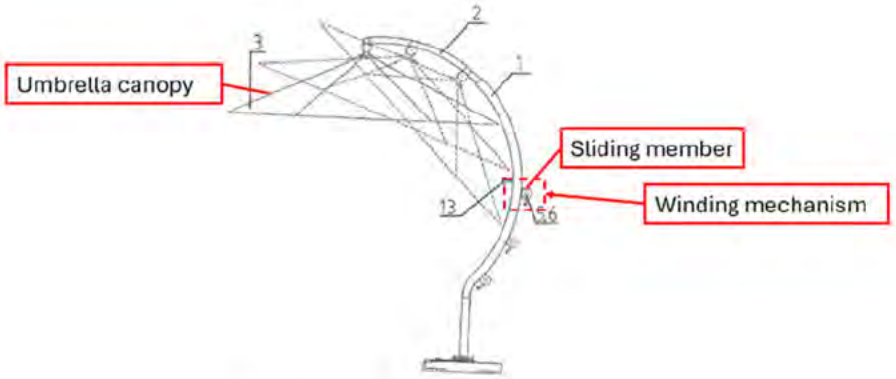
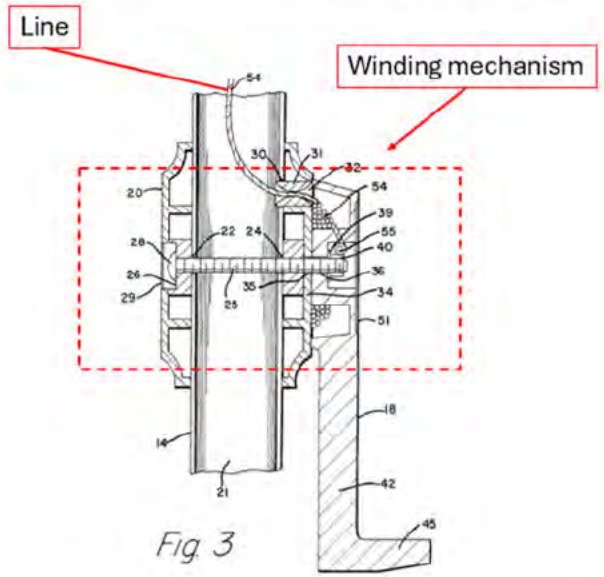
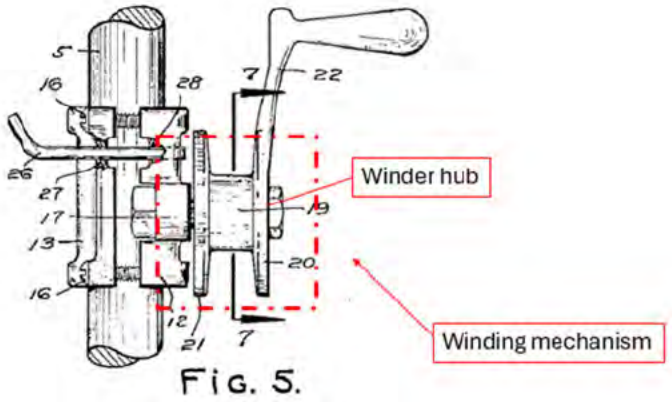


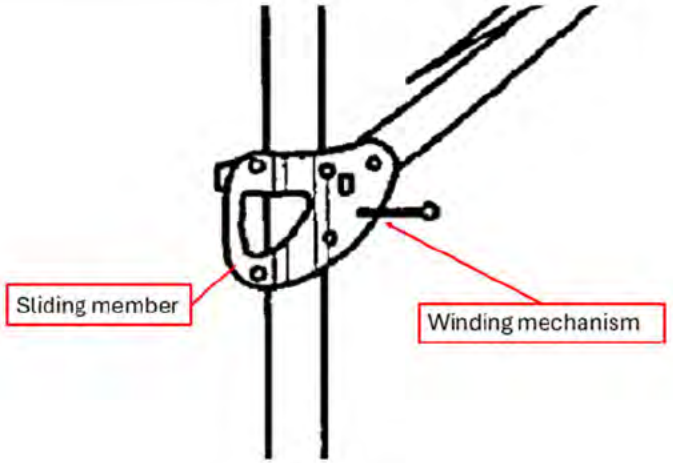
Fig. 3

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the known structure in Liu '453 with the structure in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Liu '453 does not disclose this limitation, Redl '281 discloses a line (flexible cable 54) having a first end that winds around the winder hub (spool 48), an intermediate portion extending from the winder hub (spool 48) along the arm to the umbrella canopy (umbrella cover 12), and a second end that engages the umbrella canopy (umbrella cover 12). *See e.g.,* Redl '281 at Description 6:47-55 ("It can be seen that cord 54 passes through wear-bushing 31 in a direction substantially transverse to the longitudinal axis of the umbrella pole. Winding of the cord around the interior spool of the handle causes the cord to pull collar 15 upwardly along pole 14 thereby opening cover 12. Reverse winding of handle 18 causes cord 54 to unwind thereby lowering cover 12 to the closed position.); Fig. 3

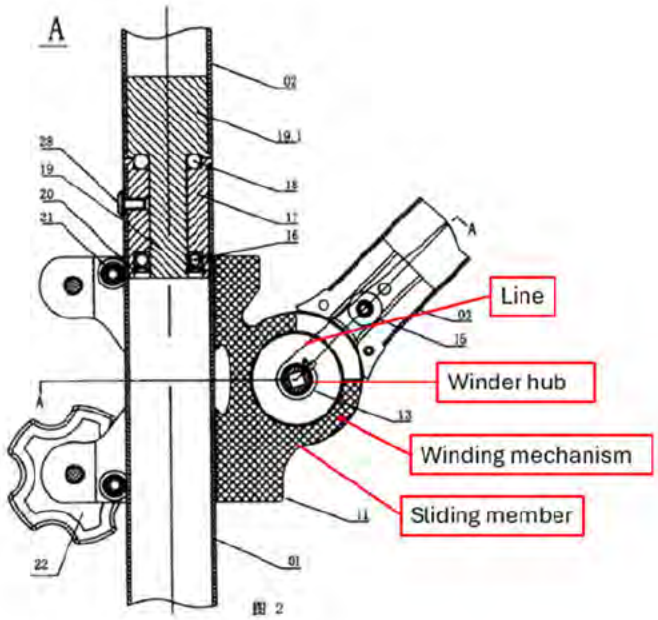
No.	Claim Limitation	Basis for Invalidity
		 Fig. 3  Fig. 4 A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.* To the extent Liu '453 does not disclose this limitation, Ogden '591 discloses a line (winding cable 24) having a first end that winds around the winder hub (drum 19), an intermediate

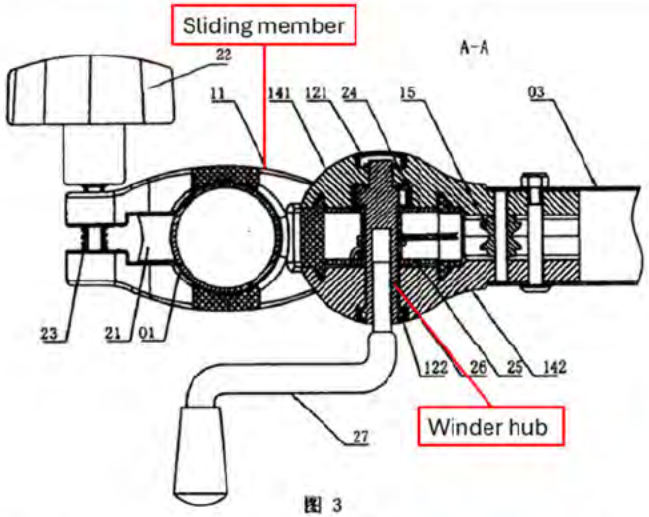
No.	Claim Limitation	Basis for Invalidity
		portion extending from the winder hub (drum 19) along the arm to the umbrella canopy (umbrella 6), and a second end that engages the umbrella canopy (umbrella 6). *See, e.g.*, Ogden '591 at 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); Figs. 1-7  Fig. 5.

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with the handle and drum structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on devices that are engaged with the usual standard or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[i]	wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub, and	Liu '453 discloses wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub. *See e.g.*, Liu '453 at Description ("Fig. 6 is a side view thereof starting to retract; FIG. 7 is a side view thereof continuing to retract; and FIG. 8 is a side view thereof fully retracted."); Figs. 1-8.

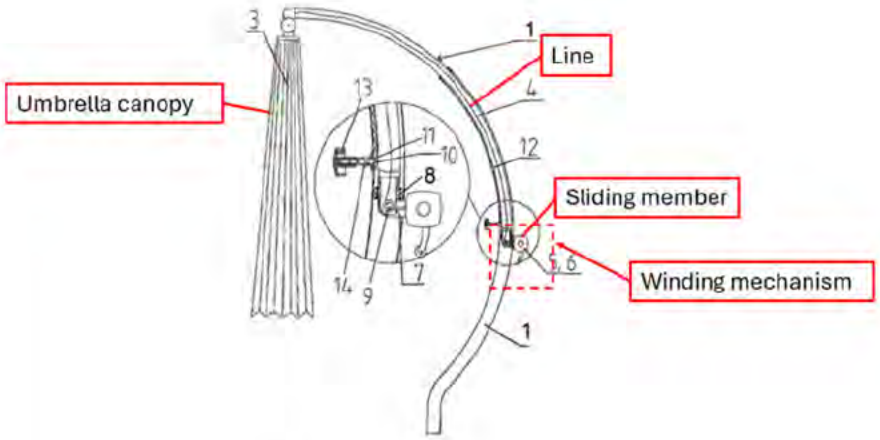
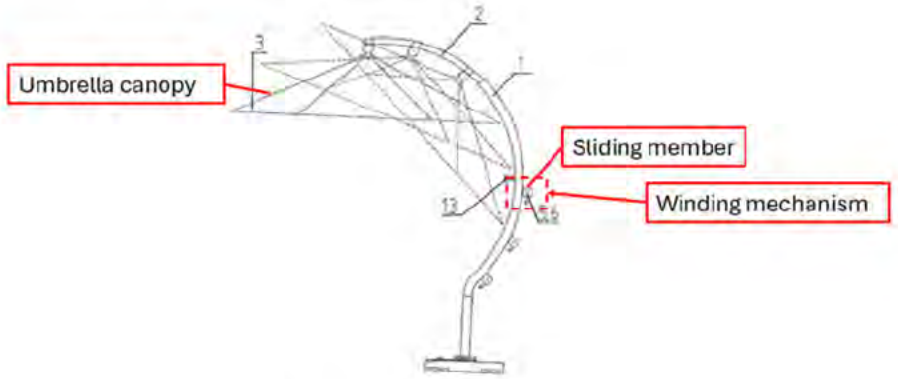
No.	Claim Limitation	Basis for Invalidity
		 To the extent Liu '453 does not disclose this limitation, a person of ordinary skill in the art would readily recognize the crank connected to the winding mechanism as being a necessary component for opening and closing the umbrella canopy. The disclosed winding mechanism necessarily also includes a line/cable that extends from the winding mechanism and engages the umbrella canopy. Such a mechanism is indeed required for the shown design, which includes an umbrella canopy that opens and closes. Such mechanisms are well known in the art. A person of ordinary skill in the art would readily recognize that rotation of the winder hub tensions or relaxes the line depending upon the direction of the rotation of the winder hub. To the extent Liu '453 does not disclose this limitation, Wang '460 discloses wherein rotation of the winder hub (rope reel 26) tensions or relaxes the line (pull rope 13) depending upon the direction of rotation of the winder hub (rope reel 26).

No.	Claim Limitation	Basis for Invalidity
		See e.g., Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc" and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a

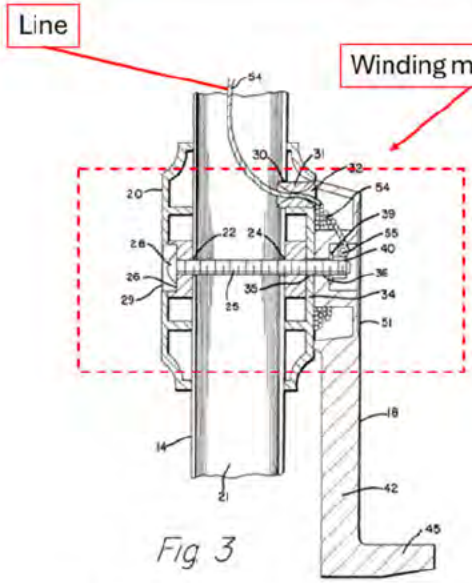
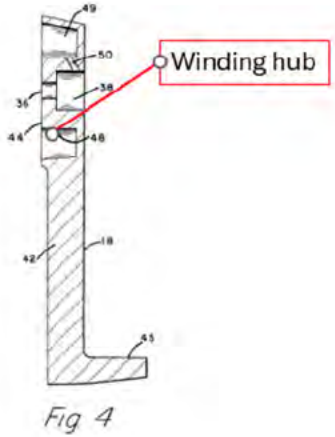
No.	Claim Limitation	Basis for Invalidity
		top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5 

No.	Claim Limitation	Basis for Invalidity
		 图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Wang '460 both relate to collapsable umbrella products and are in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 Abstract. To the extent Liu '453 does not disclose this limitation, Huali '640 discloses wherein rotation of the winder hub (crank shaft 6) tensions or relaxes the line (a sheathed cable/Bowden control 4) depending upon the direction of rotation of the winder hub (crank shaft 6). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and

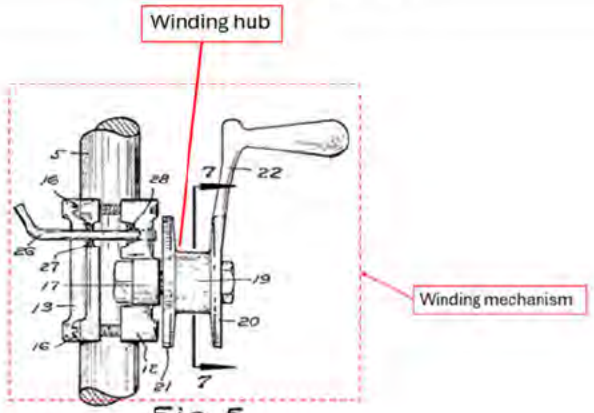
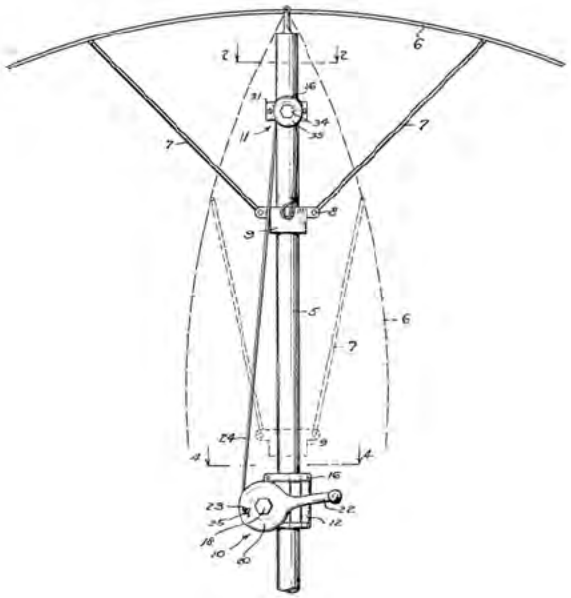
No.	Claim Limitation	Basis for Invalidity
		closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3

No.	Claim Limitation	Basis for Invalidity
		 Fig. 1  Fig. 3

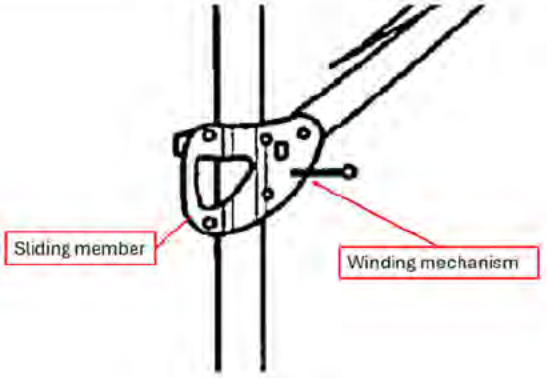
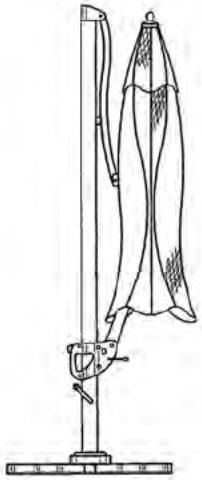
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Liu '453 does not disclose this limitation, Redl '281 discloses wherein rotation of the winder hub (spool 48) tensions or relaxes the line (cord 54) depending upon the direction of rotation of the winder hub (spool 48). *See e.g.*, Redl '281 at Description 6:47-55 ("It can be seen that cord 54 passes through wear-bushing 31 in a direction substantially transverse to the longitudinal axis of the umbrella pole. Winding of the cord around the interior spool of the handle causes the cord to pull collar 15 upwardly along pole 14 thereby opening cover 12. Reverse winding of handle 18 causes cord 54 to unwind thereby lowering cover 12 to the closed position."); Fig. 3.

No.	Claim Limitation	Basis for Invalidity
		 Fig. 3  Fig. 4 A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.*

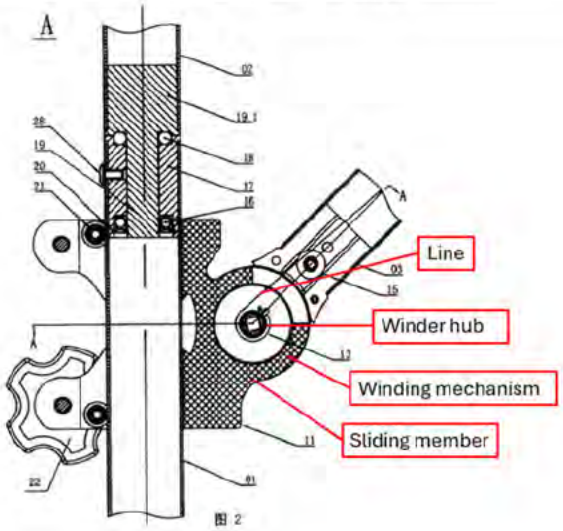
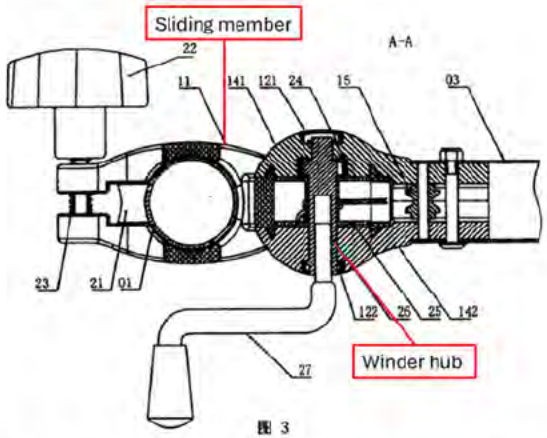
No.	Claim Limitation	Basis for Invalidity
		To the extent Liu '453 does not disclose this limitation, Ogden '591 discloses wherein rotation of the winder hub (winding drum 19) tensions or relaxes the line (winding cable 24) depending upon the direction of rotation of the winder hub (winding drum 19). *See*, *e.g.*, Ogden '591 at 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); It should be understood, of course, that when drawing the cable taut, the locked end 26 should be engaged within one of the apertures 29 of the flange 21. It will further be obvious that the lower end of the cable 24 has been wound about the drum a sufficient number of turns to permit the full lowering action of the umbrella, as shown in dotted lines in Figure 1."); Figures 1 and 5.

No.	Claim Limitation	Basis for Invalidity
		 FIG. 5.  FIG. 1.

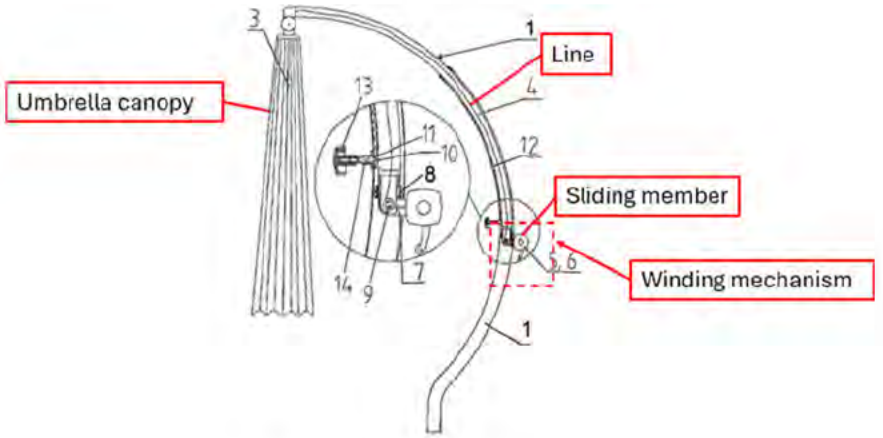
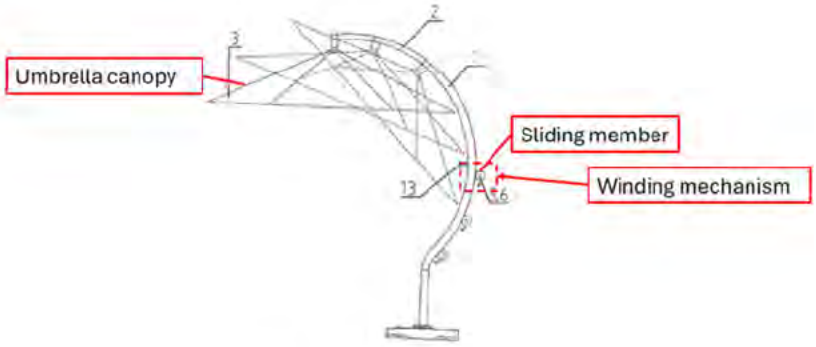
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with the handle and drum structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on devices that are engaged with the usual standard or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[j]	wherein operation of the winding mechanism to apply tension to the line opens and closes the umbrella canopy in response to movement of the line; and	Liu '453 discloses wherein operation of the winding mechanism to apply tension to the line opens and closes the umbrella canopy in response to movement of the line. *See e.g.*, Liu '453 at Description ("Fig. 6 is a side view thereof starting to retract; FIG. 7 is a side view thereof continuing to retract; and FIG. 8 is a side view thereof fully retracted."); Figs. 1-8. A person of ordinary skill in the art would readily recognize the crank connected to the winding mechanism as being a necessary component for opening and closing the umbrella canopy. The disclosed winding mechanism necessarily also includes a line/cable that extends from the winding mechanism and engages the umbrella canopy. Such a mechanism is indeed required for the shown design, which includes an umbrella canopy that opens and closes. Such mechanisms are well known in the art. A person of ordinary skill in the art would readily recognize that operation of the winding mechanism to apply tension to the line opens and closes the umbrella canopy in response to movement of the line.

No.	Claim Limitation	Basis for Invalidity
		  FIG.1  FIG.8

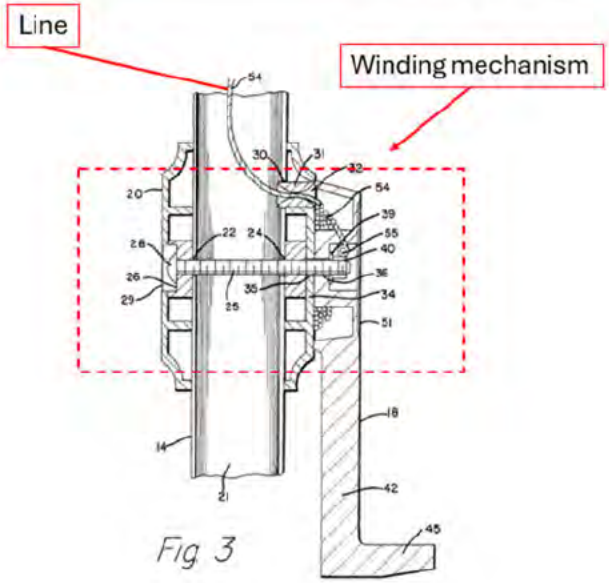
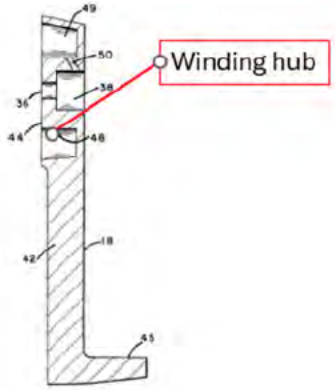
No.	Claim Limitation	Basis for Invalidity
		To the extent Liu '453 does not disclose this limitation, Wang '460 discloses wherein rotation of the winder hub (rope reel 26) tensions or relaxes the line (pull rope 13) depending upon the direction of rotation of the winder hub (rope reel 26). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5

No.	Claim Limitation	Basis for Invalidity
		 图 2  图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Wang '460 both relate to

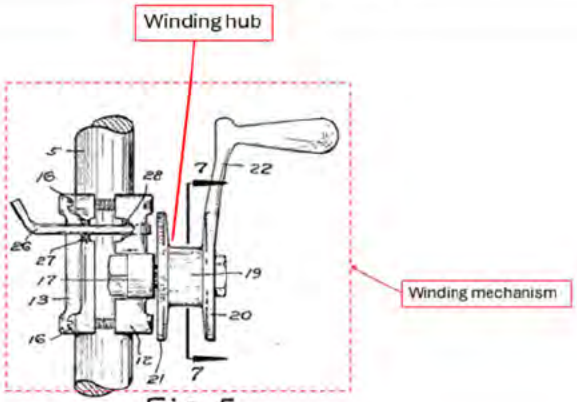
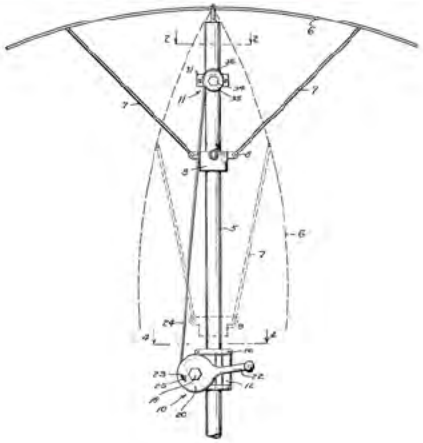
No.	Claim Limitation	Basis for Invalidity
		collapsable umbrella products and are thus in the same industry. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '453 does not disclose this limitation, Huali '640 discloses wherein rotation of the winder hub (crank shaft 6) tensions or relaxes the line (a sheathed cable/Bowden control 4) depending upon the direction of rotation of the winder hub (crank shaft 6). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3

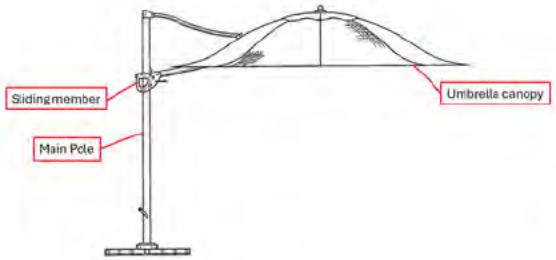
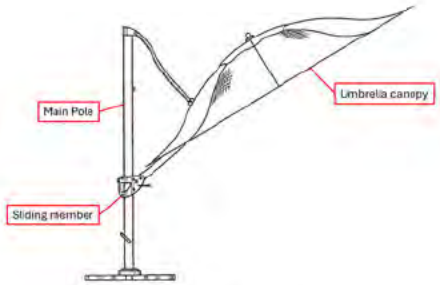
No.	Claim Limitation	Basis for Invalidity
		 Fig. 1  Fig. 3

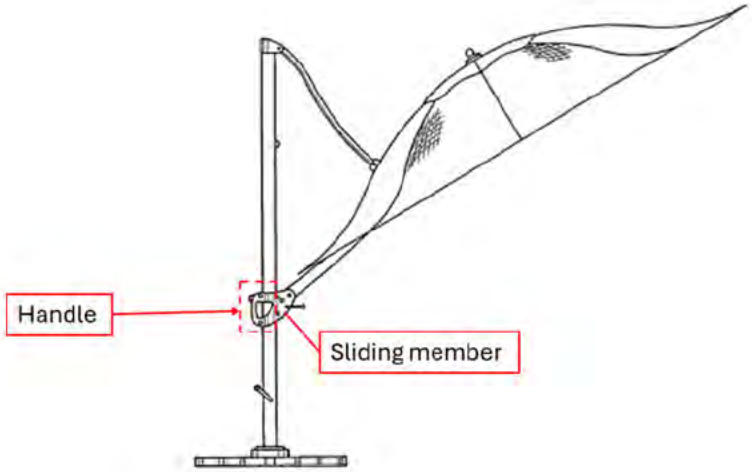
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Liu '453 does not disclose this limitation, Redl '281 discloses a winder hub (spool 48) wherein operation of the winding mechanism (spool 48) to apply tension to the line (cord 54) opens and closes the umbrella canopy (cover 12) in response to movement of the line (cord 54). *See e.g.,* Description 6:47-55 ("It can be seen that cord 54 passes through wear-bushing 31 in a direction substantially transverse to the longitudinal axis of the umbrella pole. Winding of the cord around the interior spool of the handle causes the cord to pull collar 15 upwardly along pole 14 thereby opening cover 12. Reverse winding of handle 18 causes cord 54 to unwind thereby lowering cover 12 to the closed position."); Fig. 3

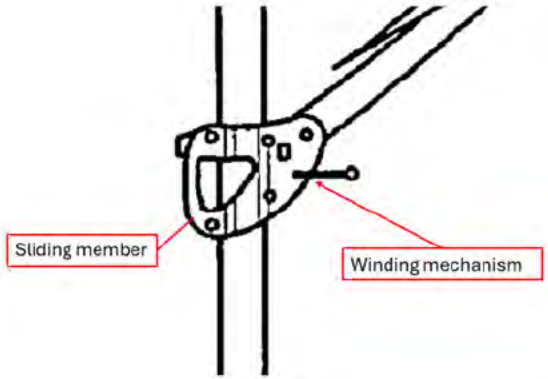
No.	Claim Limitation	Basis for Invalidity
		 Fig. 3  Fig. 4 A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.*

No.	Claim Limitation	Basis for Invalidity
		To the extent Liu '453 does not disclose this limitation, Ogden '591 discloses a winder hub (winding drum 19) wherein operation of the winding mechanism (winding drum 19) to apply tension to the line (winding cable 24) opens and closes the umbrella canopy (umbrella 6) in response to movement of the line (winding cable 24). *See*, *e.g.*, 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); It should be understood, of course, that when drawing the cable taut, the locked end 26 should be engaged within one of the apertures 29 of the flange 21. It will further be obvious that the lower end of the cable 24 has been wound about the drum a sufficient number of turns to permit the full lowering action of the umbrella, as shown in dotted lines in Figure 1."); Figs. 1 and 5.

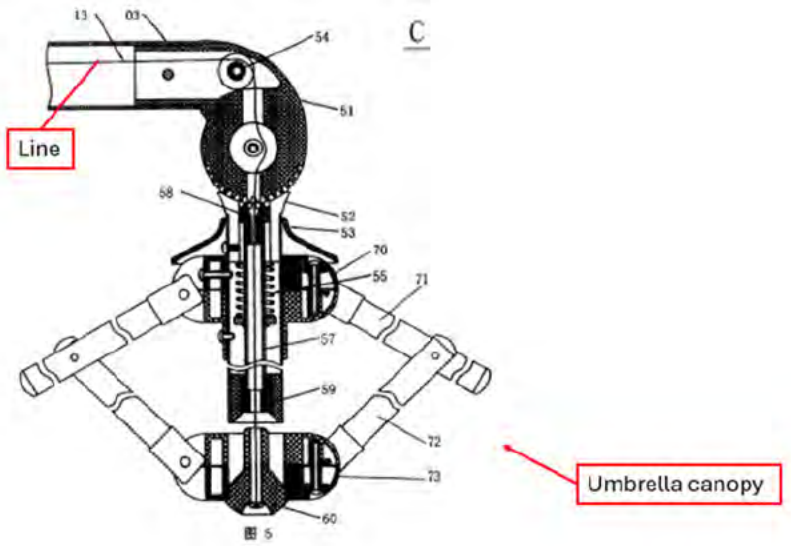
No.	Claim Limitation	Basis for Invalidity
		 Fig. 5.  Fig. 1. A person of ordinary skill in the art would have understood that a simple substitution of the structure of a crank on the sliding member in Liu '453 with the handle and drum structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on devices that are engaged with the usual standard

No.	Claim Limitation	Basis for Invalidity
		or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[k]	wherein the angle of the umbrella canopy with respect to the main pole can be controlled by moving the sliding member along the main pole.	Liu '453 discloses wherein the angle of the umbrella canopy with respect to the main pole can be controlled by moving the sliding member along the main pole. *See e.g.*, Liu '453 at Figs. 1-3 and 6-8.  FIG.3  FIG.6

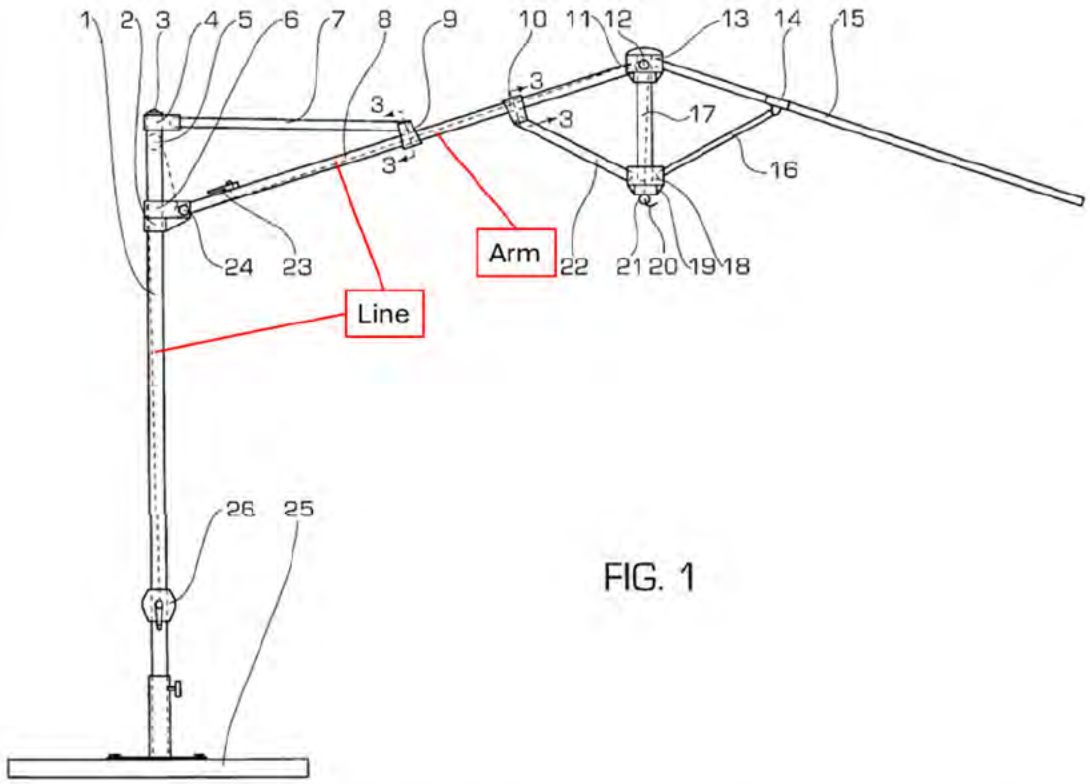
No.	Claim Limitation	Basis for Invalidity
Claim 5 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. D609453 to Liu ("Liu '453") (filed on May 2, 2008) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008) and in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994) and/or in view of United States Patent No. 2,747,591 to Ogden ("Ogden '591") (issued May 29, 1956) and/or United States Patent No. 4,619,281 to Redl ("Redl '281") (issued October 28, 1986)		
5	The umbrella of claim 1, wherein the sliding member has a handle associated therewith.	Liu '453 discloses wherein the sliding member has a handle associated therewith. *See e.g.*, Liu '453 at Figs. 1-3 and 6-8.  FIG.6

