

Filed May 22, 2025

On behalf of **Treasure Garden, Inc.**

By: Lauren Keller Katzenellenbogen (Reg. No. 56,553)

Andrew M. Douglas (Reg. No. 51,212)

KNOBBE, MARTENS, OLSON & BEAR, LLP

2040 Main Street, 14th Floor

Irvine, CA 92614

Tel.: (949) 760-0404

Fax: (949) 760-9502

Email: BoxTGINCL.330LP@knobbe.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TREASURE GARDEN, INC.,

Petitioner,

v.

ATLEISURE, LLC,

Patent Owner.

Case IPR2025-01005

Patent No. 8,104,492

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 8,104,492**

TABLE OF CONTENTS

Page No.

I.	INTRODUCTION	1
II.	GROUND FOR STANDING AND FEES.....	2
III.	IDENTIFICATION OF CHALLENGE	3
IV.	THE '492 PATENT	4
A.	The Specification of the '492 Patent	4
B.	The Prosecution History	6
C.	The Challenged Claims	9
D.	Claim Construction.....	10
1.	The Phrase “locking means for releasably securing” Should be Construed Pursuant to pre-AIA § 112 ¶ 6	11
2.	Other Proposed Constructions in the Underlying Litigation	13
E.	The Priority Date of the '492 Patent	14
V.	LEVEL OF ORDINARY SKILL IN THE ART	19
VI.	CLAIMS 1-7 OF THE '492 PATENT ARE INVALID	19
A.	Overview of the Prior Art.....	19
1.	Wang '109 and Wang '439 are Prior Art to Claims 1 and 5-7.....	19
2.	Prior Art to the Provisional Application	23
3.	Secondary References Disclose the Specific Locking Means Structures.....	25

TABLE OF CONTENTS
(cont'd)

	Page No.
B. Ground 1: Wang '109 invalidates claims 1 and 5-7 of the '492 Patent under pre-AIA 35 U.S.C. § 102	28
1. Wang '109 Includes Every Limitation of Claim 1	28
a. Preamble and Limitation 1[A]: “An umbrella: comprising a main pole having a lower end for support by a support surface and extending generally upward to an upper end”	28
b. Limitation 1[B]: “a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole”	28
c. Limitation 1[C]: “locking means for releasably securing the sliding member to the main pole at a selected location along the main pole”	29
d. Limitation 1[D]: “an umbrella canopy having a central region”	31
e. Limitation 1[E]: “an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member”	31
f. Limitation 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”	32

TABLE OF CONTENTS

(*cont'd*)

	Page No.
g. Limitation 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”	33
h. Limitation 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”	34
i. Limitation 1[I]: “wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub”	35
j. Limitation 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”	36
k. Limitation 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”	36
2. Claim 5	36
3. Claim 6	37
4. Claim 7	38
C. Ground 2: Wang ’439 invalidates claims 1 and 5-7 of the ’492 Patent under pre-AIA 35 U.S.C. § 102	38
1. Wang ’439 Includes Every Limitation of Claim 1	38

TABLE OF CONTENTS

(*cont'd*)

	Page No.
a. Preamble and Limitation 1[A]: “An umbrella comprising: a main pole having a lower end for support by a support surface and extending generally upward to an upper end”	38
b. Limitation 1[B]: “a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole”	39
c. Limitation 1[C]: “locking means for releasably securing the sliding member to the main pole at a selected location along the main pole”	40
d. Limitation 1[D]: “an umbrella canopy having a central region”	41
e. Limitation 1[E]: an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member.....	41
f. Limitation 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.....	42
g. Limitation 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.....	43

TABLE OF CONTENTS

(cont'd)

	Page No.
h. Limitation 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	45
i. Limitation 1[I]: wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub	47
j. Limitation 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”	47
k. Limitation 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”	48
2. Claim 5	48
3. Claim 6	49
4. Claim 7	50
D. Ground 4: Glatz '980 in view of Wang '460 invalidates the claims of the '492 Patent under pre-AIA 35 U.S.C. § 103	52
1. Claim 1	52
a. Preamble and Limitation 1[A]: “An umbrella comprising a main pole having a lower end for support by a support surface and extending generally upward to an upper end”	52

TABLE OF CONTENTS

(*cont'd*)

	Page No.
b. Limitation 1[B]: “a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole”	53
c. Limitation 1[C]: “locking means for releasably securing the sliding member to the main pole at a selected location along the main pole”	53
i. In the alternative, Glatz '980 in view of Bertola also discloses this limitation.....	55
d. Limitation 1[D]: “an umbrella canopy having a central region”.....	56
e. Limitation 1[E]: “an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member”	58
f. Limitation 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”	58
g. Limitation 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”	60
h. Limitation 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”	64

TABLE OF CONTENTS

(cont'd)

	Page No.
i. Limitation 1[I]: “wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub”	66
j. Limitation 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”	66
k. Limitation 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”	68
2. Claim 2	69
3. Claim 3	71
4. Claim 4	73
5. Claim 5	74
6. Claim 6	76
7. Claim 7	77
VII. THE BOARD SHOULD NOT EXERCISE ITS DISCRETION UNDER §325(D)	78
VIII. MANDATORY NOTICES	80
A. Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))	80
B. Related Matters (37 C.F.R. § 42.8(b)(2))	80
C. Lead and Back-up Counsel (37 C.F.R. § 42.8(b)(3))	81

TABLE OF CONTENTS
(cont'd)

	Page No.
D. Service Information (37 C.F.R. §42.8(b)(4))	82
IX. CONCLUSION.....	83

TABLE OF AUTHORITIES

Page No(s).

<i>Anascape, Ltd. v. Nintendo of Am. Inc.</i> , 601 F.3d 1333 (Fed. Cir. 2010)	14, 15
<i>ATLeisure, LLC v. Ace Evert, Inc.</i> , Case No. 1:12-cv-01260, Dkt. 85 (N.D. Ga. May 20, 2013)	11, 80
<i>ATLeisure, LLC v. Lowe’s Home Centers, LLC</i> , Case No. 6:22-cv-682-WWB-GJK, Dkt. 39 (M.D. Fla. Dec. 16, 2022)	11, 81
<i>ATLeisure, LLC v. Red Star Traders, LLC</i> , Case No. 1:12-cv-02253 (N.D. Ga. June 28, 2012).....	80
<i>ATLeisure, LLC v. Sunvilla Corp.</i> , Case No. 1:20-cv-04662, Dkt. 46 (N.D. Ga. July 26, 2021)	11, 80
<i>ATLeisure, LLC v. Treasure Garden, Inc.</i> , Case No. 1:24-cv-02270-TWT (N.D. Ga. May 23, 2024)	80
<i>Auto. Techs. Int’l, Inc. v. Delphi Corp.</i> , 776 F. Supp. 2d 469 (E.D. Mich. 2011)	15
<i>Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.</i> , 800 F.3d 1375 (Fed. Cir. 2015)	14
<i>Gnosis S.p.A. v. South Alabama Med. Sci. Found.</i> , IPR2013-00116, Paper 68 (PTAB June 20, 2014)	19
<i>JVW Enters. v. Interact Accessories, Inc.</i> , 424 F.3d 1324 (Fed. Cir. 2005)	11
<i>Northrop Grumman Corp. v. Intel Corp.</i> , 325 F.3d 1346 (Fed. Cir. 2003)	11
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2015) (<i>en banc</i>)	10

TABLE OF AUTHORITIES (*cont'd*)

Page No(s).

<i>Zhejiang Zhengte Co., Ltd. v. ATLeisure, LLC</i> , IPR2021-00430 (PTAB Jan. 22, 2021).....	81
--	----

OTHER AUTHORITIES

35 U.S.C. § 102	<i>passim</i>
35 U.S.C. § 103	<i>passim</i>
35 U.S.C. § 112	<i>passim</i>
35 U.S.C. § 282	10
35 U.S.C. § 325	79, 80
37 C.F.R. § 42.8	80, 81, 82
37 C.F.R. § 42.10	81
37 C.F.R. § 42.15	2
37 C.F.R. § 42.22	3
37 C.F.R. § 42.100	10, 11
37 C.F.R. § 42.103	2
37 C.F.R. § 42.104	2, 3

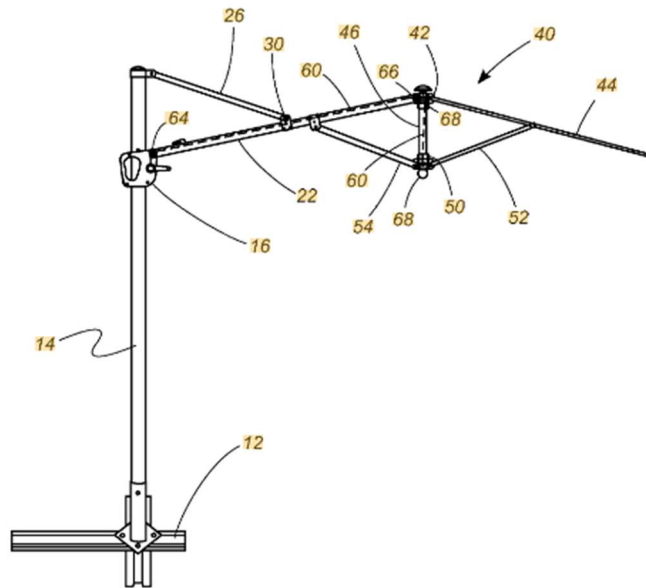
LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent 8,104,492 (the “’492 Patent”)
1002	Prosecution History for the ’492 Patent
1003	Provisional Application No. 61/050,353
1004	Declaration of Dr. Richard W. Klopp, dated May 9, 2025
1005	Chinese Utility Model Patent No. CN 201076109Y (“Wang ’109”) (Appl. No. No. ZL 200720183886.3) with Certified English Translation
1006	Chinese Utility Model Patent No. CN 201197439Y (“Wang ’439”) (Appl. No. ZL 200820088054.8) with Certified English Translation
1007	Chinese Utility Model Patent No. CN 201001460Y (“Wang ’460”) (Appl. No. ZL 200720106096.5) with Certified English Translation
1008	U.S. Patent No. 6,014,980 (“Glatz ’980”)
1010	U.S. Patent No. 6,478,037 (“Tung ’037”)
1011	U.S. Patent No. 5,284,171 (“Liu ’171”)
1012	U.S. Patent No. 5,937,882 (“Harbaugh ’882”)
1013	German Patent Application Publication No. DE20014895U1 (“Bertola ’895”) with Certified English Translation
1014	U.S. Patent Application Publication No. US 2006/0243311 (“Glatz ’311”)
1016	ATLeisure’s N.D.GA Local Rules 6.1 and 6.2 Disclosures in <i>ATLeisure v. Treasure Garden, Inc.</i> , Case No. 1:24-cv-02270-TWT
1017	Oxford Learner’s Dictionary
1018	Bloomsbury English Dictionary

Exhibit No.	Description
1019	The New Oxford American Dictionary
1020	The American Heritage Dictionary
1022	U.S. Patent No. 4,619,281 (Redl '281)
1023	Klopp C.V.
1024	<i>ATLeisure, LLC v. Ace Evert, Inc.</i> , Case No. 1:12-cv-01260, Dkt. 85 (N.D. Ga. May 20, 2013)
1025	<i>ATLeisure, LLC v. Sunvilla Corp.</i> , Case No. 1:20-cv-04662, Dkt. 46 (N.D. Ga. July 26, 2021)
1026	<i>ATLeisure, LLC v. Lowe's Home Centers, LLC</i> , Case No. 6:22-cv-682-WWB-GJK, Dkt. 39 (M.D. Fla. Dec. 16, 2022)
1027	Order Regarding Special Master, <i>ATLeisure, LLC v. Treasure Garden, Inc.</i> , 1:24-cv-02270, Dkt. 55 (N.D. Ga. Feb. 28, 2025)
1028	Order Granting Joint Motion to Consolidate, <i>ATLeisure, LLC v. Qingdao Activa Shade Inc.</i> , 1:24-cv-05424, Dkt. 24 (N.D. Ga. Apr. 9, 2025)
1029	Joint Submission of Proposed Schedule, <i>ATLeisure, LLC v. Treasure Garden, Inc.</i> , 1:24-cv-02270-TRJ, Dkt. 61 (N.D. Ga. Apr. 10, 2025)
1030	Complaint, <i>ATLeisure, LLC v. Treasure Garden, Inc.</i> , 1:24-cv-02270-TRJ, Dkt. 1 (N.D. Ga. May 23, 2024)
1031	Complaint, <i>ATLeisure, LLC v. Activa Shade Inc.</i> , 1:24-cv-05424, Dkt. 1 (N.D. Ga. Nov. 25, 2024)

I. INTRODUCTION

Petitioner Treasure Garden, Inc. requests *inter partes* review of Claims 1-7 of U.S. Patent 8,104,492 (“’492 Patent”) assigned to Patent Owner ATLeisure, LLC. The ’492 Patent relates to a cantilevered umbrella as shown below.



’492 Patent Figure 3

Specifically, the ’492 Patent describes its invention as “an improved mechanism for raising and lowering the umbrella canopy and for adjusting the angle of the canopy with respect to a vertical support member.” Ex. 1001 at 1:11-15. But the mechanism described in the ’492 Patent is not new. During prosecution, the examiner repeatedly rejected the claims over a prior art cantilever umbrella that disclosed a similar mechanism having a sliding member that moves along the main pole to adjust the umbrella and locks in place once properly adjusted.

The Patentee overcame the prior art by amending the one independent claim to add a limitation requiring the sliding member to have “a winder hub around which a line can be wound, the winder hub being mounted to the sliding member and moveable therewith.” *Id.* at 4:36-65. However, prior art that was not before the examiner discloses cantilevered umbrellas having the entire mechanism claimed in the ’492 Patent, including a winder hub mounted to the sliding member. Specifically, Wang ’109 and Wang ’439 disclose every element in Claims 1 and 5-7 and thus anticipate those claims. Additionally, other prior art references disclose cantilever umbrellas with the specific locking structures recited in dependent Claims 2-4, and combinations of these references render obvious those claims.

Because the Petition demonstrates by more than a preponderance of the evidence that Claims 1-7 are unpatentable, the Board should institute *inter partes* review and cancel them.

II. GROUNDS FOR STANDING AND FEES

Pursuant to 37 C.F.R. § 42.104(a), Petitioner certifies that the ’492 Patent is available for *inter partes* review, and that Petitioner is not barred or estopped from requesting this *inter partes* review on the grounds identified herein.

The fee set forth in 37 C.F.R. §§ 42.15(e) and 42.103 accompanies this Petition. Petitioner authorizes a debit from Deposit Account 11-1410 for whatever additional payment is necessary in granting this Petition.

III. IDENTIFICATION OF CHALLENGE

Pursuant to 37 C.F.R. §§ 42.22(a) and 42.104(b), Petitioner requests *inter partes* review and cancellation of the Challenged Claims of the '492 Patent based on the following prior art:

- Wang '109 which issued on June 25, 2008;
- Wang '439 which issued on February 25, 2009;
- Wang '460 which issued on January 9, 2008;
- Glatz '980 which issued on January 18, 2000;
- Liu '171 which issued on February 8, 1994;
- Bertola '895 which issued on November 16, 2000;

The statutory grounds for the challenge of each claim are set forth below.

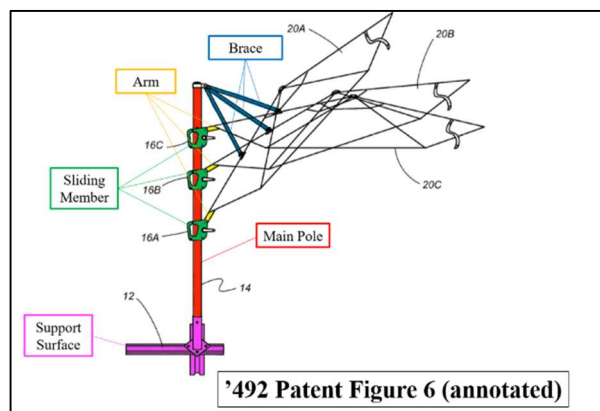
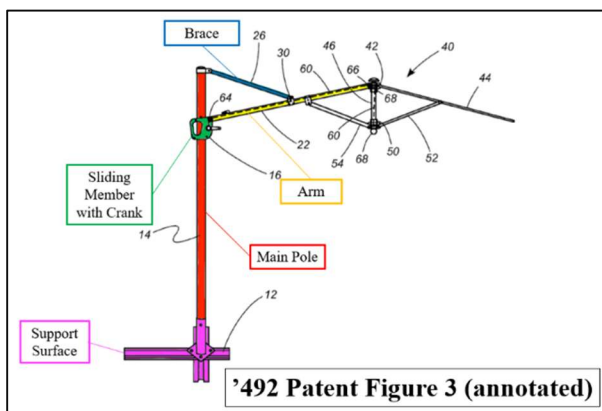
Ground	Pre-AIA 35 U.S.C. §	Claims	References
1	102	1 and 5-7	Wang '109
2	102	1 and 5-7	Wang '439
3	103	1, 4, and 5-7	Glatz '980 in view of Bertola '895 and in further view of Wang '460
		2	Glatz '980 in view of Bertola '895 and in further view of Wang '460 and further in view of Tung '037
		3	Glatz '980 in view of Bertola '895 and further in view of Wang '460 and further in view of Liu '171

In support of these grounds for unpatentability, Petitioner submits the referenced exhibits including the declaration of Dr. Richard W. Klopp (Ex. 1004) who has had over thirty years of experience in mechanical engineering and mechanical design.