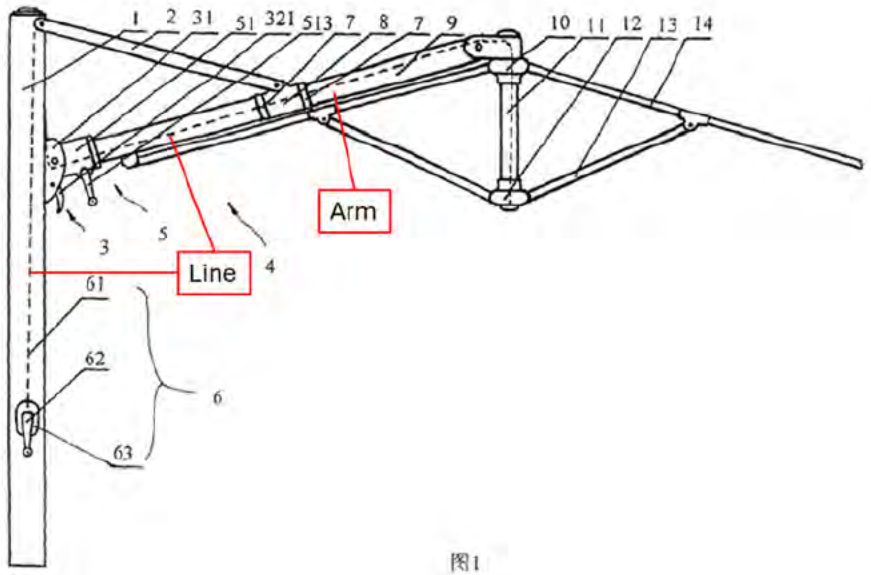
No.	Claim Limitation	Basis for Invalidity
Claim 6 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. D609453 to Liu ("Liu '453") (filed on May 2, 2008) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008) and in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994) and/or United States Patent No. 2,747,591 to Ogden ("Ogden '591") (issued May 29, 1956) and/or United States Patent No. 4,619,281 to Redl ("Redl '281") (issued October 28, 1986) and in further view of Chinese Patent No. CN1208009C ("Chen '009") (issued June 29, 2005) and/or United States Patent No. 6,196,242 to Xu ("Xu '242")(issued March 6, 2001) and/or U.S. Patent No. 6,014,980 to Glatz ("Glatz '980")(issued January 18, 2000)		
6	The umbrella of claim 1, wherein the line extends along at least substantially the entire length of the arm.	Liu '453 discloses wherein the line extends along at least substantially the entire length of the arm. *See e.g.*, Liu '453 at Description ("Fig. 6 is a side view thereof starting to retract; FIG. 7 is a side view thereof continuing to retract; and FIG. 8 is a side view thereof fully retracted."); Figs. 1-8.  To the extent Liu '453 does not disclose this limitation, a person of ordinary skill in the art would readily recognize the crank connected to the winding mechanism as being a necessary component for opening and closing the umbrella canopy. The disclosed winding mechanism

No.	Claim Limitation	Basis for Invalidity
		necessarily also includes a line/cable that extends from the winding mechanism and engages the umbrella canopy. Such a mechanism is indeed required for the shown design, which includes an umbrella canopy that opens and closes. Such mechanisms are well known in the art. To the extent Liu '453 does not disclose this limitation, Wang '460 discloses wherein the line (pull rope 13) extends along at least substantially the entire length of the arm (tubular suspension rod 3). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc" and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the

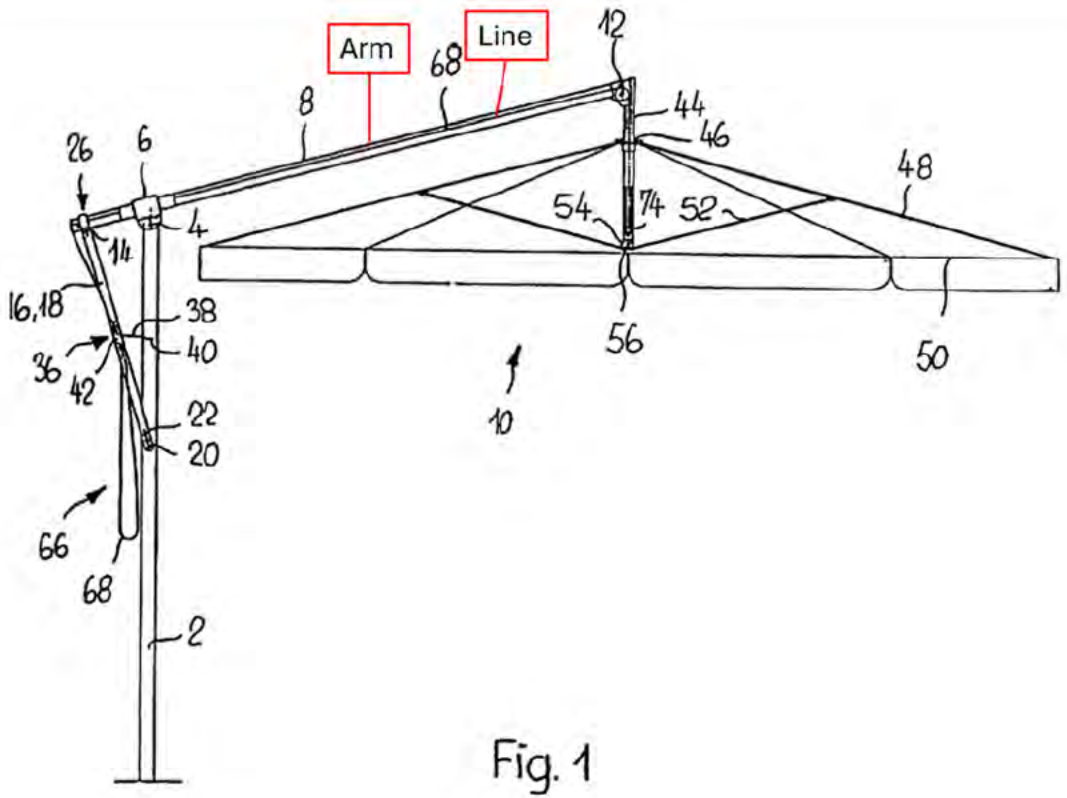
No.	Claim Limitation	Basis for Invalidity
		suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5  A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Wang '460 both relate to

No.	Claim Limitation	Basis for Invalidity
		collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '453 does not disclose this limitation, Xu '242 discloses wherein the line (pull rope) extends along at least substantially the entire length of the arm (hinged hanging arm 8). *See e.g.*, Xu '242 Description at 2:55-3:14 ("The upper umbrella tray holder (13) (see FIGS. 1 and 2) comprises an upper umbrella tray (28) and a center post (17) in rigid connection with it, wherein the center post (17) can let a pull rope pass through. On the periphery of the upper umbrella tray (28), slots (27) are evenly distributed, and in one slot (27), the hinged hanging arm (8) and a pulley (11) are provided. The pulley (11) is disposed at an open side of the hanging arm (8) and is fixed on the upper umbrella tray (28) by a cross pin. Another pulley (12) is provided at the center position of the upper umbrella tray (28). In the rest of the slots (27), hinged umbrella rods (15) are provided, and the top face of the upper tray holder (13) is sealed by another tube plug. The lower umbrella tray holder (18) (see FIG. 1) comprises a lower umbrella tray similar in structure to the upper umbrella tray (28). On the periphery of the lower umbrella tray, limit slots are evenly distributed, like the slots (27) provided in the upper umbrella tray (28). In one slot, the hanging arm bracing (22) is hinged, and in the rest of the slots, a hinged bracing (16) is provided. The lower portion of the lower umbrella tray is provided with a knot bead (21), which cooperates with a knotted pull rope (20) and a knot pin (19) to prevent the bead from separating. The opposite end of the hanging arm bracing (22) is hinged on the square tube clamp (10), which is fixed to the hanging arm (8). The opposite end of each bracing (16) is hinged to the corresponding tube clamp (14) fixed on the umbrella rod (15).") and 3:56-65 ("During opening and closing of the sun umbrella, the pull rope (20) bundled and knotted on the cranking shaft (33) first threads the column (1), then rounds the pulley (5) fitted at the column (1) top end, passes around the pulley (24) on the hanging arm movable holder (2), through the hanging arm (8) inner chamber to the pulley (11) at the hanging arm (8) top end opening, around the pulley (12) in the upper umbrella tray holder (13), through the center post (17) inner hole, and to the knot bead (21) at the lower portion of the lower umbrella tray holder (18) and knotted."); Fig. 1

No.	Claim Limitation	Basis for Invalidity
		 FIG. 1 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in in Xu '242 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Xu '242 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Xu '242. Xu '242 describes how a cantilever umbrella with a pull rope control enlarges the moving range under the umbrella by avoiding the hinderance of a column. Xu '242 1:53-60.

No.	Claim Limitation	Basis for Invalidity
		To the extent Liu '453 does not disclose this limitation, Chen '009 discloses wherein the line (cable 61) extends along at least substantially the entire length of the arm (lifting arm 9) . *See e.g.*, Chen '009 Description at pg. 6 ("The parasol surface opening and closing mechanism 6 comprises a winch 63 with a handle 62 and a cable 61 supported by a group of pulleys 64 arranged at corresponding positions of the pole 1 and the lifting arm 9, an end of the cable 61 is connected to the winch 63, and another end of the cable 61 is connected to the lower parasol plate 12."); Claim 6 ("The outer arm suspension type universal rotating parasol according to claim 1, 2, 3, 4, or 5, characterized in that the parasol surface opening and closing mechanism (6) comprises a winch (63) with a handle (62) and a cable (61) supported by a group of pulleys (64) arranged at corresponding positions of the pole (1) and the lifting arm (9), an end of the cable (61) is connected to the winch (63), and another end of the cable (61) is connected to the lower parasol plate (12)."); Fig. 1  图1

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in Chen '009 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Chen '009 both relate to collapsable umbrella products and are thus in the same industry. To the extent Liu '453 does not disclose this limitation, Glatz '980 discloses wherein the line (rope) extends along at least substantially the entire length of the arm (jib 8). *See e.g.*, Glatz '980 Description at 5:26-49 ("An actuating device (66) is used to open and close the canopy. The control device is equipped with a pulling mechanism (68), preferably a rope. The end (70) of the rope which faces the canopy is fastened to the jib (8) at a fixed point (72) which can be located either on the canopy pole or preferably on the jib (8). If the latter is the case, the pulling device can be guided from the jib to the canopy pole (44) via a guide pulley, which is not illustrated in detail here. The pulling device (68) runs in a tackle-block manner through the hollow canopy pole (44) to the slider (54) at which it is returned to the jib (8) via a guide pulley (74). At the articulation (12) the pulling device (68) runs over a guide pulley (76) and continues through the hollow jib (8). At the end which faces away from the canopy (10), the pulling device (68) is led out of the jib, e.g., via a guide pulley (78) which is positioned at the end of the jib (8) that faces away from the canopy. The canopy (10) is opened by pulling the pulling mechanism (68), i.e. the slider (54) is moved against the canopy pole (44) until the pole component (56) engages into the canopy pole (44). The pulling mechanism can be fixed into position by means of a securing device (80), e.g., by a clamping device positioned at the connecting struts (16, 18). Thus, the canopy can be kept in an open state or in a desired position relative to the jib."); Figs. 1 and 8

No.	Claim Limitation	Basis for Invalidity
		 Fig. 1 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '453 with the structure in Glatz '980 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Glatz '980 both relate to collapsable umbrella products and are thus in the same industry.

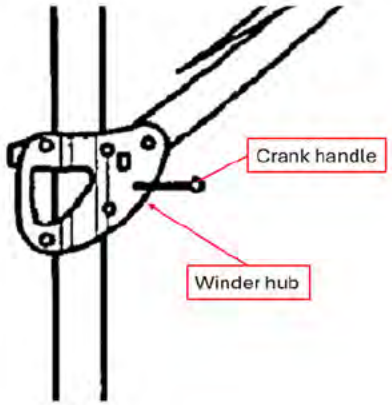
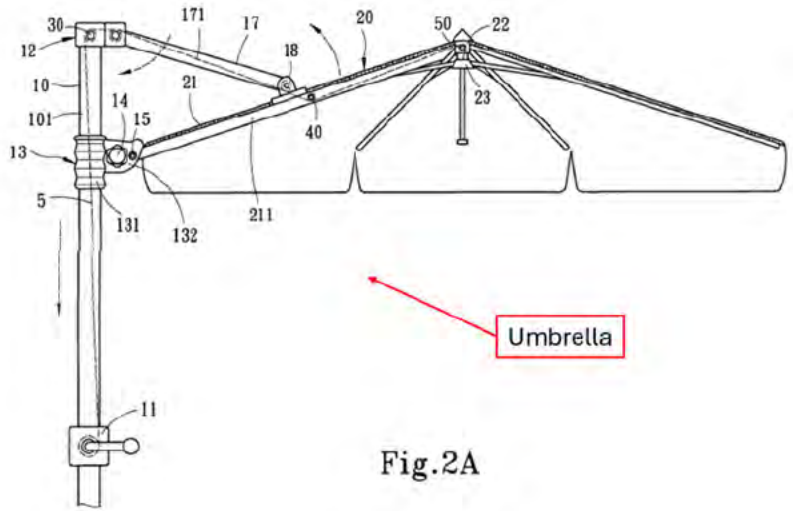
No.	Claim Limitation	Basis for Invalidity
Claim 7 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. D609453 to Liu ("Liu '453") (filed on May 2, 2008) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008) and in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994) and/or United States Patent No. 2,747,591 to Ogden ("Ogden '591") (issued May 29, 1956) and/or United States Patent No. 4,619,281 to Redl ("Redl '281") (issued October 28, 1986)		
7	The umbrella of claim 1, further comprising a crank handle operatively associated with the winder hub, whereby rotating the crank handle causes the winder hub to rotate.	Liu '453 discloses a crank handle operatively associated with the winder hub, whereby rotating the crank handle causes the winder hub to rotate. *See e.g.*, Liu '453 at Description ("Fig. 6 is a side view thereof starting to retract; FIG. 7 is a side view thereof continuing to retract; and FIG. 8 is a side view thereof fully retracted."); Figs. 1-8. 

EXHIBIT 16

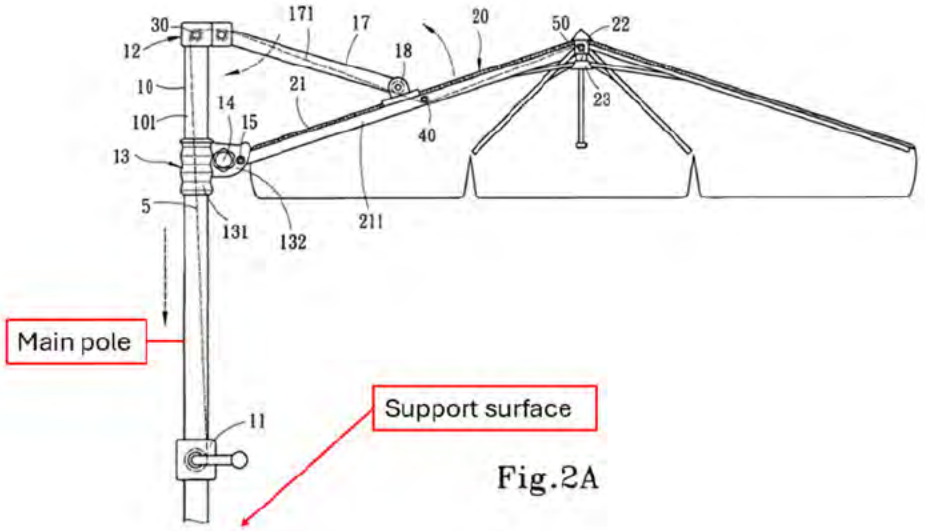
Exhibit 16 - Invalidity Chart for U.S. Patent No. 8,104,492[1] (the '492 Patent) Based on U.S. Patent No. 7,341,068 (Liu '068)

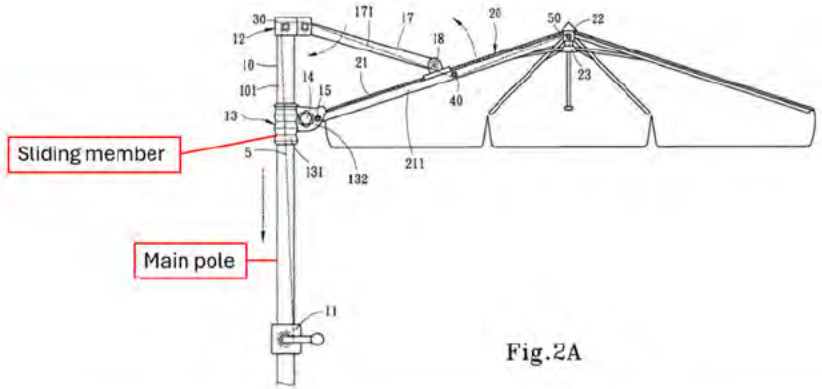
This chart is based on Plaintiff's apparent interpretations of the asserted claim(s) and Defendant's investigation to date. Citations to portions of any reference in this chart are exemplary only, and Defendant may rely on the entirety of the references cited herein to show that the asserted claims are invalid. Further, as Defendant's investigations and discovery are ongoing, Defendant reserves the right to amend or supplement this claim chart to include additional information and/or invalidity contentions identified in connection with Defendant's ongoing investigations. To the extent that every element below is not explicitly or inherently disclosed by the prior art reference, this prior art reference in combination (1) with the knowledge of one of ordinary skill in the art and/or (2) with other prior art identified in the invalidity contentions and/or otherwise herein, renders the asserted claims obvious.

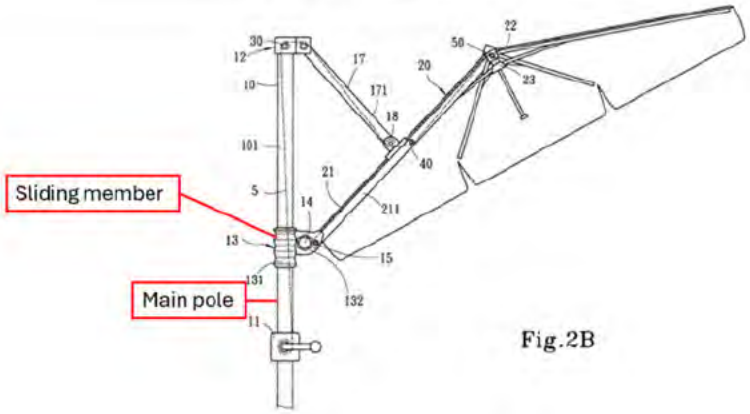
[1] As discussed in the contentions, Claim 1 of the Asserted Patent cannot claim priority to the May 5, 2008 filing date of provisional application no. 61/050,353. Instead, the priority date of Claim 1 of the Asserted Patent is May 5, 2009.

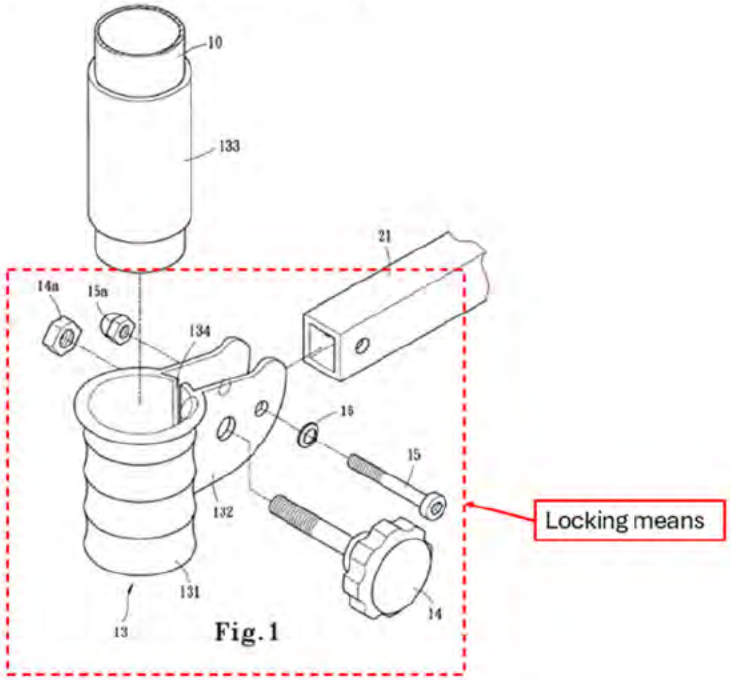
No.	Claim Limitation	Basis for Invalidity
Claim 1 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 7,341,068 to Liu ("Liu '068) (filed on September 17, 2004) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 to Huali ("Huali '640") and in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994)		
1 [preamble][2]	An umbrella comprising:	Liu '068 discloses an umbrella. *See e.g.*, Liu '068 at Title ("Side-Supporting Umbrella"); Abstract ("The present invention relates to a side-supporting umbrella."); Claim 1 ("A side-supporting umbrella"); Figs. 2A see annotated below)-4  Fig.2A

[2] Defendant makes no concessions or admissions regarding the claim preamble, *e.g.*, that it is or is not limiting, but reserves its right on that and other claim construction issues.

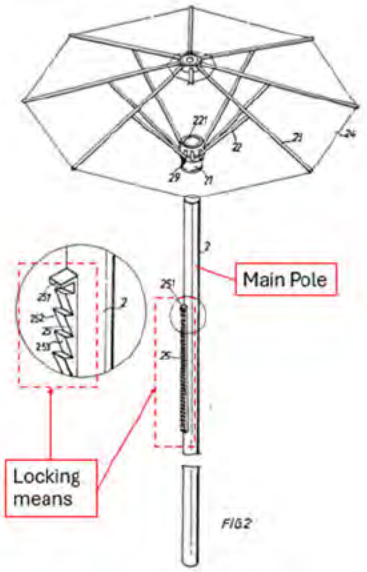
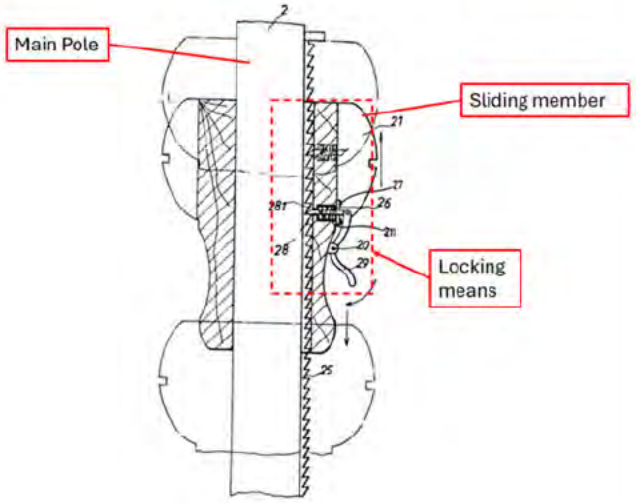
No.	Claim Limitation	Basis for Invalidity
1[a]	a main pole having a lower end for support by a support surface and extending generally upward to an upper end;	Liu '068 discloses a main pole (mast 10) having a lower end for support by a support surface and extending generally upward to an upper end. *See e.g.*, Liu '068 at Description at 3:15-20 ("Referring to FIG. 1 an exploded schematic diagram and FIG. 2A a schematic diagram of tilt-adjusting motion, both according to one embodiment of the present invention, a tilt-adjusting structure of the present invention is installed on a mast 10, and pivotally connected to a support arm 21 of a canopy 20."); Claim 1 ("A side-supporting umbrella, comprising a canopy and a mast which supports the canopy"); Figs. 2A see annotated below)-4  Fig.2A To the extent Liu '068 does not disclose a support surface, a person of ordinary skill in the art would understand the umbrella disclosed in Liu '068 must be mounted to the surface or have a support surface structure.

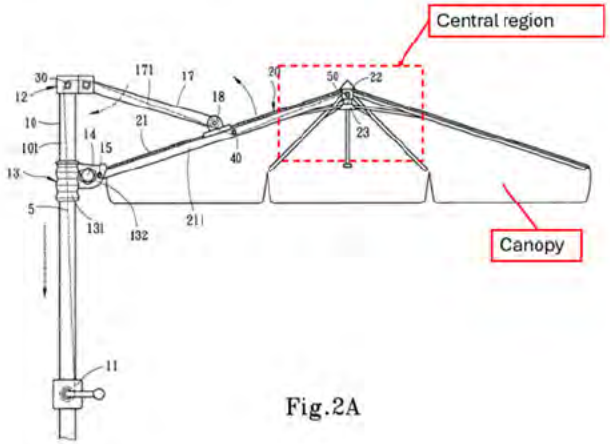
No.	Claim Limitation	Basis for Invalidity
1[b]	a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole;	Liu '068 discloses a sliding member (collar 13) associated with the main pole (mast 10) and selectably moveable thereon between lower and upper locations along the main pole (mast 10). *See e.g.*, Liu '068 at Abstract ("A collar is installed on a mast, and able to slide along the mast in a continuously variable manner, and pivotally connected to a supporting arm of a canopy."); Description at 3:50-54 ("A tilt-adjusting structure according to one embodiment of the present includes: a collar 13, having a holding portion 131 mounted cylindrically through the mast 10, and able to slide between the winder 11 and the top of the mast 10 in a continuously variable manner."); Claim 1 ("further comprising a collar and a positioning element, the collar being installed on said mast, said collar being slidable along said mast"); Figs. 2A and 2B (see annotated below)-4  Fig.2A

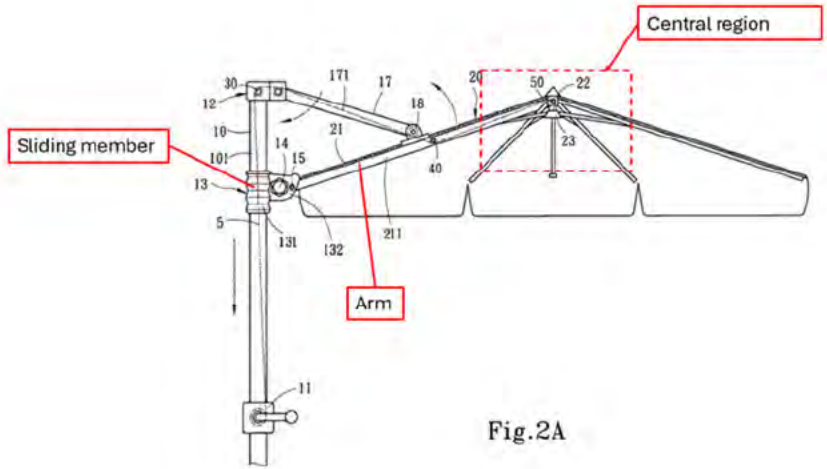
No.	Claim Limitation	Basis for Invalidity
		 Fig.2B
1[c]	locking means for releasably securing the sliding member to the main pole at a selected location along the main pole;	Liu '068 discloses locking means (positioning element 14) for releasably securing the sliding member (collar 13) to the main pole (mast 10) at a selected location along the main pole (mast 10). *See e.g.*, Liu '068 at Description at 2:19-26 ("The primary objective of the side-supporting umbrella of the present invention is to provide a tilt-adjusting structure installed between a mast of an umbrella and supporting arm of a canopy, comprising a collar, which can slide along the mast in a continuously variable manner and adjust the tilt of the canopy in combination with a sequentially actuated movement of the interlinked supporting arm, and is able to be fixed at any position of the mast by a locking element."); 3:60-67 ("The holding portion 131 is gripped fixedly and positioned on the mast 10 via inserting a positioning element 14 through the assembling portion 132 and screwing a nut 14a to press the slot 134 tightly. Besides, a lining sleeve 133 can be installed inside the holding portion 131 to reduce friction resulting from a sliding motion between the collar 13 and the mast 10 and prevent the mast 10 from wear and deformation."); 4:40-47 ("As described above, after disengaging the nut 14a from the positioning element 14, the collar 13 is pulled to slide downward, and the holding portion 131 of the collar 13 is moved from the position adjacent to the top of the mast 10 to the position adjacent to the winder 11, and then the tilt attitude of the canopy 20 will be changed to adjoin the mast 10, and the volume of the umbrella will decrease to make its

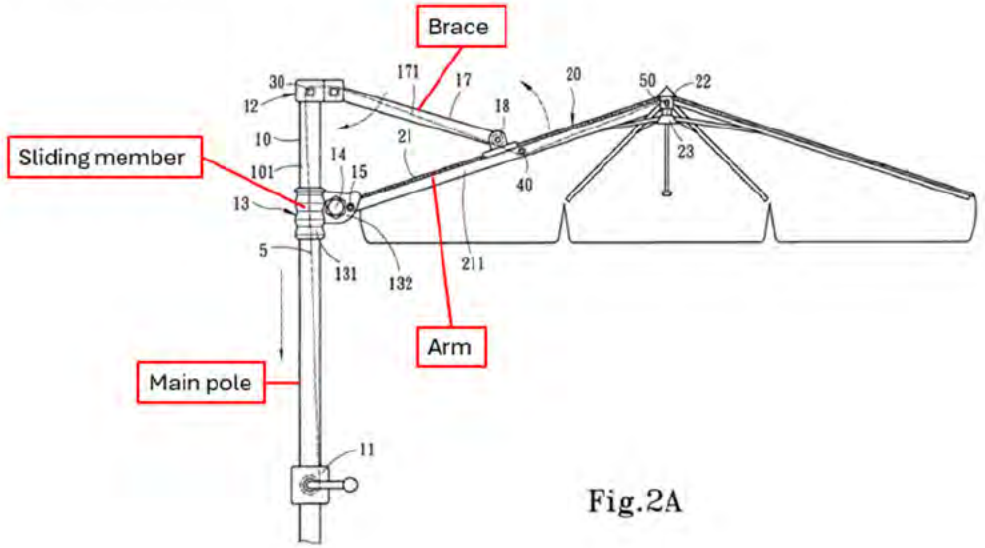
No.	Claim Limitation	Basis for Invalidity
		stowing or transport convenient."); Claim 1 ("the holding portion has a slot and the holding portion being gripped fixedly and positioned on said mast via inserting said positioning element through said assembling portion and fastening said assembling portion to press tightly said slot"); Fig. 1 (see annotated below)  Fig. 1 To the extent Liu '068 does not disclose this limitation, Liu '171 discloses a locking means (elongated rack-like member 25, groove 221, spring 26, supporting pin 28, arm 29) for releasably securing the sliding member (runner 21) to the main pole (main shaft 2) at a selected location along the main pole. *See e.g.*, Liu '171 at Abstract ("An improved sunshade opening and supporting device is provided with a rack-like member disposed on the main shaft of a sunshade at a section thereof over which the runner of the sunshade travels during the opening and closing of the

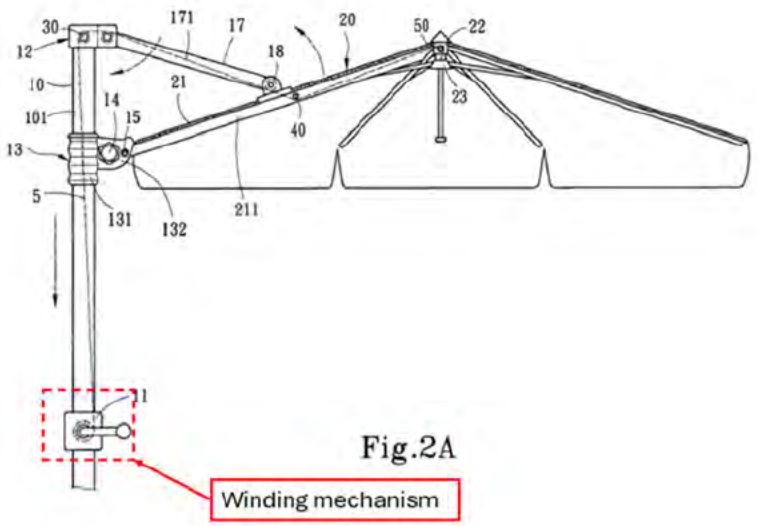
No.	Claim Limitation	Basis for Invalidity
		sunshade"); Background of the Invention at 1:57-2:16 ("Generally speaking, the conventional sunshade opening device using a supporting pin is able to be operated with ease, but there are still some disadvantages associated therewith in practical operation, which are given as follows: 1. The size of the sunshade is usually very large so that it can keep a wide area covered; the larger the sunshade is the heavier it becomes; an operator has to push the runner upwardly with great effort first with hands and then hold the runner in place with one hand and locate the supporting pin with the other; and the supporting pin is selectively inserted into one of the locking holes as long as the runner is disposed at a desired position and the supporting pin is in alignment with the target locking hole. If not, the operator has to make some adjustments of the location of the runner and the supporting pin. To an operator who is too weak to open the heavy sunshade with one hand, the opening of the same without help from others becomes impossible, causing great inconvenience in practical operation. 2. The main shaft and the runner of the sunshade are slidably engaged with each other and the two are usually assembled together in a loose manner so that the runner can be smoothly moved; but the loose engagement of the runner with the main shaft produces crevice therebetween which can get the fingers of an operator hurt easily when the skin of the fingers is accidentally clamped in the crevice in the collapse of the sunshade. To overcome the above cited problems, the present inventor has worked out an improved opening and supporting device for a sunshade which is presented in details in the following description along with a number of drawings."); Description at 3:31-49 ("The operation of the present invention is described hereinafter. To get the sunshade opened, the runner 21 is pushed upwardly along the main shaft 2, the oblique face of the front tip of the supporting pin 28 is in abutment against the oblique face 253 of the Z-shaped teeth 252 in the upward journey, resulting in the backward withdrawal of the supporting pin 28. During the process, the spring 26 is continuously compressed with the backward movement of the runner 21, the compressed spring will pop out when the runner 21 is located at a new position and retain the runner 21 in place so as to keep the sunshade opened. To close the sunshade, the arc arm 29 is pivotally triggered and held in place, resulting in the backward pulling of the supporting pin 28 so as to make the same separate from the locking tooth of the rack-like member 25, permitting the runner 21 to travel downwardly freely to collapse the sunshade.") and 3:50-4:08 ("It can be clearly seen the present invention enables a person to open the sunshade simply by pushing the runner upwardly which is equipped with a spring biased supported pin along a rack-like member;

No.	Claim Limitation	Basis for Invalidity
		the supporting pin will move against a Z-shaped tooth each time and will pop out and be retained in place when it passes over each tooth due to the help of a bias spring until the runner is located at a desired position so as to facilitate a person to open a heavy sunshade with no effort at all. To close or collapse the sunshade, a person only has to trigger and hold a pivotal arc arm which is pivotally connected to the end of the supporting pin, causing the spring biased supporting pin to withdraw from the engagement with the tooth of the rack-like member so as to permit the runner to slide down all the way, resulting in the collapse of the sunshade."); Figs. 2 and 3  FIG2  FIG3 A person of ordinary skill in the art would have understood that a simple substitution of the known structure in Liu '068 with the structure in Liu '171 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '171 and Liu '068 both relate to collapsable umbrella products and are thus in the same industry. Liu '171 also discloses a motivation to combine. Liu '171 explains how teeth (i.e. a locking means) disposed on the main shaft of the sunshade (i.e. umbrella) provide several advantages, including: (1) allowing operation by operators who are too weak to open a heavy sunshade with one hand; (2)

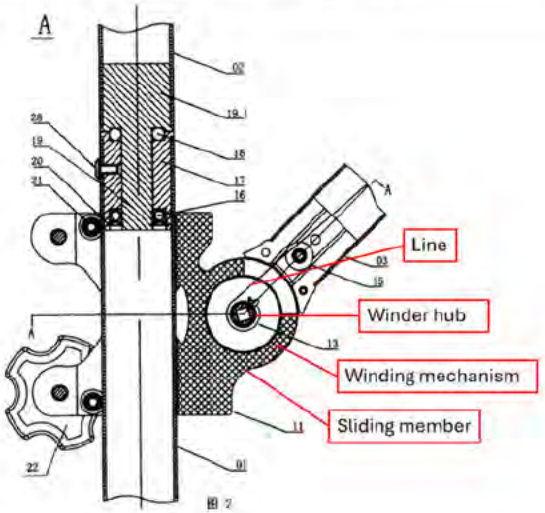
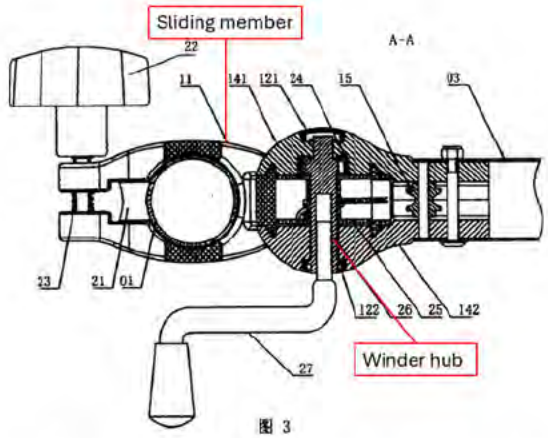
No.	Claim Limitation	Basis for Invalidity
		reducing the danger that a user will injure their fingers in the crevice formed by the main shaft and runner; (3) making operation of the umbrella more convenient; and (4) reducing the effort required to operate the sunshade. Liu '171 at 1:57-2:11, 2:38-42, 3:50-4:8.
1[d]	an umbrella canopy having a central region;	Liu '068 discloses an umbrella canopy (canopy 20) having a central region. *See e.g.*, Liu '068 at Abstract ("A collar is installed on a mast, and able to slide along the mast in a continuously variable manner, and pivotally connected to a supporting arm of a canopy"); Description 3:15-20 ("Referring to FIG. 1 an exploded schematic diagram and FIG. 2A a schematic diagram of tilt-adjusting motion, both according to one embodiment of the present invention, a tilt-adjusting structure of the present invention is installed on a mast 10, and pivotally connected to a supporting arm 21 of a canopy 20"); Claim 1 ("A side-supporting umbrella, comprising a canopy"); Figs. 2A (see annotated below)-4  Fig.2A
1[e]	an arm associated with the central region and extending	Liu '068 discloses an arm (supporting arm 20) associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member (collar 13).

No.	Claim Limitation	Basis for Invalidity
	radially therefrom to an outer end operatively associated with the sliding member;	*See e.g.*, Liu '068 at Abstract ("A collar is installed on a mast, and able to slide along the mast in a continuously variable manner, and pivotally connected to a supporting arm of a canopy."); Description 3:15-20 ("Referring to FIG. 1 an exploded schematic diagram and FIG. 2A a schematic diagram of tilt-adjusting motion, both according to one embodiment of the present invention, a tilt-adjusting structure of the present invention is installed on a mast 10, and pivotally connected to a supporting arm 21 of a canopy 20"); Claim 1 ("A side-supporting umbrella, comprising a canopy"); Claim 1 ("A side-supporting umbrella, comprising a canopy and a mast which supports the canopy, wherein said canopy has a supporting arm . . . said collar being pivotally connected to said supporting arm of said canopy"); Figs. 2A (see annotated below)-4  Fig.2A
1[f]	a brace having a first end pivotably attached to an upper	Liu '068 discloses a brace (connecting brace 17) having a first end pivotably attached to an upper portion of the pole (mast 10) above the sliding member (collar 13) and a second end pivotably attached to the arm (supporting arm 12).

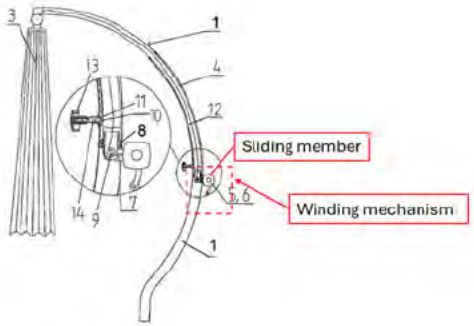
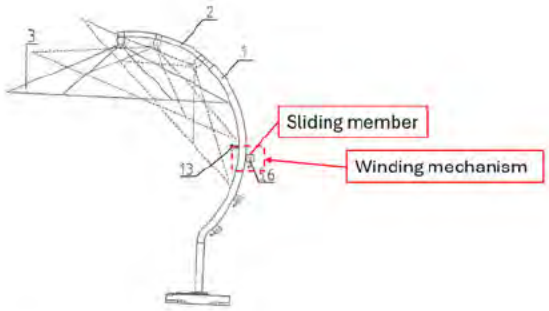
No.	Claim Limitation	Basis for Invalidity
	portion of the pole above the sliding member and a second end pivotably attached to the arm;	*See e.g.*, Liu '068 at Description 3:20-23 ("The mast 10 and the canopy 20 are interconnected with a connecting brace 17 pivotally. The connecting brace 17 is pivotally connected through a pivoting element 18 to the supporting arm 21."); Claim 1 ("A side-supporting umbrella, comprising a canopy and a mast which supports the canopy, wherein said canopy has a supporting arm, with said supporting arm and said mast, through a connecting brace"); Figs. 2A (see annotated below)-4  Fig.2A
1[g]	a winding mechanism having a winder hub around which a line can be wound, the winder hub being mounted to the	Liu '068 discloses a winding mechanism (crank-driving winder 11) having a winder hub (crank-driving winder 11) around which a line (line 5) can be wound. *See e.g.*, Liu '068 at Description at 3:23-26 ("A crank-driving winder 11 is installed at a suitable position of the mast 10, and one end of a line 5 is wound on the winder 11 in order to control the canopy 20 to open or close."); Claim 2 ("wherein a crank-driving winder is installed on said mast, and a line is wound on said winder"); Figs. 2A-4

No.	Claim Limitation	Basis for Invalidity
	sliding member and movable therewith;	 Fig.2A To the extent Liu '068 does not disclose the winder hub being mounted to the sliding member and movable therewith, Wang '460 discloses a winding mechanism having a winder hub (rope reel 26) around which a line (pull rope 13) can be wound, the winder hub (rope reel 26) being mounted to the sliding member (sliding sleeve 11) and movable therewith. *See e.g.*, Wang '460 at Abstract ("the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is table; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the

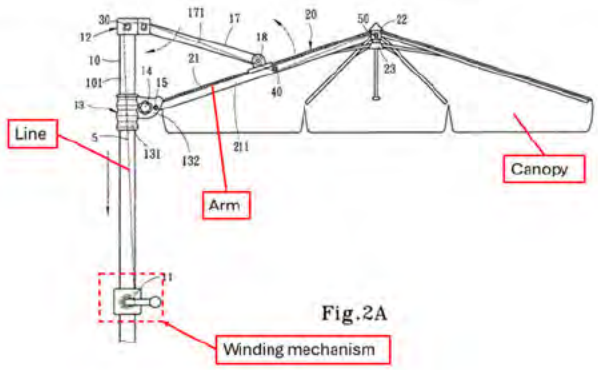
No.	Claim Limitation	Basis for Invalidity
		suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc") and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-3 (see annotated below).

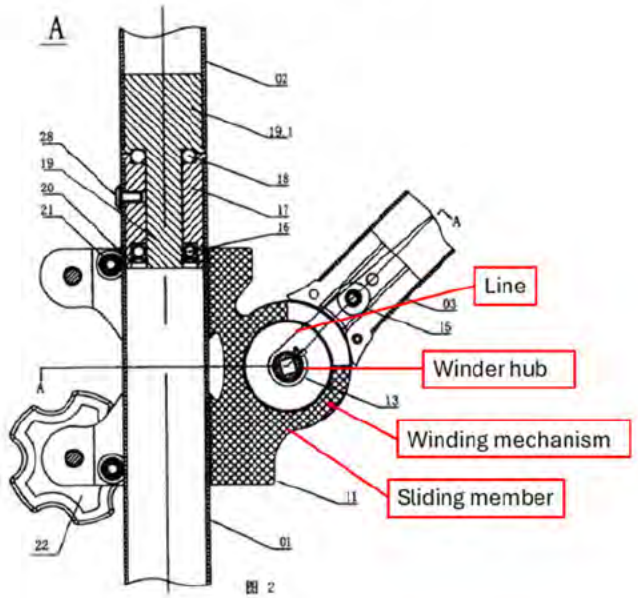
No.	Claim Limitation	Basis for Invalidity
		  图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in in Wang '460 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella

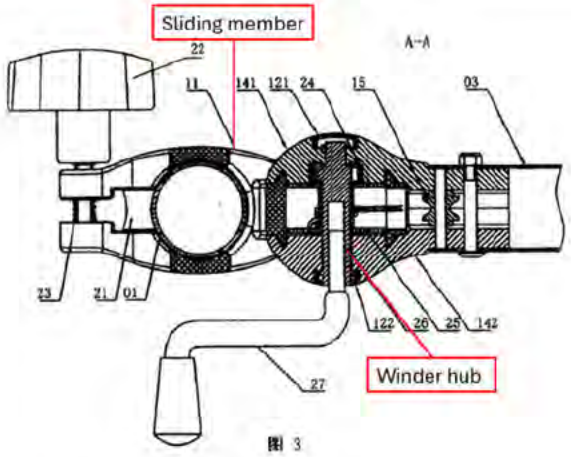
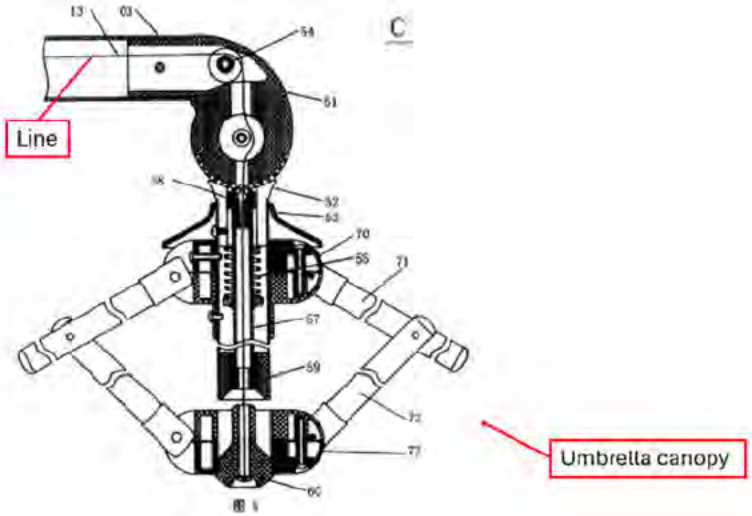
No.	Claim Limitation	Basis for Invalidity
		products. Indeed, Liu '068 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '068 does not disclose this limitation, Huali '640 discloses a winding mechanism (control device 5) having a winder hub (crank shaft 6) around which a line can be wound (sheathed cable/Bowden control 4), the winder hub (crank shaft 6) being mounted to the sliding member (control device 5 and the connecting piece 7) and movable therewith. *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device. The control device is attached to the telescopic pipe so that the opening/closing movement of the umbrella canopy is uncoupled from the telescopic mechanism of the umbrella."); Field of the Invention at [0002] ("The invention relates to a telescopic umbrella, in particular a sunshade with a lower upright stand pipe and a moveable and lockable telescopic pipe arranged in it with an umbrella canopy attached to the telescopic pipe, where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe.") and [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable

No.	Claim Limitation	Basis for Invalidity
		and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("a control device for the sheathed cable or Bowden control"); Claim 8 ("wherein the control unit comprises one of a crank shaft or an electrically driven reeling/unreeling device or similar mechanism"); Figs. 1 and 3 (see annotated below).  Fig. 1  Fig. 3

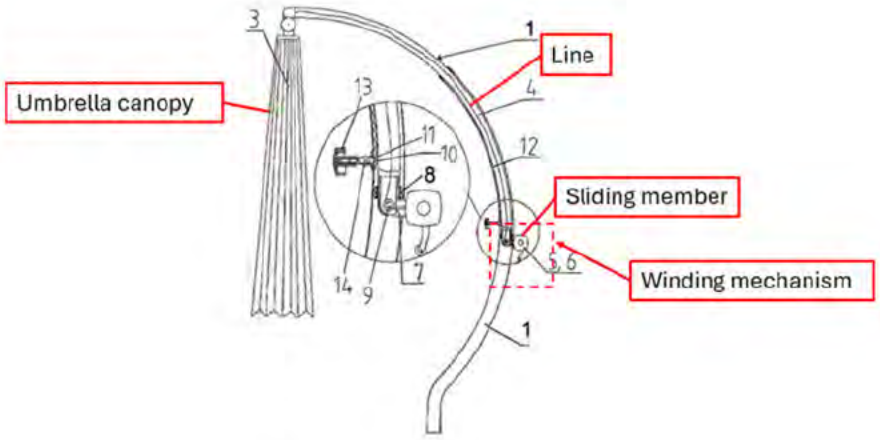
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in Huali '640 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. Such a motivation to combine can also be found in Huali '640, which describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011].
1[h]	a line having a first end that winds around the winder hub, an intermediate portion extending from the winder hub along the arm to the umbrella canopy, and a second end that engages the umbrella canopy;	Liu '068 discloses a line (line 5) having a first end that winds around the winder hub (crank-driving winder 11), an intermediate portion extending from the winder hub (crank-driving winder 11) along the arm (supporting arm 21) to the umbrella canopy (canopy 20), and a second end that engages the umbrella canopy (canopy 20). *See e.g.*, Liu '068 at Description at 3:23-26 ("A crank-driving winder 11 is installed at a suitable position of the mast 10, and one end of a line 5 is wound on the winder 11 in order to control the canopy 20 to open or close."); 3:35-47 ("One end of the line 5 begins from the winder 11, and extends through the first disposing space 101 of the mast 10 upward to the top thereof, and passes over the first pulley 30, and then via the first direction transition, extends through the second disposing space 171 of the connecting brace 17 to the second pulley 40 installed in side the supporting arm 21, and passes over the second pulley 40, and then with the second direction transition, extends through the third disposing space 211 of the supporting arm 21 to the third pulley 50 installed in the upper hub 22, and passes over the third pulley 50, and then via the third direction transition, extends through the upper hub 22, and finally reaches the lower hub 23 and connects thereto."); Claim 2 ("wherein a crank-driving winder is installed on said mast, and a line is wound on said winder"); Figs. 2A (see annotated below)-4

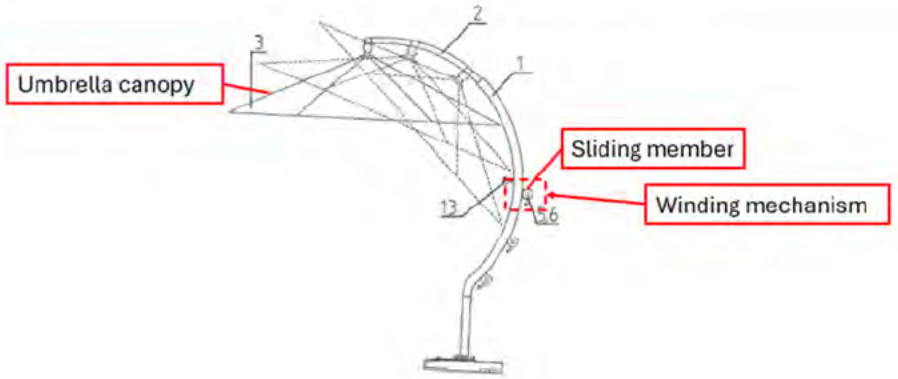
No.	Claim Limitation	Basis for Invalidity
		 Fig.2A To the extent Liu '068 does not disclose this limitation, Wang '460 discloses a line (pull rope 13) having a first end that winds around the winder hub (rope reel 26), an intermediate portion extending from the winder hub (rope reel 26) along the arm to the umbrella canopy (parasol cover 112), and a second end that engages the umbrella canopy (parasol cover 112). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and

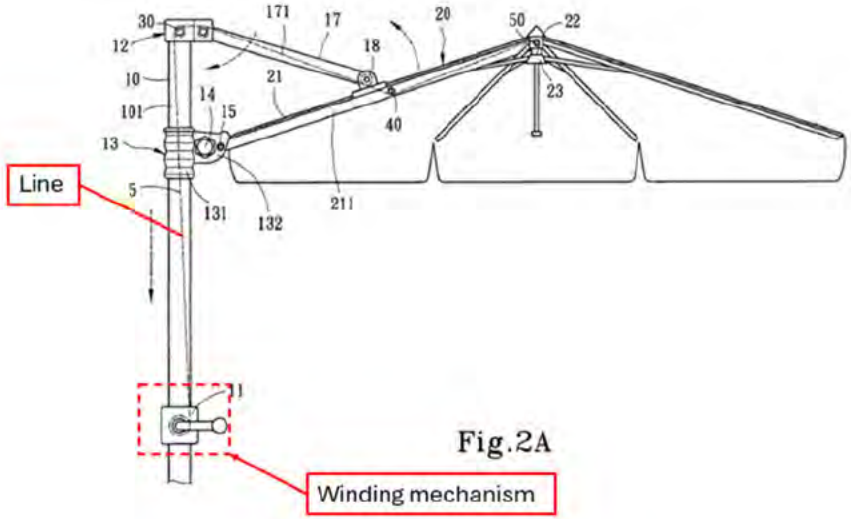
No.	Claim Limitation	Basis for Invalidity
		the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5 

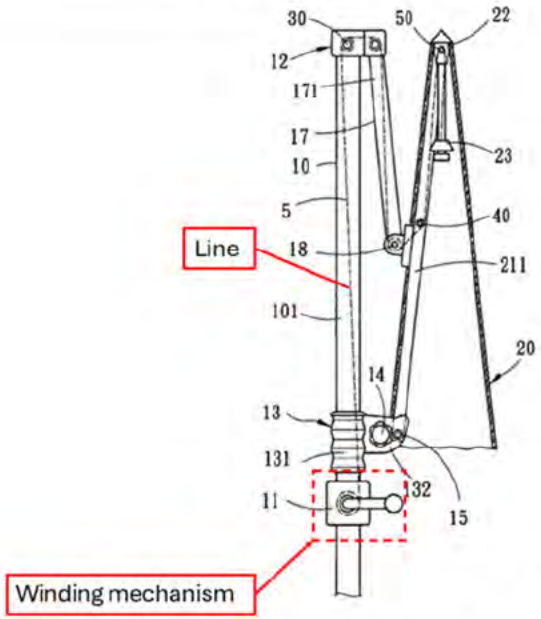
No.	Claim Limitation	Basis for Invalidity
		 图 3 

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in Wang '460 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '068 does not disclose this limitation, Huali '640 discloses a line (a sheathed cable/Bowden control 4) having a first end that winds around the winder hub (crank shaft 6), an intermediate portion extending from the winder hub (crank shaft 6) along the arm to the umbrella canopy (umbrella canopy 3), and a second end that engages the umbrella canopy (umbrella canopy 3). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order

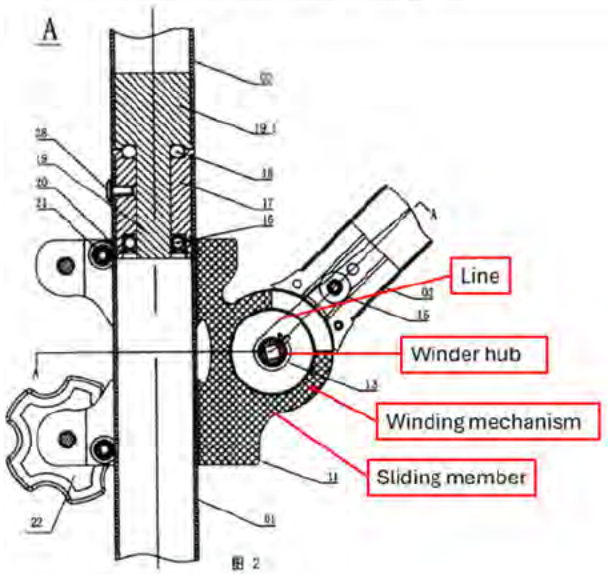
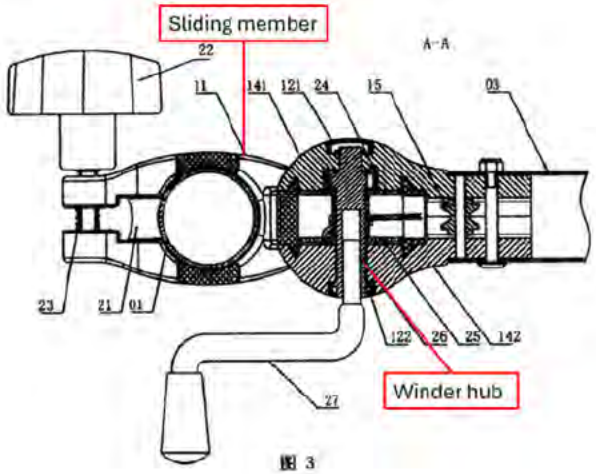
No.	Claim Limitation	Basis for Invalidity
		to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3  Fig. 1

No.	Claim Limitation	Basis for Invalidity
		 Fig. 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in in Huali '640 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011].
1[i]	wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub, and	Liu '068 discloses wherein rotation of the winder hub (crank-driving winder 11) tensions or relaxes the line (line 5) depending upon the direction of rotation of the winder hub (crank-driving winder 11). *See e.g.*, Liu '068 at Description 3:23-26 ("A crank-driving winder 11 is installed at a suitable position of the mast 10, and one end of a line 5 is wound on the winder 11 in order to control the canopy 20 to open or close."): 4:33-40 ("Referring to FIGS. 2A, 3, and 4, schematic diagrams showing half-open or fully-close states of the canopy of the umbrella according to

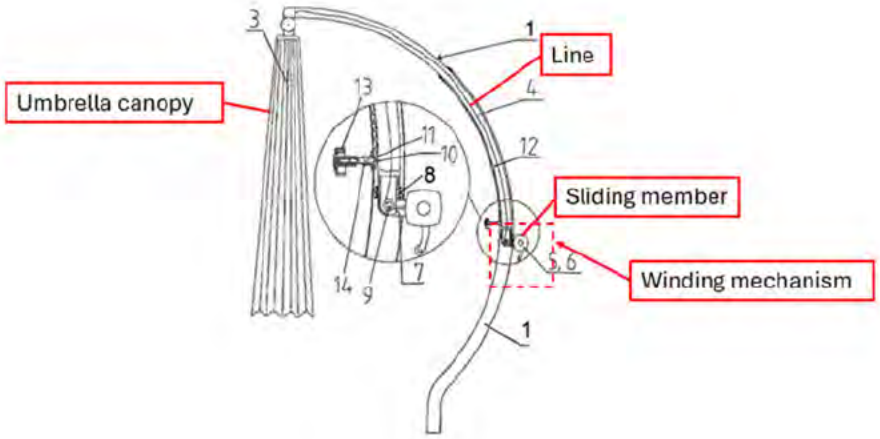
No.	Claim Limitation	Basis for Invalidity
		one embodiment of the present invention, via crank-driving the winder 11, the length of the line will increase to make the lower hub 23 move downward in order to open the canopy 20, or the length of the line will decrease to make the lower hub 23 move upward in order to close the canopy 20."); Figs. 2A-4 (see annotated below).  Fig.2A

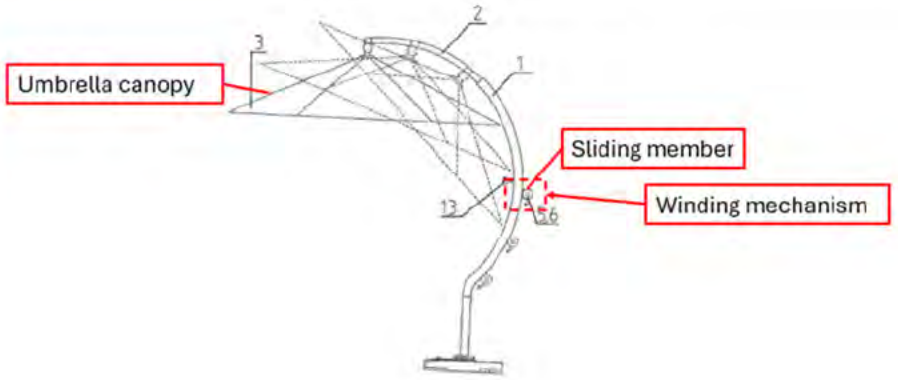
No.	Claim Limitation	Basis for Invalidity
		 Fig.4 To the extent Liu '068 does not disclose this limitation, Wang '460 discloses wherein rotation of the winder hub (rope reel 26) tensions or relaxes the line (pull rope 13) depending upon the direction of rotation of the winder hub (rope reel 26). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked

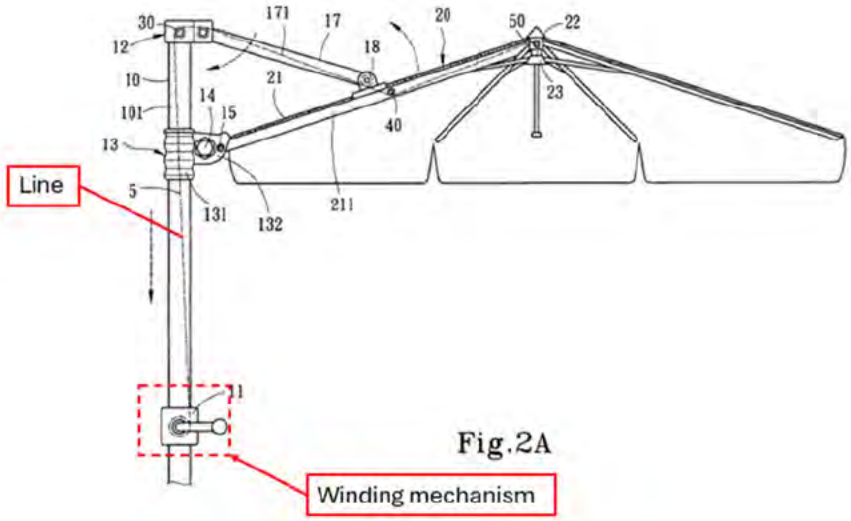
No.	Claim Limitation	Basis for Invalidity
		by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5 (see annotated below).

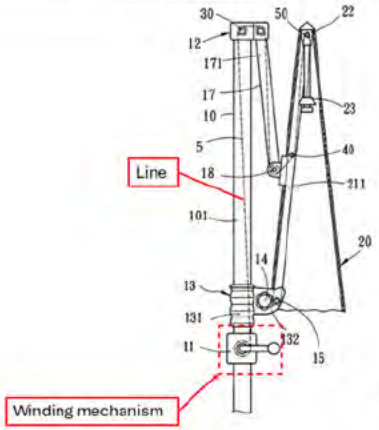
No.	Claim Limitation	Basis for Invalidity
		 图 2  图 3

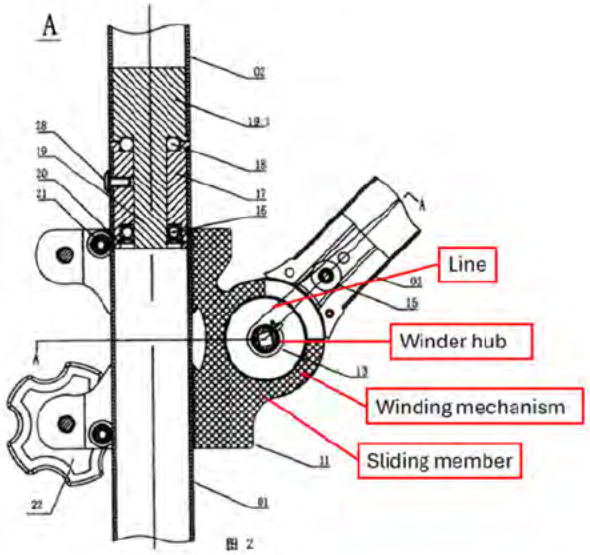
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in Wang '460 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '068 does not disclose this limitation, Huali '640 discloses wherein rotation of the winder hub (crank shaft 6) tensions or relaxes the line (a sheathed cable/Bowden control 4) depending upon the direction of rotation of the winder hub (crank shaft 6). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable

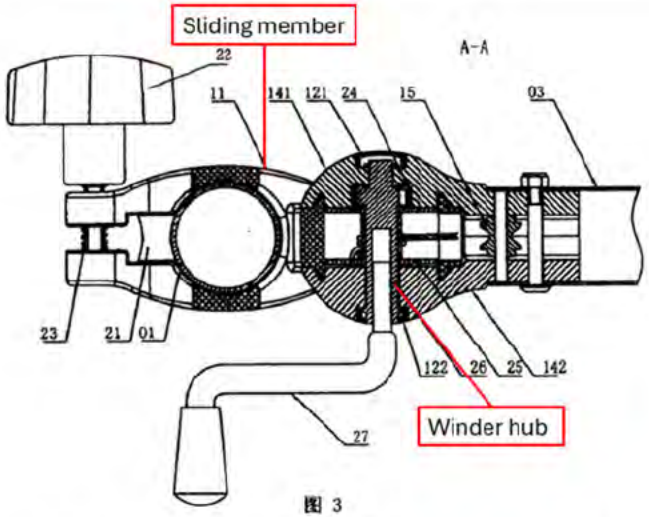
No.	Claim Limitation	Basis for Invalidity
		the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3 (see annotated below).  Fig. 1

No.	Claim Limitation	Basis for Invalidity
		 Fig. 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in Huali '640 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011].
1[j]	wherein operation of the winding mechanism to apply tension to the line opens and closes the umbrella canopy in response to movement of the line; and	Liu '068 discloses wherein operation of the winding mechanism (crank-driving winder 11) to apply tension to the line (line 5) opens and closes the umbrella canopy (canopy 20) in response to movement of the line (line 5). *See e.g.*, Liu '068 at Description at 2:48-51 ("The mast has a crank-driving winder on which a line is wound, and via crank-driving winder, the line is drive to control the canopy to open or close"); 3:35-49 ("One end of the line 5 begins from the winder 11, and extends through the first disposing space 101 of the mast 10 upward to the top thereof, and passes over the first pulley 30, and then via the first direction transition, extends through the second disposing

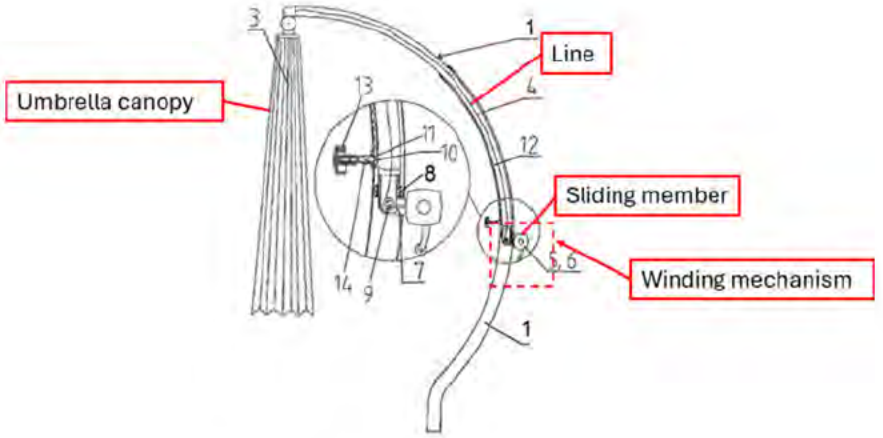
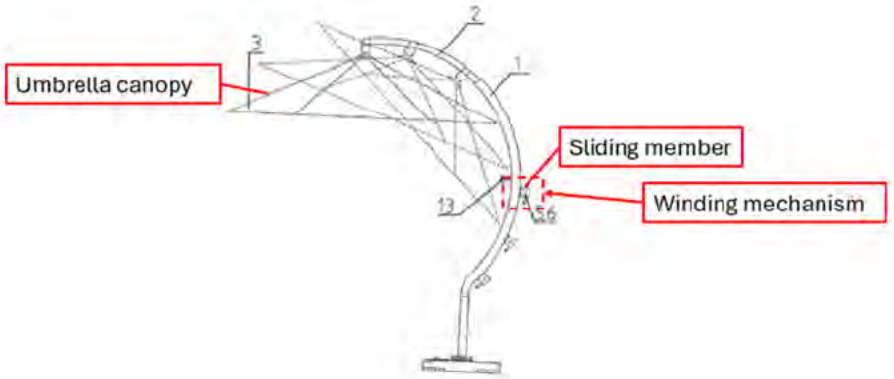
No.	Claim Limitation	Basis for Invalidity
		space 171 of the connecting brace 17 to the second pulley 40 installed in side the supporting arm 21, and passes over the second pulley 40, and then with the second direction transition, extends through the third disposing space 211 of the supporting arm 21 to the third pulley 50 installed in the upper hub 22, and passes over the third pulley 50, and then via the third direction transition, extends through the upper hub 22, and finally reaches the lower hub 23 and connects thereto. Via crank-driving the winder 11, the line 5 is driven to control the canopy 20 to open or close."); Claim 2 ("wherein via crank-driving said winder, said line is driven to control said canopy to open or close"); Figs. 2A-4 (see annotated below).  Fig.2A

No.	Claim Limitation	Basis for Invalidity
		 Fig.4 To the extent Liu '068 does not disclose this limitation, Wang '460 discloses wherein rotation of the winder hub (rope reel 26) tensions or relaxes the line (pull rope 13) depending upon the direction of rotation of the winder hub (rope reel 26). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57

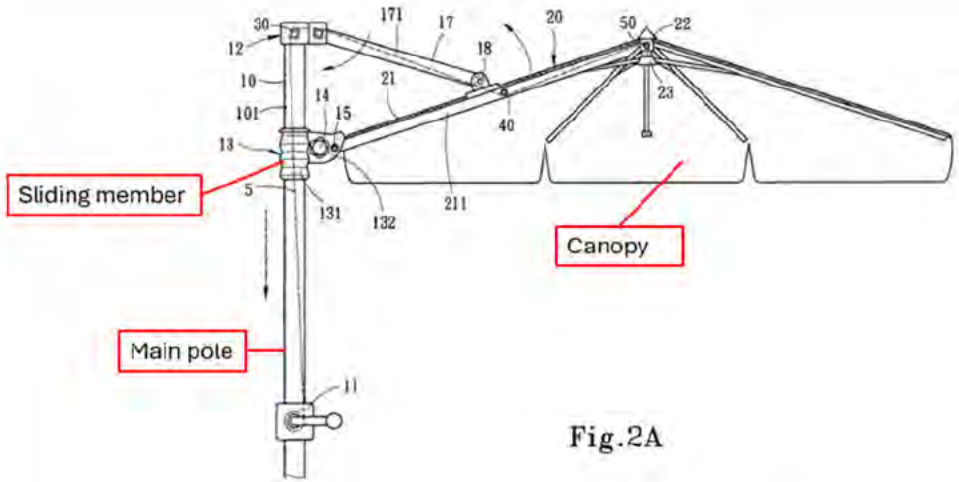
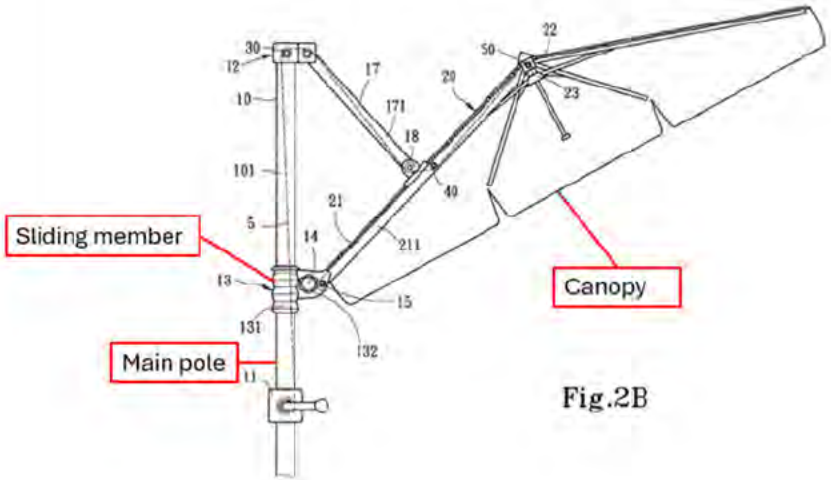
No.	Claim Limitation	Basis for Invalidity
		installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5 (see annotated below). 

No.	Claim Limitation	Basis for Invalidity
		 图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in in Wang '460 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Liu '068 does not disclose this limitation, Huali '640 discloses wherein rotation of the winder hub (crank shaft 6) tensions or relaxes the line (a sheathed cable/Bowden control 4) depending upon the direction of rotation of the winder hub (crank shaft 6). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a

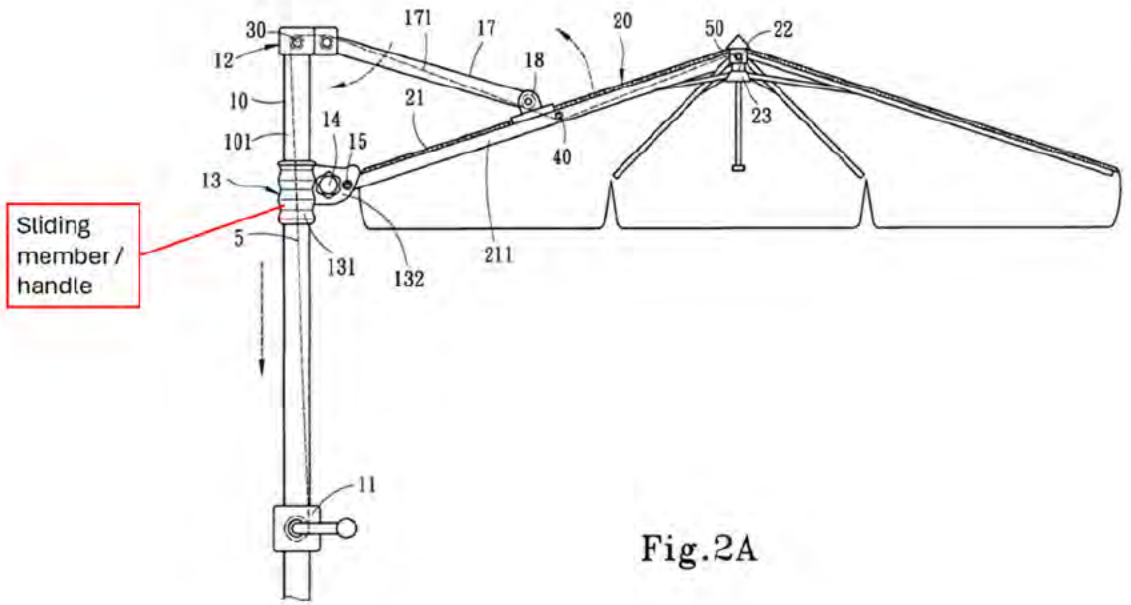
No.	Claim Limitation	Basis for Invalidity
		sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3 (see annotated below).