IV. THE '492 PATENT

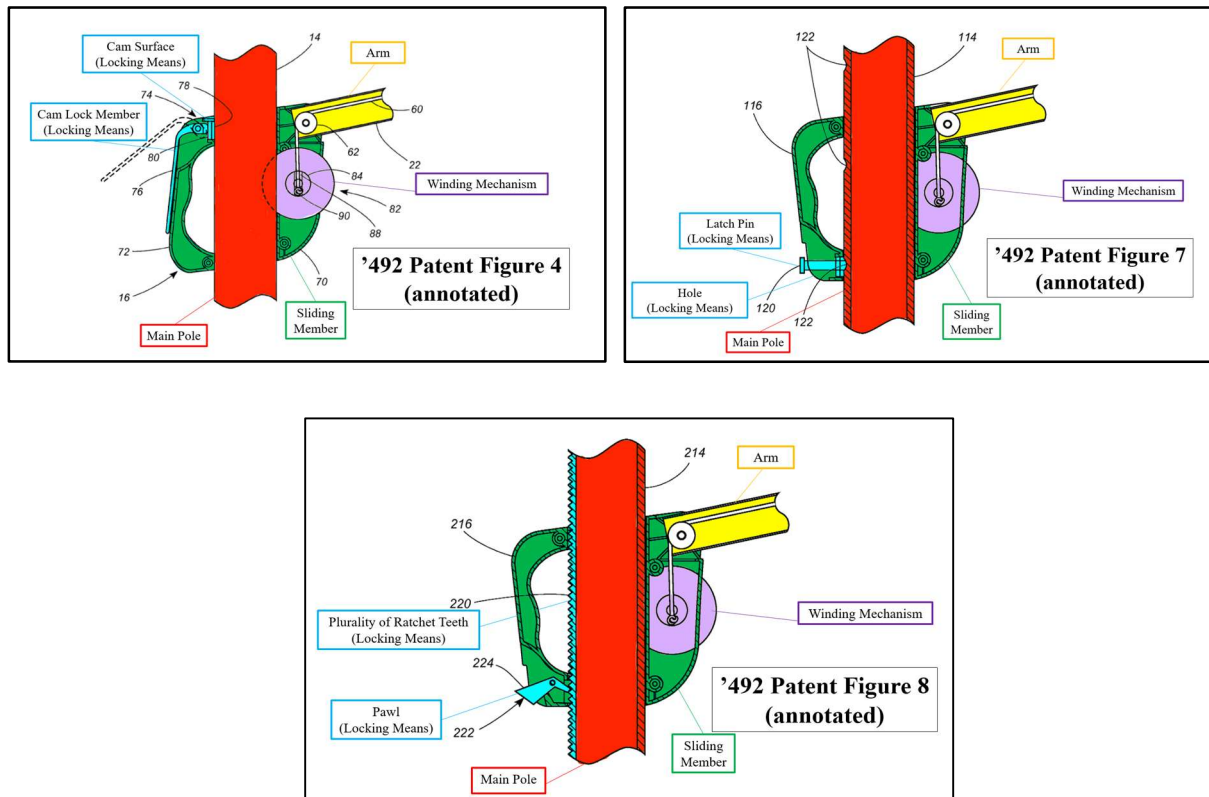
A. The Specification of the '492 Patent

The '492 Patent admits that adjustable cantilevered umbrellas were known in the prior art. Ex. 1001 at 1:19-32. These umbrellas used “a cantilever arrangement to suspend the canopy to the side of the main pole,” and the angle of the canopy could be “adjusted with respect to the main pole.” Ex. 1001 at 1:28-32. The '492 Patent’s purported improvement is a mechanism for adjusting a cantilevered umbrella having a sliding member that moves along the main pole to adjust the angle of the canopy with a winding mechanism mounted to a sliding member for opening and closing the canopy.



Id. at Figure 3 and 6. To open the canopy, “the user first grasps the crank 92 of the winding mechanism 82 and winds in the line 60. Tension on the line 60 draws ... the opposite end of the line upward, elevating the spreader hub 50. As the spreader hub 50 is raised, the canopy assembly 20 extends.” *Id.* at 3:60-65. Once the canopy assembly “has been fully erected, the user can adjust the angle of the canopy assembly with respect to the main pole 14 by moving the sliding member 16 up or down the pole until the desired result is achieved.” *Id.* at 3:66-4:2.

When the canopy is at the desired angle, the sliding member is secured to the main pole at a specific location. The '492 Patent discloses three structures that are “locking means” for securing the sliding member to the main pole at a specific location. These structures, shown below, include: 1) a cam lock member mechanism with a lever portion that is pivotally mounted in an upper position of a housing of a sliding member and rotates to its extended position to disengage the cam surface and that overlaps the grasping portion of the sliding member when the lever portion rotates to its locked position; 2) a latch pin and hole mechanism that uses a stop bolt and a plurality of holes to adjust the height of the umbrella; and 3) a ratchet teeth and pawl mechanism where the row of teeth are arranged on the main pole and interact with a pawl located on the sliding member.



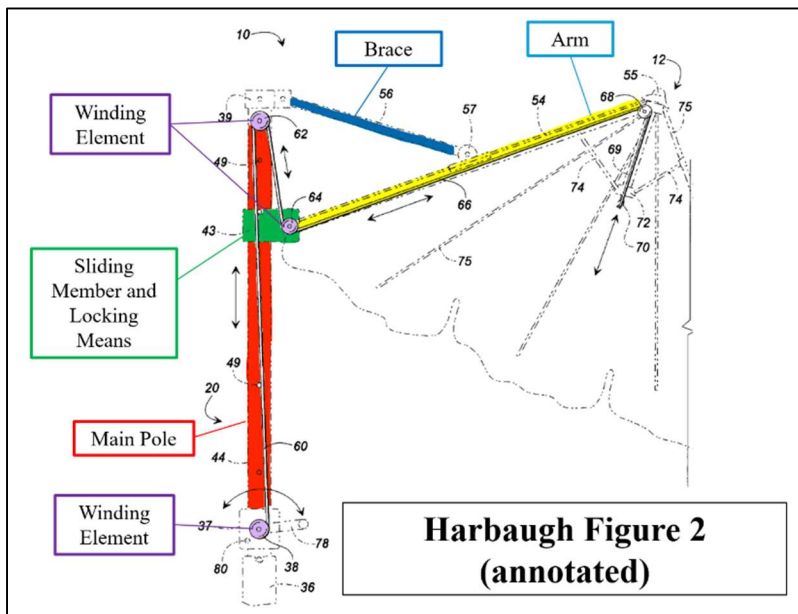
Id. at Figures 4, 7, and 8.

B. The Prosecution History

The '492 Patent was filed on May 5, 2009. *See* Ex. 1001. The first office action rejected all claims. Ex. 1002 at 138-143. The examiner rejected original claims 1, 4, and 6 as anticipated by U.S. Patent No. 5,937,882 issued to Harbaugh (*Id.* at 139-140) and rejected claims 2, 3, and 5 under § 103(a) over Harbaugh in view of U.S. Patent No. 6,478,037 ("Tung") and U.S. Patent No. 5,284,171 ("Liu"). *Id.* at 140-142.

Original claim 1, rejected over Harbaugh, included nearly all the limitations issued in claim 1. Specifically, the examiner found that Harbaugh teaches a main

pole (20); a sliding member (43) associated with the main pole; locking means (48/49) for releasably securing the sliding member; an umbrella canopy (15) having a central region (55); an arm (54); a brace (56) associated with the arm; a winding element (including 38, 64 and 62) mounted to the sliding member and movable therewith; and a line (60); wherein operation of the winding element opens and closes the umbrella canopy; and wherein the angle of the umbrella canopy can be controlled by moving the sliding member. *Id.* at 139-140. *See* Ex. 1012 at Figure 2.



In response, the patentee argued that Harbaugh does not disclose a “sliding member [having] a winding element mounted to the sliding member and movable therewith.” *Id.* at 129. Specifically, the applicant disagreed with the examiner’s including element 64, which moves with the sliding member, as part of the winding element because element 64 is a pulley. *Id.* at 129-130.

Unpersuaded, the examiner issued a final rejection, again rejecting claims 1, 4, and 6 under § 102(b) over Harbaugh. *Id.* at 102-111. The examiner explained that “Harbaugh clearly teaches a winding element insofar as this element is recited in the claims.” Harbaugh discloses the winding element mounted on the sliding member because “[t]he elements identified as the winding element, which includes 64, clearly mounted on the sliding member and movable therewith, allow for and provide means for winding and providing tension to the line. . .” *Id.* at 107.

The examiner also renewed the rejection of dependent claims 2, 3, and 5 under § 103(a). *Id.* at 105-107. The examiner found that the three “locking means” in the ’492 Patent were known in the prior art. The examiner found that Harbaugh teaches the pin and hole “locking means” in claim 4. Specifically, the locking means in Harbaugh “comprises a plurality of holes (49) formed in the main pole and a pin (48) associated with the sliding member and operative to engage a selected one of the holes.” *Id.* at 140. The examiner rejected claim 2 because “to modify the locking means and sliding member of Harbaugh by using a cam locking means with a handle as taught by Tung” would have been obvious. *Id.* at 140-141. The examiner also rejected claim 3 because “to modify the locking means of Harbaugh by using a teeth-and-pawl means as taught by Liu” would have been obvious. *Id.* at 141-142.

The patentee then amended claim 1 to add a limitation that the winding mechanism has “a winder hub around which a line can be wound, the winder hub

being mounted to the sliding member and moveable therewith” and that rotation of the winder hub “tensions or relaxes the line. . .” Ex. 1002 at 85-100. The applicant never disputed, in any office action response, the examiner’s findings that the prior art discloses each of the locking means described in the application. *See* Ex. 1002. On August 23, 2011, the examiner entered an examiner’s amendment and allowed the application. *Id.* at 71-75.

C. The Challenged Claims

The ’492 Patent issued with seven claims. Only claim 1 is independent, which is set forth below.

Claim 1	
Preamble	An umbrella comprising:
1[A]	a main pole having a lower end for support by a support surface and extending generally upward to an upper end;
1[B]	a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole;
1[C]	locking means for releasably securing the sliding member to the main pole at a selected location along the main pole;
1[D]	an umbrella canopy having a central region;
1[E]	an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member;

Claim 1	
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;
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 ;
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;
1[I]	wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub, and
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
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.

D. Claim Construction

During *inter partes* review, claims are “construed using the same claim construction standard that would be used to construe the claim in a civil action under pre-AIA 35 U.S.C. § 282(b).” 37 C.F.R. § 42.100(b). This standard is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-17 (Fed. Cir. 2015) (*en banc*), and requires “construing the claim in accordance with the ordinary and customary

meaning of such claims as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b).

1. The Phrase “locking means for releasably securing” Should be Construed Pursuant to pre-AIA § 112 ¶ 6

The phrase “locking means for releasably securing” in claim 1 is a “means-plus-function” limitation governed by pre-AIA § 112 ¶ 6. ATLeisure and courts have agreed that the term “locking means” in the ’492 Patent is subject to 112 ¶ 6. *ATLeisure, LLC v. Ace Evert, Inc.*, Case No. 1:12-cv-01260, Dkt. 85 (N.D. Ga. May 20, 2013) (Ex. 1024); *ATLeisure, LLC v. Sunvilla Corp.*, Case No. 1:20-cv-04662, Dkt. 46 (N.D. Ga. July 26, 2021) (Ex. 1025); *ATLeisure, LLC v. Lowe’s Home Centers, LLC*, Case No. 6:22-cv-682-WWB-GJK, Dkt. 39 (M.D. Fla. Dec. 16, 2022) (Ex. 1026).

Under 112 ¶ 6, a claim term that is expressed as a means for performing a specified function, shall be construed to cover the corresponding structure, material, or acts described in the [patent’s] specification and equivalents thereof. Pre-AIA 35 U.S.C. § 112 ¶ 6. In construing a “means-plus-function” limitation, “a court must identify both the claimed function and the corresponding structure in the written description for performing that function. *Northrop Grumman Corp. v. Intel Corp.*, 325 F.3d 1346, 1350 (Fed. Cir. 2003). In addition to the structures in the

specification, the claims are also entitled to equivalents. *JVW Enters. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1333 (Fed. Cir. 2005).

Here, the “locking means” performs the function of “releasably securing the sliding member to the main pole at a selected location.” Ex. 1001 claim 1. As discussed above, the ’492 Patent specification describes three structures corresponding to the claim term “locking means:”

- (1) The cam lock structure, shown in Figure 4 as described in Ex. 1001 at 3:25-40. This structure has a cam lock member with a lever portion that is pivotally mounted in an upper position of a housing of a sliding member and rotates to its extended position to disengage the cam and a lever portion that is pivotally mounted near the upper portion of the sliding member and rotates to its extended position to disengage the cam surface to unclamp the sliding member from the main pole. Ex. 1001 at 3:25-40 and Figure 4; Ex. 1004 at ¶ 48. When the cam lock member rotates back, the lever portion overlaps the exterior of the grasping portion of sliding member and the cam lock member clamps the sliding member to the main pole. Ex. 1004 at ¶ 48.
- (2) The latch pin and hole structure, shown in Figure 7 as described in Ex. 1001 at 4:12-20. This structure has a spring-loaded latch pin 120 mounted to the sliding member. The latch pin engages one of a corresponding series of holes in the main pole. Ex. 1001 at 4:12-20 and Figure 7; Ex. 1004 at ¶ 49.

(3) The ratchet teeth and pawl structure, shown in Figure 8 as described in Ex.

1001 at 4:21-31. This structure has a plurality of ratchet teeth along the rear surface of the main pole. A pawl 222 pivotally mounted to the sliding mechanism engages a cooperating one of the ratchet teeth 220 to lock the sliding member in position. Ex. 1001 at 4:21-31.

Indeed, in the underlying litigation between the parties, ATLeisure has agreed that the structures shown in Figures 4, 7, 8 correspond to the claim term “locking means.” See Ex. 1016.

2. Other Proposed Constructions in the Underlying Litigation

Petitioner’s other proposed claim constructions in the underlying litigation between the parties are consistent with the terms’ ordinary meanings but are not necessary for institution of this proceeding. Claim 1 recites “the winder hub being **mounted to** the sliding member and movable therewith.” Ex. 1001 at 4:64-65 (emphasis added). The term “mounted to” should be construed as “secured to and supported by” consistent with its ordinary meaning. See Ex. 1004 at ¶ 51; Ex. 1017 at 1; Ex. 1018 at 1230; and Ex. 1019 at 1107; Ex. 1020 at 1148-49. Claim 1 also recites “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.” Ex. 1001 at 4:60-62 (emphasis added). The term “pivotably attached” should be construed in accordance with its ordinary meaning as “attached so as to rotate around

a central point.” *See* Ex. 1004 at ¶ 52; 1017 at 3; Ex. 1018 at 1431; Ex. 1019 at 1295; Ex. 1020 at 1339.

E. The Priority Date of the '492 Patent

The '492 Patent claims priority to Provisional Application No. 61/050,353 filed on May 5, 2008. *See* Ex. 1001 and 1003. However, “because the PTO does not examine priority claims unless necessary, the Board has no basis to presume” that claims are entitled to the filing date of a referenced provisional. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1380 (Fed. Cir. 2015). A patent is only entitled to claim the benefit of the filing date of its provisional application if the disclosure of the provisional provides support for the claims in compliance with 35 U.S.C. § 112 ¶ 1. *Id* at 1381.

Moreover, a claim is not entitled to the priority date of an earlier application unless that earlier application describes the full scope of the later claimed subject matter sufficiently to “meet the requirements of 35 U.S.C. § 112, first paragraph, as to that claimed subject matter.” *Anascape, Ltd. v. Nintendo of Am. Inc.*, 601 F.3d 1333, 1337-39 (Fed. Cir. 2010). In *Anascape*, the Federal Circuit reversed a district court’s ruling that a later continuation-in-part application was entitled to the priority date of an earlier application where the later claims had an expanded scope, and the later application contained additional description in the specification. The earlier application in *Anascape* described a video game controller having a single input

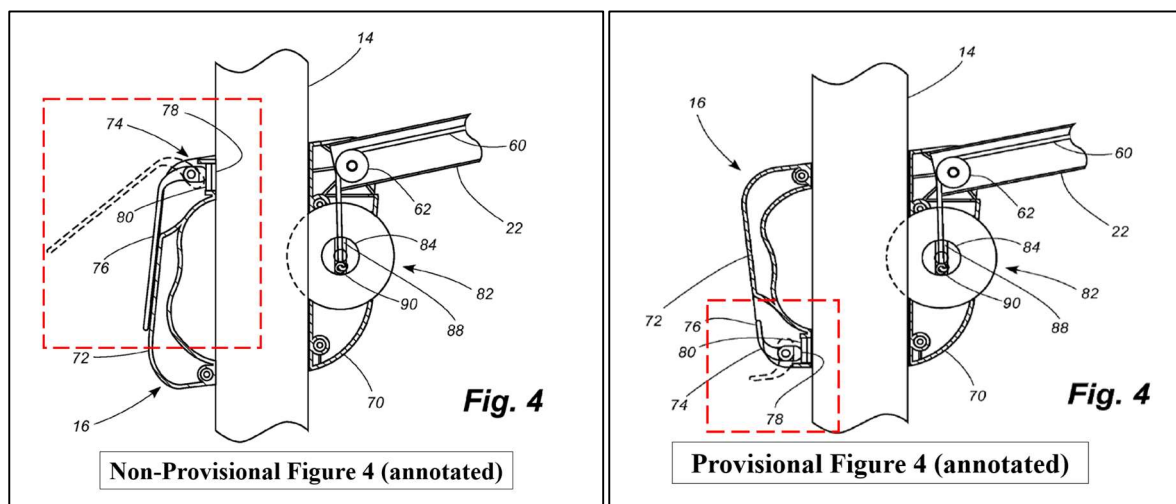
member operable in six degrees of freedom. However, the continuation-in-part application included claims not limited to a single input member operable in six degrees of freedom. The Federal Circuit held that those broader claims were not entitled to the priority date of the earlier application because the earlier application failed to meet the written description requirement of § 112 as to the broader claims. The Federal Circuit explained that a patentee is not “presumed to support variants that are not described.” *Anascope*, 601 F.3d at 1339.

Here, as in *Anascope*, the patentee added disclosure in the '492 Patent that was not described in the provisional, and that disclosure supports a new variant claimed in the '492 Patent. Specifically, Claims 1 and 5-7 of the '492 Patent are not entitled to the priority date of the provisional because these claims include the “locking means” § 112 ¶ 6 limitation, and the one of the structures that corresponds to “locking means” in the issued patent differs significantly from what was described in the provisional.¹ “[F]or means-plus-function claims of a continuation-in-part to claim the priority date of its parent, the claims will satisfy the written description and enablement requirements of § 112 only if the construed corresponding structures are present in the parent's specification.” *See Auto. Techs. Int'l, Inc. v. Delphi Corp.*, 776 F. Supp. 2d 469, 490 (E.D. Mich. 2011). Here, because one of structures

¹ Claims 2-4 may recite sufficient structure for the “locking means” to avoid § 112 ¶ 6.

corresponding to “locking means” was not in the provisional application, the provisional does not meet the written description and enablement requirements of § 112, and those claims are not entitled to the provisional’s priority date.

Specifically, Figure 4 of the ’492 Patent showing one structure corresponding to the “locking means” is not the same Figure 4 that was in the provisional application. As shown below, while both versions of Figure 4 show a cam lock mechanism, the new Figure 4 shows a different structure with a much larger lever portion in a different orientation, and elongated to such an extent that the lever portion rests on an outside surface of the sliding member 16 rather than in a storing cavity located at the bottom portion of the sliding member. Cf. Ex. 1001 at Figure 4 with Ex. 1003 at Figure 4. Ex. at 1004 at ¶ 55.



Unlike Figure 4 in the provisional, Figure 4 in the non-provisional application discloses a longer lever portion 76 that is oriented in a different direction and located at the top of the sliding member 16. Ex. 1001 at Figure 4; Ex. 1004 at ¶ 55. The

non-provisional specification describes the lever portion 76 as “slightly narrower than the housing 70” (Ex. 1001 at 3:31) and is illustrated as extending over a substantial portion of the exterior of the grasping portion of a handle formed in the housing 70. Ex. 1001 at Figure 4; Ex. 1004 at ¶ 55.

The benefits of the applicant’s changes to the cam lock structure are readily apparent. The new structure disclosed in the ’492 patent, but not the provisional, allows one-handed operation with improved leverage. Four fingers can be inserted into the grasping portion and a thumb or palm of the same hand can simultaneously apply a downward force to the lever portion 76 to engage the locking means while the same hand maintains the desired elevation of the sliding member 16. Ex. 1004 at ¶ 56. As the weight of the umbrella tends to cause the sliding member to move downward, the index and middle finger of one hand of the operator may rest in the upper concavity of the grasping portion to hold the elevation of the sliding member 16. Ex. 1004 at ¶ 56. The thumb or palm of the same hand can squeeze the lever portion 76 downwards toward the housing 70 where it comes to rest overlapping an exterior of the grasping portion within the width of the housing, being slightly narrower. Ex. 1004 at ¶ 56. The differences between the provisional FIG. 4 and the non-provisional FIG. 4 are acknowledged in the description, which states “the handle of the lever is described as being pivoted at its upper end. However, it will be appreciated that the latch mechanism 74 can be mounted at the lower end of the

slide 16, with the handle 76 being pivoted at its lower end.” Ex. 1001 at 4:37-40. Thus, the non-provisional disclosure describes these variants as distinct from each other, with the “pivoted at the upper end” variant being first introduced as of the non-provisional filing date.

Further, the applicant made several corresponding changes in the description of the structure shown in Figure 4. As shown below, these include changing the following words: “lower” to “upper;” “up” to “down;” “down position” to “up position;” and “latch” to “lock.” The patentee also added: “[w]hen viewed from the end, the lever portion 76 is slightly narrower than the housing 70.” *Cf.* Ex. 1001 at 3:25-40 *with* Ex. 1003 at [0025]. Ex, at 1004 at ¶ 55.

Referring now to FIG. 4, the sliding member 16 includes a housing 70, the rear portion 72 of which is formed in the shape of a handle that may be easily grasped by a user. A cam lock member 74 is pivotally mounted in an upper portion of the housing 70. The cam lock member 74 comprises a lever portion 76 and a cam surface 78. When viewed from the end, the lever portion 76 is slightly narrower than the housing 70. When the cam lock member 74 is in its “down” or “stored” position, the cam surface 78 bears against a spring loaded button 80, which in turn clamps against the main pole 14 to secure the sliding member 16 against the pole. When the lever portion 76 of the cam lock member 74 is in its up position, shown in the dashed line, the cam surface 78 is rotated free of the button 80. The spring then causes the button 80 to retract, and the sliding member 16 can move freely up and down the main pole 14. ’492 Patent at 3:25-40	[0025] Referring now to FIG. 4, the sliding member 16 includes a housing 70, the rear portion 72 of which is formed in the shape of a handle that may be easily grasped by a user. A cam lock member 74 is pivotally mounted in a lower portion of the housing 70. The cam lock member 74 comprises a lever portion 76 and a cam surface 78. When the cam latch member 74 is in its “up” or “stored” position, the cam surface 78 bears against a spring loaded button 80, which in turn clamps against the main pole 14 to secure the sliding member 16 against the pole. When the cam latch member 74 is in its down position, shown in the dashed line, the cam surface 78 is rotated free of the button 80. The spring then causes the button to retract, and the sliding member 16 can move freely up and down the pole 14. ’353 Provisional Application at [0025]
--	---

By adding new matter to the non-provisional application, the applicant added a new variant of the structure corresponding to the § 112 ¶ 6 term “locking means” changing the scope of claims 1 and 5-7 to cover this new variant. The provisional application lacks this corresponding structure. Thus, the provisional application does not

support these claims under §112 ¶ 6, and the priority date for these claims is May 5, 2009, the filing date of the non-provisional application.

V. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art as of the effective filing date of the '492 Patent would have had a bachelor's degree in mechanical engineering or physics or a related discipline and at least four years of experience in the design, development, or analysis of mechanical devices, fabricated frames, cantilevered frames, and/or winder or pulley assemblies, though additional work experience could substitute for a formal degree, and vice versa.

VI. CLAIMS 1-7 OF THE '492 PATENT ARE INVALID

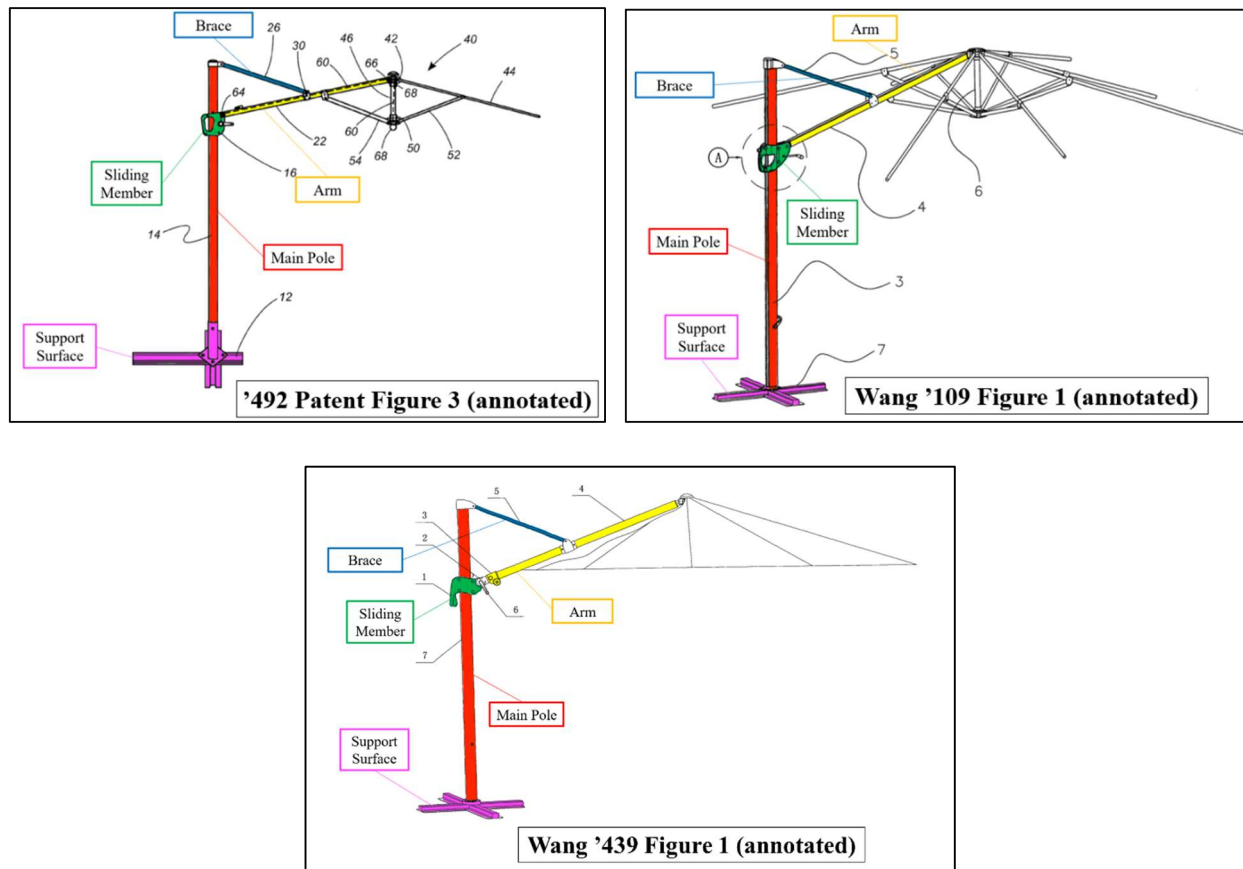
A POSITA is presumed to know the relevant prior art and is of ordinary creativity, and not an automaton, and is capable of making inferences and combining teachings in the prior art. *Gnosis S.p.A. v. South Alabama Med. Sci. Found.*, IPR2013-00116, Paper 68 at 9 (PTAB June 20, 2014).

A. Overview of the Prior Art

1. Wang '109 and Wang '439 are Prior Art to Claims 1 and 5-7

Chinese Utility Model Patent No. CN 201076109Y (“Wang '109”) (Ex. 1005) and Chinese Utility Model Patent No. CN 201197439Y (“Wang '439”) (Ex. 1006) disclose an offset “straight pole foldable hanging parasol” and “sunshade parasol

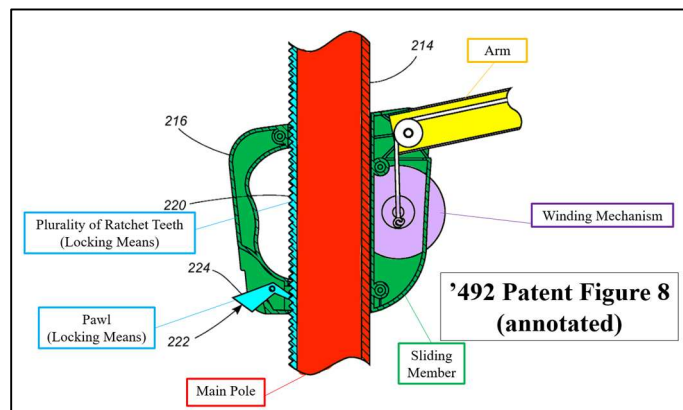
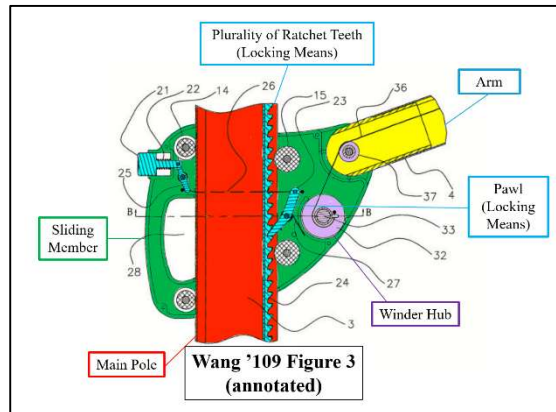
cranking device” that are nearly identical to the umbrella of the ’492 Patent as shown below. Ex. 1004 at ¶¶ 60-61, 65.



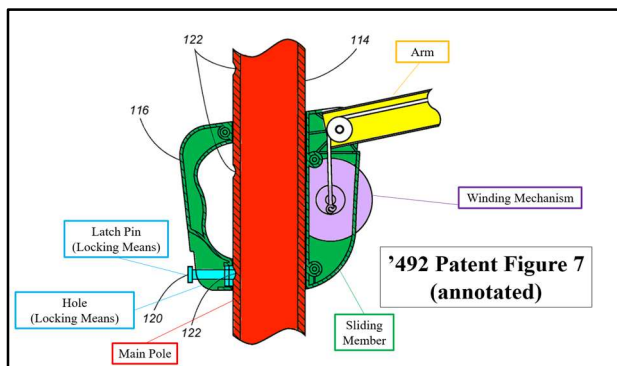
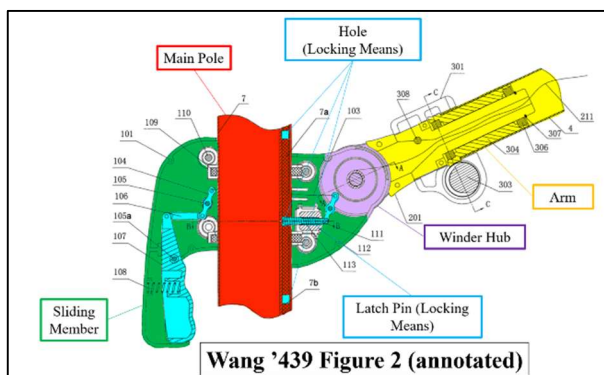
Cf Ex. 1001 at Figure 3 *with* Ex. 1005 at 12 and Figure 1 *with* Ex. 1006 at 13 and Figure 1. Wang '109 issued on June 25, 2008 and Wang '439 issued on February 25, 2009. *See* Exs. 1005 and 1006. Both are prior art to claims 1, 2, and 5-7 of the '492 Patent, under pre-AIA 35 U.S.C. § 102(a). The USPTO did not consider either of these references during examination of the '492 Patent. *See* Ex. 1002.

The umbrellas disclosed in Wang '109 and Wang '439 operate the same way as the umbrella claimed in the '492 Patent. Both devices have a sliding member

(“positioning mechanism”; “handle mechanism 1”) with an attached winder hub (“rope reel wheel 32”; “rope winding wheel 209”). Ex. 1005 at 18-20; Ex. 1006 at 17-22; Ex. 1004 at ¶¶ 61-62, 67-68. Rotation of the winder hub applies tension to a line and opens and closes the canopy. Ex. 1005 at 20; Ex. 1006 at 21; Ex. 1004 at ¶¶ 62, 68. For example, Wang ’109 explains that when the rope reel wheel 32 is cranked, it “drives the parasol rope 36 to tighten or relax, and the parasol frame 6 opens or closes.” Ex. 1005 at 20; Ex. 1004 at ¶ 62. Wang ’439 explains one can crank the “rope winding wheel 209 [] provided with a parasol rope 211” to control “the opening and closing of the parasol surface.” Ex. 1006 at 21; Ex. 1004 at ¶ 68. Sliding the sliding member along the main pole adjusts the angle of the canopy. Ex. 1005 at 19 (“hold the handle hole 28 and push the positioning mechanism upward... stop pushing upward, under the gravity of the parasol frame 6, the diagonal rod 4 drive the positioning mechanism to move downward”); Ex. 1006 at 20-21 (“The handle mechanism 1 can slide up and down via the convex points 114 and the corresponding grooves provided on the pole 7”); Ex. 1004 at ¶¶ 62, 68. Also, Wang ’109 and Wang ’439 disclose structures for the locking means that correspond to two of the locking means structures described in the ’492 Patent. Specifically, as shown below, Wang ’109 discloses a ratchet teeth and pawl structure that corresponds to the locking means shown in Figure 8 of the ’492 Patent. *Compare* Ex. 1005 at Figure 3 *with* Ex. 1001 at Figure 8 (see annotated below); Ex. 1004 at ¶ 63.



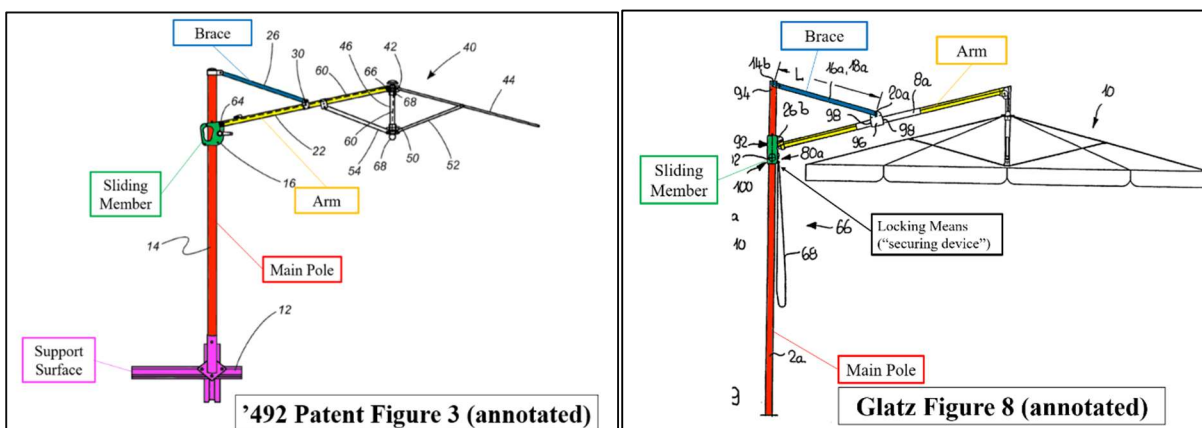
Wang '439 discloses a latch pin locking structure that corresponds to the latch pin structure claimed in the '492 patent. *Compare* Ex. 1006 at Figure 2 *with* Ex. 1001 at Figure 7 (see annotated below); Ex. 1004 at ¶ 69.