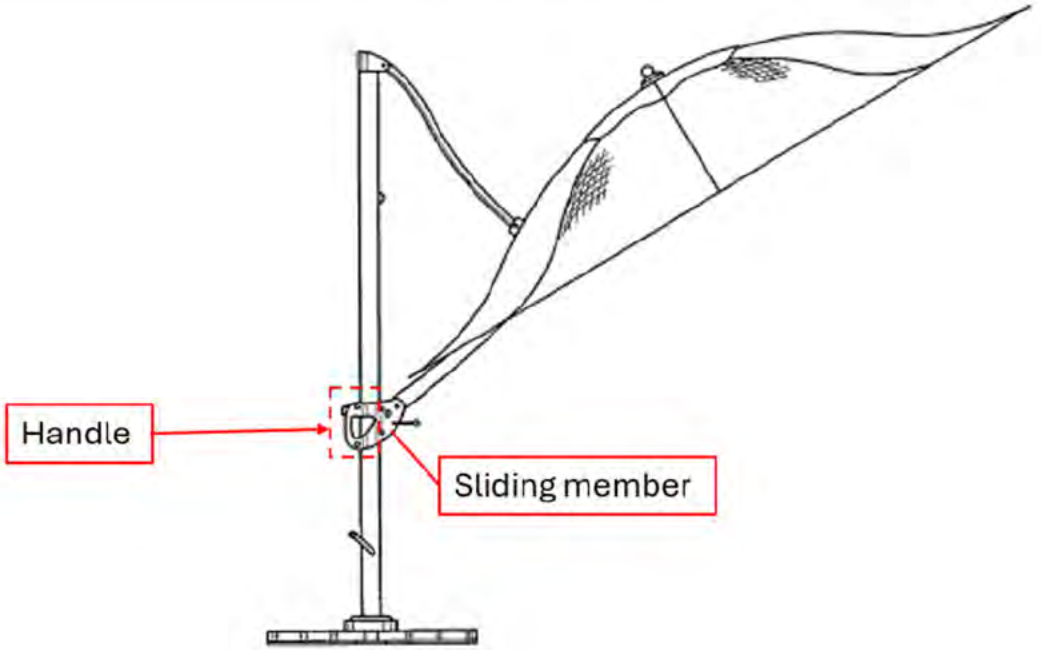
No.	Claim Limitation	Basis for Invalidity
		 Fig. 1  Fig. 3

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Liu '068 with the structure in Huali '640 (or adding the winding mechanism to the sliding member) would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011].
1[k]	wherein the angle of the umbrella canopy with respect to the main pole can be controlled by moving the sliding member along the main pole.	Liu '068 discloses wherein the angle of the umbrella canopy (canopy 20) with respect to the main pole (mast 10) can be controlled by moving the sliding member (collar 13) along the main pole (mast 10). *See e.g.*, Liu '068 at Description at 4:40-47 ("As described above, after disengaging the but 14a from the positioning element 14, the collar 13 is pulled to slide downward, and the holding portion 131 of the collar 13 is moved from the position adjacent to the top of the mast 10 to the position adjacent to the winder 11, and then the tilt attitude of the canopy 20 will be changed to adjoin the mast 10, and the volume of the umbrella will decrease to make its stowing or transport convenient."); Claim 1 ("and a tilt angle being adjusted via said collar sliding along said mast and fixing said collar on said mast with said positioning element"); Figs. 2A-4

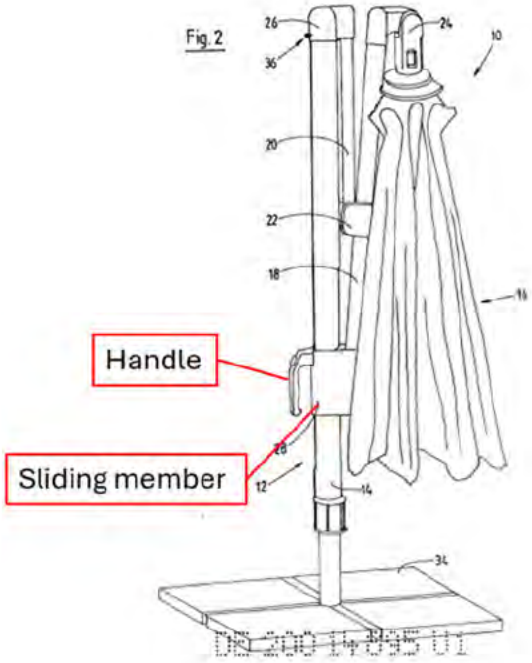
No.	Claim Limitation	Basis for Invalidity
		 Fig.2A  Fig.2B

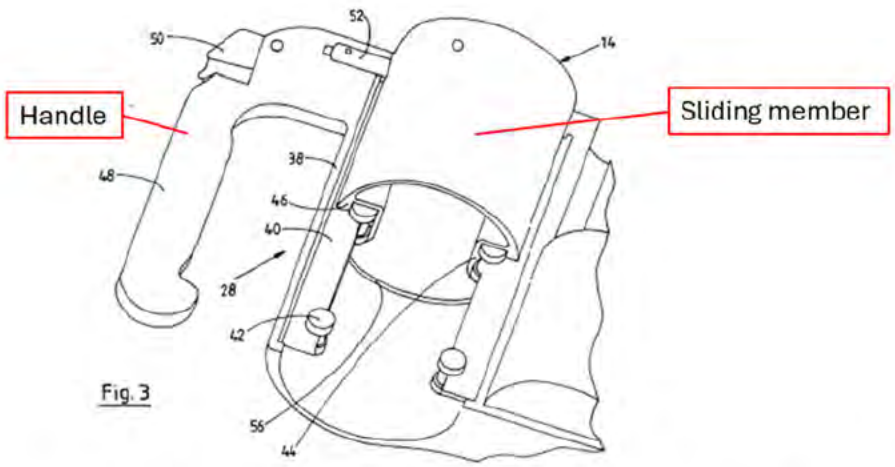
No.	Claim Limitation	Basis for Invalidity
Claim 5 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 7,341,068 to Liu ("Liu '068) (filed on September 17, 2004) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 to Huali ("Huali '640") (published October 2, 2008) and in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994) and in further view of United States Patent No. D609453 to Liu ("Liu '453") (filed on May 2, 2008) and/or German Patent DE20014895U1 ("Bertola '895") (published November 16, 2000) and/or United States Patent No. 7,398,790 ("Glatz '790") (issued July 15, 2008)		
5	The umbrella of claim 1, wherein the sliding member has a handle associated therewith.	Liu '068 discloses wherein the sliding member (collar 13) has a handle (holding portion 131) associated therewith. *See e.g.*, Liu '068 at Description at 3:50-67 ("A tilt-adjusting structure according to one embodiment of the present includes: a collar 13, having a holding portion 131 mounted cylindrically through the mast 10, and able to slide between the winder 11 and the top of the mast 10 in a continuously variable manner. An assembling portion 132 projects from the holding portion 131. The assembling portion 132 is pivotally connected to the supporting arm 21 via inserting a locking element 15 through a washer 16, the assembling portion 132 and the supporting arm 21, and screwing those fixedly with a nut 15 a. The holding portion 131 has a slot 134. The holding portion 131 is gripped fixedly and positioned on the mast 10 via inserting a positioning element 14 through the assembling portion 132 and screwing a nut 14 a to press the slot 134 tightly. Besides, a lining sleeve 133 can be installed inside the holding portion 131 to reduce friction resulting from a sliding motion between the collar 13 and the mast 10 and prevent the mast 10 from wear and deformation"); Figs. 2A-4

No.	Claim Limitation	Basis for Invalidity
		 Fig.2A To the extent Liu '068 does not disclose this limitation, Liu '453 discloses wherein the sliding member has a handle associated therewith. See e.g., Liu '453 at Figs. 1-3 and 6-8.

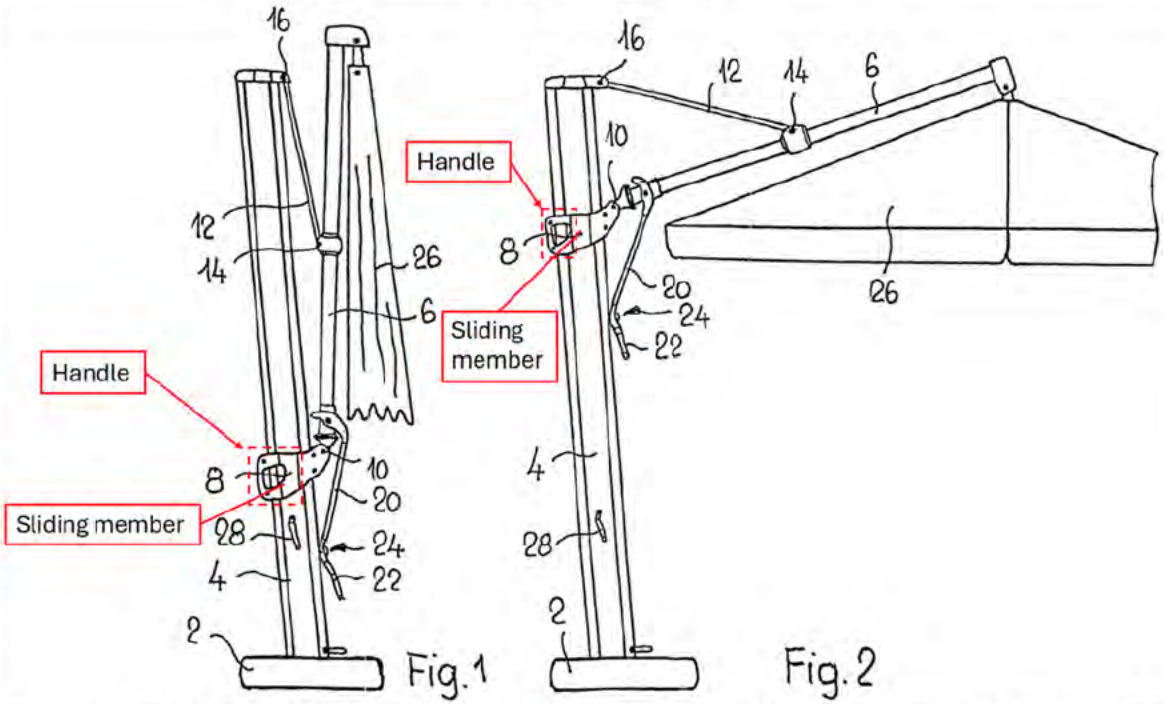
No.	Claim Limitation	Basis for Invalidity
		 FIG.6 A person of ordinary skill in the art would have understood that a simple substitution of the known handle in Liu '068 with the known handle in in Liu '453 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Liu '453 both relate to collapsable umbrella products and are thus in the same industry. To the extent Liu '068 does not disclose this limitation, Bertola '895 discloses wherein the sliding member (slider 28) has a handle (handle 48) associated therewith. *See e.g.*, Bertola '895 at Description at page 5 ("Provided for fixation is a slider 28, which is axially slidable

No.	Claim Limitation	Basis for Invalidity
		and fixable on the mast 14") and page 6 ("The slider further comprises a handle 48, which is preferably integrally connected to the sleeve 38"); Figs. 1-3 (see annotated below).



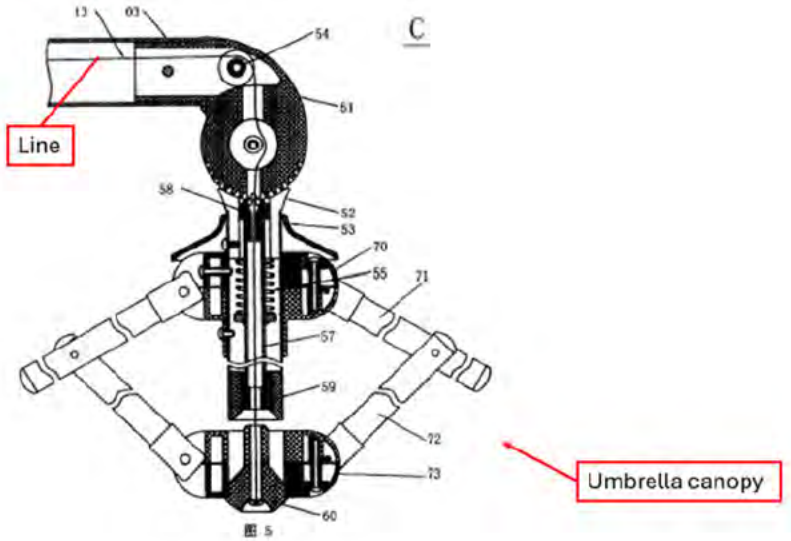
No.	Claim Limitation	Basis for Invalidity
		 Fig. 3 A person of ordinary skill in the art would have understood that a simple substitution of the known handle in Liu '068 with the known handle in in Bertola '895 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Bertola '895 both relate to collapsable umbrella products and are thus in the same industry. To the extent Liu '068 does not disclose this limitation, Glatz '790 discloses wherein the sliding member (slide 8) has a handle associated therewith. *See e.g.*, Glatz '790 at Description 3:43-47 ("The free arm parasol illustrated in FIGS. 1 to 5 has a pole 4 which is secured, for example, in a base 2 and serves as a carrier for an extendable extension arm 6. The latter is arranged via a joint 10 on a slide 8 which is movable along the pole."); Figs. 1-3

No.	Claim Limitation	Basis for Invalidity

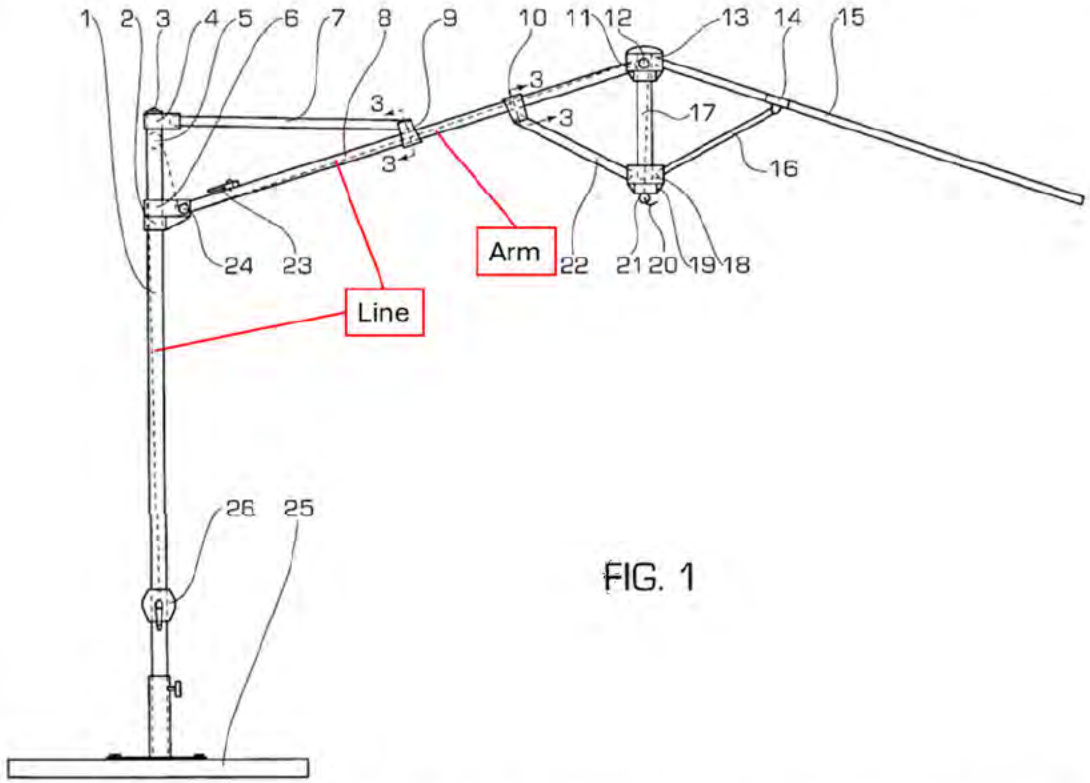


A person of ordinary skill in the art would have understood that a simple substitution of the known handle in Liu '068 with the known handle in Glatz '790 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Glatz '790 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is found in Glatz '790. The umbrella disclosed by Glatz '790 includes an extension arm that is configured for operation by hand. For example, Glatz '790 states that an objective of the invention is to pivot the extension arm "in a simple manner with one hand." Glatz '790 at Abstract.

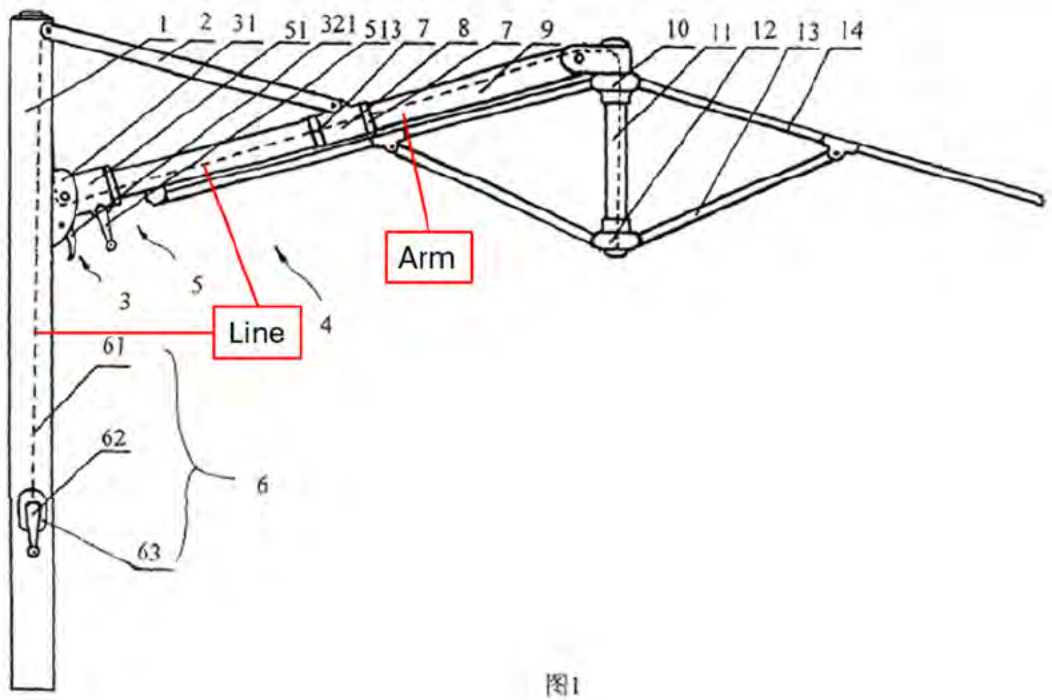
No.	Claim Limitation	Basis for Invalidity
Claim 6 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 7,341,068 to Liu ("Liu '068) (filed on September 17, 2004) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 to Huali ("Huali '640") (published October 2, 2008) and in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994) and in further view of United States Patent No. 6,196,242 ("Xu '242") (issued March 6, 2001) and/or Chinese Patent No. CN1208009C ("Chen '009") (issued June 29, 2005)		
6	The umbrella of claim 1, wherein the line extends along at least substantially the entire length of the arm.	As discussed above with reference to claim 1, Liu '068 discloses a winding mechanism (crank-driving winder 11) having a winder hub around which a line (line 5) can be wound. To the extent Liu '068 does not disclose this limitation, Wang '460 discloses wherein the line (pull rope 13) extends along at least substantially the entire length of the arm (tubular suspension rod 3). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc" and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop

No.	Claim Limitation	Basis for Invalidity
		chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5 

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the known line in Liu '068 with the known line in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 Abstract. To the extent Liu '068 does not disclose this limitation, Xu '242 discloses wherein the line (pull rope) extends along at least substantially the entire length of the arm (hinged hanging arm 8). *See e.g.*, Xu '242 at Description at 2:55-3:14 ("The upper umbrella tray holder (13) (see FIGS. 1 and 2) comprises an upper umbrella tray (28) and a center post (17) in rigid connection with it, wherein the center post (17) can let a pull rope pass through. On the periphery of the upper umbrella tray (28), slots (27) are evenly distributed, and in one slot (27), the hinged hanging arm (8) and a pulley (11) are provided. The pulley (11) is disposed at an open side of the hanging arm (8) and is fixed on the upper umbrella tray (28) by a cross pin. Another pulley (12) is provided at the center position of the upper umbrella tray (28). In the rest of the slots (27), hinged umbrella rods (15) are provided, and the top face of the upper tray holder (13) is sealed by another tube plug. The lower umbrella tray holder (18) (see FIG. 1) comprises a lower umbrella tray similar in structure to the upper umbrella tray (28). On the periphery of the lower umbrella tray, limit slots are evenly distributed, like the slots (27) provided in the upper umbrella tray (28). In one slot, the hanging arm bracing (22) is hinged, and in the rest of the slots, a hinged bracing (16) is provided. The lower portion of the lower umbrella tray is provided with a knot bead (21), which cooperates with a knotted pull rope (20) and a knot pin (19) to prevent the bead from separating. The opposite end of the hanging arm bracing (22) is hinged on the square tube clamp (10), which is fixed to the hanging arm (8). The opposite end of each bracing (16) is hinged to the corresponding tube clamp (14) fixed on the umbrella rod (15).") and 3:56-65 ("During opening and closing of the sun umbrella, the pull rope (20) bundled and knotted on the cranking shaft (33) first threads the

No.	Claim Limitation	Basis for Invalidity
		column (1), then rounds the pulley (5) fitted at the column (1) top end, passes around the pulley (24) on the hanging arm movable holder (2), through the hanging arm (8) inner chamber to the pulley (11) at the hanging arm (8) top end opening, around the pulley (12) in the upper umbrella tray holder (13), through the center post (17) inner hole, and to the knot bead (21) at the lower portion of the lower umbrella tray holder (18) and knotted."); Fig. 1  FIG. 1 A person of ordinary skill in the art would have understood that a simple substitution of the known line in Liu '068 with the known line in in Xu '242 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Xu '242 both relate to

No.	Claim Limitation	Basis for Invalidity
		collapsable umbrella products and are thus in the same industry. A motivation to combine is also disclosed in Xu '242. Xu '242 describes how a cantilever umbrella with a pull rope control enlarges the range of operation under the umbrella by avoiding the hinderance of a column. Xu '242 1:53-60. To the extent Liu '068 does not disclose this limitation Chen '009 discloses wherein the line (cable 61) extends along at least substantially the entire length of the arm (lifting arm 9). *See e.g.*, Chen '009 Description at pg. 6 ("The parasol surface opening and closing mechanism 6 comprises a winch 63 with a handle 62 and a cable 61 supported by a group of pulleys 64 arranged at corresponding positions of the pole 1 and the lifting arm 9, an end of the cable 61 is connected to the winch 63, and another end of the cable 61 is connected to the lower parasol plate 12."); Claim 6 ("The outer arm suspension type universal rotating parasol according to claim 1, 2, 3, 4, or 5, characterized in that the parasol surface opening and closing mechanism (6) comprises a winch (63) with a handle (62) and a cable (61) supported by a group of pulleys (64) arranged at corresponding positions of the pole (1) and the lifting arm (9), an end of the cable (61) is connected to the winch (63), and another end of the cable (61) is connected to the lower parasol plate (12)."); Fig. 1

No.	Claim Limitation	Basis for Invalidity
		 图1 A person of ordinary skill in the art would have understood that a simple substitution of the known line in Liu '453 with the known line in Chen '009 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '453 and Chen '009 both relate to collapsable umbrella products and are thus in the same industry.

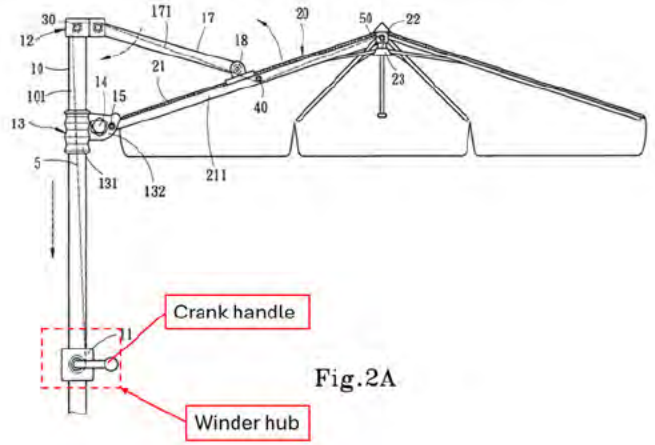
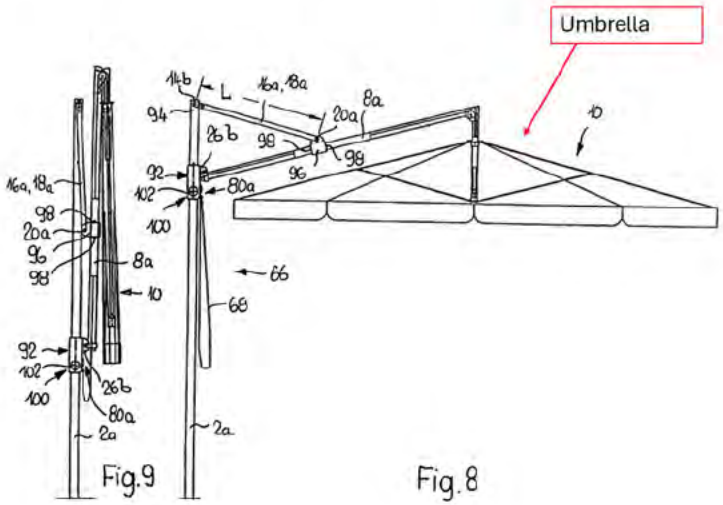
No.	Claim Limitation	Basis for Invalidity
Claim 7 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 7,341,068 to Liu ("Liu '068) (filed on September 17, 2004) in view of Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 to Huali ("Huali '640") (published October 2, 2008) and/or in further view of U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994)		
7	The umbrella of claim 1, further comprising a crank handle operatively associated with the winder hub, whereby rotating the crank handle causes the winder hub to rotate.	Liu '068 discloses further comprising a crank handle (winder 11) operatively associated with the winder hub (winder 11), whereby rotating the crank handle (winder 11) causes the winder hub (winder 11) to rotate. *See e.g.*, Liu '068 at Description at 2:48-53 ("The mast has a crank-driving winder, on which a line is wound, and via crank driving the winder, the line is driven to control the canopy to open or close."); 3:48-49 ("Via crank-driving the winder 11, the line 5 is driven to control the canopy 20 to open or close."); Figs. 2A-4 (see annotated below).  Fig.2A

EXHIBIT 17

Exhibit 17 - Invalidity Chart for U.S. Patent No. 8,104,492[1] (the '492 Patent) Based on United States Patent No. 6,014,980 (Glatz '980)

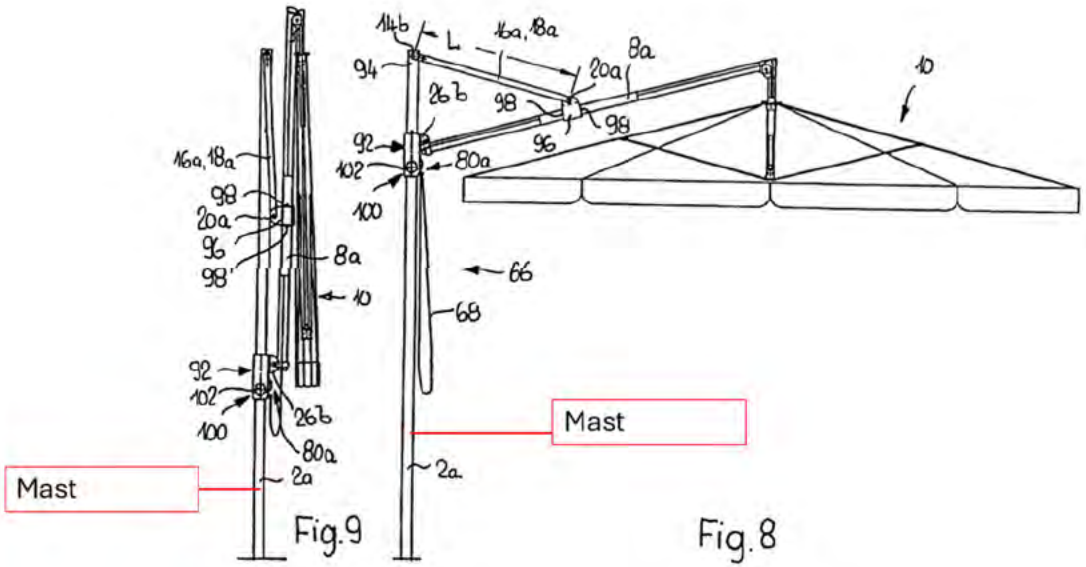
This chart is based on Plaintiff's apparent interpretations of the asserted claim(s) and Defendant's investigation to date. Citations to portions of any reference in this chart are exemplary only, and Defendant may rely on the entirety of the references cited herein to show that the asserted claims are invalid. Further, as Defendant's investigations and discovery are ongoing, Defendant reserves the right to amend or supplement this claim chart to include additional information and/or invalidity contentions identified in connection with Defendant's ongoing investigations. To the extent that every element below is not explicitly or inherently disclosed by the prior art reference, this prior art reference in combination (1) with the knowledge of one of ordinary skill in the art and/or (2) with other prior art identified in the invalidity contentions and/or otherwise herein, renders the asserted claims obvious.

[1] [1] As discussed in the contentions, Claim 1 of the Asserted Patent cannot claim priority to the May 5, 2008 filing date of provisional application no. 61/050,353. Instead, the priority date of Claim 1 of the Asserted Patent is May 5, 2009.

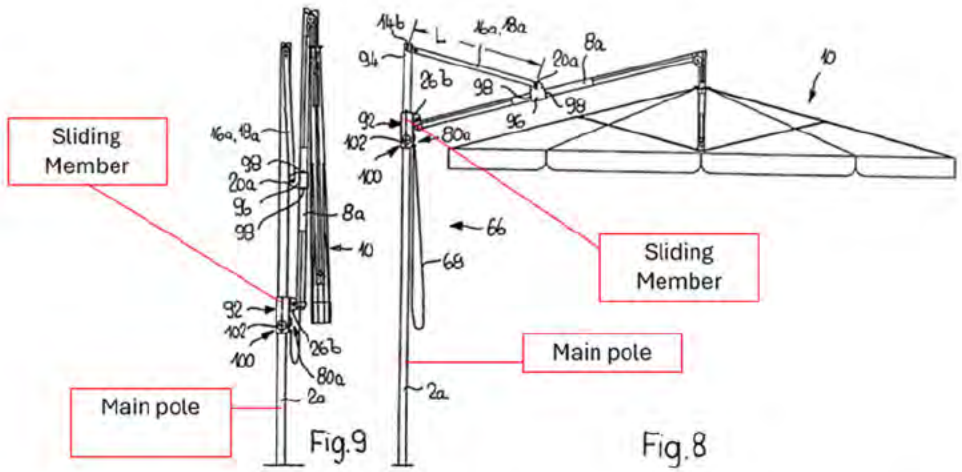
No.	Claim Limitation	Basis for Invalidity
Claim 1 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 6,014,980 to Glatz ("Glatz '980") (filed on July 25, 1996) in view of United States Patent No. 4,619,281 to Redl ("Redl '281") (filed on June 5, 1985) and/or United States Patent No. 2,747,591 to Ogden ("Ogden '591") (filed on January 26, 1955) and/or Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008).		
1 [preamble][2]	An umbrella comprising:	US6014980 ("Glatz '980") discloses an umbrella (free-arm canopy). *See e.g.*, Glatz '980 at Title ("Free-arm canopy"); Technical Realm; Representation of the Invention; Description of the Drawings; Ways to Implement the Invention; Claims 1 -23 (all referencing the free arm canopy); Figs. 1, 2, 8, and 9 (see annotated below).  Fig.9 Fig.8

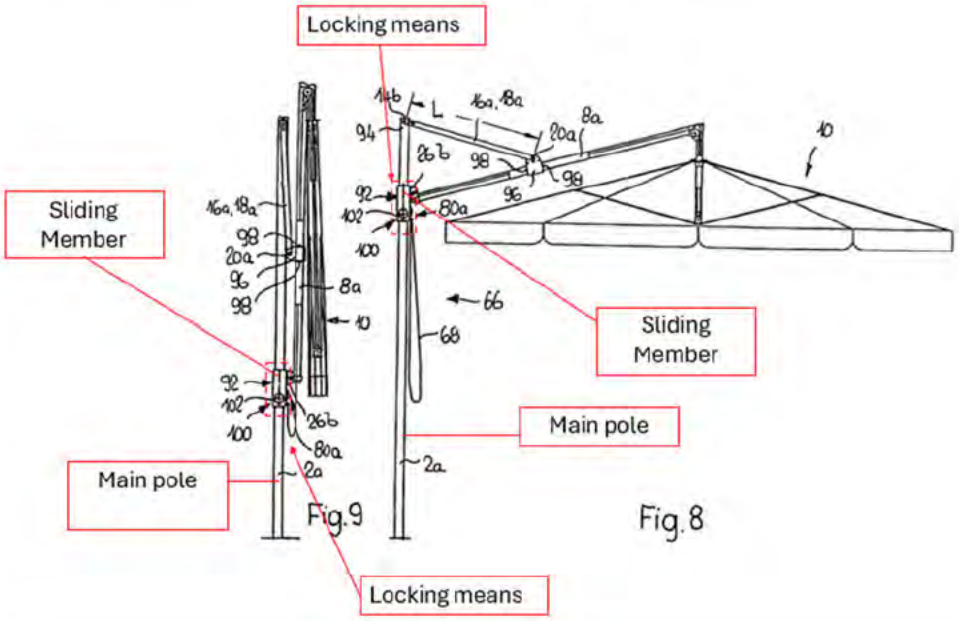
[2] Defendant makes no concessions or admissions regarding the claim preamble, *e.g.*, that it is or is not limiting, but reserves its right on that and other claim construction issues.

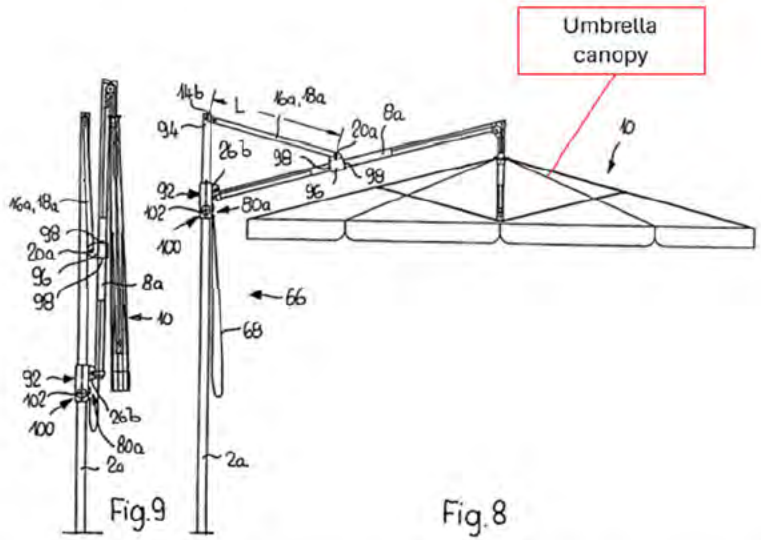
No.	Claim Limitation	Basis for Invalidity
1[a]	a main pole having a lower end for support by a support surface and extending generally upward to an upper end;	Glatz '980 discloses a main pole (mast 2a) having a lower end for support by a support surface and extending generally upward to an upper end (upper end 94). *See e.g.,* Glatz '980 at 5:64-6:16 ("FIGS. 8 and 9 show a modified form of construction of a free-arm canopy, in which a jib (8a) Supports itself against a mast (2.a) via a slide (92) which is designed to move along the mast. The slide (92) has a bearing part (26b) in which the jib (8a) swivels around its axis by the end which faces away from the canopy (10). The bearing part (26b) can be constructed analogous to that shown in FIGS. 1 to 7. On the one hand, the connecting Struts (16a and 18a) are secured to the upper end (94) of the mast (2a), via a connecting bolt (14b) and, on the other hand, are fastened by means of another connecting bolt (20a) to a bearing block (96), positioned at the jib (8a) between the ends of the latter. The jib (8a) swivels in the bearing block (96). Limiting stops (98) secure the bearing block (96) firmly to the jib in the axial direction of the jib (8). The slide (92) which can be moved along the mast (2a) and against which the jib (8a) supports itself, has been provided with a first detent device (100) which has a clamping screw (102) by means of which the slide (92) can be fixed into position at various heights on the mast (2a)."); 6:26-31 ("Alternatively or in addition to securing the height of the slide (92) on the mast (2a), the connecting struts (16a, 18a) can be provided with rows of holes at one or at both ends, due to which the effective length L of the connecting struts and thus the ground clearance of the canopy can be varied."); Claim 1 ("A free arm-canopy including a mast (2, 2a) on which a jib (8, 8a) is guided for movement between extended and retracted positions and is supported by means of a connecting strut (16, 18, 16a, 18a) which is articulately secured to the mast (2,2a) and to the jib (8,8a), the jib being securable in the extended position by means of a first detent device (36, 100) and carrying an articulated folding canopy (10) at an end thereof facing away from the mast (2.2a), said canopy having a crown (46) with articulated canopy rods (48) on which supporting struts (52) are articulated, which supporting struts are articulated on a slider (54), the jib (8,8a) being guided on the mast (2,2a) and on the strut (16, 18, 16a, 18a) such that it may swivel about its own axis, and a securing device (26,26a, 26b, 28,82) for securing the jib

No.	Claim Limitation	Basis for Invalidity
		in a swiveled position."); Claim 1 ("A free arm-canopy including a mast (2, 2a) on which a jib (8, 8a) is guided for movement between extended and retracted positions and is supported by means of a connecting strut (16, 18, 16a, 18a) which is articulately secured to the mast (2, 2a) and to the jib (8, 8a), the jib being securable in the extended position by means of a first detent device (36, 100) and carrying an articulated folding canopy (10) at an end thereof facing away from the mast (2,2a), said canopy having a crown (46) with articulated canopy rods (48) on which supporting struts (52) are articulated, which supporting struts are articulated on a slider (54), the jib (8, 8a) being guided on the mast (2, 2a) and on the strut (16, 18, 16a, 18a) such that it may swivel about its own axis, and a securing device (26, 26a, 26b, 28, 82) for securing the jib in a swiveled position."); Claim 2, 4, 5, 8 15, 17, 18 (all reciting a mast); Figs. 8 and 9 (see annotated below).  Fig.9 Fig.8

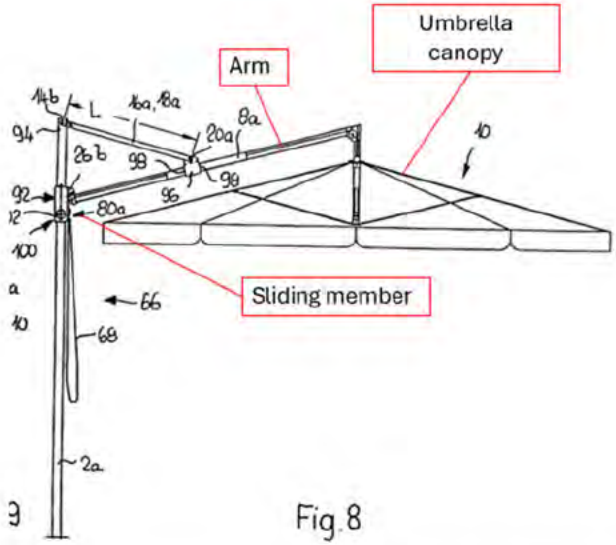
No.	Claim Limitation	Basis for Invalidity
		To the extent Glatz '980 does not disclose a support surface, a person of ordinary skill in the art would understand the umbrella disclosed in Glatz '980 must be mounted to the surface or have a support surface structure.
1[b]	a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole;	Glatz '980 discloses a sliding member (slide 92) associated with the main pole (mast 2a) and selectably moveable thereon between lower and upper locations along the main pole (mast 2a). *See e.g.,* Glatz '980 at 3:27-30 ("The same effect can also be obtained with an alternative design, as set out in claim 18, in which a slide, movable along the mast, can be fastened to the mast at different heights by means of a stopping device."), Glatz '980 5:64-6:16 ("FIGS. 8 and 9 show a modified form of construction of a free-arm canopy, in which a jib (8a) Supports itself against a mast (2.a) via a slide (92) which is designed to move along the mast. The slide (92) has a bearing part (26b) in which the jib (8a) swivels around its axis by the end which faces away from the canopy (10). The bearing part (26b) can be constructed analogous to that shown in FIGS. 1 to 7. On the one hand, the connecting Struts (16a and 18a) are secured to the upper end (94) of the mast (2a), via a connecting bolt (14b) and, on the other hand, are fastened by means of another connecting bolt (20a) to a bearing block (96), positioned at the jib (8a) between the ends of the latter. The jib (8a) swivels in the bearing block (96). Limiting stops (98) secure the bearing block (96) firmly to the jib in the axial direction of the jib (8). The slide (92) which can be moved along the mast (2a) and against which the jib (8a) supports itself, has been provided with a first detent device (100) which has a clamping screw (102) by means of which the slide (92) can be fixed into position at various heights on the mast (2a)."); Claim 1 ("A free arm-canopy including a mast (2, 2a) on which a jib (8, 8a) is guided for movement between extended and retracted positions and is supported by means of a connecting strut (16, 18, 16a, 18a) which is articulately secured to the mast (2,2a) and to the jib (8,8a), the jib being securable in the extended position by means of a first detent device (36, 100) and carrying an articulated folding canopy (10) at an end thereof facing away from the mast (2.2a), said canopy having a crown (46) with articulated canopy rods (48) on which supporting struts (52) are articulated, which supporting struts are

No.	Claim Limitation	Basis for Invalidity
		articulated on a slider (54), the jib (8,8a) being guided on the mast (2, 2a) and on the strut (16, 18, 16a, 18a) such that it may swivel about its own axis, and a securing device (26,26a, 26b, 28,82) for securing the jib in a swiveled position."); Claim 18 ("The free-arm canopy, as set forth in claim 13, is characterized by the fact that the end of the jib (8a), which faces away from the canopy (10), is articulated secured to a slide (92) which can be slid along the mast (2a), and that the slide can be secured at various heights on the mast (2a) by means of a first detent device (100), while the connecting strut (16a, 18a) is articulated on the one hand at the upper end of the mast (2.a) and on the other hand between the ends of the jib (8a).") Figs. 8 and 9 (see annotated below). 
1[c]	locking means for releasably securing the sliding member to the main pole at a	Glatz '980 discloses a locking means (first detent device 100; clamping screw 102) for releasably securing the sliding member (slide 92) to the main pole (mast 2a) at a selected location along the main pole (mast 2a).

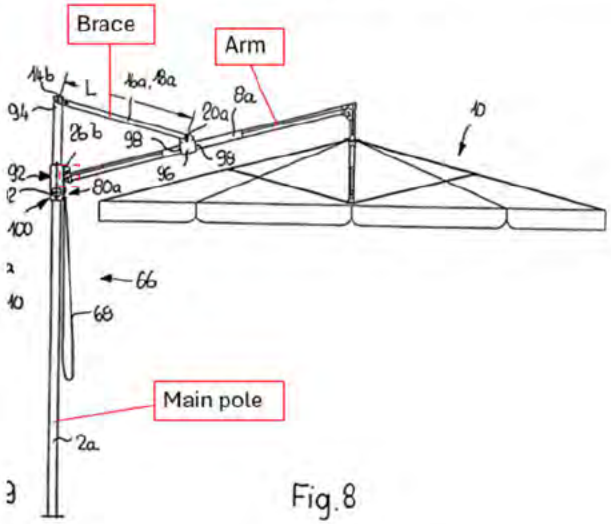
No.	Claim Limitation	Basis for Invalidity
	selected location along the main pole;	*See e.g.,* Glatz '980 at 3:31-38 ("Such a detent device can be refined in different ways and can have, e.g., a setscrew on the slide which can clamp the slide at various heights on the mast. It is also conceivable to have a stop bolt which can engage into various detent openings along the mast. Furthermore, it is possible to use a block to stop the slide. Furthermore, a rack-and-pinion drive with a self-locking drive for a pinion is also conceivable"); Glatz '980 at 6:12-16 ("The slide (92) which can be moved along the mast (2a) and against which the jib (8a) supports itself, has been provided with a first detent device (100) which has a clamping screw (102) by means of which the slide (92) can be fixed into position at various heights on the mast (2a).); Claim 18 ("The free-arm canopy, as set forth in claim 13, is characterized by the fact that the end of the jib (8a), which faces away from the canopy (10), is articulated secured to a slide (92) which can be slid along the mast (2a), and that the slide can be secured at various heights on the mast (2a) by means of a first detent device (100), while the connecting strut (16a, 18a) is articulated on the one hand at the upper end of the mast (2.a) and on the other hand between the ends of the jib (8a).); Fig. 8. 

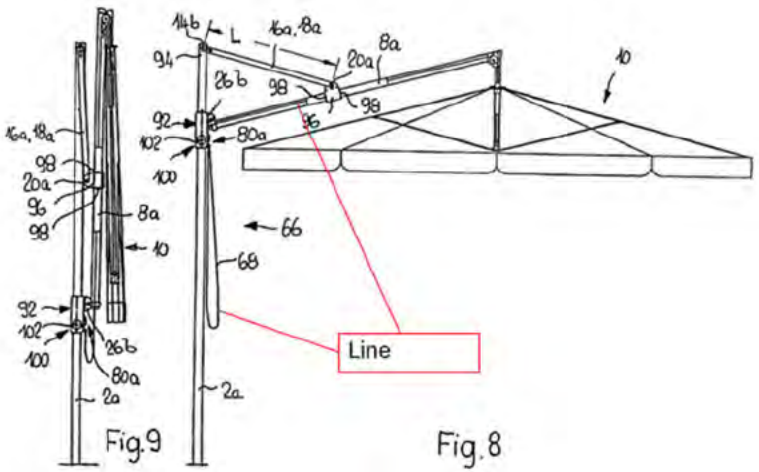
No.	Claim Limitation	Basis for Invalidity
1[d]	an umbrella canopy having a central region;	Glatz '980 discloses an umbrella canopy having a central region (canopy 10). *See, e.g.,* Glatz '980 at 5:12-14 ("The foldable canopy (10) is equipped with a canopy pole (44) on which a crown (46) is fastened. Rods are articulated on the crown which support the canopy membrane (50)"); 5:64-6:2 ("FIGS. 8 and 9 show a modified form of construction of a free-arm canopy, in which a jib (8a) supports itself against a mast (2a) via a slide (92) which is designed to move along the mast. The slide (92) has a bearing part (26b) in which the jib (8a) swivels around its axis by the end which faces away from the canopy (10)."); 6:19-23 ("The construction of the canopy (10) and that of the actuating device (66) for opening and closing the canopy corresponds to that shown in FIGS. 1 to 7, so that reference is made to the construction as shown in the aforementioned figures."); Figs. 8 and 9 (see annotated below) 
1[e]	an arm associated with the central region and extending	Glatz '980 discloses an arm (jib 8a) associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member (slide 92).

No.	Claim Limitation	Basis for Invalidity
	radially therefrom to an outer end operatively associated with the sliding member;	*See e.g.,* Glatz '980 at 5:64-6:16 ("FIGS. 8 and 9 show a modified form of construction of a free-arm canopy, in which a jib (8a) Supports itself against a mast (2.a) via a slide (92) which is designed to move along the mast. The slide (92) has a bearing part (26b) in which the jib (8a) swivels around its axis by the end which faces away from the canopy (10). The bearing part (26b) can be constructed analogous to that shown in FIGS. 1 to 7. On the one hand, the connecting Struts (16a and 18a) are secured to the upper end (94) of the mast (2a), via a connecting bolt (14b) and, on the other hand, are fastened by means of another connecting bolt (20a) to a bearing block (96), positioned at the jib (8a) between the ends of the latter. The jib (8a) swivels in the bearing block (96). Limiting stops (98) secure the bearing block (96) firmly to the jib in the axial direction of the jib (8). The slide (92) which can be moved along the mast (2a) and against which the jib (8a) supports itself, has been provided with a first detent device (100) which has a clamping screw (102) by means of which the slide (92) can be fixed into position at various heights on the mast (2a)."); 6:26-36 ("Alternatively or in addition to securing the height of the slide (92) on the mast (2a), the connecting struts (16a, 18a) can be provided with rows of holes at one or at both ends, due to which the effective length L of the connecting struts and thus the ground clearance of the canopy can be varied. It is also possible to provide various boreholes on the jib (8a), running in the longitudinal direction, for the purpose of changing the limiting stops (98) along the jib in order to adjust the height of the canopy (10). The canopy can be swivelled around the axis of the jib in the manner as already described, based on FIGS. 1 to 7."); Claim 1 ("A free arm-canopy including a mast (2, 2a) on which a jib (8, 8a) is guided for movement between extended and retracted positions and is supported by means of a connecting strut (16, 18, 16a, 18a) which is articulately secured to the mast (2,2a) and to the jib (8,8a), the jib being securable in the extended position by means of a first detent device (36, 100) and carrying an articulated folding canopy (10) at an end thereof facing away from the mast (2.2a), said canopy having a crown (46) with articulated canopy rods (48) on which supporting struts (52) are articulated, which supporting struts are articulated on a slider (54), the jib (8,8a) being guided on the mast (2, 2a) and on the strut (16, 18, 16a, 18a) such that it may swivel about its own axis, and a securing device (26,26a, 26b, 28,82) for securing the jib in a swiveled position."); Claim 18 ("The free-arm canopy, as set forth in claim 13, is characterized by the fact that the end of the jib (8a), which faces away from the canopy (10), is articulated secured to a slide (92) which can be slid along the mast (2a), and that the slide can be secured at various heights on the

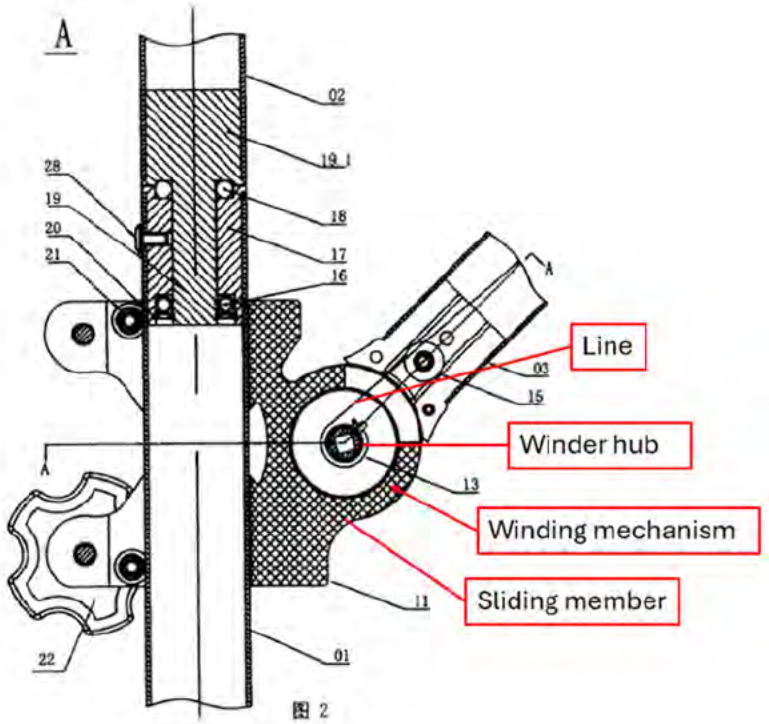
No.	Claim Limitation	Basis for Invalidity
		mast (2a) by means of a first detent device (100), while the connecting strut (16a, 18a) is articulated on the one hand at the upper end of the mast (2.a) and on the other hand between the ends of the jib (8a).") Fig. 8 (see annotated below). 
1[f]	a brace having a first end pivotably attached to an upper portion of the pole above the sliding member and a second end pivotably attached to the arm;	Glatz '980 discloses a brace (connecting strut 16a, 18a) having a first end pivotably attached to an upper portion of the pole (mast 2) above the sliding member (slide 92) and a second end pivotably attached to the arm (jib 8a). *See e.g.,* Glatz '980 at 5:64-6:16 ("FIGS. 8 and 9 show a modified form of construction of a free-arm canopy, in which a jib (8a) Supports itself against a mast (2.a) via a slide (92) which is designed to move along the mast. The slide (92) has a bearing part (26b) in which the jib (8a) swivels around its axis by the end which faces away from the canopy (10). The bearing part (26b) can be constructed analogous to that shown in FIGS. 1 to 7. On the one hand, the connecting Struts (16a and 18a) are secured to the upper end (94) of the mast (2a), via a connecting bolt (14b) and, on the other hand, are fastened by means of another connecting bolt (20a) to a bearing block (96), positioned at the jib (8a) between the ends of the latter. The

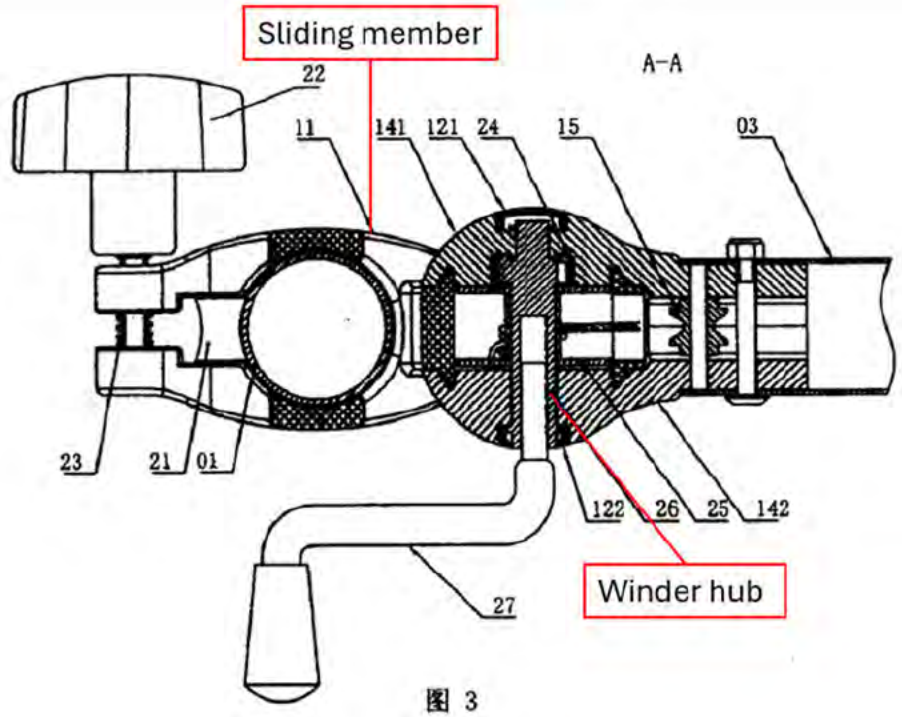
No.	Claim Limitation	Basis for Invalidity
		jib (8a) swivels in the bearing block (96). Limiting stops (98) secure the bearing block (96) firmly to the jib in the axial direction of the jib (8). The slide (92) which can be moved along the mast (2a) and against which the jib (8a) supports itself, has been provided with a first detent device (100) which has a clamping screw (102) by means of which the slide (92) can be fixed into position at various heights on the mast (2a)."); 6:26-36 ("Alternatively or in addition to securing the height of the slide (92) on the mast (2a), the connecting struts (16a, 18a) can be provided with rows of holes at one or at both ends, due to which the effective length L of the connecting struts and thus the ground clearance of the canopy can be varied. It is also possible to provide various boreholes on the jib (8a), running in the longitudinal direction, for the purpose of changing the limiting stops (98) along the jib in order to adjust the height of the canopy (10). The canopy can be swivelled around the axis of the jib in the manner as already described, based on FIGS. 1 to 7."); Claim 1 ("A free arm-canopy including a mast (2, 2a) on which a jib (8, 8a) is guided for movement between extended and retracted positions and is supported by means of a connecting strut (16, 18, 16a, 18a) which is articulately secured to the mast (2,2a) and to the jib (8,8a), the jib being securable in the extended position by means of a first detent device (36, 100) and carrying an articulated folding canopy (10) at an end thereof facing away from the mast (2.2a), said canopy having a crown (46) with articulated canopy rods (48) on which supporting struts (52) are articulated, which supporting struts are articulated on a slider (54), the jib (8,8a) being guided on the mast (2, 2a) and on the strut (16, 18, 16a, 18a) such that it may swivel about its own axis, and a securing device (26,26a, 26b, 28,82) for securing the jib in a swiveled position."); Claim 18 ("The free-arm canopy, as set forth in claim 13, is characterized by the fact that the end of the jib (8a), which faces away from the canopy (10), is articulated secured to a slide (92) which can be slid along the mast (2a), and that the slide can be secured at various heights on the mast (2a) by means of a first detent device (100), while the connecting strut (16a, 18a) is articulated on the one hand at the upper end of the mast (2.a) and on the other hand between the ends of the jib (8a).") Fig. 8 (see annotated below).

No.	Claim Limitation	Basis for Invalidity
		 Fig.8
1[g]	a winding mechanism having a winder hub around which a line can be wound, the winder hub being mounted to the sliding member and movable therewith;	Glatz '980 discloses a line (pulling mechanism/device 68) which at the end which faces away from the canopy is led out of the jib via a guide pulley (78) at the end which faces away from the canopy. The pulling mechanism/device (68) is pulled, transferring force along the guide pulley (74, 76, 78) to open the canopy (10). *See e.g.,* Glatz '980 at 5:26-49 ("An actuating device (66) is used to open and close the canopy. The control device is equipped with a pulling mechanism (68), preferably a rope. The end (70) of the rope which faces the canopy is fastened to the jib (8) at a fixed point (72) which can be located either on the canopy pole or preferably on the jib (8). If the latter is the case, the pulling device can be guided from the jib to the canopy pole (44) via a guide pulley, which is not illustrated in detail here. The pulling device (68) runs in a tackle-block manner through the hollow canopy pole (44) to the slider (54) at which it is returned to the jib (8) via a guide pulley (74). At the articulation (12) the pulling device (68) runs over a guide pulley

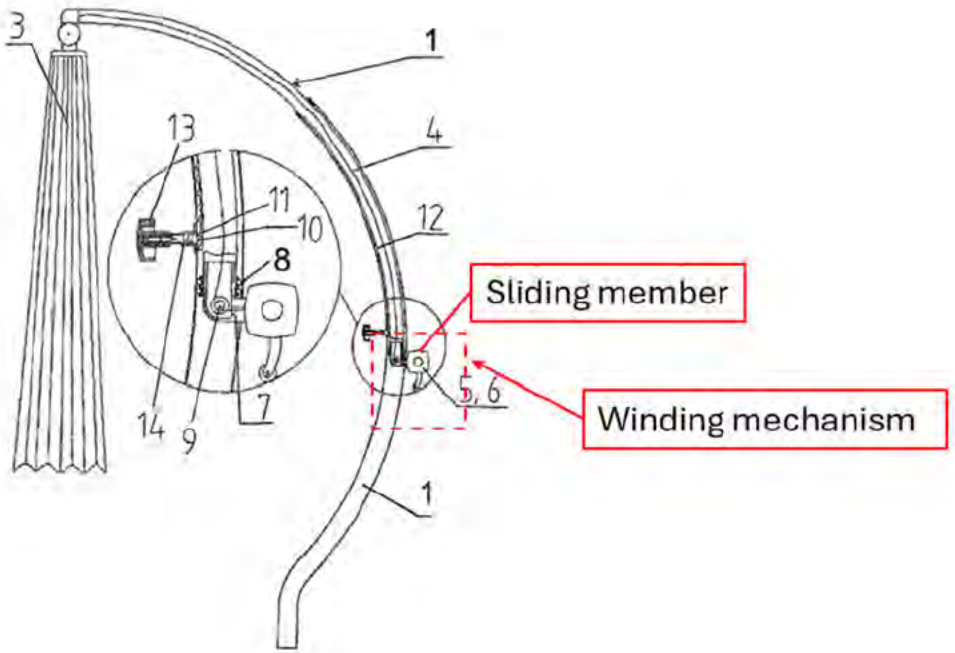
No.	Claim Limitation	Basis for Invalidity
		(76) and continues through the hollow jib (8). At the end which faces away from the canopy (10), the pulling device (68) is led out of the jib, e.g., via a guide pulley (78) which is positioned at the end of the jib (8) that faces away from the canopy. The canopy (10) is opened by pulling the pulling mechanism (68), i.e. the slider (54) is moved against the canopy pole (44) until the pole component (56) engages into the canopy pole (44). The pulling mechanism can be fixed into position by means of a securing device (80), e.g., by a clamping device positioned at the connecting struts (16, 18). Thus, the canopy can be kept in an open state or in a desired position relative to the jib.") Gatz '980 at 6:19-26 ("The construction of the canopy (10) and that of the actuating device (66) for opening and closing the canopy corresponds to that shown in FIGS. 1 to 7, so that reference is made to the construction as shown in the aforementioned figures. It should be added in this connection that the securing device (80a) for fastening the pulling mechanism is positioned on the slide (92) so that the canopy can be inclined in the open state."); Fig. 8 (annotated below).  Fig.9 Fig.8

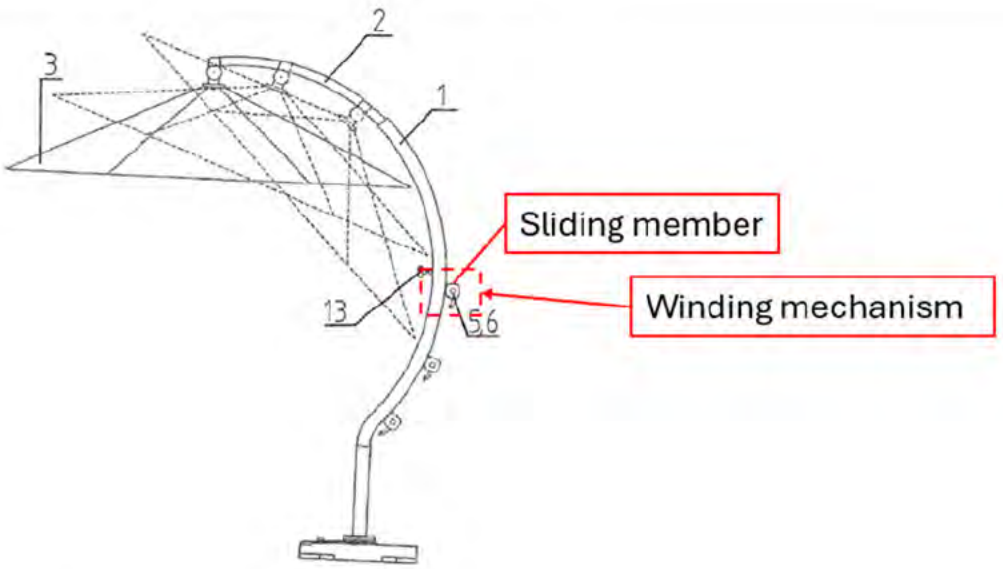
No.	Claim Limitation	Basis for Invalidity
		To the extent Glatz '980 does not disclose this limitation, Wang '460 discloses a winding mechanism having a winder hub (rope reel 26) around which a line (pull rope 13) can be wound, the winder hub (rope reel 26) being mounted to the sliding member (sliding sleeve 11) and movable therewith. *See e.g.*, Wang '460 at Abstract ("the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is table; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc") and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod

No.	Claim Limitation	Basis for Invalidity
		(03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-3 

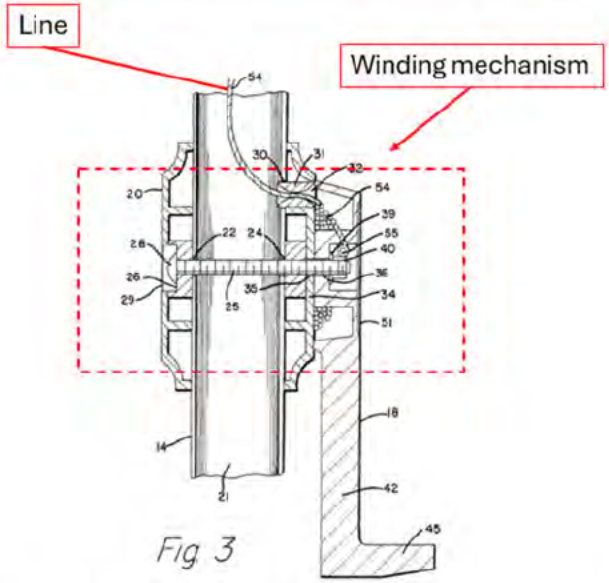
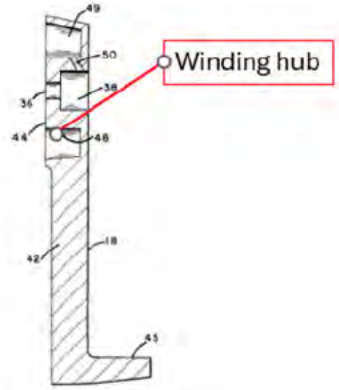
No.	Claim Limitation	Basis for Invalidity
		 图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract.

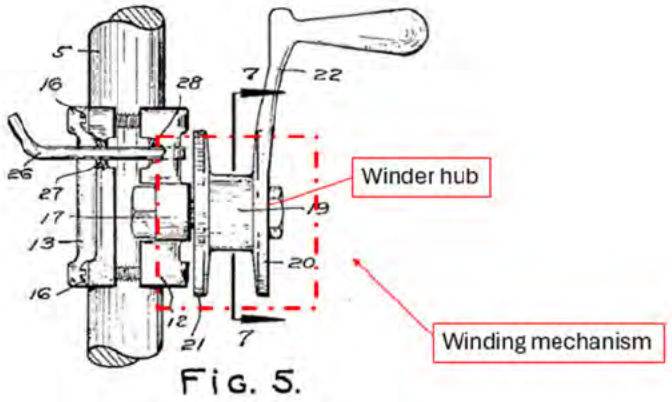
No.	Claim Limitation	Basis for Invalidity
		To the extent Glatz '980 does not disclose this limitation, Huali '640 discloses a winding mechanism (control device 5) having a winder hub (crank shaft 6) around which a line can be wound (sheathed cable/Bowden control 4), the winder hub (crank shaft 6) being mounted to the sliding member (control device 5 and the connecting piece 7) and movable therewith. *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device. The control device is attached to the telescopic pipe so that the opening/closing movement of the umbrella canopy is uncoupled from the telescopic mechanism of the umbrella."); Field of the Invention at [0002] ("The invention relates to a telescopic umbrella, in particular a sunshade with a lower upright stand pipe and a moveable and lockable telescopic pipe arranged in it with an umbrella canopy attached to the telescopic pipe, where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe.") and [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("a control device for the sheathed cable or Bowden control"); Claim 8 ("wherein the control unit comprises one of a crank shaft or an electrically driven reeling/unreeling device or similar mechanism"); Figs. 1 and 3

No.	Claim Limitation	Basis for Invalidity
		 Fig. 1

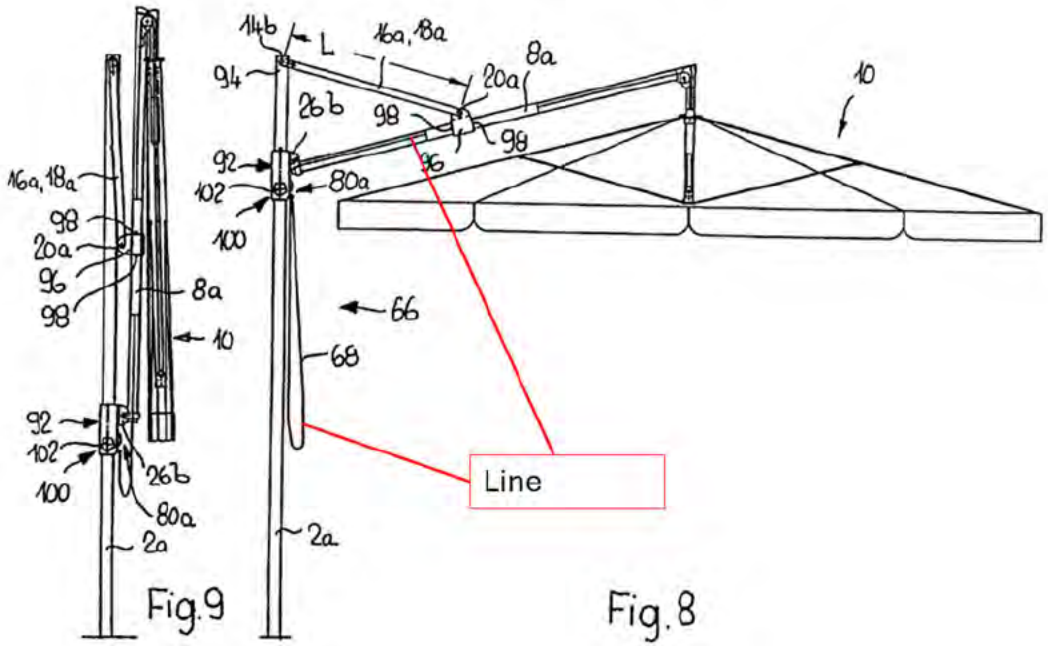
No.	Claim Limitation	Basis for Invalidity
		 Fig. 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Glatz '980 does not disclose this limitation, Redl '281 discloses a winding mechanism (wind-up mechanism) having a winder hub (spool 48) around which a line (flexible cable 54) can be wound.

No.	Claim Limitation	Basis for Invalidity
		See e.g., Redl '281 Description 3:11-18 ("[a] cord extends within the hollow pole, one end of the cord being connected to the … operative means" for "moving the cover between open and closed positions."); 6:17-40 ("A flexible cable 54, such as a cord or the like, is utilized to cause the raising and lowering of umbrella cover 12 in conjunction with the wind-up mechanism herein described. One end of cord 54 is connected to collar 15 and framework 16 (not shown in the drawings), in a fashion which is well-known and understood by those skilled in the art of lawn and beach umbrellas. Cord 54 extends within hollow interior 21 of the pole, where it is not only out of view to users of the umbrella, but is also protected from the elements by being so enclosed. The other end of cord 54 extends through passageway 32 of the wear-bushing, through cavity 49 and then through slot 50 of the handle into recess 38. A knot 55 is typically provided at that end of the cord so that the cord is anchored to spool 48. Of course, other affixing mechanisms, besides a knot, may be employed to hold the cord in place with respect to the spool. By virtue of the interior formation of the spool 48 and its associated cavity 49, as well as cover plate 51, cord 54 is completely unseen by the user. Moreover, since the cord is completely confined within the pole and the wind-up mechanism as herein described, there is no possibility for the cord being snagged or caught by objects lying exterior to the umbrella."); Figs. 1-3

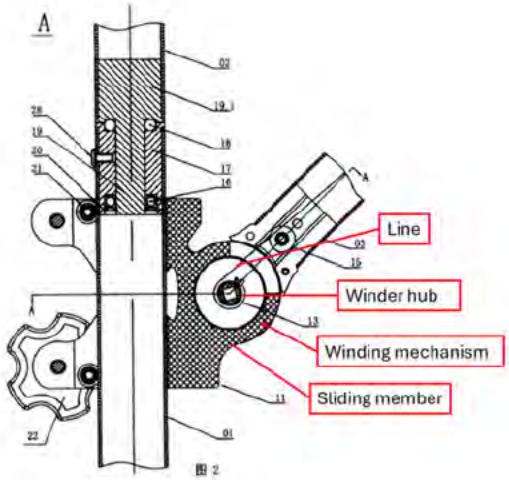
No.	Claim Limitation	Basis for Invalidity
		 Fig. 3  Fig. 4 A person of ordinary skill in the art would have understood that a simple substitution of the a pulling mechanism (rope) clamping device structure located on the sliding member in Glatz '980 with the spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.* To the extent Glatz '980 does not disclose this limitation, Ogden '591 discloses a winding mechanism (winding device 10, winding drum 19, flanges 20 & 21, winding handle 22)

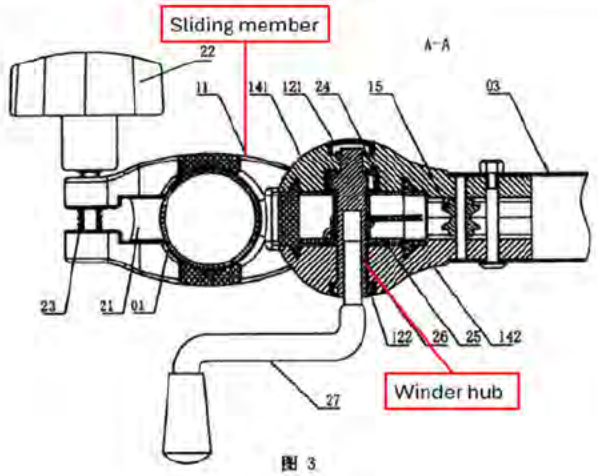
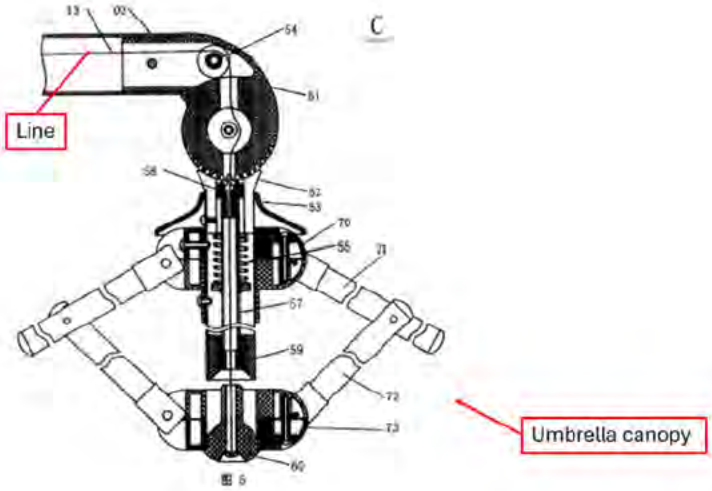
No.	Claim Limitation	Basis for Invalidity
		housing having a winder hub (winding drum 19) around which a line (winding cable 24) can be wound. *See, e.g.*, Ogden '591 at 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); Figs. 1-7  Fig. 5.