Both Wang '109 and Wang '439 also disclose a winding hub and crank attached to the sliding member as shown above in Wang '439 Figure 2. Ex. 1005 at 19; Ex. 1006 at 21; Ex. 1004 at ¶¶ 62, 68. Winding the crank causes tension on the line running to the center of the canopy and opens the canopy, just as in the '492 Patent. Ex. 1005 at 19-20; Ex. 1006 at 21; Ex. 1004 at ¶¶ 62, 68.

2. Prior Art to the Provisional Application

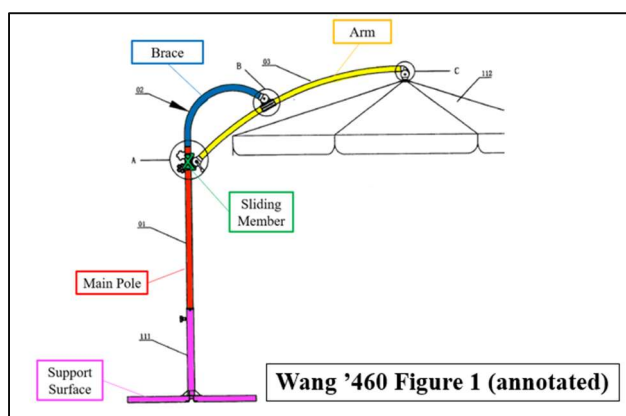
For claims 2-4 and any other claim of the '492 Patent that the Board determines is entitled to the priority date of the Provisional Application, U.S. Patent No. 6,014,980 ("Glatz '980") (Ex. 1008), discloses nearly every claimed element. Glatz '980, issued on January 18, 2000, is prior art under at least pre-AIA 35 U.S.C. § 102(b). *See* Ex. 1008. As shown below, Glatz '980 discloses a cantilevered umbrella with an arm and a brace as well as a sliding member that adjusts the angle of the arm and the canopy.



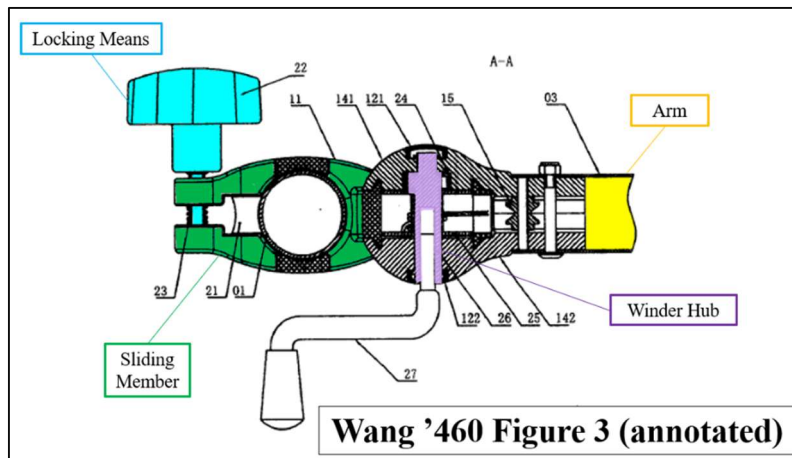
Compare Ex. 1001 at Figure 3 *with* Ex. 1008 at Figure 8. Like the umbrella claimed in the '492 Patent, the Glatz '980 umbrella has a line running from a securing device

mounted to the sliding member and along the arm to the canopy where tensioning and releasing the line opens and closes the canopy. Ex. 1008 at 5:26-49 and Figure 8; Ex. 1004 at ¶ 80.

Instead of using a winding hub for the securing device as claimed in the '492 Patent, Glatz '980 uses a simple device, illustrated as a cleat, “positioned on the slide (92) so that the canopy can be inclined in the open state.” Ex. 1008 at 5:47; 6:19-26; and Figure 3; Ex. 1004 at ¶ 80. Although Glatz '980 uses a different device for securing the line that opens the canopy, the use of a winder hub was well known known in the prior art including in Chinese Utility Model Patent No. CN 201001460Y (“Wang '460”). As shown below, Wang '460 discloses a cantilevered umbrella with a sliding member that “slide[s] smoothly with the parasol pole” to adjust the canopy position. Ex. 1007 at 17 and Figure 1; Ex. 1004 at ¶ 73.



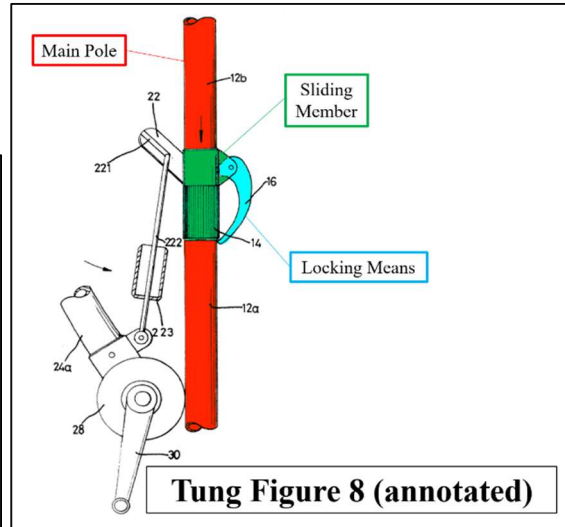
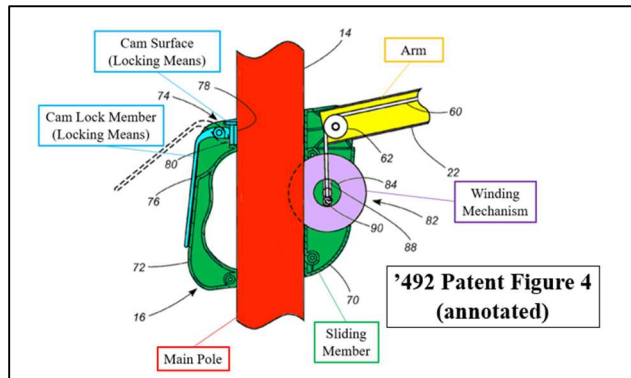
The Wang '460 umbrella also has a winder hub (rope reel 26) and crank mounted to the sliding sleeve 11. Ex. 1007 at 12 (Claim 1), 17, and Figure 3; Ex. 1004 at ¶ 73.



A pull rope (13) is fixed to a reel (26) of the rope winder and allows a user to open and close the canopy by winding the line around the winder hub. Ex. 1007 at 12 (Claim 1); Ex. 1004 at ¶ 74. Replacing the cleat in Glatz '980 with a winder hub to maintain the tension in the line is a simple substitution of one known element for another and would have been obvious to a POSITA.

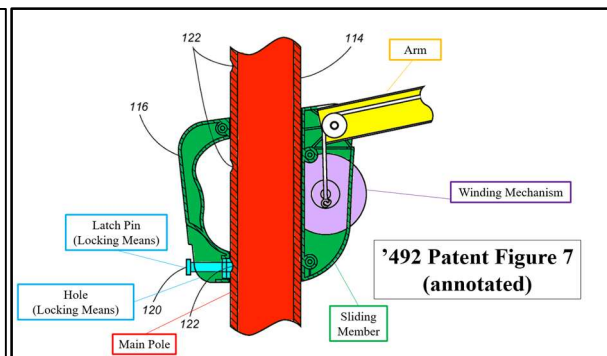
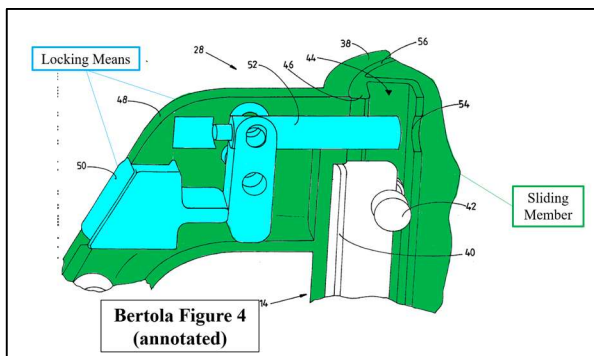
3. Secondary References Disclose the Specific Locking Means Structures

The specific structures corresponding to the § 112 ¶ 6 claim limitation “locking means” were disclosed in prior art cantilevered umbrellas. For example, U.S. Patent No. 6,478,037 (“Tung”) (Ex. 1010) issued on November 12, 2002. *See* Ex. 1010. Tung '037 teaches a “foldable sunshade with a tiltable canopy” that uses a cam latch member locking means similar to Figure 4 in the '492 Patent. Ex. 1010 at Title, 3:36-46, 4:56-63; Ex. 1004 at ¶ 84.



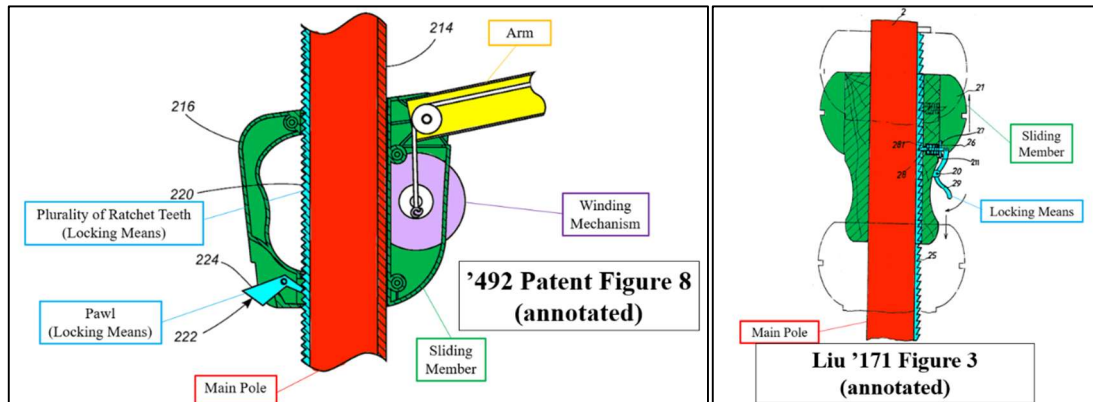
Ex. 1001 at Figure 4; Ex. 1010 at Figure 8.

German Patent Application Publication No. DE20014895U1 (“Bertola”) (Ex. 1013) issued on November 16, 2000 and discloses an adjustable cantilevered umbrella device that uses a spring-loaded pin and hole locking means as disclosed in the ’492 Patent. Ex. 1013 at 30; Ex. 1004 at G (page 54-55). As shown below, “a button 50 is arranged in the handle 48 and is used to operate a latch 52 of the outer tube 56, which latch engages in a hole 54 of the outer tube 56 for fixation of the slider 28 on the mast 14.” Ex. 1013 at 30; Ex. 1004 at ¶ 88.



Bertola further explains that it is “advantageous to pretension the latch 52 using a pretensioning means such that the latch autonomously transitions into the locked or supported position. By means of the button 50, the latch 52 can then transition into the unlocked position against the spring pretension, whereupon the slider 28 can then be adjusted upward, thus ensuring seamless and straightforward sliding of the slider 28 on the mast 14.” Ex. 1013 at 30.

Additionally, U.S. Patent No. 5,284,171 (“Liu”) (Ex. 1011) issued on February 8, 1994. *See* Ex. 1011. Liu ’171 teaches a “sunshade opening and supporting device” that uses a teeth and pawl locking means as disclosed in the ’492 Patent. Ex. 1011 at Title, 2:61-4:8; Ex. 1004 at ¶ 86.



Because Wang '109, Wang '439, and Glatz '980 all have locking devices to affix a sliding member at a specific position along the main pole, it would have been obvious to a POSITA to make a simple substitution of one known element for another replacing the structure used to affix the sliding member along the main pole with one of the structures corresponding to “locking means” in the '492 Patent, including the locking means disclosed in Tung, Bertola, and Liu. Ex. 1004 at ¶¶ 84, 86, G (page 54-55); *see* Ex. 1005 at 17; Ex. 1006 at 20; Ex. 1007 at 17; Ex. 1008 at 3:30-37.

B. Ground 1: Wang '109 invalidates claims 1 and 5-7 of the '492 Patent under pre-AIA 35 U.S.C. § 102

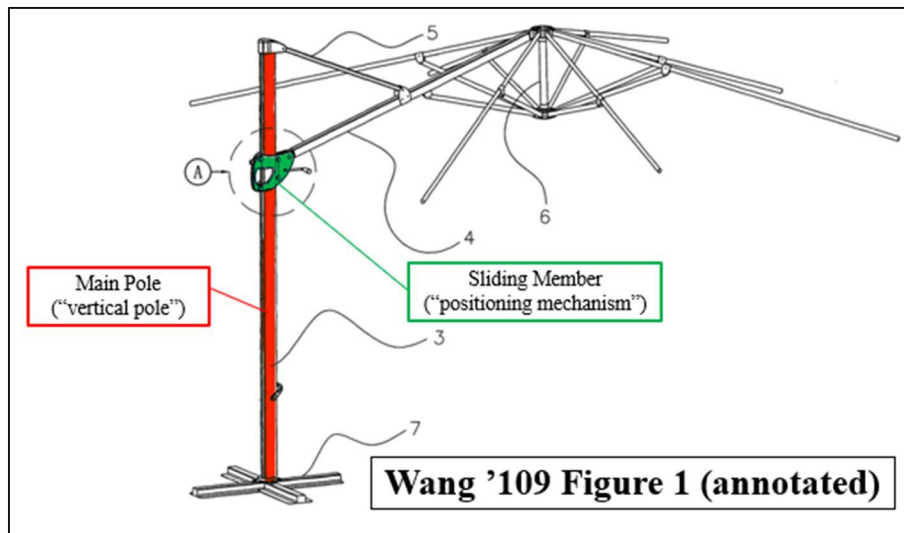
1. Wang '109 Includes Every Limitation of Claim 1

- a. Preamble and Limitation 1[A]: “An umbrella: comprising a main pole having a lower end for support by a support surface and extending generally upward to an upper end”**

The Wang '109 umbrella has a main pole (vertical pole 3) having a lower end for support by a support surface (base 7) and extending generally upward to an upper end, a “top end of the vertical pole 3.” Ex. 1005 at 12 (Abstract), 14 (Claim 1), 18; Ex. 1004 at ¶¶ 93-94.

- b. Limitation 1[B]: “a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole”**

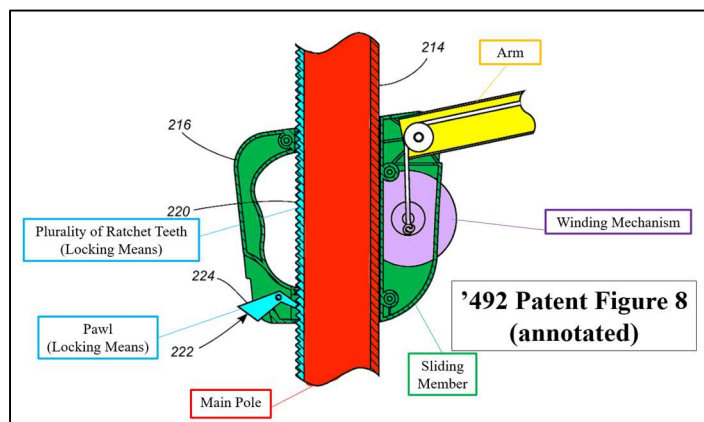
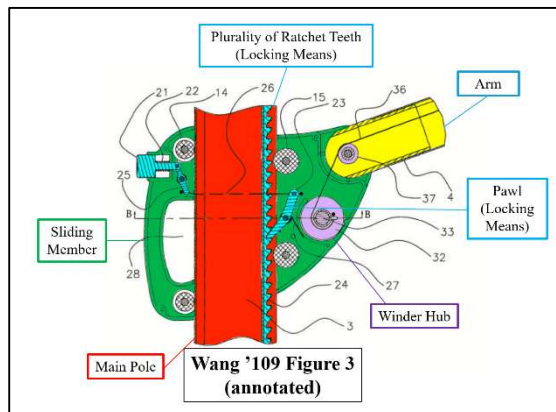
Wang '109 discloses a sliding member associated with the main pole as shown below.



Wang '109 states that a “positioning mechanism is sleeved on the vertical pole.” Ex. 1005 at 17 and Figure 1; Ex. 1004 at ¶ 95. Wang '109 also discloses that the sliding member (“positioning mechanism”) is selectably moveable between lower and upper locations along the main pole. Ex. 1004 at ¶ 95. Wang '109 explains that one can “push the positioning mechanism upward,” and the positioning mechanism also moves downward along the vertical pole. Ex. 1005 at 19.

c. **Limitation 1[C]: “locking means for releasably securing the sliding member to the main pole at a selected location along the main pole”**

Wang '109 discloses this limitation. Ex. 1004 at ¶ 96. Wang '109 discloses a ratchet teeth and pawl locking structure like Figure 8 in the '492 Patent as shown below. Ex. 1004 at ¶ 96.



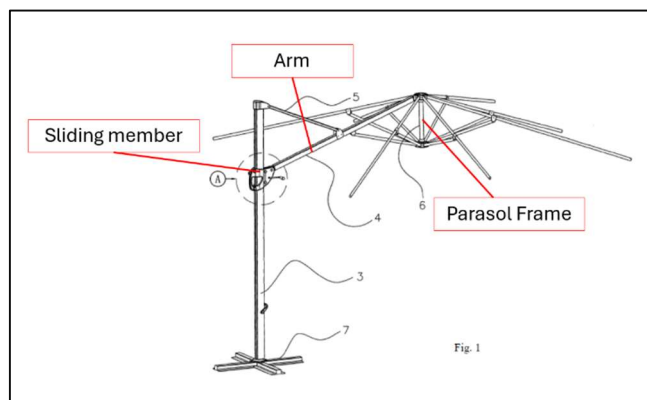
Ex. 1005 at Figure 3; Ex. 1001. As Wang '109 explains, “a row of teeth is fixedly provided in the recess, an elastic locking block [23] engaged with the row of teeth is installed in the positioning mechanism.” Ex. 1005 at 17; Ex. 1004 at ¶ 97. The sliding member (i.e., the positioning mechanism) “is enclosed by two shells, the locking block is a lever structure, and a support shaft thereof is installed between the shells, a torsion spring is sleeved over a middle part of the support shaft, one end of the locking block can be engaged with the row of teeth.” Ex. 1005 at 17; Ex. 1004 at ¶ 97. Wang '109 also discloses the use of a button that disengages the locking block (32) from the teeth. Ex. 1005 at 17; Ex. 1004 at ¶ 97.

d. Limitation 1[D]: “an umbrella canopy having a central region”

Wang '109 discloses this limitation. Ex. 1004 at ¶ 99. Wang '109 shows a frame of the canopy with the canopy fabric removed, similar to the depiction of Figure 3 of the '492 patent. Wang '109 describes using the device with the canopy to provide shade, which requires a canopy fabric. For example, Wang '109 states that the “parasol can be positioned by releasing the hand so as to achieve the best sunshade effect.” Ex. 1005 at 17; Ex. 1004 at ¶ 99.

e. Limitation 1[E]: “an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member”

As shown below, Wang '109 discloses an arm, diagonal rod 4, associated with a central region and extending radially therefrom to an outer end operatively associated with the sliding member, positioning mechanism. Ex. 1005 at Figure 1; Ex. 1004 at ¶ 100.

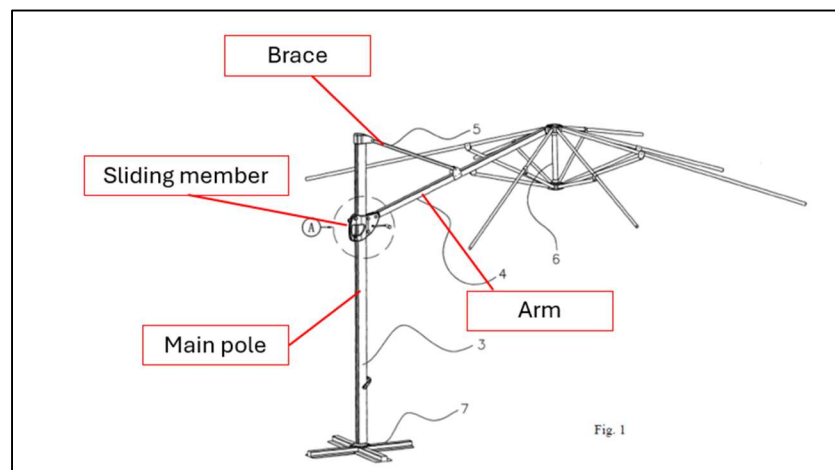


Wang '109 Figure 1

Wang '109 explains that “an outer end of a diagonal rod is hinged to a parasol frame.” Ex. 1005 at 16. The rod/arm is associated with the parasol frame at a central region as shown above. Wang '109 further explains that “an inner end of the diagonal pulling rod is axially connected to a positioning mechanism” or sliding member. *Id.*

- f. **Limitation 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”**

Wang '109 discloses a brace (diagonal pulling rod 5) having a first end pivotably attached to an upper portion of the pole (vertical pole 3) above the sliding member (positioning mechanism) and a second end pivotably attached to the arm (diagonal rod 4).

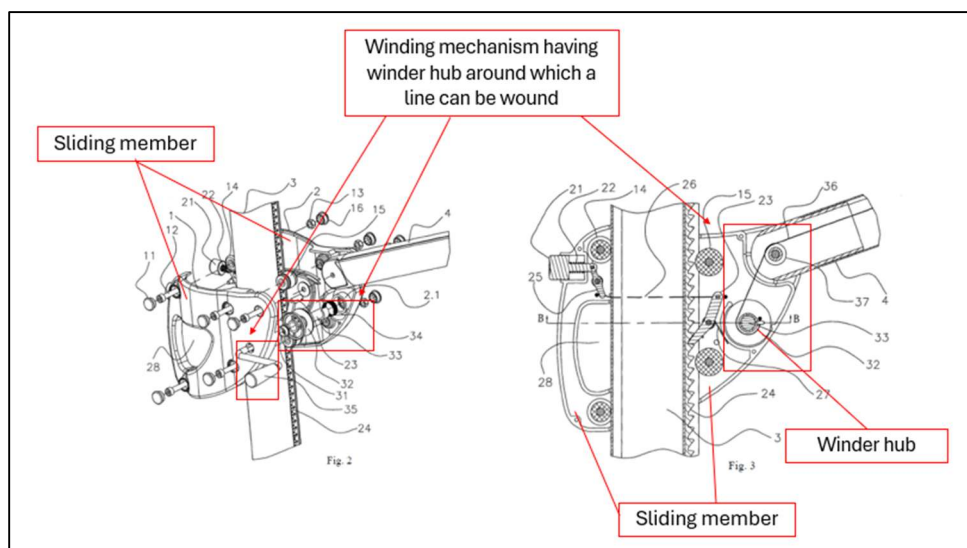


Wang '109 Figure 1

Wang '109 explains that “an inner end of the diagonal pulling rod (5) is axially connected to a top end of the vertical pole (3) [above the positioning mechanism], and an outer end thereof is axially connected to a middle part of the diagonal rod (4).” Ex. 1005 at 14 (claim 1); Ex. 1004 at ¶ 102.

g. Limitation 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”

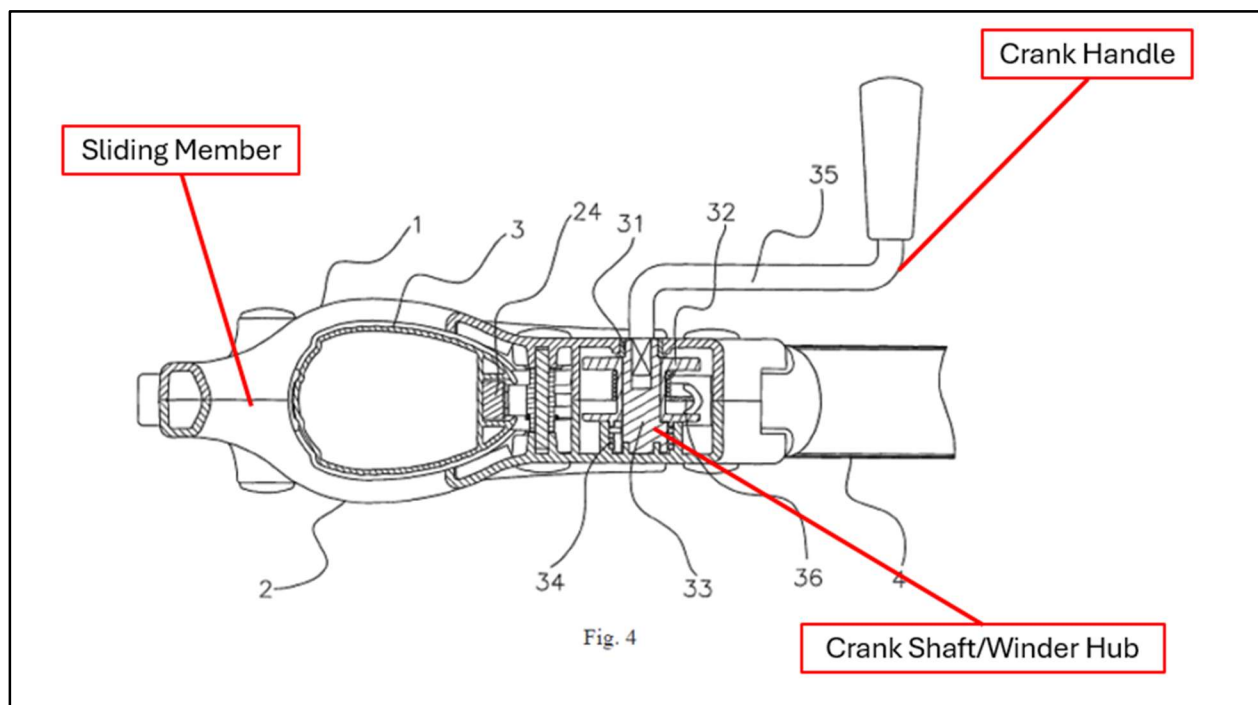
Wang '109 discloses a winding mechanism (crank handle 35; crank shaft 33) having a winder hub (rope reel wheel 32) around which a line (parasol rope 36) can be wound as shown in below.



Wang '109 Figures 2 and 3

Ex. 1005 at Figures 2 and 3. The figures show “a rope reel for controlling the opening and closing of the parasol frame” located in the shell of the positioning

mechanism. *Id.* at 14-15 (claim 4) and 17-20; Ex. 1004 at ¶ 103. The “rope reel wheel (32) of the rope reel is fixed with a parasol rope” and the rotation of the crank shaft and crank handle “drive[s] the rope reel wheel” causing the parasol rope to manipulate the umbrella. Ex. 1005 at 14-15 (claim 5) and 17-20; Ex. 1004 at ¶ 103. Figure 4 below shows the winder hub (rope reel wheel 32) mounted to the sliding member (positioning mechanism).

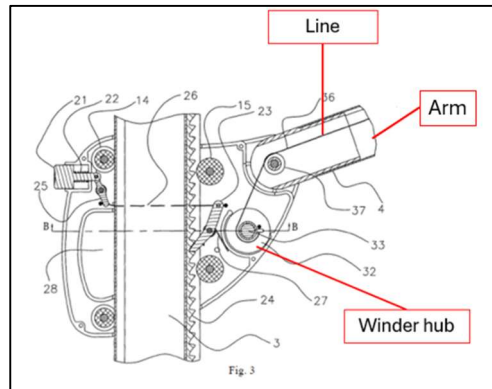


Wang '109 Figure 4.

- h. **Limitation 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”**

Wang '109 discloses a line (parasol rope 36) having a first end that winds around the winder hub (rope reel wheel 32). Ex. 1004 at ¶ 104. The “rope reel is

fixed with a parasol rope” which “penetrates into the diagonal rod and is connected to the parasol frame” and is used to open and close the umbrella canopy. Ex. 1005 at 17; Ex. 1004 at ¶ 104; *see also* Ex. 1005 at 14-15 (claims 5-6), 19-20, and Figures 1-4.



Wang '109 Figure 3

Ex. 1005 at Figure 3. A POSITA would understand the line extends from the winder hub (rope reel wheel 32) along the arm (diagonal rod 4) to the umbrella canopy to open and close the canopy. Ex. 1004 at ¶ 104.

i. **Limitation 1[I]: “wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub”**

The Wang '109 umbrella discloses this limitation. Ex. 1004 at ¶ 106. Wang '109 explains that “[w]hen the crank handle 35 is turned clockwise or counterclockwise, the crank shaft 33 drives the torsion spring 34 to twist, the diameter of the torsion spring 34 becomes smaller and thus can rotate freely in the tube wall 2.1, thereby driving the rope reel wheel 32 to rotate, the rope reel wheel

32 drives the parasol rope 36 to tighten or relax and the parasol frame 6 opens or closes.” Ex. 1005 at 20; Ex. 1004 at ¶ 106.

j. **Limitation 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”**

The Wang ’109 umbrella discloses this at 20 as quoted above for limitation 1[I]. Ex. 1005 at 20; Ex 1004 at ¶ 107.

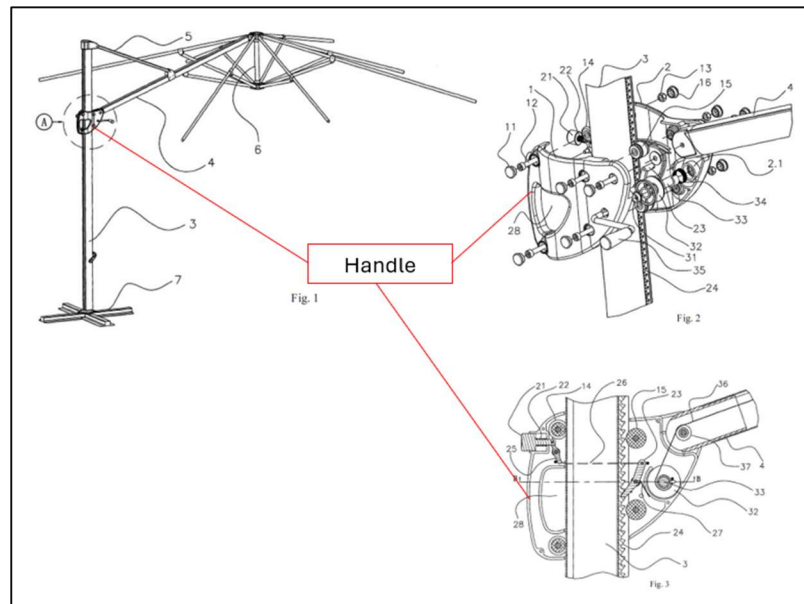
k. **Limitation 1[K]: “wherein the angle of the umbrella canopy with respect to the main pole can be controlled by moving the sliding member along the main pole”**

Wang ’109 discloses this limitation. Ex. 1004 at ¶ 108. Specifically, Wang ’109 teaches that when one “push[es] the positioning mechanism upward ... the inner end of the diagonal rod 4 moves upward to make the parasol frame 6 tilt downward” and “the diagonal rod 4 can be controlled to move downward to make the parasol frame 6 tilt upward.” Ex. 1005 at 19; Ex. 1004 at ¶ 108.

Accordingly, Wang ’109 invalidates claim 1 under pre-AIA 35 U.S.C. § 102. Ex. 1004 at ¶ 109.

2. **Claim 5**

Claim 5 of the ’492 Patent recites “[t]he umbrella of claim 1, wherein the sliding member has a handle associated therewith.” Ex. 1001 at 6:11-12. As shown below in Figures 1-3, Wang ’109 discloses the sliding member (positioning mechanism) having a handle (handle hole 28). Ex. 1004 at ¶ 110.



Wang '109 Figures 1-3

Thus, claim 5 is invalid.

3. Claim 6

Claim 6 of the '492 Patent recites “[t]he umbrella of claim 1, wherein the line extends along at least substantially the entire length of the arm.” Ex. 1001 at 6:13-14. Wang '109 discloses this. Ex. 1004 at ¶ 112. Wang '109 explains that the line (parasol rope 36) extends from the rope wheel in the positioning mechanism through the arm (diagonal rod 4) and is “connected to the parasol frame.” Ex. 1005 at 17; Ex. 1004 at ¶ 112. Because the parasol frame is at the end of the arm opposite to the end adjacent to the rope wheel, and the line extends at least substantially the entire length of the arm. Thus, claim 6 invalid.

4. Claim 7

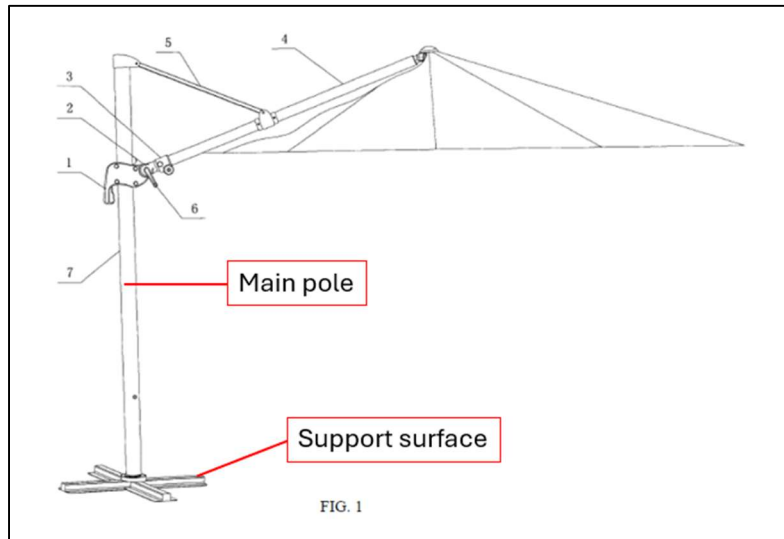
Claim 7 of the '492 Patent recites “[t]he umbrella of claim 1, further comprising a crank handle operatively associated with the winder hub, whereby rotating the crank handle causes the winder hub to rotate.” Ex. 1001 at 6:15-17. Wang '109 discloses a crank handle (crank handle 35) operatively associated with the winder hub (rope reel wheel 32), whereby rotating the crank handle (crank handle 35) causes the winder hub (rope reel wheel 32) to rotate. For example, Wang '109 teaches that turning the “crank handle 35 ... clockwise or counterclockwise ...driv[es] the rope reel wheel 32 to rotate.” Ex. 1005 at 20; Ex. 1004 at ¶ 114. Thus, claim 7 invalid.