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the pulling mechanism (rope) clamping device structure on the sliding member in Glatz '980 with the drum (winder hub) and handle structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on devices that are engaged with the usual standard or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[h]	a line having a first end that winds around the winder hub, an intermediate portion extending from the winder hub along the arm to the umbrella canopy, and a second end that engages the umbrella canopy;	Glatz '980 discloses a line (pulling mechanism or pulling device 68) extending along the arm (jib 8, 8a) to the umbrella canopy (canopy 10), and engaging the umbrella canopy (end 70). *See e.g.,* Glatz '980 at 5:26-31 ("An actuating device (66) is used to open and close the canopy. The control device is equipped with a pulling mechanism (68), preferably a rope. The end (70) of the rope which faces the canopy is fastened to the jib (8) at a fixed point (72) which can be located either on the canopy pole or preferably on the jib (8)."); Ways to Implement the Invention at 5:33-43 ("The pulling device (68) runs in a tackle-block manner through the hollow canopy pole (44) to the slider (54) at which it is returned to the jib (8) via a guide pulley (74). At the articulation (12) the pulling device (68) runs over a guide pulley (76) and continues through the hollow jib (8). At the end which faces away from the canopy (10), the pulling device (68) is led out of the jib, e.g., via a guide pulley (78) which is positioned at the end of the jib (8) that faces away from the canopy. The canopy (10) is opened by pulling the pulling mechanism (68) …). Claim 8 ("The free-arm canopy, as set forth in one of claim 2, is characterized by the fact that the actuating device (66) is provided with a pulling device (68) which is guided by the slider (54) to the jib (8,8a) while passing

No.	Claim Limitation	Basis for Invalidity
		through the canopy pole (44) and, furthermore that the pulling device is guided to the outside on the end of the jib which faces the mast, and that the pulling device is fastened in its extended length to a securing device (80, 80a). Fig. 8 (annotated below), Fig. 9.  To the extent Glatz '980 does not disclose this limitation, Wang '460 discloses a line (pull rope 13) having a first end that winds around the winder hub (rope reel 26), an intermediate

No.	Claim Limitation	Basis for Invalidity
		portion extending from the winder hub (rope reel 26) along the arm to the umbrella canopy (parasol cover 112), and a second end that engages the umbrella canopy (parasol cover 112). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc" and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection

No.	Claim Limitation	Basis for Invalidity
		structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5. 

No.	Claim Limitation	Basis for Invalidity
		 图 3 

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Glatz '980 does not disclose this limitation, Huali '640 discloses a line (a sheathed cable/Bowden control 4) having a first end that winds around the winder hub (crank shaft 6), an intermediate portion extending from the winder hub (crank shaft 6) along the arm to the umbrella canopy (umbrella canopy 3), and a second end that engages the umbrella canopy (umbrella canopy 3). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a

No.	Claim Limitation	Basis for Invalidity
		long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3

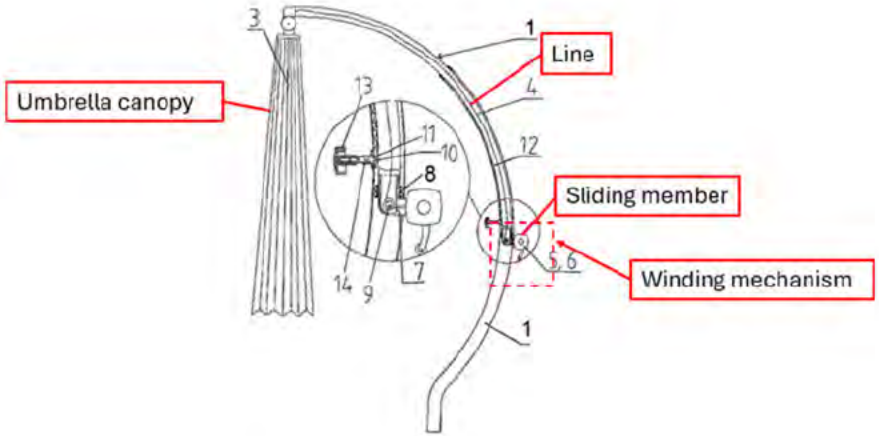
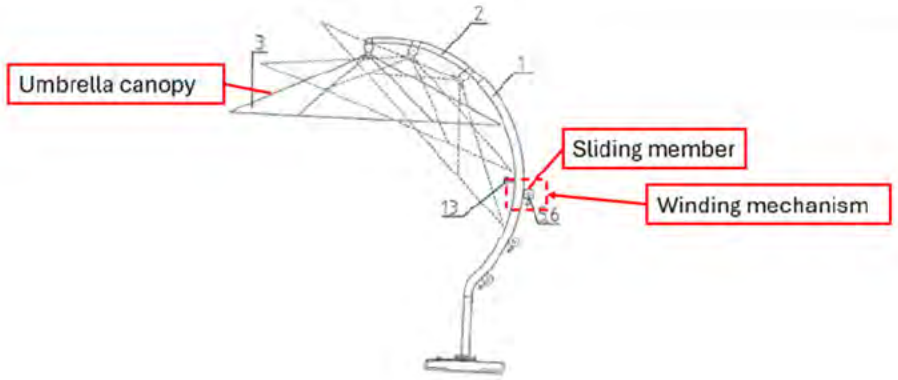


Fig. 1

No.	Claim Limitation	Basis for Invalidity
		 Fig. 3 A person of ordinary skill in the art would have understood that a simple substitution of the known structure in Glatz '980 with the structure in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Glatz '980 does not disclose this limitation, Redl '281 discloses a line (flexible cable 54) having a first end that winds around the winder hub (spool 48), an intermediate portion extending from the winder hub (spool 48) along the arm to the umbrella canopy (umbrella cover 12), and a second end that engages the umbrella canopy (umbrella cover 12). *See e.g.,* Redl '281 at Description 6:47-55 ("It can be seen that cord 54 passes through wear-bushing 31 in a direction substantially transverse to the longitudinal axis of the umbrella pole. Winding of the cord around the interior spool of the handle causes the cord to pull collar 15

No.	Claim Limitation	Basis for Invalidity
		upwardly along pole 14 thereby opening cover 12. Reverse winding of handle 18 causes cord 54 to unwind thereby lowering cover 12 to the closed position.); Fig. 3

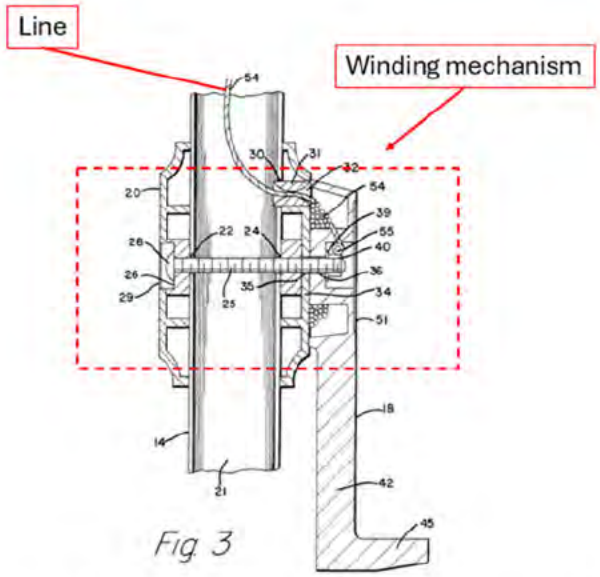


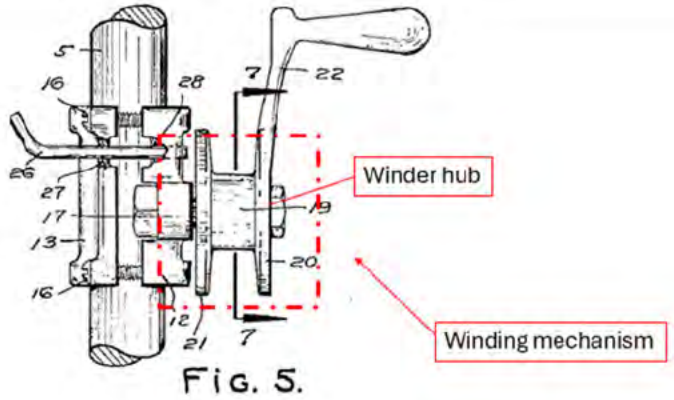
Fig. 3



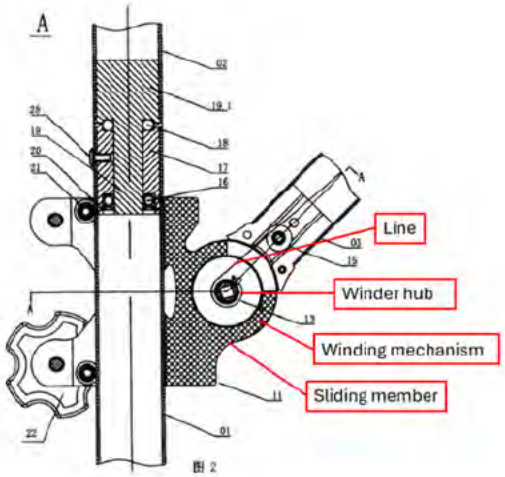
Fig. 4

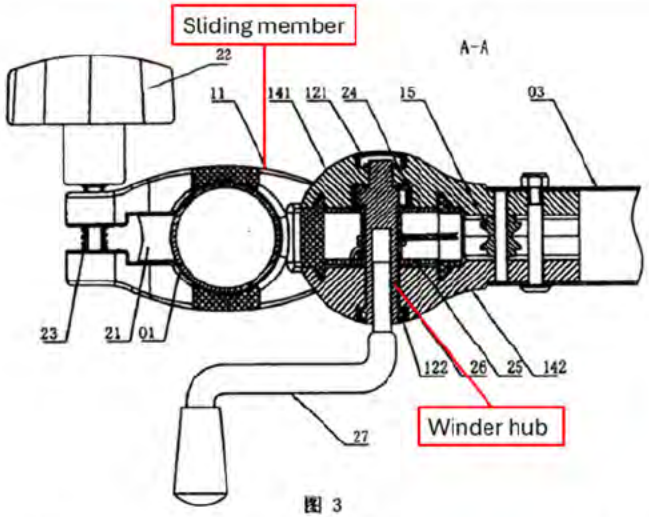
A person of ordinary skill in the art would have understood that a simple substitution of the a pulling mechanism (rope) clamping device structure located on the sliding member in Glatz '980 with the spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.*

No.	Claim Limitation	Basis for Invalidity
		To the extent Glatz '980 does not disclose this limitation, Ogden '591 discloses a line (winding cable 24) having a first end that winds around the winder hub (drum 19), an intermediate portion extending from the winder hub (drum 19) along the arm to the umbrella canopy (umbrella 6), and a second end that engages the umbrella canopy (umbrella 6). *See*, *e.g.*, Ogden '591 at 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); Figs. 1-7

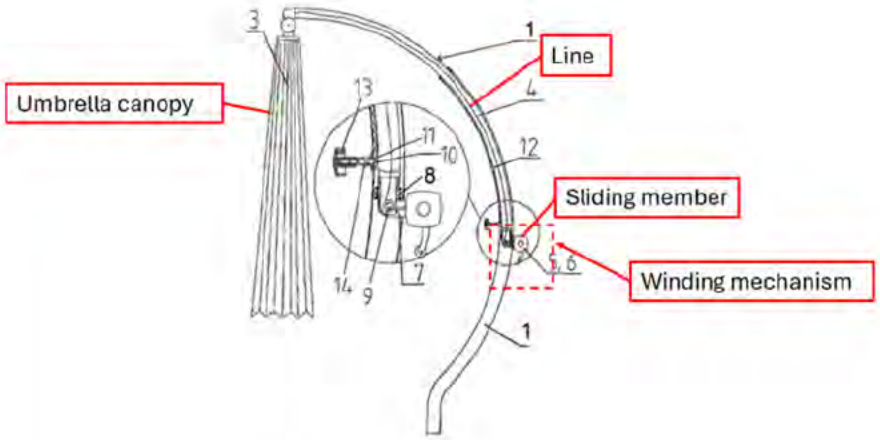
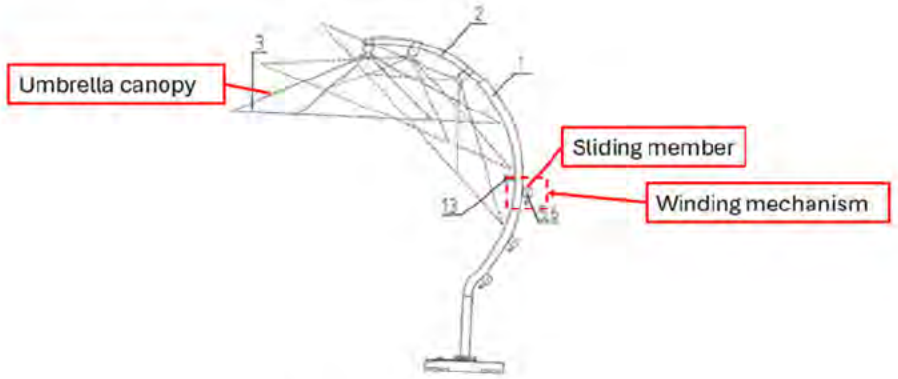
No.	Claim Limitation	Basis for Invalidity
		 Fig. 5. A person of ordinary skill in the art would have understood that a simple substitution of the pulling mechanism (rope) clamping device structure on the sliding member in Glatz '980 with the drum (winder hub) and handle structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on devices that are engaged with the usual standard or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[i]	wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub, and	To the extent Glatz '980 does not disclose this limitation, a person of ordinary skill in the art would readily recognize the crank connected to the winding mechanism as being a necessary component for opening and closing the umbrella canopy. The disclosed winding mechanism necessarily also includes a line/cable that extends from the winding mechanism and engages the umbrella canopy. Such a mechanism is indeed required for the shown design, which includes an umbrella canopy that opens and closes. Such mechanisms are well known in the art. A person of ordinary skill in the art would readily recognize that rotation of the winder

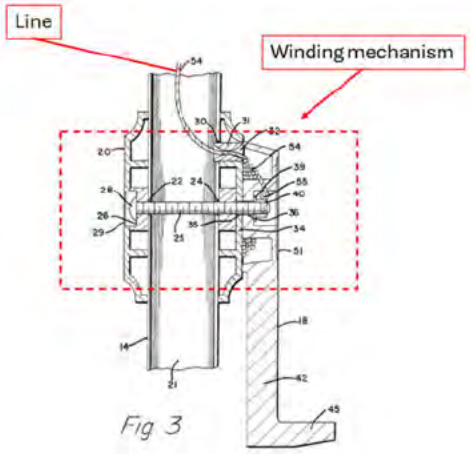
No.	Claim Limitation	Basis for Invalidity
		hub tensions or relaxes the line depending upon the direction of the rotation of the winder hub. To the extent Glatz '980 does not disclose this limitation, Wang '460 discloses wherein rotation of the winder hub (rope reel 26) tensions or relaxes the line (pull rope 13) depending upon the direction of rotation of the winder hub (rope reel 26). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 2 ("the sliding sleeve comprises a rope winder and is shaft connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc" and "When opening the parasol, the sliding sleeve of the parasol pole is pushed up, the rope winder is then operated to wind the parasol rope so as to lift the lower parasol disc" and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning

No.	Claim Limitation	Basis for Invalidity
		spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5 

No.	Claim Limitation	Basis for Invalidity
		 图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Wang '460 both relate to collapsable umbrella products and are in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 Abstract. To the extent Glatz '980 does not disclose this limitation, Huali '640 discloses wherein rotation of the winder hub (crank shaft 6) tensions or relaxes the line (a sheathed cable/Bowden control 4) depending upon the direction of rotation of the winder hub (crank shaft 6). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a

No.	Claim Limitation	Basis for Invalidity
		control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3

No.	Claim Limitation	Basis for Invalidity
		 Fig. 1  Fig. 3

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Glatz '980 does not disclose this limitation, Redl '281 discloses wherein rotation of the winder hub (spool 48) tensions or relaxes the line (cord 54) depending upon the direction of rotation of the winder hub (spool 48). *See e.g.*, Redl '281 at Description 6:47-55 ("It can be seen that cord 54 passes through wear-bushing 31 in a direction substantially transverse to the longitudinal axis of the umbrella pole. Winding of the cord around the interior spool of the handle causes the cord to pull collar 15 upwardly along pole 14 thereby opening cover 12. Reverse winding of handle 18 causes cord 54 to unwind thereby lowering cover 12 to the closed position."); Fig. 3.  Fig 3  Fig 4

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the a pulling mechanism (rope) clamping device structure located on the sliding member in Glatz '980 with the spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.* To the extent Glatz '980 does not disclose this limitation, Ogden '591 discloses wherein rotation of the winder hub (winding drum 19) tensions or relaxes the line (winding cable 24) depending upon the direction of rotation of the winder hub (winding drum 19). *See*, *e.g.*, Ogden '591 at 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); It should be understood, of course, that when drawing the cable taut, the locked end 26 should

No.	Claim Limitation	Basis for Invalidity
		be engaged within one of the apertures 29 of the flange 21. It will further be obvious that the lower end of the cable 24 has been wound about the drum a sufficient number of turns to permit the full lowering action of the umbrella, as shown in dotted lines in Figure 1."); Figures 1 and 5.

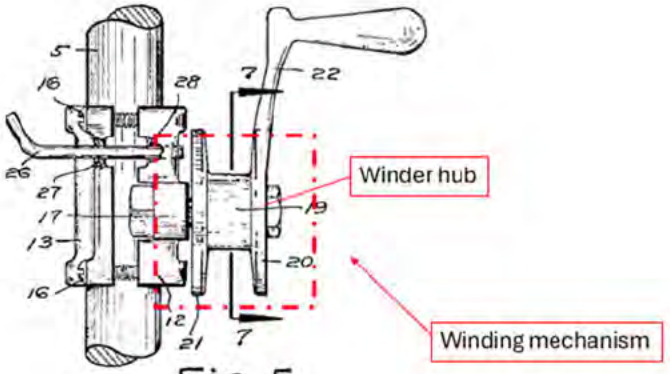
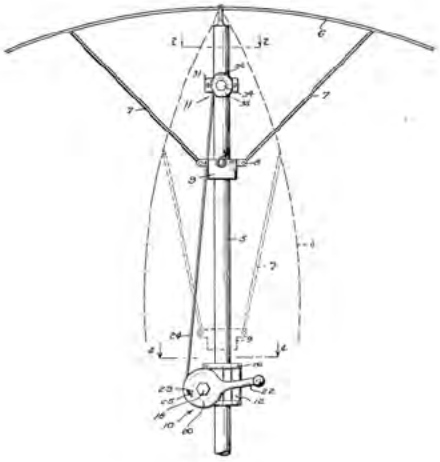
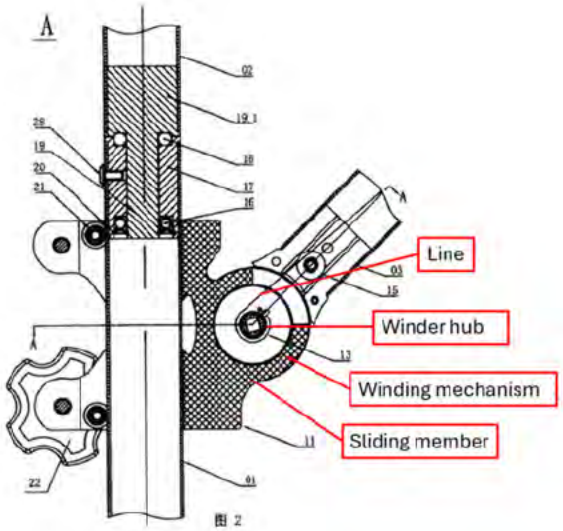
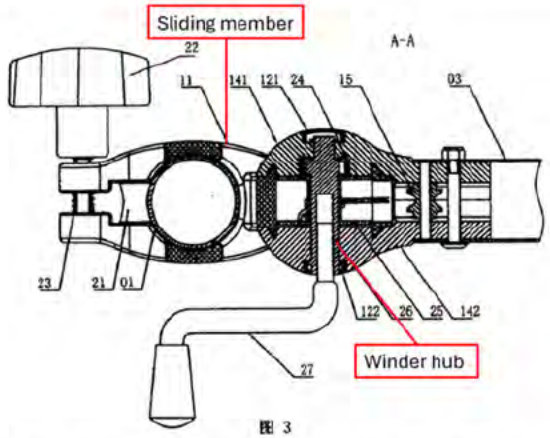


Fig. 5.

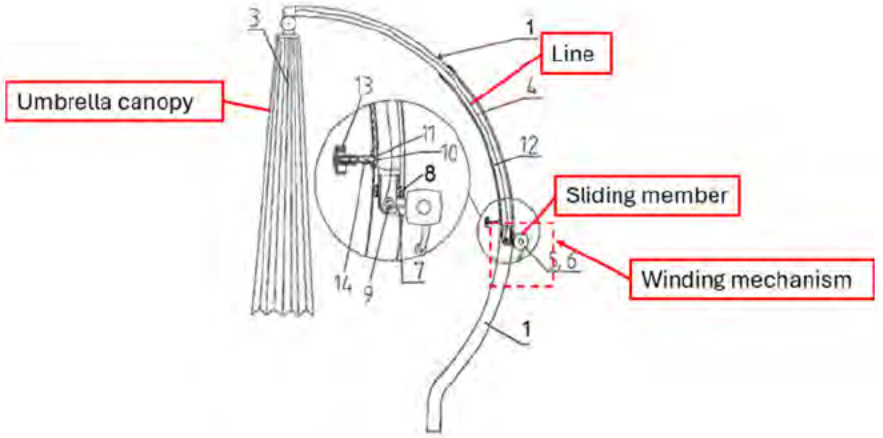
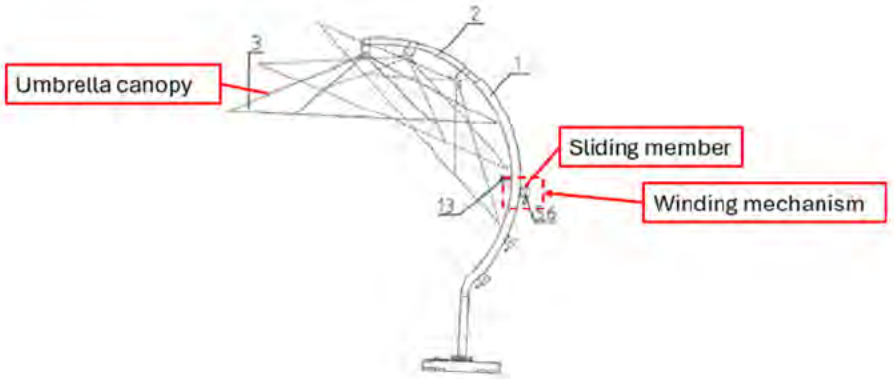

Fig. 1.

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the pulling mechanism (rope) clamping device structure on the sliding member in Glatz '980 with the drum (winder hub) and handle structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on devices that are engaged with the usual standard or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[j]	wherein operation of the winding mechanism to apply tension to the line opens and closes the umbrella canopy in response to movement of the line; and	To the extent Glatz '980 does not disclose this limitation, Wang '460 discloses wherein rotation of the winder hub (rope reel 26) tensions or relaxes the line (pull rope 13) depending upon the direction of rotation of the winder hub (rope reel 26). *See e.g.*, Wang '460 at Abstract ("a parasol pole set has a sliding sleeve of a locking device that matches the parasol pole, the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted. The parasol cover is stable; the operation is simple, labor-saving and convenient."); Description at page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks. A roller 21 is respectively installed at the upper end and lower end of the sliding sleeve 11 to slide smoothly with the parasol pole. The sliding sleeve 11 is connected to the spherical left and

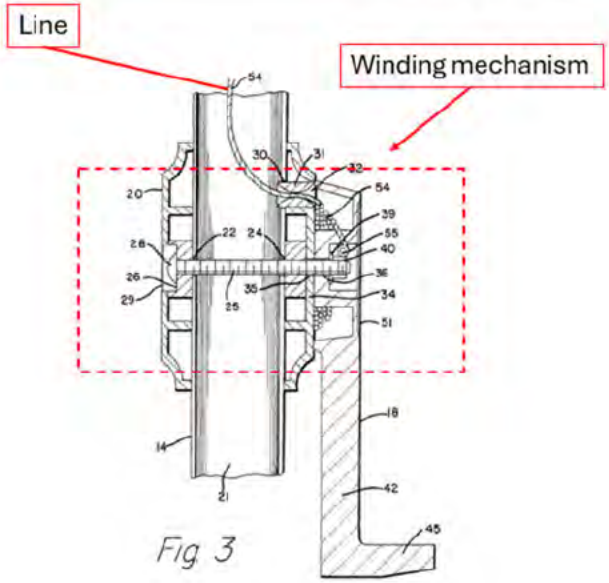
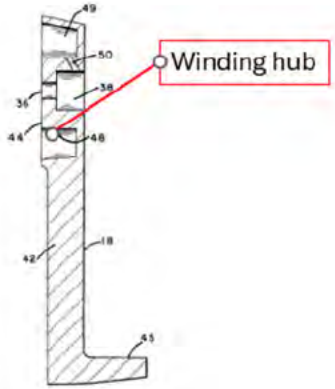
No.	Claim Limitation	Basis for Invalidity
		right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15 and the top tube 57 installed in the upper parasol disc 70, so as to be fixed to the lower parasol disc 73. The element 20 in the figures is a positioning spring clip of the lower bearing 16, the element 25 is fixed at the top end of the rope reel 26 located in the left casing 141."); Claim 1 ("the sliding sleeve comprises a rope winder and is shaft-connected to a bottom end of the suspension rod (03), a top end of the suspension rod (03) and an upper parasol disc (70) of the parasol frame have a pitch rotating connection structure, one end of a pull rope (13) is fixed to a reel (26) of the rope winder installed in the sliding sleeve (11), and the other end thereof passes through the suspension rod (03) and a top tube (57) installed in the upper parasol disc to be fixed to a lower parasol disc."); Figs. 1-5 

No.	Claim Limitation	Basis for Invalidity
		 图 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Glatz '980 does not disclose this limitation, Huali '640 discloses wherein rotation of the winder hub (crank shaft 6) tensions or relaxes the line (a sheathed cable/Bowden control 4) depending upon the direction of rotation of the winder hub (crank shaft 6). *See e.g.*, Huali '640 at Abstract ("The telescopic umbrella also includes a canopy articulated on the telescopic pipe, it being possible for the canopy to be opened and closed by means of a sheathed cable or Bowden control running within the telescopic pipe and controlled by a control device."); Field of the Invention ("where the umbrella canopy can be opened and closed by means of a sheathed cable or Bowden control arranged within the pipe and with a

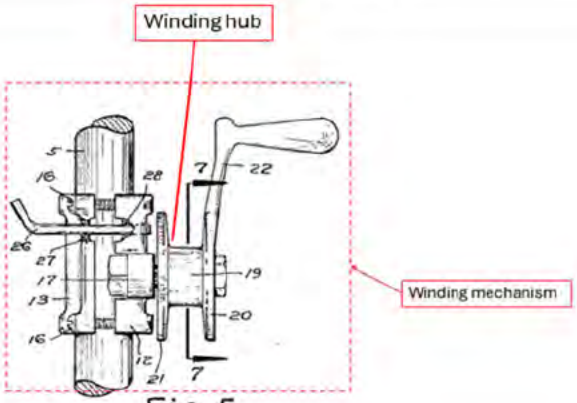
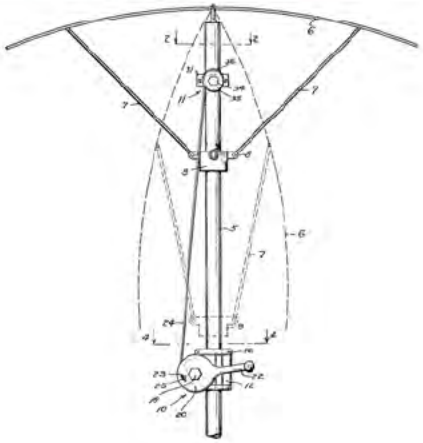
No.	Claim Limitation	Basis for Invalidity
		control device for the sheathed cable or Bowden control."); Description at [0038]-[0039] ("The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe." And [0046] ("In this illustration, it can be seen particularly well how the control device 5 and the connecting piece 7 are moveable and displaceable in a suitably designed recess 15 provided in the upright stand pipe 1. In the illustrated embodiment, this recess 15 has the shape of a long, axial slit. The slit must be at least as wide as the connecting piece 7 in order to enable the control unit 5 including the connecting piece 7 to move up and down in an axial direction in the slit."); Claim 1 ("an umbrella canopy joined to the telescopic pipe, the umbrella canopy being configured to be opened or closed by means of a sheathed cable or Bowden control located inside the pipes"); Figs. 1 and 3

No.	Claim Limitation	Basis for Invalidity
		 Fig. 1  Fig. 3

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011]. To the extent Glatz '980 does not disclose this limitation, Redl '281 discloses a winder hub (spool 48) wherein operation of the winding mechanism (spool 48) to apply tension to the line (cord 54) opens and closes the umbrella canopy (cover 12) in response to movement of the line (cord 54). *See e.g.,* Description 6:47-55 ("It can be seen that cord 54 passes through wear-bushing 31 in a direction substantially transverse to the longitudinal axis of the umbrella pole. Winding of the cord around the interior spool of the handle causes the cord to pull collar 15 upwardly along pole 14 thereby opening cover 12. Reverse winding of handle 18 causes cord 54 to unwind thereby lowering cover 12 to the closed position."); Fig. 3

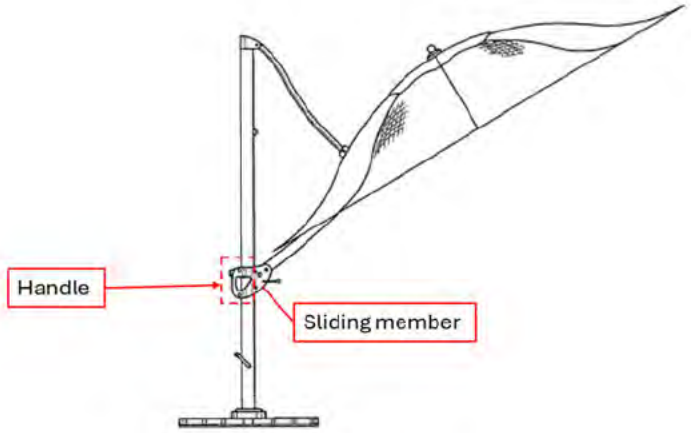
No.	Claim Limitation	Basis for Invalidity
		 Fig. 3  Fig. 4 A person of ordinary skill in the art would have understood that a simple substitution of the a pulling mechanism (rope) clamping device structure located on the sliding member in Glatz '980 with the spool (winder hub) and crank structure in Redl '281 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Redl '281 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Redl '281. Redl '281 explains that a sliding movement device, similar to a hook-and-tackle type rope mechanism, "leaves all of the work to the individual who is operating the umbrella." Redl '281 at 2:41-54. Specifically, "to open the umbrella requires force by the individual user of sufficient magnitude to pull the entire weight of the umbrella cover from the closed position to the open position." *Id.* Thus, a sliding-type device "does not provide the same type of mechanical advantage attributed to a rotatable crank mechanism, irrespective of the number of revolutions required to raise the umbrella." *Id.*

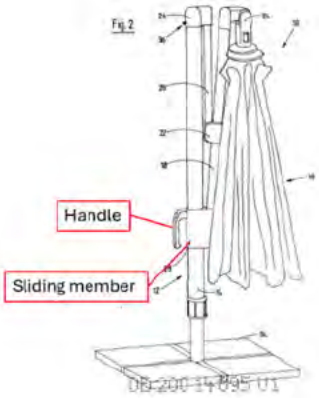
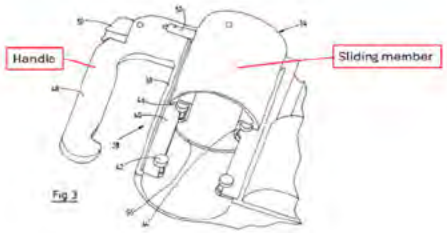
No.	Claim Limitation	Basis for Invalidity
		To the extent Glatz '980 does not disclose this limitation, Ogden '591 discloses a winder hub (winding drum 19) wherein operation of the winding mechanism (winding drum 19) to apply tension to the line (winding cable 24) opens and closes the umbrella canopy (umbrella 6) in response to movement of the line (winding cable 24). *See*, *e.g.*, 1:71-2:28 ("The winding device embodies a pair of cooperating elongated clamps.12 and 13. Each of the clamps. 12 and 13 have their opposed faces grooved as at 14 and 15 for partial embracing and clamping engagement upon the pole 5. The clamps 12 and 13 are held in rigid clamping engagement upon the pole 5 by screws 16 that pass through the clamp 13 to have threaded engagement within threaded. apertures of the clamp 12. At one side, the clamp 12 has been extended to provide a semi-cylindrical boss 17 that is apertured to receive a shaft 18 that extends forwardly of the clamp 12 for the rotatable reception of a winding drum 19. The shaft 18 is preferably rigidly mounted against rotation, while the drum 10 is rotatable thereon. The drum 19 includes flanges 20, and 21 and with the flange 20 provided with a preferably integral winding handle 22. The flange 20 is further provided with a diagonally disposed aperture 23 for the anchoring reception of one end of a winding cable 24. The cable 24 at assembly has one free end pass through the aperture 23 to be subsequently knotted upon the outer face of the flange 20, as at 25"); 2:26-28 ("The device 10 is mounted upon the pole 5 at a point that is: within convenient reach of an operator."); It should be understood, of course, that when drawing the cable taut, the locked end 26 should be engaged within one of the apertures 29 of the flange 21. It will further be obvious that the lower end of the cable 24 has been wound about the drum a sufficient number of turns to permit the full lowering action of the umbrella, as shown in dotted lines in Figure 1."); Figs. 1 and 5.