C. Ground 2: Wang '439 invalidates claims 1 and 5-7 of the '492 Patent under pre-AIA 35 U.S.C. § 102

1. Wang '439 Includes Every Limitation of Claim 1

- a. Preamble and Limitation 1[A]: “An umbrella comprising: a main pole having a lower end for support by a support surface and extending generally upward to an upper end”**

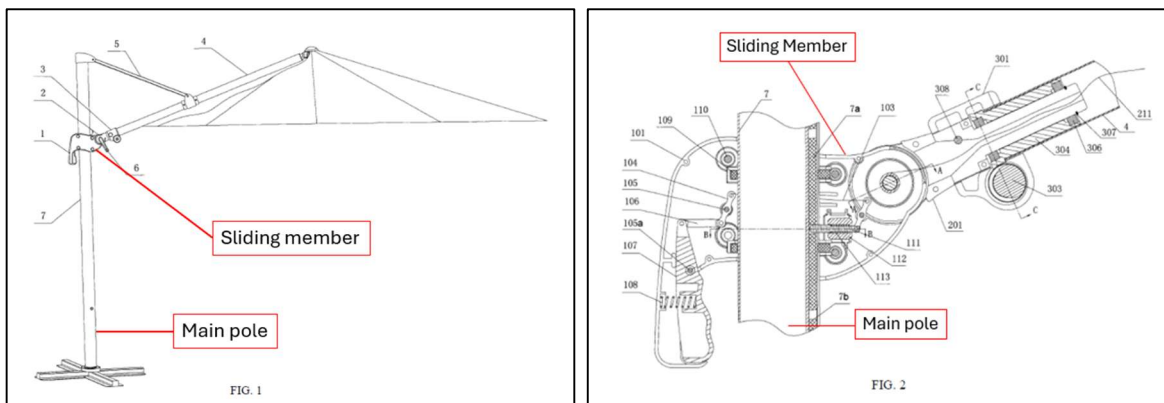
As shown below, Wang '439 discloses this. Ex. 1006 at 13-22 and Figure 1; Ex. 1004 at ¶¶ 117-119.



Wang '439 Figure 1

- b. **Limitation 1[B]: “a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole”**

Wang '439 discloses a sliding member (handle mechanism 1) as shown below. Ex. 1006 at Figures 1-2; Ex. 1004 at ¶ 120.



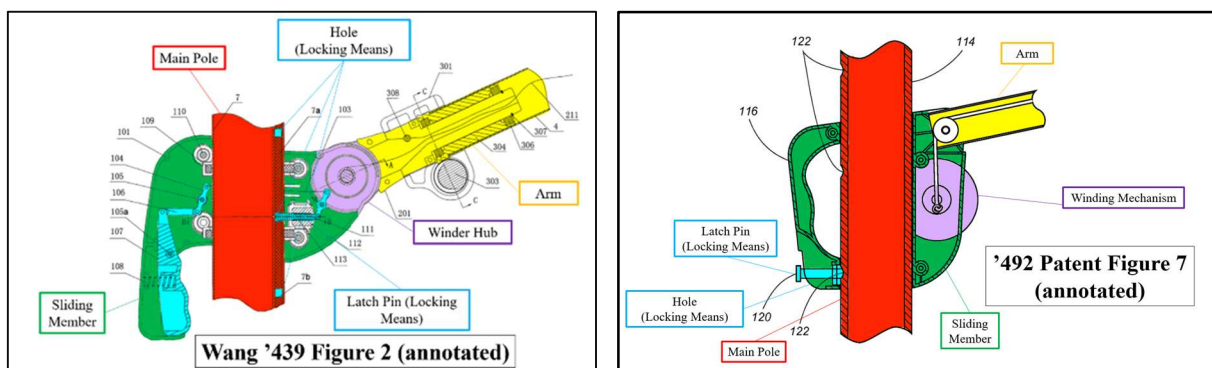
Wang '439 Figures 1 and 2

Wang '439 explains that a “handle mechanism 1 is sleeved on a pole 7.” Ex. 1006 at 15, 18, 20; Ex. 1004 at ¶ 120. “[T]he handle mechanism 1 can slide up and down

via convex points 114 and the corresponding grooves provided on the pole 7.” Ex. 1006 at 20-21; Ex. 1004 at ¶ 120.

c. **Limitation 1[C]: “locking means for releasably securing the sliding member to the main pole at a selected location along the main pole”**

As shown below, Wang ’439 discloses a locking means that has the same or equivalent structure as the locking pin and hole structure described in the ’492 Patent. Ex. 1004 at ¶ 121.

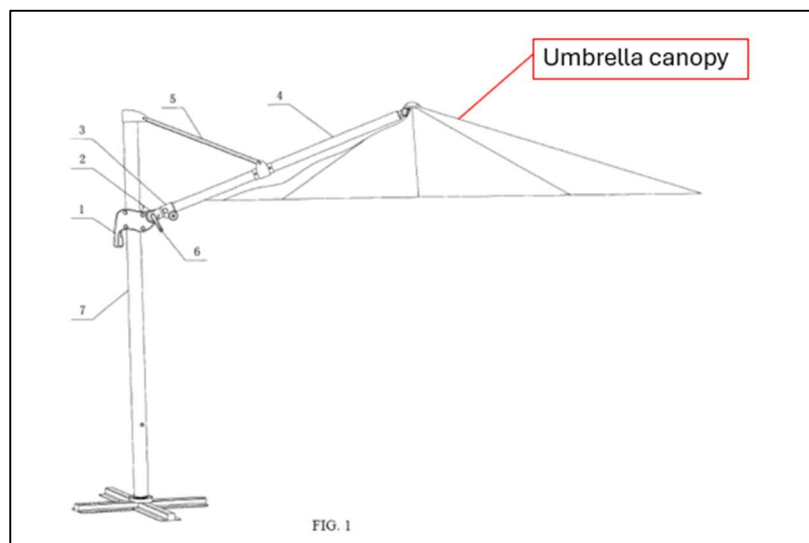


Compare Ex. 1006 at Figure 2 with Ex. 1001 at Figure 7. Wang ’439 explains that “[a]n elastic positioning pin 111 is installed in the handle mechanism 1 and is inserted into a positioning hole 7b provided on the pole 7.” Ex. 1006 at 20; Ex. 1004 at ¶ 121. “[T]he handle switch 107 is linked with the elastic positioning pin 111” so that “[a] user can press the handle switch 107, the elastic positioning pin 111 is then pulled out of the positioning hole 7b by means of the linkage of the transmission pin 106, the front and rear transmission lever members 104 and the connection rope 103, so the handle mechanism 1 can slide on the pole 7, and the elastic positioning pin

111 is inserted into another positioning hole 7b for positioning with the positioning pin spring 113.” Ex. 1006 at 20-21; Ex. 1004 at ¶ 121.

d. **Limitation 1[D]: “an umbrella canopy having a central region”**

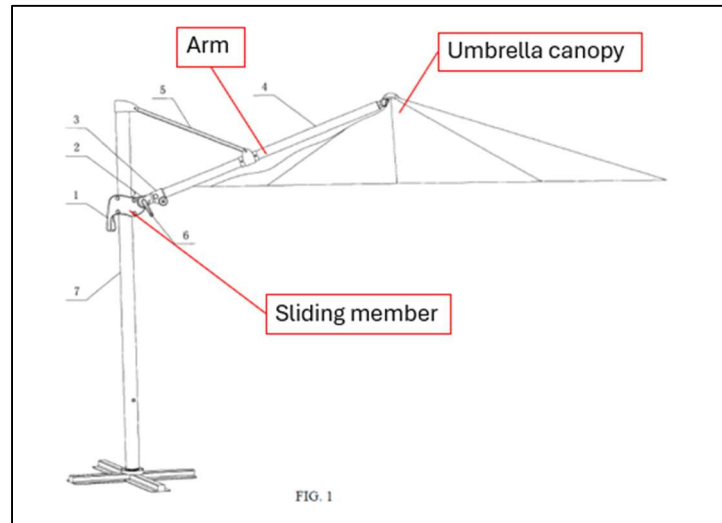
Wang '439 discloses an umbrella canopy (umbrella surface) having a central region. Ex. 1004 at ¶ 123.



Wang '439 Figure 1

e. **Limitation 1[E]: an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member**

Wang '439 discloses this as shown below. Ex. 1004 at ¶ 124.

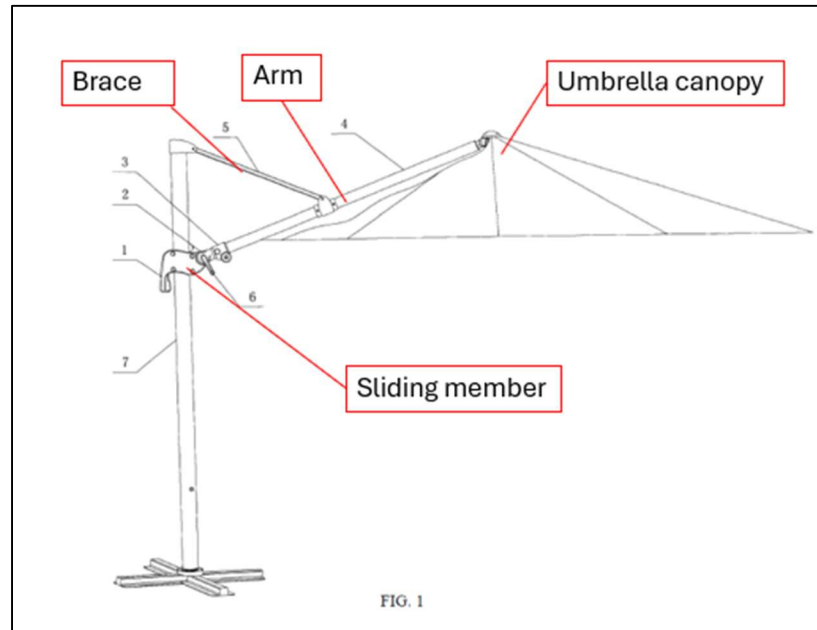


Wang '439 Figure 1

Wang '439 explains that the sliding member (handle mechanism 1) is “connected to an outer tube 4.” Outer tube 4 or the “arm” is fixed to the central region of the canopy and rotates to “adjust the parasol.” Ex. 1006 at 20, 22, Figure 1; Ex. 1004 at ¶ 124.

- f. **Limitation 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**

As shown below, Wang '439 discloses this. Ex. 1004 at ¶ 125.

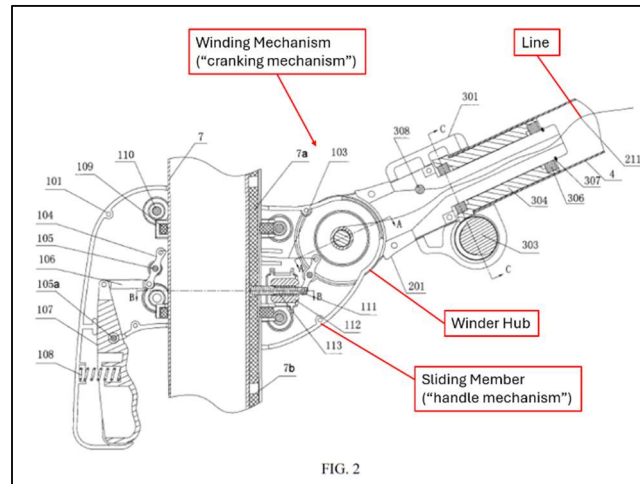


Wang '439 Figure 1

Wang '439 explains that the brace (diagonal rod 5) is pivotably connected to the top of pole 7 and pivotably connected to the arm (outer tube 4) through “the movabl[e] connection between the diagonal rod 5 and the outer tube 4.” Ex. 1006 at 22 and Figure 1; Ex. 1004 at ¶ 125.

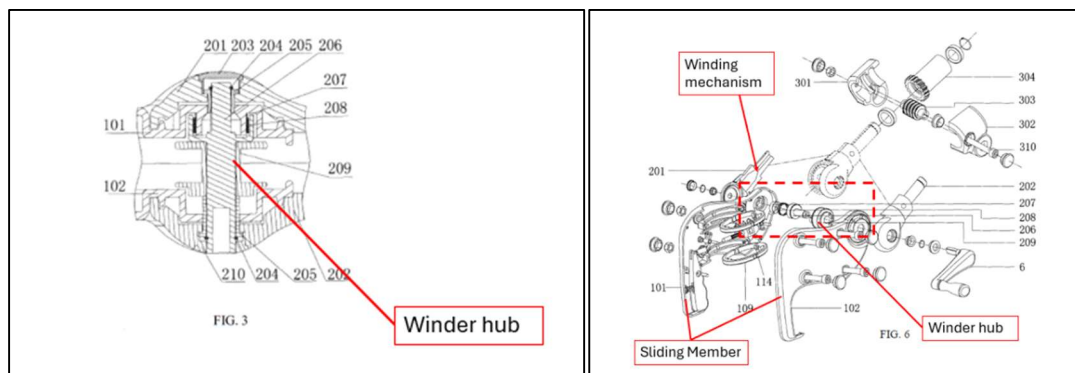
- g. **Limitation 1[G]: a winding mechanism having a winder hub around which a line can be wound, the winder hub being mounted to the sliding member and movable therewith**

Wang '439 discloses a winding mechanism (“cranking mechanism 2”) having a winder hub (“rope winding wheel 209”) around which a line (“parasol rope 211”) can be wound.



Wang '439 Figure 2

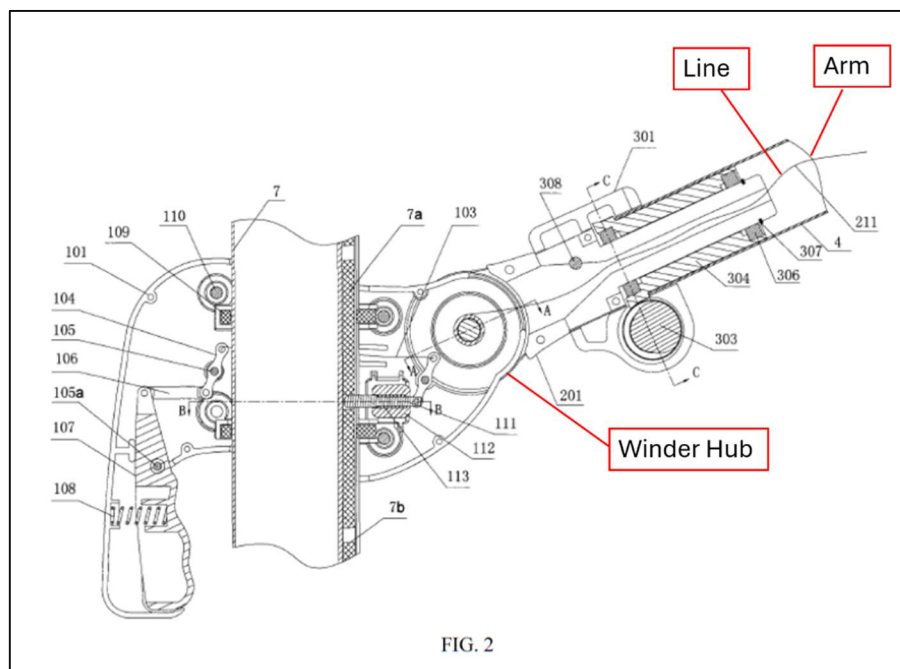
Wang '439 explains that “the cranking mechanism comprising a cranking shaft and a rope winding wheel is arranged at a front end of the handle mechanism.” Ex. 1006 at 13; Ex. 1004 at ¶ 126. *See id.* at 15 (claim 1) and 18. “[A] parasol rope for controlling the opening and closing of the parasol surface is wound around the rope winding wheel.” Ex. 1006 at 13-14; Ex. 1004 at ¶ 126. Further, the winder hub (“rope winding wheel 209”) is mounted to the sliding member (“handle mechanism 1”) and moveable therewith as shown below. Ex. 1004 at ¶ 126.



Wang '439 Figures 3 and 6

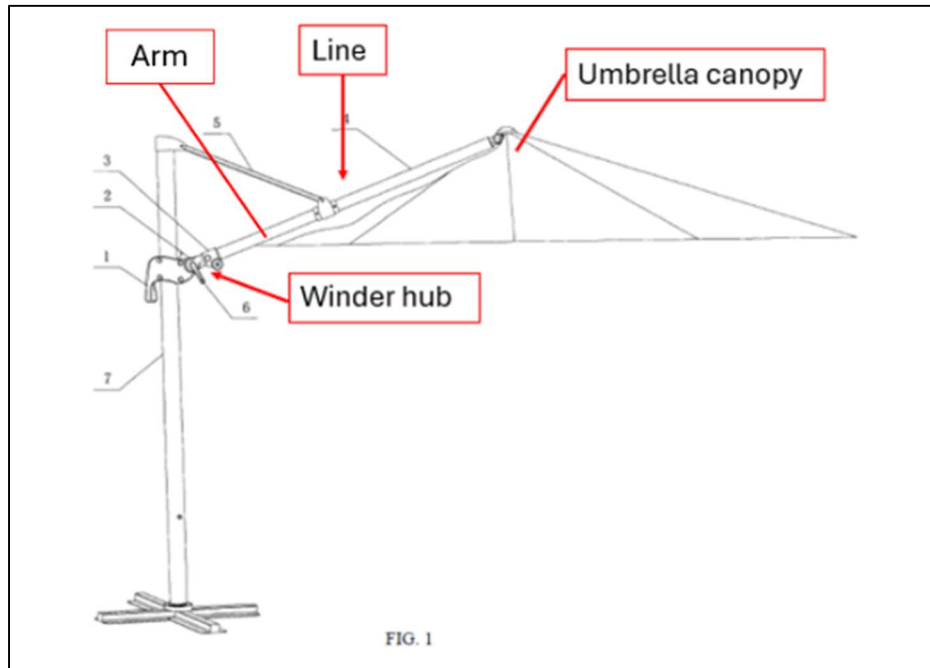
- h. **Limitation 1[H]: a line having a first end that winds around the winder hub, an intermediate portion extending from the winder hub along the arm to the umbrella canopy, and a second end that engages the umbrella canopy**

Wang '439 discloses a line (parasol rope 211) having a first end that winds around the winder hub (rope winding wheel 209) and an intermediate portion extending from the winder hub (rope winding wheel 209) along the arm (outer tube 4).



Wang '439 Figure 2

Wang '439 further discloses the line extending to the umbrella canopy, and a second end that engages the umbrella canopy as discussed below.