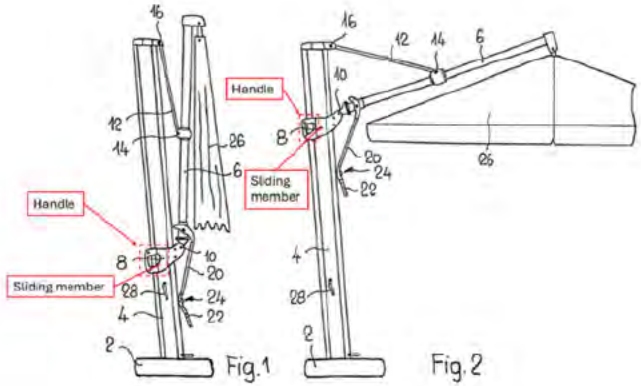
No.	Claim Limitation	Basis for Invalidity
		 Fig. 5.  Fig. 1. A person of ordinary skill in the art would have understood that a simple substitution of the pulling mechanism (rope) clamping device structure on the sliding member in Glatz '980 with the drum (winder hub) and handle structure in Ogden '591 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Ogden '591 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Ogden '591. Ogden '591 explains "[t]he device contemplates novel clamp-on

No.	Claim Limitation	Basis for Invalidity
		devices that are engaged with the usual standard or pole of the umbrella and with one of the clamp-on devices embodying a winding drum having an operating handle that is dis posed within easy reach of an operator whereby the umbrella may be raised or lowered in a quick and easy manner without the necessity of reaching upwardly to release the normal spring latch which, in many instances, is extremely difficult, especially where the umbrella is supported centrally of a lawn table." Odgen '591 at 1:21-30.
1[k]	wherein the angle of the umbrella canopy with respect to the main pole can be controlled by moving the sliding member along the main pole.	Glatz '980 discloses wherein the angle of the umbrella canopy with respect to the main pole (mast 2) can be controlled by moving the sliding member (slide 54) along the main pole (mast 2). *See e.g.,* Glatz '980 at 3:14-37 ("A particularly simple solution of the free-arm canopy is described in claim 17, in which the detent device comprises preferably a flexible connecting device, for example, a chain or a rope which can be fastened at various lengths between the connecting struts and the mast. For example, clamping elements can be used for clamping a rope, or simple hooks can be used for Suspending a chain from various chain links. As a connecting device, it is also possible to use a Swivel arm with various detent recesses which, according to its various recesses at different lengths, can be locked with a corresponding pin at different lengths. Thus, the jib, and, therefore, also the connected canopy can be kept in different positions of inclination and at different heights of the canopy. The same effect can also be obtained with an alternative design, as set out in claim 18, in which a slide, movable along the mast, can be fastened to the mast at different heights by means of a stopping device. Such a detent device can be refined in different ways and can have, e.g., a setscrew on the slide which can clamp the Slide at various heights on the mast. It is also conceivable to have a stop bolt which can engage into various detent openings along the mast. Furthermore, it is possible to use a block to Stop the slide. Furthermore, a rack-and-pinion drive with a Self-locking drive for a pinion is also conceivable."); 6:12-6:26 ("The slide (92) which can be moved along the mast (2a) and against which the jib (8a) supports itself, has been provided with a first detent device (100) which has a clamping screw (102) by means of which the slide (92) can be fixed into position at various heights on the mast (2a). Depending on the vertical

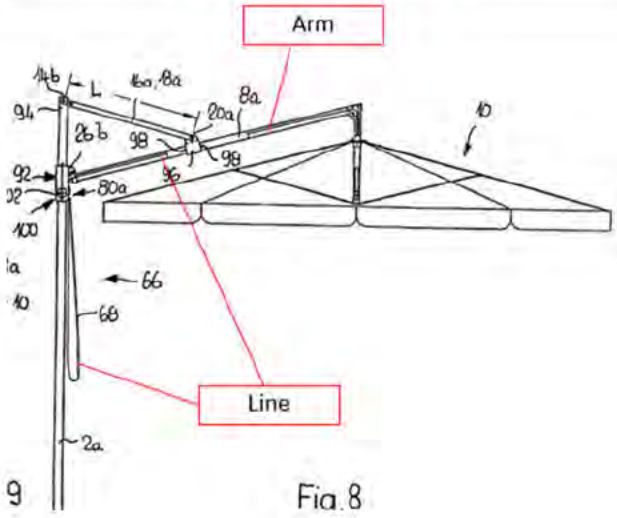
No.	Claim Limitation	Basis for Invalidity
		position, the inclination of the canopy and also to a certain extent the distance to the bottom will vary. The construction of the canopy (10) and that of the actuating device (66) for opening and closing the canopy corresponds to that shown in FIGS. 1 to 7, so that reference is made to the construction as shown in the aforementioned figures. It should be added in this connection that the securing device (80a) for fastening the pulling mechanism is positioned on the slide (92) so that the canopy can be inclined in the open state."); Figs. 1-9.

No.	Claim Limitation	Basis for Invalidity
Claim 5 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 6,014,980 to Glatz ("Glatz '980") (filed on July 25, 1996) in view of United States Patent No. 4,619,281 to Redl ("Redl '281") (filed on June 5, 1985) and/or United States Patent No. 2,747,591 to Ogden ("Ogden '591") (filed on January 26, 1955) and/or Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008), and in further view of United States Patent No. D609453 to Liu ("Liu '453") (filed on May 2, 2008) and/or German Patent No. DE20014895 to Bertola ("Bertola '895") (filed on August 29, 2000, published December 21, 2002) and/or United States Patent No. 7,398,790 to Glatz ("Glatz '790") (filed on July 9, 2004).		
5	The umbrella of claim 1, wherein the sliding member has a handle associated therewith.	To the extent Glatz '980 does not disclose a handle on the sliding member, Liu '453 discloses wherein the sliding member has a handle associated therewith. See e.g., Liu '453 at Figs. 1-3 and 6-8.  FIG.6 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in Liu '453 would yield predictable results to

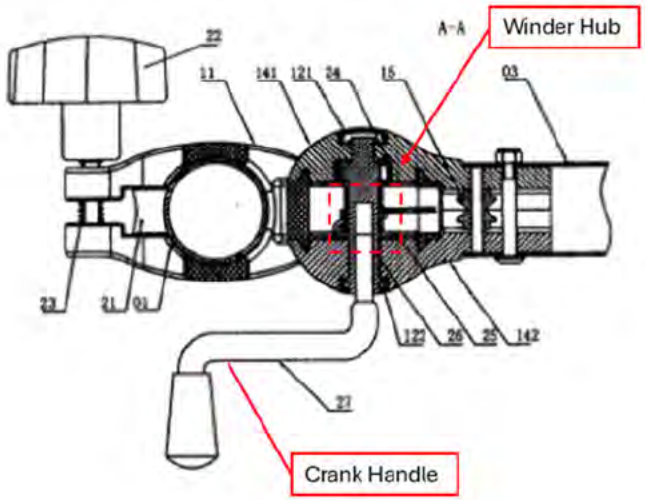
No.	Claim Limitation	Basis for Invalidity
		improve collapsable umbrella products. Indeed, Glatz '980 and Liu '453 both relate to collapsable umbrella products and are thus in the same industry. To the extent Glatz '980 does not disclose a handle on the sliding member, Bertola '895 discloses wherein the sliding member (slider 28) has a handle (handle 48) associated therewith. *See e.g.*, Bertola '895 at Description at page 5 ("Provided for fixation is a slider 28, which is axially slidable and fixable on the mast 14") and page 6 ("The slider further comprises a handle 48, which is preferably integrally connected to the sleeve 38"); Figs. 1-3 (see annotated below).   A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in Bertola '895 would yield predictable results to

No.	Claim Limitation	Basis for Invalidity
		improve collapsable umbrella products. Indeed, Liu '068 and Bertola '895 both relate to collapsable umbrella products and are thus in the same industry. To the extent Glatz '980 does not disclose a handle on the sliding member, Glatz '790 discloses wherein the sliding member (slide 8) has a handle associated therewith. *See e.g.*, Glatz '790 at Description 3:43-47 ("The free arm parasol illustrated in FIGS. 1 to 5 has a pole 4 which is secured, for example, in a base 2 and serves as a carrier for an extendable extension arm 6. The latter is arranged via a joint 10 on a slide 8 which is movable along the pole."); Figs. 1-3  Fig.1 Fig.2 A person of ordinary skill in the art would have understood that a simple substitution of the known structure in Glatz '980 with the structure in Glatz '790 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '068 and Glatz '790 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is found in Glatz '790. The umbrella disclosed by Glatz '790 includes an extension arm that is configured for operation by hand. For example, Glatz '790 states that an objective of the invention is to pivot the extension arm "in a simple manner with one hand." Glatz '790 at Abstract. Moreover, Glatz '980 and Glatz '790 also share the same inventor.

No.	Claim Limitation	Basis for Invalidity
Claim 6 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 6,014,980 to Glatz ("Glatz '980") (filed on July 25, 1996) in view of United States Patent No. 4,619,281 to Redl ("Redl '281") (filed on June 5, 1985) and/or United States Patent No. 2,747,591 to Ogden ("Ogden '591") (filed on January 26, 1955) and/or Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008).		
6	The umbrella of claim 1, wherein the line extends along at least substantially the entire length of the arm.	Glatz '980 discloses wherein the line (pulling mechanism 68) extends along at least substantially the entire length of the arm (jib 8a). *See e.g.,* Glatz '980 at 5:26-49 ("An actuating device (66) is used to open and close the canopy. The control device is equipped with a pulling mechanism (68), preferably a rope. The end (70) of the rope which faces the canopy is fastened to the jib (8) at a fixed point (72) which can be located either on the canopy pole or preferably on the jib (8). If the latter is the case, the pulling device can be guided from the jib to the canopy pole (44) via a guide pulley, which is not illustrated in detail here. The pulling device (68) runs in a tackle-block manner through the hollow canopy pole (44) to the slider (54) at which it is returned to the jib (8) via a guide pulley (74). At the articulation (12) the pulling device (68) runs over a guide pulley (76) and continues through the hollow jib (8). At the end which faces away from the canopy (10), the pulling device (68) is led out of the jib, e.g., via a guide pulley (78) which is positioned at the end of the jib (8) that faces away from the canopy. The canopy (10) is opened by pulling the pulling mechanism (68), i.e. the slider (54) is moved against the canopy pole (44) until the pole component (56) engages into the canopy pole (44). The pulling mechanism can be fixed into position by means of a securing device (80), e.g., by a clamping device positioned at the connecting struts (16, 18). Thus, the canopy can be kept in an open state or in a desired position relative to the jib."). Glatz '980 Figs. 8-9 (see annotated below).

No.	Claim Limitation	Basis for Invalidity
		 9 Fig.8

No.	Claim Limitation	Basis for Invalidity
Claim 7 Obvious under pre-AIA 35 U.S.C. § 103: United States Patent No. 6,014,980 to Glatz ("Glatz '980") (filed on July 25, 1996) in view of United States Patent No. 4,619,281 to Redl ("Redl '281") (filed on June 5, 1985) and/or United States Patent No. 2,747,591 to Ogden ("Ogden '591") (filed on January 26, 1955) and/or Chinese Publication No. CN201001460Y ("Wang '460") (issued January 9, 2008) and/or U.S. Publication No. 2008/0236640 (Huali '640) (published October 2, 2008 and filed on March 28, 2008).		
7	The umbrella of claim 1, further comprising a crank handle operatively associated with the winder hub, whereby rotating the crank handle causes the winder hub to rotate.	To the extent Glatz '980 does not disclose this limitation, Wang '460 discloses a crank handle (winder handle 27) operatively associated with the winder hub (rope reel 26), whereby rotating the crank handle (winder handle 27) causes the winder hub (rope reel 26) to rotate. *See e.g.* Wang '460 at Abstract "the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted."); Fig. 3 (see annotated below); Description at page 4 (The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15"); Fig. 3 (see annotated below).

No.	Claim Limitation	Basis for Invalidity
		 Fig. 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Glatz '980 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent Lo '114 does not disclose this limitation, Huali '640 discloses a crank handle (control device 5) operatively associated with the winder hub (crank shaft 6), whereby rotating the crank handle (control device 5) causes the winder hub (crank shaft 6) to rotate. *See* Huali '640 at Description at paragraphs 38-39 ("[0038] The umbrella canopy 3 can be opened and closed by means of a sheathed cable/Bowden control 4. For this purpose, the

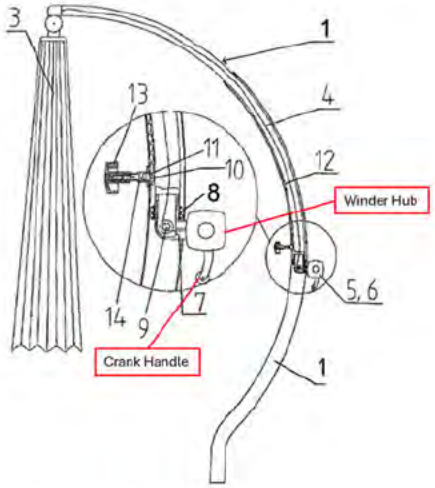
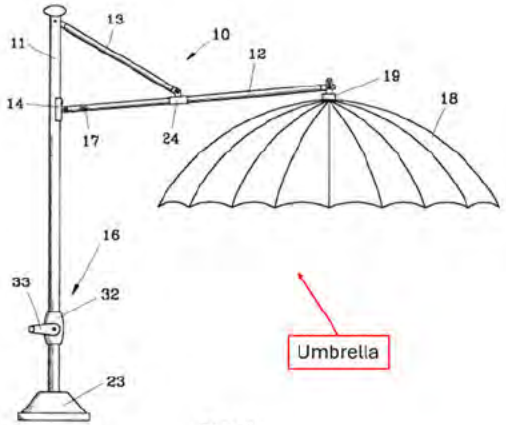
No.	Claim Limitation	Basis for Invalidity
		sheathed cable/Bowden control 4 is connected to a control device and can be operated with it. In the embodiment shown, the control device 5 is designed as a crank shaft 6. [0039] Based on the invention, the control device 5 is allocated to the telescopic pipe 2. In this embodiment, the control device 5 is attached to the lower end of the telescopic pipe 2, where an L-shaped connecting piece 7 is arranged between the control device 5 and the telescopic pipe 2. This connecting piece 7 establishes a connection between the open lower end of the telescopic pipe 2 and the control device 5 located outside the pipe."); Figs 1, 3 (see annotated below)  **Fig. 1** A person of ordinary skill in the art would have understood that a simple substitution of the structure in Glatz '980 with the structure in in Huali '640 would yield predictable results to improve collapsable umbrella products. Indeed, Lo '114 and Huali '640 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Huali '640. Huali '640 describes the benefits of "uncoupling" the opening/closing movement of the umbrella canopy from the telescopic mechanism of the umbrella by attaching the sheathed cable/Bowden control to the canopy. Huali '640 at [0011].

EXHIBIT 18

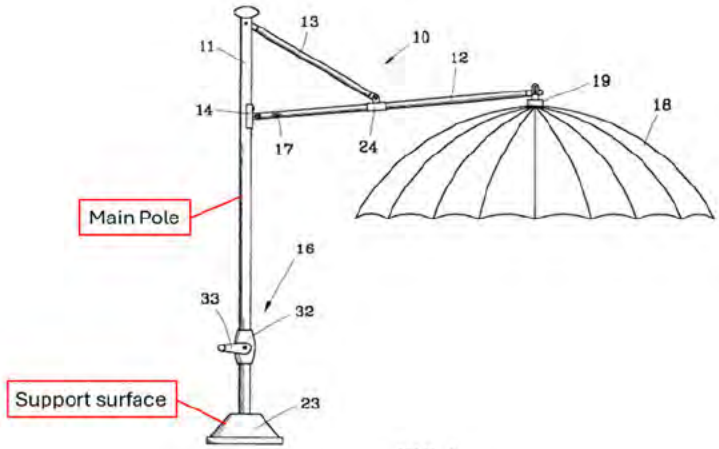
Exhibit 18 - Invalidity Chart for U.S. Patent No. 8,104,492[1] (the '492 Patent) Based on U.S. Patent No. 6,321,763 (Ma '763)

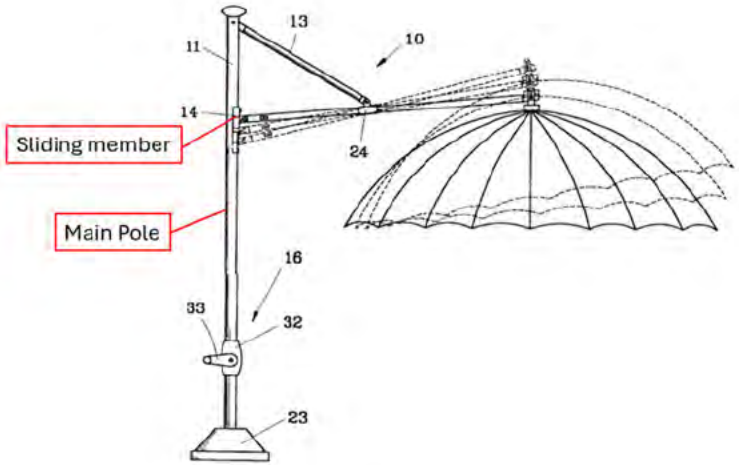
This chart is based on Plaintiff's apparent interpretations of the asserted claim(s) and Defendant's investigation to date. Citations to portions of any reference in this chart are exemplary only, and Defendant may rely on the entirety of the references cited herein to show that the asserted claims are invalid. Further, as Defendant's investigations and discovery are ongoing, Defendant reserves the right to amend or supplement this claim chart to include additional information and/or invalidity contentions identified in connection with Defendant's ongoing investigations. To the extent that every element below is not explicitly or inherently disclosed by the prior art reference, this prior art reference in combination (1) with the knowledge of one of ordinary skill in the art and/or (2) with other prior art identified in the invalidity contentions and/or otherwise herein, renders the asserted claims obvious.

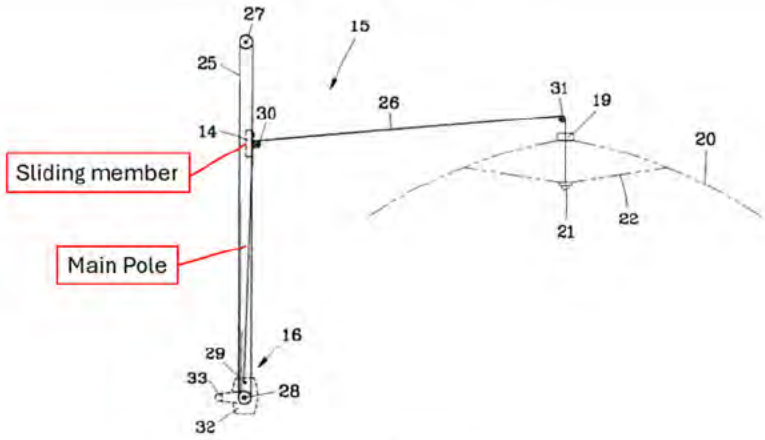
[1] As discussed in the contentions, Claim 1 of the Asserted Patent cannot claim priority to the May 5, 2008 filing date of provisional application no. 61/050,353. Instead, the priority date of Claim 1 of the Asserted Patent is May 5, 2009.

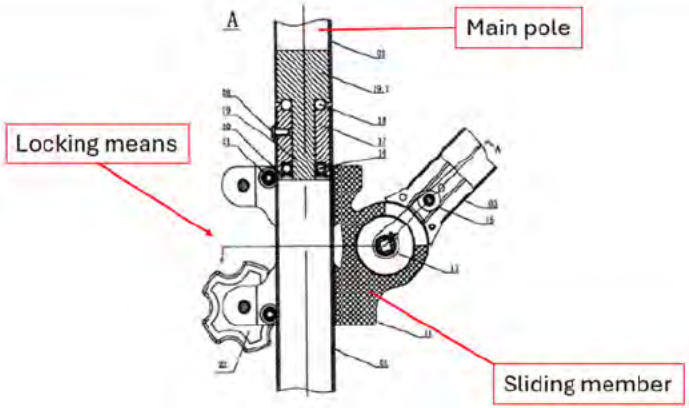
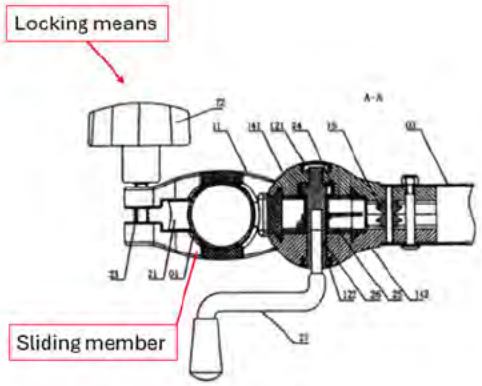
No.	Claim Limitation	Basis for Invalidity
Claim 1 Obviousness under pre-AIA 35 U.S.C. § 103: U.S. Patent No. 6,321,763 ("Ma '763") (issued on November 27, 2001) in view of EP1602297A1 ("Ma '297") (published December 7, 2005) and in further view of Chinese Utility Model Patent CN201001460Y (Wang '460) (issued on January 9, 2008) and/or U.S. Patent No. 6,478,037 ("Tung '037") (issued November 12, 2002) and/or U.S. Patent No. 5,284,171 ("Liu '171") (issued February 8, 1994) and/or U.S. Patent No. 5,937,882 ("Harbaugh '882") (issued August 17, 1999)		
1 [preamble][2]	An umbrella comprising:	Ma '763 discloses an umbrella (umbrella 10). *See e.g.*, Ma '763 at Abstract ("[a]n umbrella includes a panel attached to a crown and supported by ribs"); Title ("Umbrella Structure"); Field of the Invention; Description at 2:50-52 ("in accordance with the present invention, generally designated at 10, is shown, the umbrella 10."); Claim 1; Fig. 1  FIG.1

[2] Defendant makes no concessions or admissions regarding the claim preamble, *e.g.*, that it is or is not limiting, but reserves its right on that and other claim construction issues.

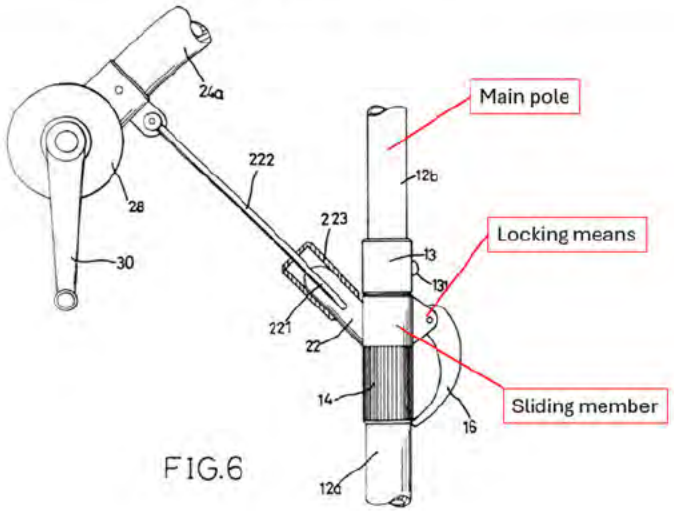
No.	Claim Limitation	Basis for Invalidity
1[a]	a main pole having a lower end for support by a support surface and extending generally upward to an upper end;	Ma '763 discloses a main pole (support pole 11) having a lower end for support by a support surface (base 23) and extending generally upward to an upper end. *See e.g.*, Ma '763 at Description at 2:52 ("support pole 11"), 3:9-11 ("in general, stands upright with a lower end thereof supported by a base 23. The base 23 is preferably of substantial mass for [stably] supporting the umbrella"), 3:20-3:22 ("link 13 has two ends respectively pivotally connected to an upper end of the pole 11 and the pivot joint 24"); Claim 1 ("An umbrella comprising: a tubular pole having a lower end mounted to a base"); Fig. 1  FIG.1
1[b]	a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole;	Ma '763 discloses a sliding member (slide 14) associated with the main pole (support pole 11) and selectably moveable thereon between lower and upper locations along the main pole (support pole 11). *See e.g.*, Ma '763 at Abstract ("A pole located beside the panel is arranged upright with a slide mounted thereon to be movable along the pole"); Description at 2:52-54 ("an arm 12 movably mounted to the support pole 11 by a slide 14"), 3:12-16 "[t]he slide 14 is attached to the primary rope 25 and slidable along the pole 11 so that when the primary rope 25 is

No.	Claim Limitation	Basis for Invalidity
		driven by the crank driving device 16, the slide 14 is moved along the pole 11 and thus causing the arm 12 to move with respect to the pole 11"), 3:60-67 ("[a]n axle 28 is rotatably supported in the casing 32 and is coupled to a crank member 33 accessible by a user for rotating the axle 28. The primary rope 25 forms a loop coupled between the axle 28 and the pulley 27. When the crank member 33 is actuated, the primary rope 25 is driven to move between the axle 28 and the pulley 27, which in turn drives the slide 14 to move along the pole 11"), 4:18-21 ("[t]he panel 18 may then be swung with the arm 12 about the pivotal connection between the arm 12 and the slide 14 to change orientation thereof, as indicated by dashed lines of FIG. 9"); Claim 1 ("a slide attached to and movable along the pole"); Fig. 3; Fig. 9.  FIG.9

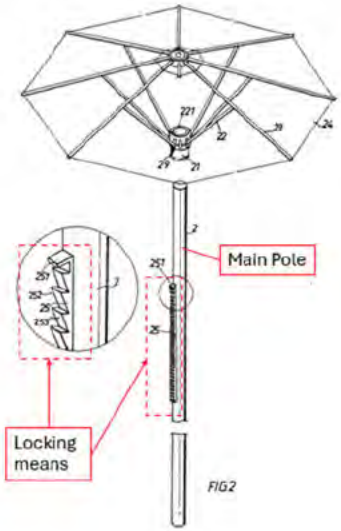
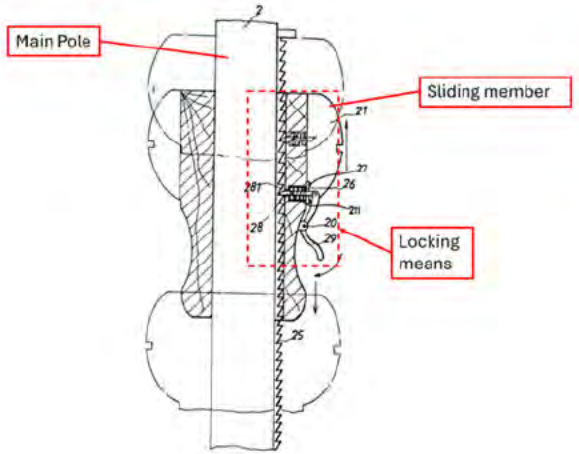
No.	Claim Limitation	Basis for Invalidity
		 FIG.3
1[c]	locking means for releasably securing the sliding member to the main pole at a selected location along the main pole;	To the extent that Ma '763 does not disclose this limitation, CN201001460Y (Wang '460) discloses a locking means (sliding sleeve 11, rotating handle 2, spring 23) for releasably securing the sliding member (sliding sleeve 11) to the main pole (parasol pole 01) at a selected location along the main pole (parasol 01). *See e.g.*, Wang '460 at Description at page 2 ('The parasol pole sliding sleeve is connected to the rope winder to form a whole unit, and the sliding sleeve has a bolt-locking hoop structure" and page 4 ("The parasol pole 01 is equipped with a hoop-type sliding sleeve 11 locked by a bolt. One end of the bolt is equipped with a rotating handle 22, and a spring 23 is sleeved on the bolt portion between the hoop chucks."); Figs. 1-3

No.	Claim Limitation	Basis for Invalidity
		 Fig. 2  Fig. 3 A person of ordinary skill would recognize that locking means in Ma '763 prevents the sliding member from sliding down the main support pole. A person of ordinary skill would recognize that the cam lock configuration of FIG. 4 of the '492 Patent similarly prevents the sliding member from sliding down the main support pole. A person of ordinary skill in the art would have understood that a simple substitution of the known locking means in Ma '763 with the

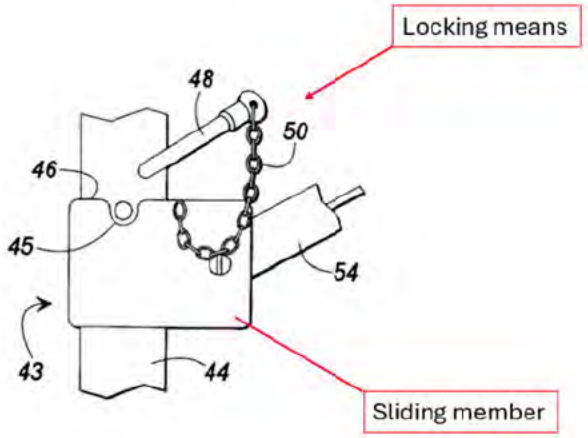
No.	Claim Limitation	Basis for Invalidity
		known locking means of Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract. To the extent the locking means of the Wang '460 is not the same as or equivalent to the locking means in the '492 Patent, US 6478037 (Tung '037) discloses a locking means (lever 16) for releasably securing the sliding member (adjusting sleeve 14, control sleeve 13) to the main pole (supporting rod 12) at a selected location along the main pole (supporting rod 12). *See e.g.,* Tung '037 at 3:36-46 ("Referring to the drawings and initially to FIG. 1, a sunshade in accordance with the present invention generally includes a main frame 1, a canopy support frame 2 (FIG. 3), and a canopy 3. The main frame 1 includes a supporting rod 12, an adjusting sleeve 14 slidably mounted around the supporting rod 12, and a lever 16 mounted to the adjusting sleeve 14. When the lever 16 is in a locked position, the adjusting sleeve 14 is frictionally retained in place, and when the lever 16 is in a released position, sliding movement of the adjusting sleeve 14 relative to the supporting rod 12 is allowed." ; 4:57-63 ("Referring to FIG. 5, when adjustment of the tilting angle of the canopy 3 is required, the lever 16 is released to allow the adjusting sleeve 14 to move downwardly along the supporting rod 12. The arcuate tube 24 (including the outer tube section 24 *a* and the inner tube section 24 *b*) is slid along the holding sleeve 18 until a desired tilting angle of the canopy 3 is reached for optimum shade. The lever 16 is then switched to its locked position."); Figs. 1, 5, and 6-10.

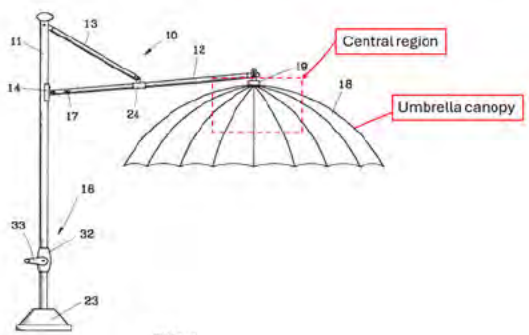
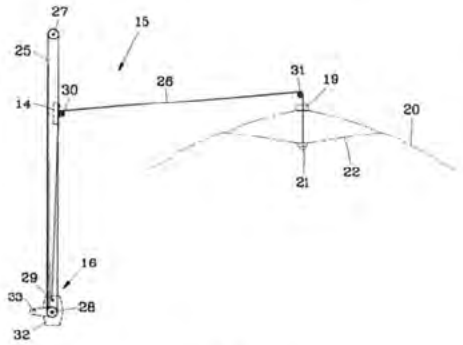
No.	Claim Limitation	Basis for Invalidity
		 FIG.6 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Ma '763 with the structure of Tung '037 (to achieve the same purpose of preventing the sliding member from sliding down along the main pole) would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Tung '037 both relate to collapsable umbrella products and are thus in the same industry. Indeed, the examiner in Appl. No. 12/435,640 also cited Tung '037 as prior art and Applicant did not deny it. A motivation to combine is also found in Tung '037. Tung '037 describes that other umbrella adjustment "is troublesome…[and] the user has to lower the canopy to a reachable level." Tung '037 at Background. Also, Tung '037 states its design allows for easy adjustment of the canopy. Tung '037 at 1:34-37. To the extent the locking means of the Wang '460 is not the same as or equivalent to the locking means in the '492 Patent, U.S. Patent No. 5,284,171 (Liu '171) discloses a locking means (elongated rack-like member 25, groove 221, spring 26, supporting pin 28, arm 29) for

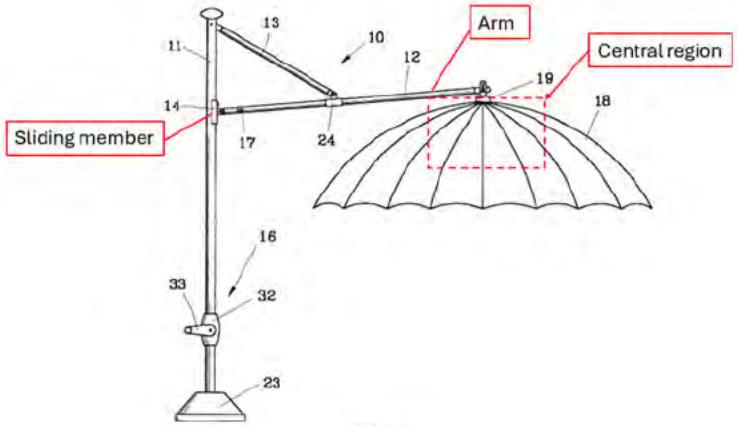
No.	Claim Limitation	Basis for Invalidity
		releasably securing the sliding member (runner 21) to the main pole (main shaft 2) at a selected location along the main pole. *See e.g.*, Liu '171 at Abstract ("An improved sunshade opening and supporting device is provided with a rack-like member disposed on the main shaft of a sunshade at a section thereof over which the runner of the sunshade travels during the opening and closing of the sunshade"); Background of the Invention at 1:57-2:16 ("Generally speaking, the conventional sunshade opening device using a supporting pin is able to be operated with ease, but there are still some disadvantages associated therewith in practical operation, which are given as follows: 1. The size of the sunshade is usually very large so that it can keep a wide area covered; the larger the sunshade is the heavier it becomes; an operator has to push the runner upwardly with great effort first with hands and then hold the runner in place with one hand and locate the supporting pin with the other; and the supporting pin is selectively inserted into one of the locking holes as long as the runner is disposed at a desired position and the supporting pin is in alignment with the target locking hole. If not, the operator has to make some adjustments of the location of the runner and the supporting pin. To an operator who is too weak to open the heavy sunshade with one hand, the opening of the same without help from others becomes impossible, causing great inconvenience in practical operation. 2. The main shaft and the runner of the sunshade are slidably engaged with each other and the two are usually assembled together in a loose manner so that the runner can be smoothly moved; but the loose engagement of the runner with the main shaft produces crevice therebetween which can get the fingers of an operator hurt easily when the skin of the fingers is accidentally clamped in the crevice in the collapse of the sunshade. To overcome the above cited problems, the present inventor has worked out an improved opening and supporting device for a sunshade which is presented in details in the following description along with a number of drawings."); Description at 3:31-49 ("The operation of the present invention is described hereinafter. To get the sunshade opened, the runner 21 is pushed upwardly along the main shaft 2, the oblique face of the front tip of the supporting pin 28 is in abutment against the oblique face 253 of the Z-shaped teeth 252 in the upward journey, resulting in the backward withdrawal of the supporting pin 28. During the process, the spring 26 is continuously compressed with the backward movement of the runner 21, the compressed spring will pop out when the runner 21 is located at a new position and retain the runner 21 in place so as to

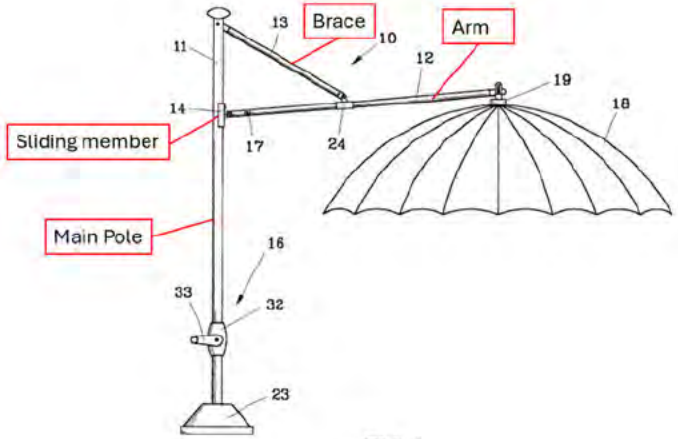
No.	Claim Limitation	Basis for Invalidity
		keep the sunshade opened. To close the sunshade, the arc arm 29 is pivotally triggered and held in place, resulting in the backward pulling of the supporting pin 28 so as to make the same separate from the locking tooth of the rack-like member 25, permitting the runner 21 to travel downwardly freely to collapse the sunshade.") and 3:50-4:08 ("It can be clearly seen the present invention enables a person to open the sunshade simply by pushing the runner upwardly which is equipped with a spring biased supported pin along a rack-like member; the supporting pin will move against a Z-shaped tooth each time and will pop out and be retained in place when it passes over each tooth due to the help of a bias spring until the runner is located at a desired position so as to facilitate a person to open a heavy sunshade with no effort at all. To close or collapse the sunshade, a person only has to trigger and hold a pivotal arc arm which is pivotally connected to the end of the supporting pin, causing the spring biased supporting pin to withdraw from the engagement with the tooth of the rack-like member so as to permit the runner to slide down all the way, resulting in the collapse of the sunshade."); Figs. 2 and 3.  FIG2  FIG3

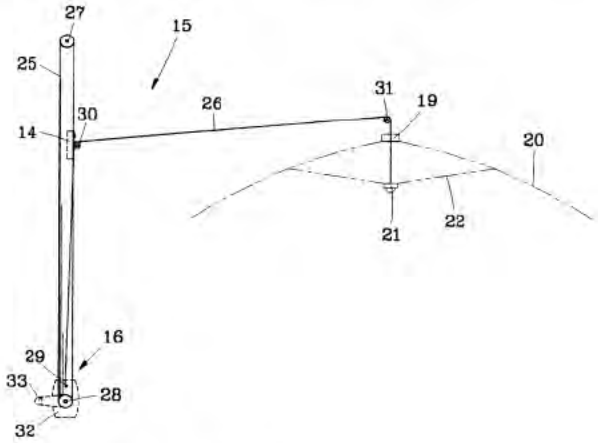
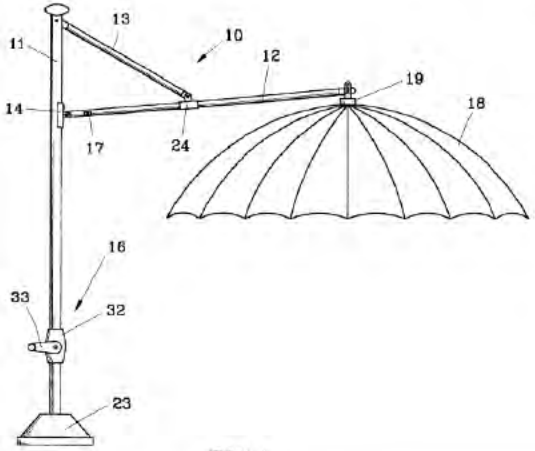
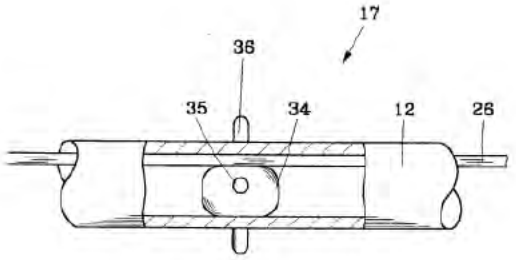
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood that a simple substitution of the structure in Ma '763 with the structure in Liu '171 would yield predictable results to improve collapsable umbrella products. Indeed, Liu '171 and Ma '763 both relate to collapsable umbrella products and are thus in the same industry. Liu '171 also discloses a motivation to combine. Liu '171 explains how teeth (i.e. a locking means) disposed on the main shaft of the sunshade (i.e. umbrella) provide several advantages, including: (1) allowing operation by operators who are too weak to open a heavy sunshade with one hand; (2) reducing the danger that a user will injure their fingers in the crevice formed by the main shaft and runner; (3) making operation of the umbrella more convenient; and (4) reducing the effort required to operate the sunshade. Liu '171 at 1:57-2:11, 2:38-42, 3:50-4:8. To the extent the locking means of the Wang '460 is not the same as or equivalent to the locking means in the '492 Patent, U.S. Patent No. 5,937,882 (Harbaugh '882) discloses a locking means (stop pin 48, openings 49) for releasably securing the sliding member (collar 43) to the main pole (mast 20) at a selected location along the main pole (mast 20). *See e.g.*, Harbaugh '882 at 4:24-37 ("A collar 43 is received for sliding movement along the upper portion 44 of the mast 20 extending between the housing 37 and the cap 39. A U-shaped notch 45, FIG. 2A, extends downwardly from the upper edge 46 of the collar, and that notch accommodates a stop pin 48 when the stop pin is inserted through a selected one of the several openings 49 through the mast at intervals along the upper portion 44. The stop pin preferably is attached to the collar 43 by the security chain 50. With the stop pin 48 in place in a selected hole 49, that stop pin engages the notch 45 and prevents further upward movement of the collar 43 along the mast. Alternatively, a hole through the collar 43 can substitute for the notch 45 so as to fix the collar to the mast without movement in either direction along the mast."); 5:22-25 ("This upward movement of the collar 43 may be limited short of its maximum upward travel by placing the stop pin 48 through a selected one of the holes 49 in the mast."); 5:34-52 ("Assuming the moveable collar 43 is constrained by the stop pin 48 at one of the lower holes 49 on the mast, the open umbrella will have an attitude of significant tilt as shown in FIGS. 4 and 5. This tilt attitude or angle is caused by the geometry of the canopy support structure, including the radial arm 54 attached to the collar and the brace 56 extending between the arm and the upper end of the mast. The angle of tilt shown in FIG. 5 may be reduced by removing the stop pin 48 and turning the crank 78 to wind the line onto

No.	Claim Limitation	Basis for Invalidity
		the hub 38, thereby applying upward force to the collar 43. As that collar rises along the mast, the canopy assembly moves to a position of reduced tilt as shown in FIGS. 1 and 4. This upward movement of the collar 43 may continue until the collar is near the upper end of the mast and the canopy assembly is substantially level or untilted, as seen in FIG. 3. Once the collar 43 arrives at the position producing the desired amount of tilt, the stop pin 48 is inserted in the appropriate hole 49 to prevent further upward movement of the collar."); Figs. 2 and 2A.  FIG. 2A A person of ordinary skill in the art would have understood that a simple substitution of the structure in Ma '763 with the structure in Harbaugh '882 would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Harbaugh '882 both relate to collapsable umbrella products and are thus in the same industry. Indeed, the examiner in Appl. No. 12/435,640 also cited Harbaugh '882 as prior art. Harbaugh '882 also discloses a motivation to combine. Harbaugh '882 explains how its design can prevent injuries from collapsing umbrellas. Harbaugh '882 at 1:29-40.