Wang '439 Figure 1

Wang '439 explains that “[t]he rope winding wheel 209 is provided with a parasol rope 211 for controlling the opening and closing of the parasol surface” such that “the parasol rope 211 is taken in or sent out to control the opening and closing of the parasol surface” when the cranking shaft rotates. Ex. 1006 at 21 and 23-24; Ex. 1004 at ¶ 127. A POSITA would know that to control the opening and closing of the parasol surface, the rope 211 must be engaged with the canopy to open and close the canopy. Ex. 1004 at ¶ 127.

i. **Limitation 1[I]: wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub**

Wang '439 discloses that rotation of the winder hub (rope winding wheel 209) tensions or relaxes the line (parasol rope 211) depending upon the direction of rotation of the winder hub (rope winding wheel 209). Ex. 1004 at ¶ 128. Specifically, Wang '439 explains that “[t]he cranking shaft 206 and the rope winding wheel 209 sleeved therewith can rotate, such that the parasol rope 211 is taken in or sent out to control the opening and closing of the parasol surface.” Ex. 1006 at 21; Ex. 1004 at ¶ 128.

j. **Limitation 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”**

Wang '439 discloses this. Ex. 1004 at ¶ 129. Specifically, Wang '439 explains that “[t]he sunshade parasol cranking device ... controls the opening and closing of the parasol surface with the cranking mechanism.” “The cranking shaft 206 and the rope winding wheel 209 sleeved therewith can rotate, such that the parasol rope 211 is taken in or sent out to control the opening and closing of the parasol surface.” Ex. 1006 at 14 (Abstract) and 21; Ex. 1004 at ¶ 129. Further, a POSITA would understand that a rope (line) as disclosed in Wang '439 is inherently a structure that functions under tension. Ex. 1004 at ¶ 129.

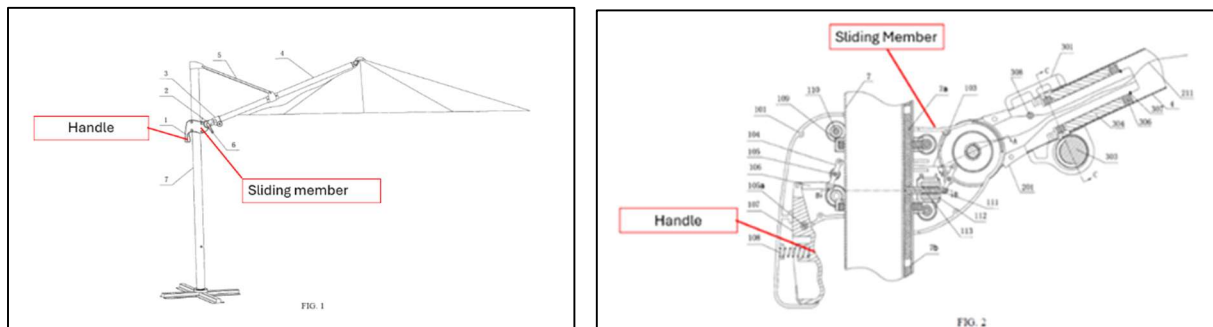
k. Limitation 1[K]: “wherein the angle of the umbrella canopy with respect to the main pole can be controlled by moving the sliding member along the main pole”

Wang ’439 discloses that the angle of the umbrella canopy (parasol surface) with respect to the main pole (pole 7) can be controlled by moving the sliding member (handle mechanism 1) along the main pole (pole 7). Specifically, Wang ’439 discloses that the canopy “can be adjusted to any angle in the front and rear, left and right directions, so as to select the appropriate sunshade angle and improve the sunshade effect.” Ex. 1006 at 19; Ex. 1004 at ¶ 130. Wang ’439 explains that “[t]he handle mechanism is used to slide on the pole of the sunshade parasol to control the left and right tilting of the parasol.” Ex. 1006 at 19. The left-right tilting is achieved by engaging a selected one of “positioning holes 7b [that] are arranged at a certain distance on a plastic strip 7a connected to one side of the pole 7.” *Id.* at 20; Ex. 1004 at ¶ 130.

Thus, Wang ’439 invalidates claim 1 under pre-AIA 35 U.S.C. § 102.

2. Claim 5

Claim 5 of the ’492 Patent recites “[t]he umbrella of claim 1, wherein the sliding member has a handle associated therewith.” Ex. 1001 at 6:11-12. As shown below, Wang ’439 discloses that a “handle mechanism is used to slide on the pole of the sunshade parasol to control the left and right tilting of the parasol.” Ex. 1006 at 19 and Figures 1 and 2; Ex. 1004 at ¶ 132.

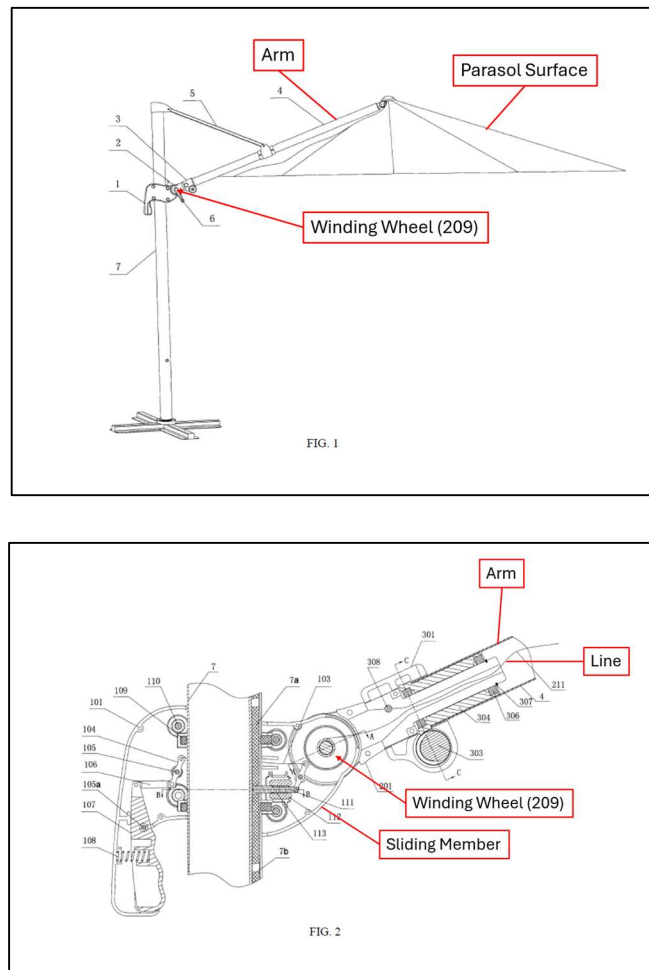


Wang '439 Figures 1 and 2

Thus, claim 5 is invalid. Ex. 1004 at ¶ 133.

3. Claim 6

Claim 6 of the '492 Patent recites “[t]he umbrella of claim 1, wherein the line extends along at least substantially the entire length of the arm.” Ex. 1001 at 6:13-14. Wang '439 discloses this. Wang '439 explains that “[t]he rope winding wheel 209 is provided with a parasol rope 211 for controlling the opening and closing of the parasol surface,” and “[t]he cranking shaft 206 and the rope winding wheel 209 sleeved therewith can rotate, such that the parasol rope 211 is taken in or sent out to control the opening and closing of the parasol surface.” Ex. 1006 at 21. Because the rope 211 is the element that transfers the load from the winding of the winding wheel 209 to the parasol canopy structure for the purpose of opening and closing and because the parasol canopy structure is at the opposite end of the arm (outer tube 4), the rope 211 must extend substantially the entire length of the arm (outer tube 4) to apply that load as shown below. *Id.*; Ex. 1004 at ¶ 134.



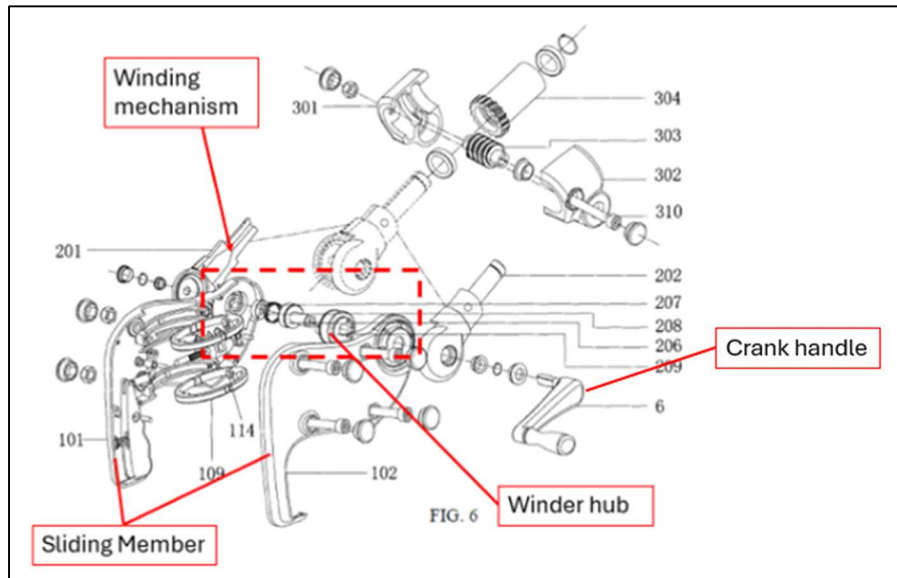
Wang '439 Figures 1 and 2

Thus, claim 6 is invalid. Ex. 1004 at ¶ 135.

4. Claim 7

Claim 7 of the '492 Patent recites “[t]he 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.” Ex. 1001 at 6:15-17. The Wang '439 umbrella has this. Specifically, Wang '439 explains that “[o]ne end of the cranking shaft 206 is provided with a connection hole for connecting

with the cranking handle 6, and the cranking handle 6 is inserted into the connection hole for rotation.” Ex. 1006 at 21.



Wang '439 Figure 6

Further, “[t]he cranking shaft 206 and the rope winding wheel 209 sleeved therewith can rotate, such that the parasol rope 211 is taken in or sent out to control the opening and closing of the parasol surface.” Ex. 1006 at 21 and 26 (Figure 6); Ex. 1004 at ¶ 137.

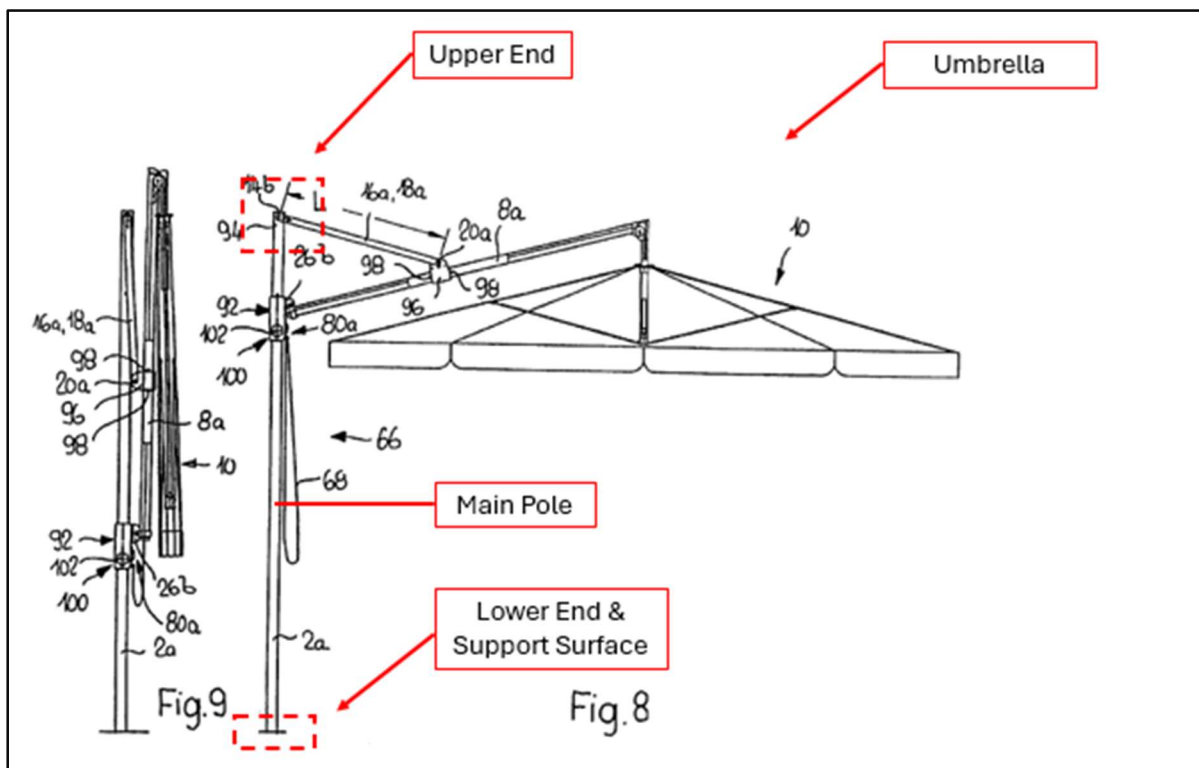
Thus, claim 7 is invalid. Ex. 1004 at ¶ 138.

D. Ground 4: Glatz '980 in view of Wang '460 invalidates the claims of the '492 Patent under pre-AIA 35 U.S.C. § 103

1. Claim 1

- a. **Preamble and Limitation 1[A]: “An umbrella comprising a main pole having a lower end for support by a support surface and extending generally upward to an upper end”**

Glatz '980 discloses this as shown below.

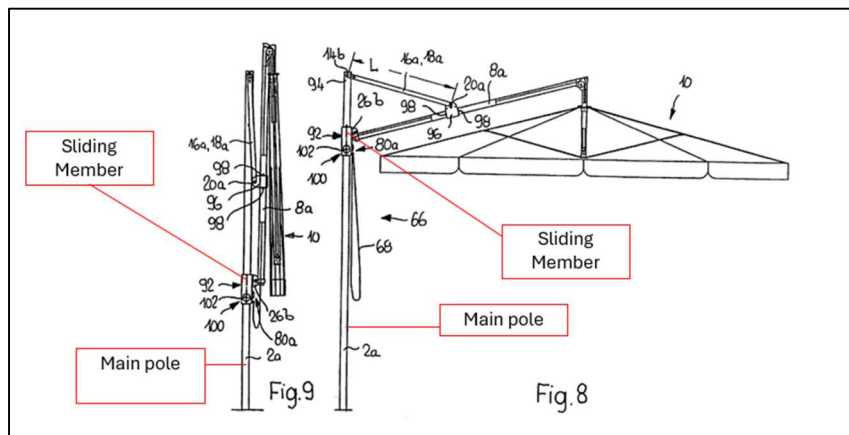


Glatz '980 Figure 8 (Ex. 1008 at 5)

A POSITA would understand that the Glatz '980 umbrella must be designed for support by a support surface for the device to remain upright. Ex. 1004 at ¶ 143.

- b. **Limitation 1[B]: “a sliding member associated with the main pole and selectably moveable thereon between lower and upper locations along the main pole”**

As shown below, Glatz '980 discloses this. Ex. 1004 at ¶ 144.

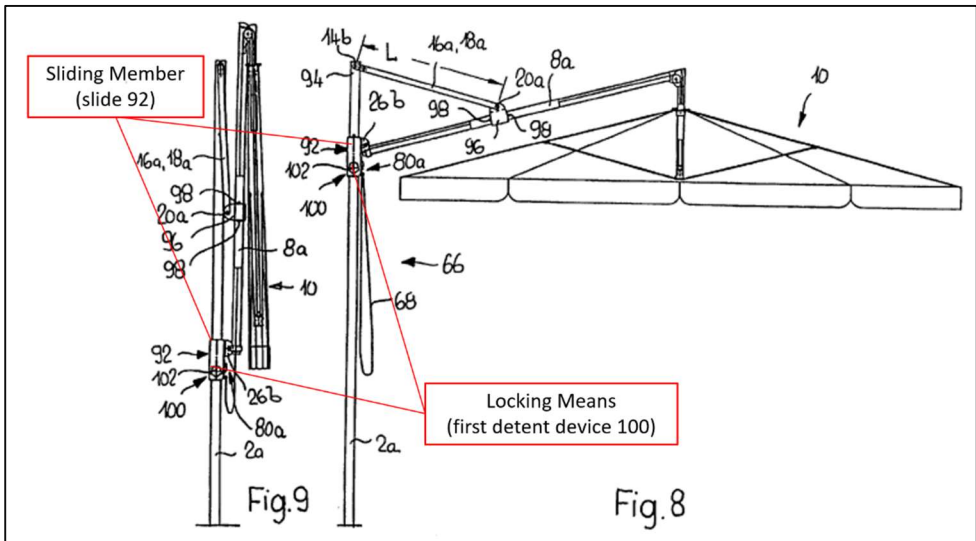


Glatz '980 Figures 8 and 9 (Ex. 1008 at 5)

Glatz '980 describes “a slide (92) which is designed to move along the mast” and which “can be fixed into position at various heights on the mast (2a).” Ex. 1008 at 5:64-6:16; Ex. 1004 at ¶ 144.

- c. **Limitation 1[C]: “locking means for releasably securing the sliding member to the main pole at a selected location along the main pole”**

The Glatz '980 umbrella has a locking device (first detent device 100; stopping bolt) for releasably securing the sliding member (slide 92) to the main pole (mast 2a) at a selected location along the main pole (mast 2a). Ex. 1004 at ¶ 145.