No.	Claim Limitation	Basis for Invalidity
1[d]	an umbrella canopy having a central region;	Ma '763 discloses an umbrella canopy (panel 18) having a central region. *See e.g.*, Ma '763 at Description at 2:60-3-2 ("[s]imilar to a conventional umbrella, the ribs 20 of the umbrella 10 of the present invention radially extend from a crown 19 for supporting the panel 18. The stretchers 22 are pivotally connected to the ribs 20 and a runner 21 that is movable with respect to the crown 18 for opening/closing the panel 18. The panel assembly, including the panel 18, the ribs 20, the stretchers 22, the crown 19 and the runner 21, is connected to the movable arm of the support frame by the secondary rope 26 to be supported in a raised position by the pole 11"); Claim 1 ("a panel means comprising a crown movable with respect to the remote end of the arm, a panel attached to the crown, ribs radially extending from the crown for supporting the panel, a runner spaced from and movable with respect to the crown and stretchers connecting the runner to the ribs, the crown defining a through hole through which the length of the remote end of the secondary rope extends for being attached to the runner whereby when the slide is moved along the pole, the length of the remote end of the secondary rope changes causing the runner to move toward/away from the crown for opening/closing the panel via the stretchers and the ribs"); Fig. 1; Fig. 3  FIG.1  FIG.3 A person of ordinary skill would recognize that the "panel assembly" in the combination of the panel 18, ribs 20, stretcher 22, crown 19, and runner 21 is an "umbrella canopy" with a "central region."

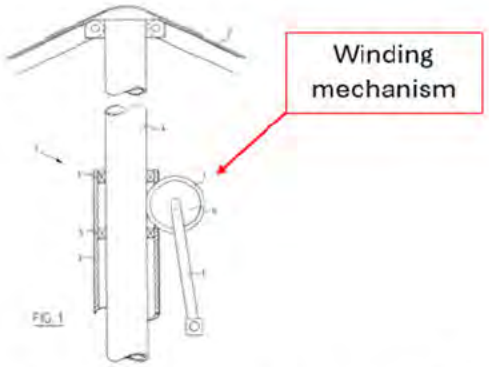
No.	Claim Limitation	Basis for Invalidity
1[e]	an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member;	Ma '763 discloses an arm (arm 12) associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member (slide 14). *See e.g.*, Ma '763 at Abstract ("an arm has an end pivoted to the slide and is further supported by a link pivoted to both the pole and the arm"); Description at 2:52-53 ("an arm 12 movably mounted to the support pole 11 by a slide 14"), 3:54-56 ("further pulley 31 is mounted at the distal end of the arm 12 for aiding the passage of the secondary rope 26 through the crown 19 to the runner 21"); Claim 1 ("a tubular arm having a proximate end pivotally connected to the slide and an opposite remote end"); Fig. 1.  FIG.1 A person of ordinary skill would recognize that the "panel assembly," described in Ma '763 as the combination of the panel 18, ribs 20, stretcher 22, crown 19, and runner 21, is an "umbrella canopy" with a "central region." A person of ordinary skill would recognize that the distal end of the arm 12, being coupled to the crown 19 and the runner 21, is "associated with the central region" of the umbrella canopy of the umbrella 10 and that the "arm 12" extends radially from the central region.

No.	Claim Limitation	Basis for Invalidity
1[f]	a brace having a first end pivotably attached to an upper portion of the pole above the sliding member and a second end pivotably attached to the arm;	Ma '763 discloses a brace (link 13) having a first end pivotably attached to an upper portion of the pole (support pole 11) above the sliding member (slide 14) and a second end pivotably attached to the arm (arm 12). *See e.g.*, Ma '763 at Abstract ("[a]n arm has an end pivoted to the slide and is further supported by a link pivoted to both the pole and the arm"); Description at 2:52-54 ("arm 12 [is] movably mounted to the support pole 11 by a slide 14 and also coupled to the support pole 11 by a link 13…") and 3:19-22 ("[a] pivot joint 24 is formed on the arm 12. The link 13 has two ends respectively pivotally connected to an upper end of the pole 11 and the pivot joint 24"); Claim 1 ("a link having opposite ends respectively pivotally connected to the pole and the arm whereby when the slide is moved along the pole the arm is driven to rotate about the pivotal connections with the slide and the link between an open position and a closed position"); Fig. 1.  FIG.1

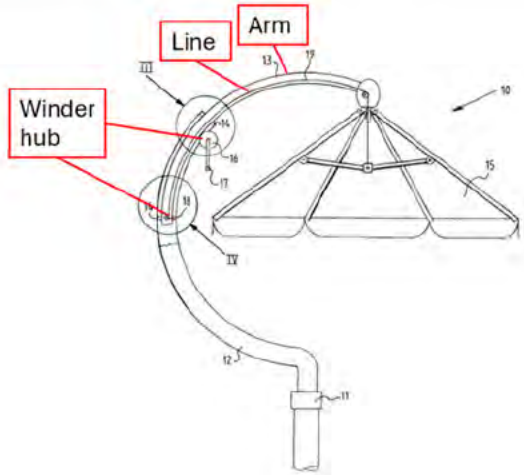
No.	Claim Limitation	Basis for Invalidity
1[g]	a winding mechanism having a winder hub around which a line can be wound, the winder hub being mounted to the sliding member and movable therewith;	Ma '763 discloses in connection with FIG. 3 that a secondary rope 26 opens the panel assembly in response to movement of the slide 14 and discloses in connection with FIG. 6 that tension in the rope 26 is maintained by a locking device 17 secured to the arm 12.  FIG.3  FIG.1  FIG.6

No.	Claim Limitation	Basis for Invalidity
		Ma '763 states: The secondary rope 26 has a predetermined length. With the distal end fixed to the runner 21, a proximate end of the secondary rope 26 is fixed to the pole 11, preferably at a location adjacent the lower end of the pole 11. In the embodiment illustrated, a pin 29 fixed in the pole 11 is provided to which the proximate end of the secondary rope 26 is attached. Ma '763 at 3:43-49. The combination of the predetermined/fixed length of the rope 26 and the movement of the slide 14 causes opening of the panel assembly. Ma '763 states: Referring to FIG. 3, when the slide 14 is driven by the movement of the primary rope 25 to slide toward the upper end of the pole 11, the distance between the slide 14 and the pin 29 that fixes proximate end of the secondary rope 26 to the pole 11 is increased, which causes the runner 21 to move toward the crown 19 and thus open the panel 18, as shown in FIG. 1. Ma '763 at 4:41-47. Tension in secondary rope 26 is maintained by the locking device 17 mounted to the arm 12. Ma '763 states in connection with FIG. 6: …to fix the secondary rope 26 at the tensioned condition associated with the locked condition of the crown 19, a locking device 17 is provided inside the arm 12. The locking device 17 may be manually actuated to engage and thus fix the secondary rope

No.	Claim Limitation	Basis for Invalidity
		26. The locking device 17 comprises a locking member 34 pivotally mounted in the arm 12 by an eccentric pin 35. Ma '763 at 4:22-28 and FIG. 6. Although Ma '763 discloses the combination of predetermined length secondary rope 26 and locking device 17 on the arm 12, a person of ordinary skill would be motivated to replace the pin 29 and the locking member 17 with a "winding mechanism having a winder hub" on the arm 12, for example as in EP1602297A (Ma '297), which describes a fixed pole (referred to as "first tubular element"), a moveable arm (referred to as "second tubular element") coupled with the fixed pole to allow a user to change the shade effect. Ma '297 states "Figure 1 shows a parasol stand 1 and a parasol 2. The parasol stand 1 has a first tubular element 3 and a second tubular element 4. The second tubular element 4 is guided into the first tubular element 3." Ma '297 at [0018]. Ma '297 further states that "[i]nside the second tubular element 13 a reel 18 is present along which a cord 19 is wound, which is guided through the second tubular element 13 and is used to open and close the parasol 15." Ma '297 at [0022]. Ma '297 elaborates: A reel 18 is arranged in the second tubular element 13 and this reel 18 is used to operate the cord 19, which is used to open and close the parasol 15. Preferably the cord 19 is wound at least for one full loop around the reel 18. The reel 18 can be operated by for example a crank 17, which can be put into the reel 18 through an opening in the first tubular element 12. Ma '297 at [0024].

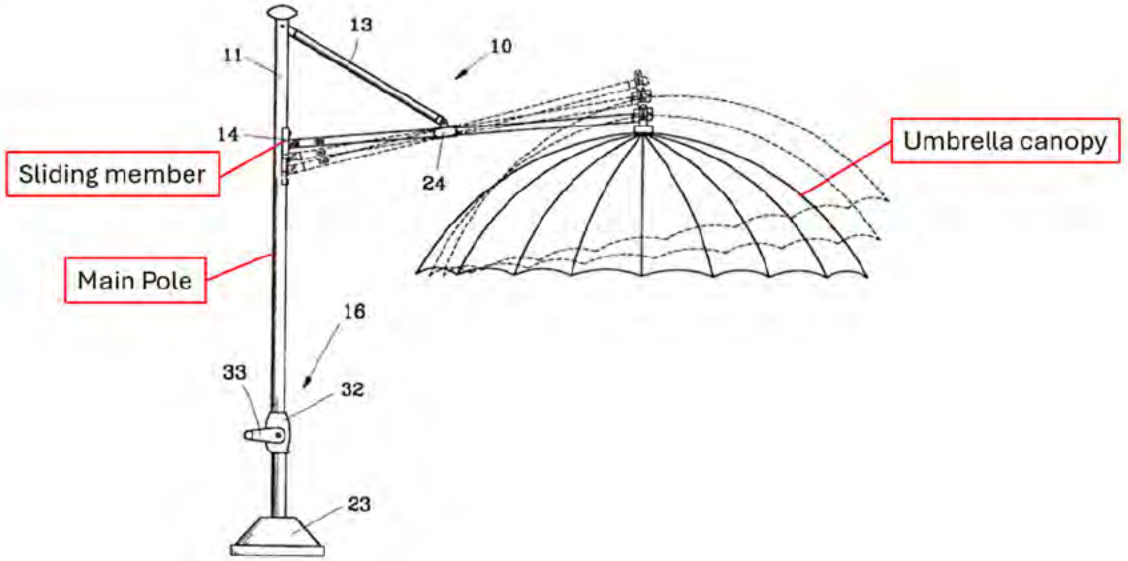
No.	Claim Limitation	Basis for Invalidity
		An annotated figure 1 of Ma '297 is shown below.  A person of ordinary skill in the art would have understood that a simple substitution of the pin 29 and locking device 17 of Ma '763 with reel 18 of Ma '297 would yield predictable results to improve collapsable umbrella products. The end of the cord 26 that is described in Ma '297 as being attached to the pin 29 would be attached to and wound around the reel 18. The reel 18 could be mounted to the pin 35 or a similar axle mounted at the axial location of the arm 12. The pulley 30 on the slide 14 would be eliminated. Indeed, Ma '763 and Ma '297 both relate to collapsable umbrella products and are thus in the same industry. Ma '297 also provides two distinct motivations to substitute its reel/winder hub and crank arrangement for the pin 29 and locking device 17 of Ma '763. First, providing the reel/winder hub allows for independent operation of the opening/closing and shade angle adjustment features. Ma '297 states "[i]t is therefore an object of the invention to provide a telescopic parasol stand which is more robust and more reliable and in which the parasol can be operated independently of the position of the second tubular element relative to the first tubular element. Ma '297. at [0005]. Ma '297 elaborates "[a]s the opening or closing of the parasol 15 is fully independent of the position of the second tubular element 13 relative to the first

No.	Claim Limitation	Basis for Invalidity
		tubular element 12 it is thus possible to place the parasol 15 under an angle." Ma '297. at [0025]. Replacing the pin 29 and locking device 17 of Ma '763 with the reel 18 of Ma '297 makes opening and closing of the panel assembly (canopy) of Ma '763 independent of the adjustment of the shade angle by movement of the slide 14 of Ma '763. Second, Ma '297 points out that eliminating pulleys provides a more robust design, stating in connection with identifying problems in the prior art that a "mechanism using a cord for moving [a] second tubular element relative to [a] first tubular element is rather susceptible for defects for example caused by breakage of the cord or jamming of the cord at one of the several pivot areas around which the cord is guided." Id. at [0004]. This statement motivates reducing or eliminating one or more pivot areas (i.e., pulleys) from a mechanism that moves a second tubular element relative to a first tubular element. The statement motivates mitigating similar defects by eliminating the pulley 30 in the slide 14 of Ma '763 by mounting the reel 18 of Ma '297 on the arm 12 Ma '763 at the location of the locking device 17.
1[h]	a line having a first end that winds around the winder hub, an intermediate portion extending from the winder hub along the arm to the umbrella canopy, and a second end that engages the umbrella canopy;	Ma '763 discloses a line ("secondary rope 26"). Ma '763 as modified by Ma '297 includes a line with a first end opposite to the panel assembly. The first end is wound around the winder hub ("reel 18"). Ma '763 as modified by Ma '297 includes an intermediate portion, i.e., a length of the secondary rope 26 from the winder hub/reel to the pulley 31. Ma '763 as modified by Ma '297 includes a line with a second end of the line engages the umbrella canopy (i.e., terminating at the runner 21 of the "panel assembly").

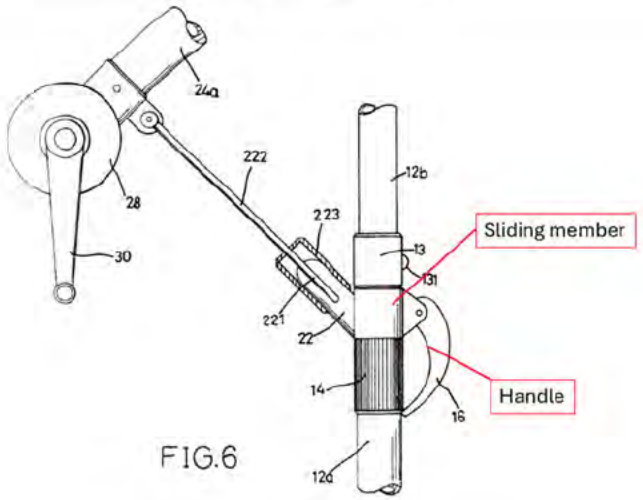
No.	Claim Limitation	Basis for Invalidity
		 FIG. 2 A person of ordinary skill in the art would have understood this simple substitution using the reel 18 of Ma '297 would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Ma '297 both relate to collapsable umbrella products and are thus in the same industry. A person of ordinary skill in the art would have been motivated to combine the teachings of Ma '763 with the teachings of Ma '297. Ma '763 as modified by Ma '297 includes a line with a first end opposite to the panel assembly. The first end is wound around the winder hub ("reel 18") positioned where the locking device 17 is located in Ma '763. Ma '763 as modified by Ma '297 includes an intermediate portion, i.e., a length of the secondary rope 26 from the winder hub/reel to the pulley 31. Ma '763 as modified by Ma '297 includes a line with a second end of the line engages the umbrella canopy (i.e., terminating at the runner 21 of the "panel assembly"). Further motivation to combine the teachings of Ma '763 with the

No.	Claim Limitation	Basis for Invalidity
		teachings of Ma '297 can be found in the Ma '763 Description at 4:22-28 ("…to fix the secondary rope 26 at the tensioned condition associated with the locked condition of the crown 19, a locking device 17 is provided inside the arm 12. The locking device 17 may be manually actuated to engage thus fix the secondary rope 26. The locking device 17 comprises a locking member 34 pivotally mounted in the arm 12 by an eccentric pin 35") and 4:36-40 ("[i]t is apparent to those having ordinary skills to arrange the locking device 17 at any suitable location other than the arm 12. For example, the locking device 17 may be attached to the slide 14 for fixing the secondary rope 26 with respect to the arm 12").
1[i]	wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub, and	To the extent Ma '763 does not disclose this limitation, Ma '297 discloses wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub. *See e.g.*, Ma '297 at Description at [0024] ("[a] reel 18 is arranged in the second tubular element 13 and this reel 18 is used to operate the cord 19, which is used to open and close the parasol 15. Preferably the cord 19 is wound at least for one full loop around the reel 18. The reel 18 can be operated by for example a crank 17, which can be put into the reel 18 through an opening in the first tubular element 12"). A person of ordinary skill in the art would have understood this is a simple substitution using the reel 18 of Ma '297 would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Ma '297 both relate to collapsable umbrella products and are thus in the same industry. A person of ordinary skill in the art would understand that winding of the cord 19 around the reel 18 would tension or relax the cord 19 depending upon the direction of the reel 18.
1[j]	wherein operation of the winding mechanism to apply tension to the line opens and closes the umbrella canopy in response to movement of the line; and	To the extent Ma '763 does not disclose this limitation, Ma '297 discloses wherein operation of the winding mechanism to apply tension to the line opens and closes the umbrella canopy in response to movement of the line. *See e.g.*, Ma '297 at Description at [0024] ("[a] reel 18 is arranged in the second tubular element 13 and this reel 18 is used to operate the cord 19, which is used to open and close the parasol 15. Preferably the cord 19 is wound at least for one full loop around the reel 18. The reel 18 can be operated by for example a crank 17, which can be put into the reel 18 through an opening in the first tubular element 12").

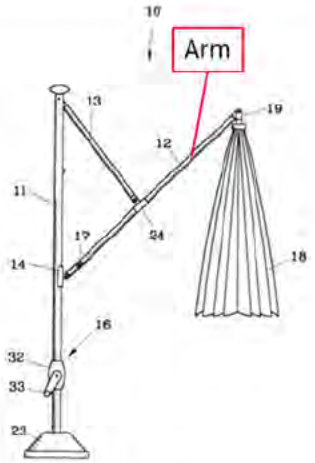
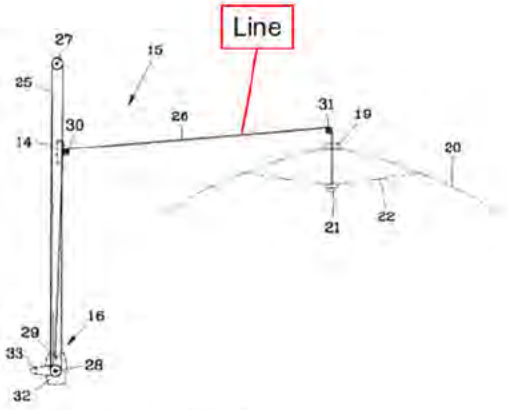
No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood ' that this is a simple substitution using the reel 18 of Ma '297 the would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Ma '297 both relate to collapsable umbrella products and are thus in the same industry. Ma '297 also provides two distinct motivations to substitute its reel/winder hub and crank arrangement for the pin 29 and locking device 17 of Ma '763. First, providing the reel/winder hub allows for independent operation of the opening/closing and shade angle adjustment features. Ma '297 states "[i]t is therefore an object of the invention to provide a telescopic parasol stand which is more robust and more reliable and in which the parasol can be operated independently of the position of the second tubular element relative to the first tubular element. Ma '297. at [0005]. Ma '297 elaborates "[a]s the opening or closing of the parasol 15 is fully independent of the position of the second tubular element 13 relative to the first tubular element 12 it is thus possible to place the parasol 15 under an angle." Ma '297. at [0025]. Replacing the pin 29 and locking device 17 of Ma '763 with the reel 18 of Ma '297 makes opening and closing of the panel assembly (canopy) of Ma '763 independent of the adjustment of the shade angle by movement of the slide 14 of Ma '763.
1[k]	wherein the angle of the umbrella canopy with respect to the main pole can be controlled by moving the sliding member along the main pole.	Ma '763 discloses wherein the angle of the umbrella canopy (panel 18) with respect to the main pole (support pole 11) can be controlled by moving the sliding member (slide 14) along the main pole (support pole 11). *See e.g.*, Ma '763 at Abstract ("[s]paced tabs are formed on the arm to be received in grooves defined in the crown when the arm is moved to the open positioned for securely attaching the panel to the arm thereby allowing the panel to moved with the arm for adjusting the orientation thereof"); Claim 1 ("means for fixing the crown to the remote end of the remote end of the arm when the arm is at the open position whereby further moving the slide in a direction consistent with movement of the arm from the closed position to the open position causes the panel means to rotate with the arm and thus adjusting orientation of the panel means"); Description at 4:18-21 ("[t]he panel 18 may then be swung with the arm 12 about

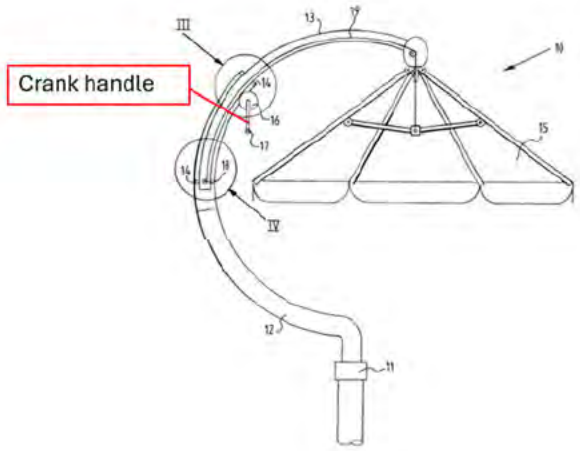
No.	Claim Limitation	Basis for Invalidity
		the pivotal connection between the arm 12 and the slide 14 to change orientation thereof, as indicated by dashed lines of FIG. 9") and 4:58-60 ("[f]urther driving of the primary rope 25 to move the slide 14 causes the panel 18 to rotate to a different direction, as indicated by the dashed lines shown in FIG. 9"); Fig. 9  FIG.9

No.	Claim Limitation	Basis for Invalidity
Claim 5 Obviousness under pre-AIA 35 U.S.C. § 103: Ma '763 in view of Ma '297 and in further view of Wang '460 and Tung '037 and/or Liu '171 and/or Harbaugh '882		
5	The umbrella of claim 1, wherein the sliding member has a handle associated therewith.	Tung '037 discloses wherein the sliding member (adjusting sleeve 14) has a handle (lever 16) associated therewith. *See e.g.,* Tung '037 at 3:36-46 ("Referring to the drawings and initially to FIG. 1, a sunshade in accordance with the present invention generally includes a main frame 1, a canopy support frame 2 (FIG. 3), and a canopy 3. The main frame 1 includes a supporting rod 12, an adjusting sleeve 14 slidably mounted around the supporting rod 12, and a lever 16 mounted to the adjusting sleeve 14. When the lever 16 is in a locked position, the adjusting sleeve 14 is frictionally retained in place, and when the lever 16 is in a released position, sliding movement of the adjusting sleeve 14 relative to the supporting rod 12 is allowed." ; 4:57-63 ("Referring to FIG. 5, when adjustment of the tilting angle of the canopy 3 is required, the lever 16 is released to allow the adjusting sleeve 14 to move downwardly along the supporting rod 12. The arcuate tube 24 (including the outer tube section 24 *a* and the inner tube section 24 *b*) is slid along the holding sleeve 18 until a desired tilting angle of the canopy 3 is reached for optimum shade. The lever 16 is then switched to its locked position."); Figs. 1, 5, and 6-10.

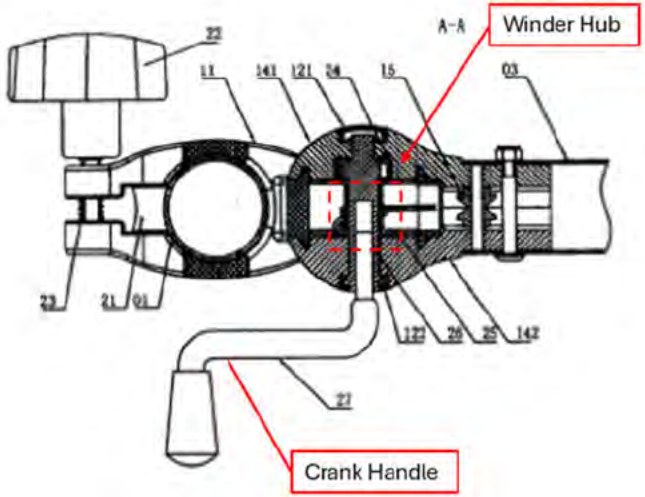
No.	Claim Limitation	Basis for Invalidity
		 FIG.6 A person of ordinary skill in the art would have understood that a simple substitution of the handle in Tung '037 would yield predictable results to improve collapsable umbrella products. For example, in the April 12, 2011 office action for Appl. No. 12/435,640, the examiner stated it would have been obvious to modify a locking means with the "handle as taught by Tung in order to allow the user to infinitely adjust the position of the member on the pole." Indeed, Ma '763 and Tung '037 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Tung '037. Tung '037 describes that other umbrella adjustment "is troublesome…[and] the user has to lower the canopy to a reachable level." Tung '037 at Background. Also, Tung '037 states its design allows for easy adjustment of the canopy. Tung '037 at 1:34-37.

No.	Claim Limitation	Basis for Invalidity
Claim 6 Obviousness under pre-AIA 35 U.S.C. § 103: Ma '763 in view of Ma '297 and in further view of Wang '460 and/or Tung '037 and/or Liu '171 and/or Harbaugh '882		
6	The umbrella of claim 1, wherein the line extends along at least substantially the entire length of the arm.	Ma '763 discloses wherein the line (secondary rope 26) extends along at least substantially the entire length of the arm (arm 12). *See e.g.*, Ma '763 Description at 2:56-59 ("A control rope system 15 comprises primary and secondary ropes 25 and 26 coupled to the panel assembly and operated by a crank driving device 16 for opening/closing the panel 18.") and 3:50-57 ("The arm 12 is an elongate tubular member through which the secondary rope 26 extends. The secondary rope 26 further extends through the central bore of the pole 11. In this respect, a pulley 30 is mounted at the proximate end of the arm 12 for aiding the passage of the secondary rope 26 into the pole 11. A further pulley 31 is mounted at the distal end of the arm 12 for aiding the passage of the secondary rope 26 through the crown 19 to the runner 21."); Claim 1 ("the secondary rope extending through the arm and having a proximate end fixed to the pole via a second pulley mounted on the slide and a remote end having a length extending beyond the remote end of the arm whereby when the slide is moved along the pole, the length of the remote end of the secondary rope extending beyond the remote end of the arm changes"); Figs. 2-4 and 8.

No.	Claim Limitation	Basis for Invalidity
		 FIG.2  FIG.3

No.	Claim Limitation	Basis for Invalidity
Claim 7 Obviousness under pre-AIA 35 U.S.C. § 103: Ma '763 in view of Ma '297 and in further view of Wang '460 and/or Tung '037 and/or Liu '171 and/or Harbaugh '882		
7	The umbrella of claim 1, further comprising a crank handle operatively associated with the winder hub, whereby rotating the crank handle causes the winder hub to rotate.	To the extend Ma '763 does not disclose this limitation, Ma '297 discloses a crank handle (crank 17) operatively associated with the winder hub (reel 18), whereby rotating the crank handle (crank 17) causes the winder hub (reel 18) to rotate. *See e.g.*, Ma '297 Description at [0024] ("A reel 18 is arranged in the second tubular element 13 and this reel 18 is used to operate the cord 19, which is used to open and close the parasol 15. Preferably the cord 19 is wound at least for one full loop around the reel 18. The reel 18 can be operated by for example a crank 17, which can be put into the reel 18 through an opening in the first tubular element 12."); Claim 6 ("Telescopic stand according to any of the preceding claims, wherein the drive comprises a crank for manual operation of the drive."); Fig. 2.  FIG. 2

No.	Claim Limitation	Basis for Invalidity
		A person of ordinary skill in the art would have understood this is a simple substitution using the reel 18 and crank 17 of Ma '297 would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Ma '297 both relate to collapsable umbrella products and are thus in the same industry. A person of ordinary skill in the art would understand that winding of the cord 19 around the reel 18 would tension or relax the cord 19 depending upon the direction of the reel 18. Ma '297 also provides two distinct motivations to substitute its reel/winder hub and crank arrangement for the pin 29 and locking device 17 of Ma '763. First, providing the reel/winder hub allows for independent operation of the opening/closing and shade angle adjustment features. Ma '297 states "[i]t is therefore an object of the invention to provide a telescopic parasol stand which is more robust and more reliable and in which the parasol can be operated independently of the position of the second tubular element relative to the first tubular element. Ma '297. at [0005]. Ma '297 elaborates "[a]s the opening or closing of the parasol 15 is fully independent of the position of the second tubular element 13 relative to the first tubular element 12 it is thus possible to place the parasol 15 under an angle." Ma '297. at [0025]. Replacing the pin 29 and locking device 17 of Ma '763 with the reel 18 of Ma '297 makes opening and closing of the panel assembly (canopy) of Ma '763 independent of the adjustment of the shade angle by movement of the slide 14 of Ma '763. To the extend Ma '763 does not disclose this limitation, Wang '460 discloses a crank handle (winder handle 27) operatively associated with the winder hub (rope reel 26), whereby rotating the crank handle (winder handle 27) causes the winder hub (rope reel 26) to rotate. *See e.g.* Wang '460 at Abstract "the sliding sleeve includes a rope winder and is shaft-connected to a bottom end of the suspension rod, a top end of the suspension rod and an upper parasol disc of the parasol frame have a pitch rotating connection structure, one end of a pull rope is fixed to a reel of the rope winder installed in the sliding sleeve, and the other end thereof passes through the suspension rod and a top tube installed in the upper parasol disc to be fixed to a lower parasol disc. The structure of the present utility model makes the parasol

No.	Claim Limitation	Basis for Invalidity
		cover easy to open and close, the parasol cover can rotate 360° around the parasol pole, and the pitch angle thereof can also be adjusted."); Fig. 3 (see annotated below); Description at page 4 (The sliding sleeve 11 is connected to the spherical left and right casings 141 and 142 of the rope winder. The rope reel 26 of a winder handle 27 is tied with a pull rope 13, and the other end of the pull rope passes through the suspension rod 03 through a pulley 15"); Fig. 3 (see annotated below).  Fig. 3 A person of ordinary skill in the art would have understood that a simple substitution of the structure in Ma '763 with the structure in Wang '460 would yield predictable results to improve collapsable umbrella products. Indeed, Ma '763 and Wang '460 both relate to collapsable umbrella products and are thus in the same industry. A motivation to combine is also found in Wang '460. Wang '460 describes how an umbrella design including a sliding sleeve mounted on the supporting pole, including a rope winding device, makes the umbrella easy to open and close, enables the umbrella to be rotated 360 degrees around the supporting pole, and enables the umbrella to tilt. Wang '460 at Abstract.

CERTIFICATE OF SERVICE

I hereby certify that on September 23, 2024, a true and correct copy of the within document, **DEFENDANT TREASURE GARDEN, INC.'S NONINFRINGEMENT CONTETNIONS, INVALIDITY CONTENTIONS, AND ACCOMPANYING DOCUMENT PRODUCTION**, was served on the following counsel of record at the addresses in the manner indicated:

VIA EMAIL:

Cynthia J. Lee **PERILLA KNOX & HILDEBRANDT LLP** 5871 Glenridge Drive, Suite 350 Atlanta, GA 30328 (770) 927-7802 c.lee@pkhip.com litigation@pkhip.com	Ryan T. Santurri **ALLEN, DYER, DOPPELT + GILCHRIST, P.A.** 255 South Orange Ave., Suite 1401 Orlando, FL 32801 (407) 841-2330 rsanturri@allendyer.com

Dated: September 23, 2024

/s/ Brandon Hernandez

Brandon Hernandez