Glatz '980 Figure 8 (Ex. 1008 at 5)

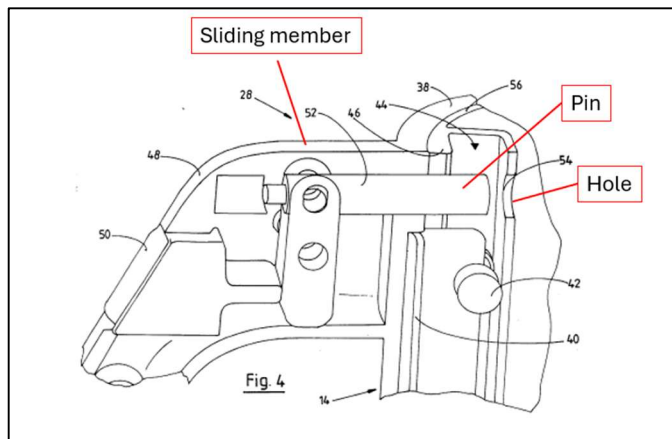
This locking device is the same as, or equivalent to, the latch pin and hole “locking means” structure described in the ’492 Patent. Specifically, Glatz ’980 teaches that the locking or “detent” device can have “a stop bolt which can engage into various detent openings along the mast” like the structure shown in FIG. 7 of the ’492 Patent and referred to as a “latch pin 120” and “holes 122” in the ’492 Patent. Ex. 1008 at 3:31-38; Ex. 1004 at ¶ 146.

Additionally, a “detent” is often spring-loaded, and a POSITA would understand to use a spring-loaded stop bolt in connection with the detent device located on the slide 92 of Glatz ’980. Ex. 1004 at ¶ 146. The use of a spring-loaded stop bolt would address the drawbacks of prior art locking mechanisms and adjustment mechanisms to make the device easier to handle. Ex. 1008 at 1:9-57;

Ex. 1004 at ¶¶ 146, 149. Moreover, spring-loaded stop bolts were common and well known in the prior art. *See, e.g.*, Ex. 1013 (Bertola) at 32; Ex. 1004 at ¶ 149.

i. In the alternative, Glatz '980 in view of Bertola also discloses this limitation

In the alternative, if the Board finds that the Glatz '980 locking device is not the latch pin and hole structure of the '492 Patent or an equivalent, Bertola discloses this. Ex. 1004 at ¶ 150. As shown below, Bertola discloses a button 50 that is used to operate a spring-loaded pin (latch 52) under “spring pretension” that engages with a hole (hole 54) “for fixation of the slider [] on the mast.” Ex. 1013 at 30; Ex. 1004 at ¶ 150.



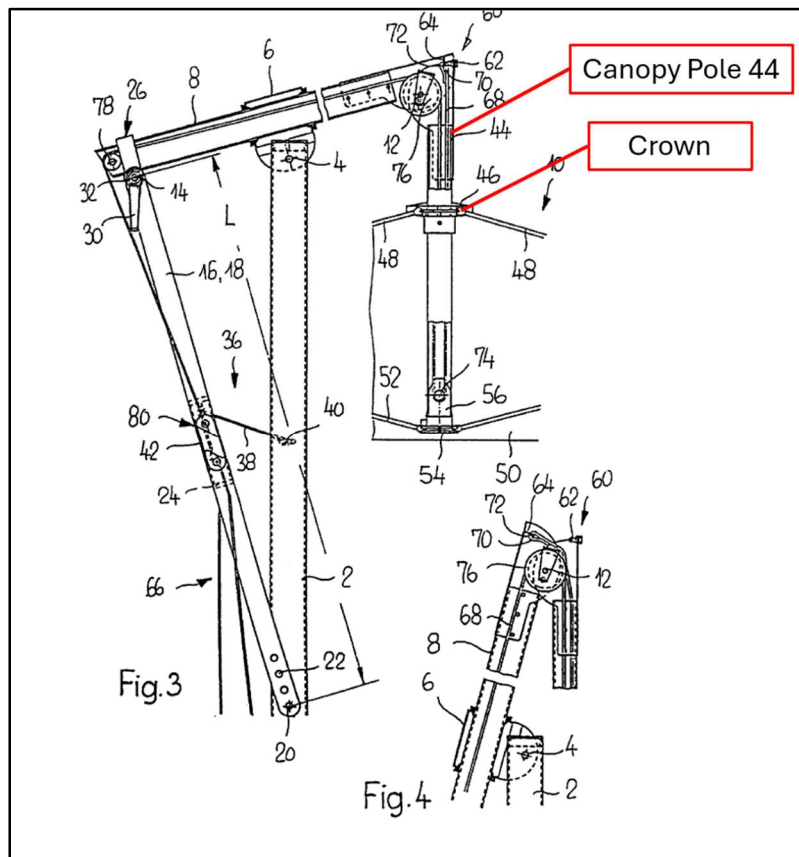
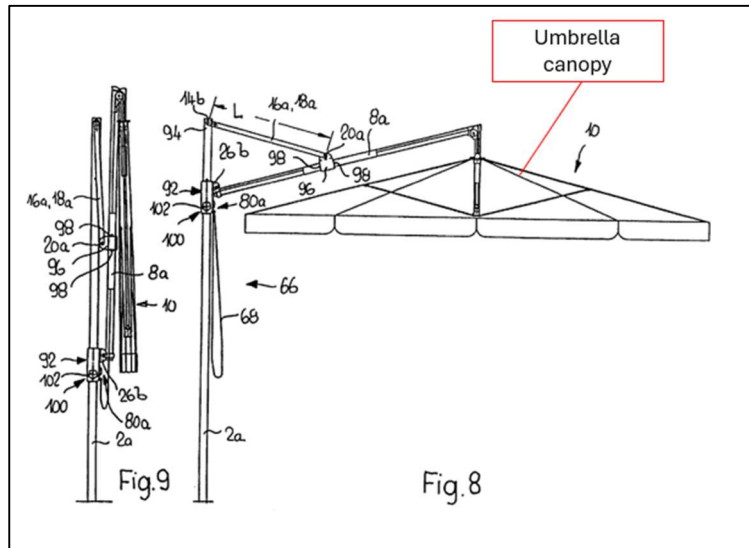
Bertola Figure 4 (Ex. 1013 at 19)

A POSITA would understand that Bertola, like Glatz '980, must contain a plurality of detent openings because Bertola teaches a height adjustable umbrella, and a plurality of holes is necessary to allow a user to choose the height of the umbrella. Ex. 1004 at ¶ 150. *See* Ex. 1013 at 27-29 and Figure 1 and 4.

A POSITA would have understood that a simple substitution of the “spring pretensioned” locking pin and hole locking mechanism on the sliding member of Bertola for the “stop bolt which can engage into various detent openings along the mast” of Glatz would yield predictable results. It would improve the Glatz umbrella by allowing automatic engagement of the pin with the hole without requiring the user to push the pin in to secure the umbrella. Ex. 1004 at ¶ 151.

d. Limitation 1[D]: “an umbrella canopy having a central region”

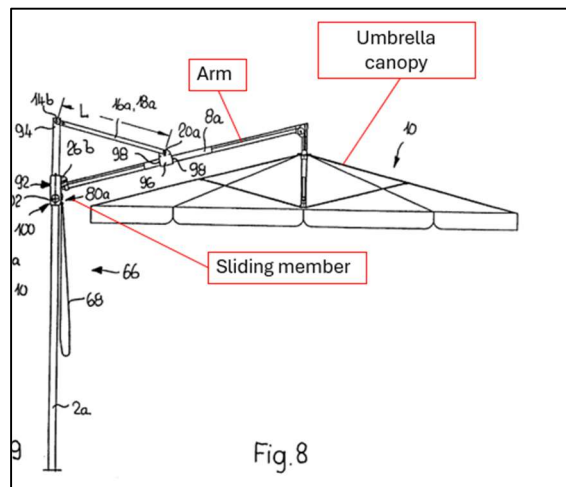
Glatz '980 discloses an umbrella canopy 10 having a central region (the portion of the canopy 10 surrounding the canopy pole 44). Ex. 1004 at ¶ 152.



Glatz '980 Figures 3, 4, 8 and 9 (Ex. 1008 at 3, 5)

- e. **Limitation 1[E]: “an arm associated with the central region and extending radially therefrom to an outer end operatively associated with the sliding member”**

Glatz '980 discloses this. Ex. 1004 at ¶ 153.

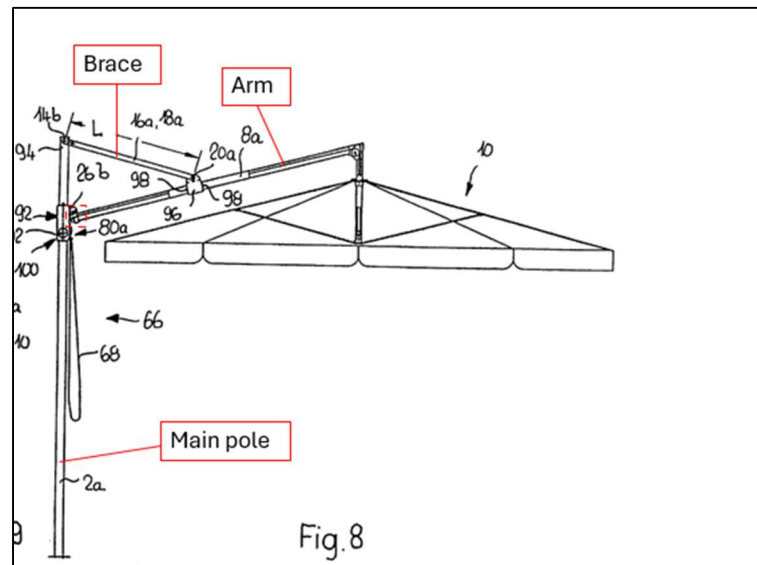


Glatz '980 Figure 8 (Ex. 1008 at 5)

As shown above, the arm (jib 8a) extends from the central region to an outer end, and “jib (8a) supports itself against a mast (2a) via a slide (92).” Ex. 1008 at 5:64-6:16; Ex. 1004 at ¶ 153.

- f. **Limitation 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) as shown below. Ex. 1004 at ¶ 154.

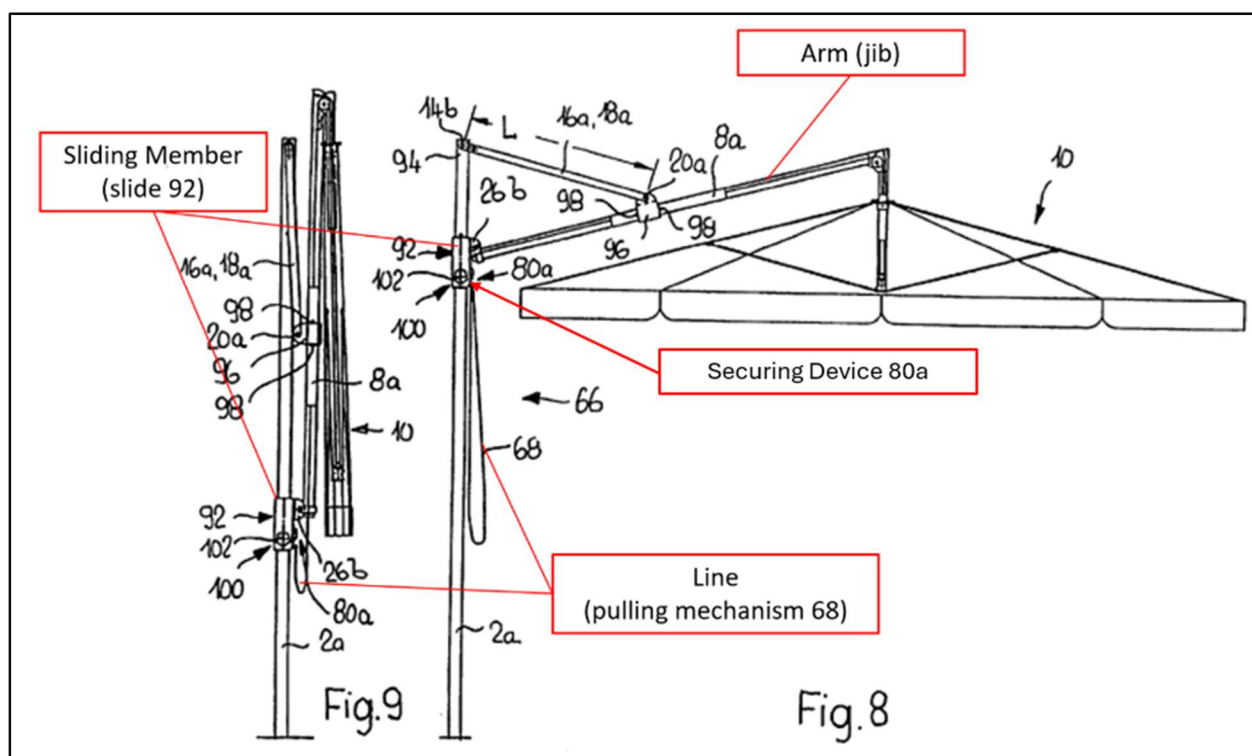


Glatz '980 Figure 8 (Ex. 1008 at 5)

Further, Glatz '980 teaches that the brace is 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). Claim 1 of Glatz '980 recites 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).” Ex. 1008 at 8:60-9:7 (emphasis added); Ex. 1004 at ¶ 155. A POSITA would understand that “articulately secured” means pivotably attached. Ex. 1004 at ¶ 155.

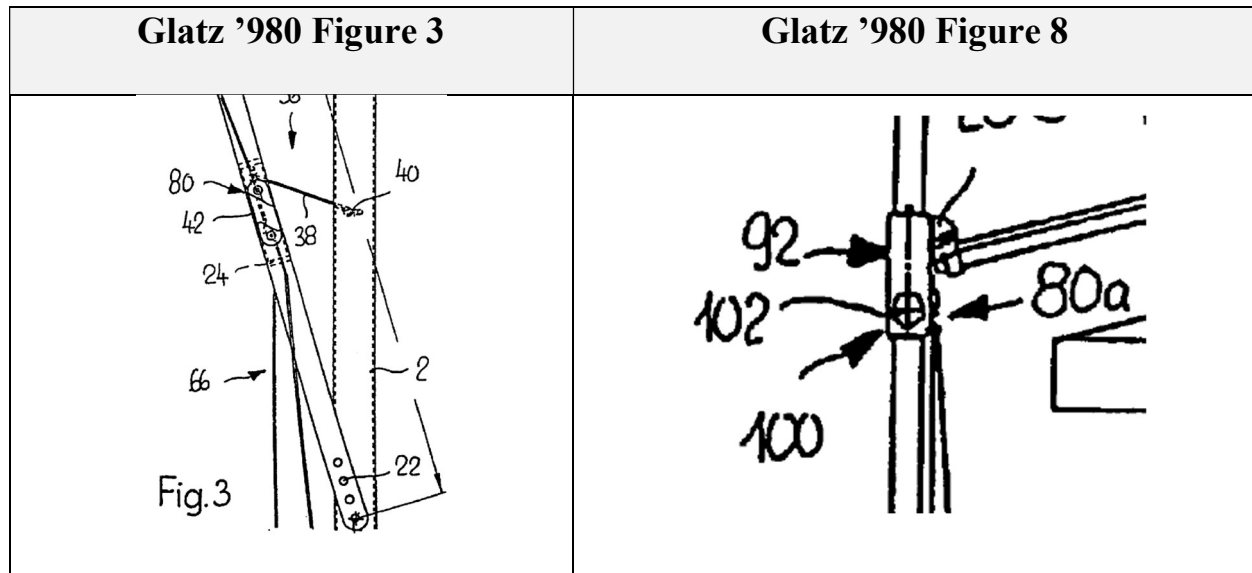
- g. **Limitation 1[G]: “a winding mechanism having a winder hub around which a line can be wound, the winder hub being mounted to the sliding member and movable therewith”**

Glatz '980 discloses a securing device 80, 80a that anchors the line (pulling mechanism 68) and is mounted to the sliding member (slide 92). Ex. 1008 at 5:26-42, 6:23-26; Ex. 1004 at ¶ 156.

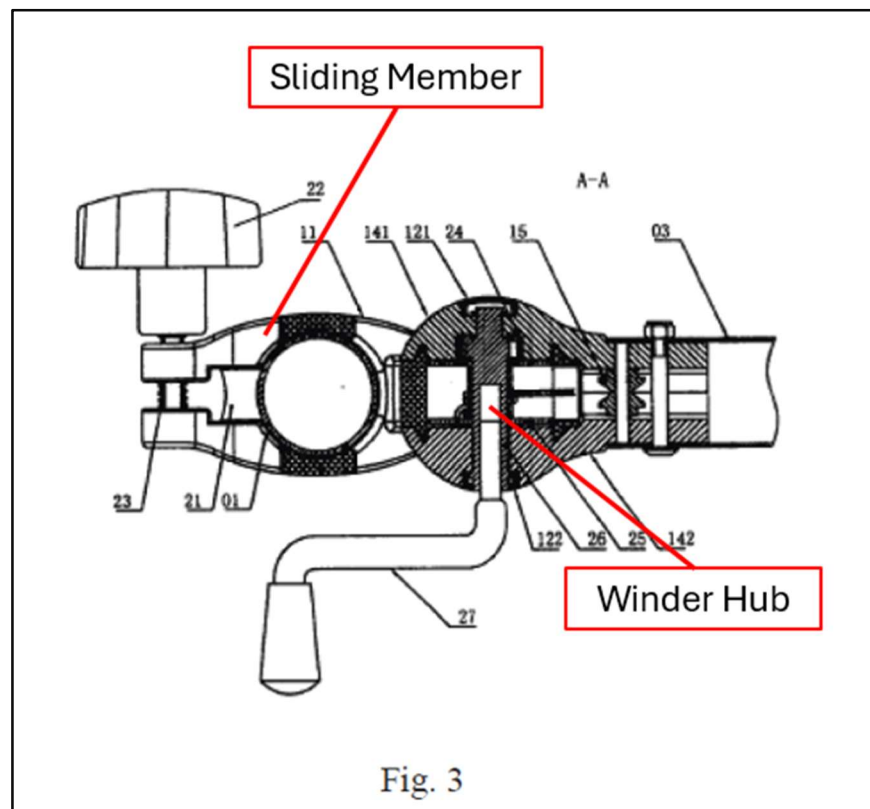
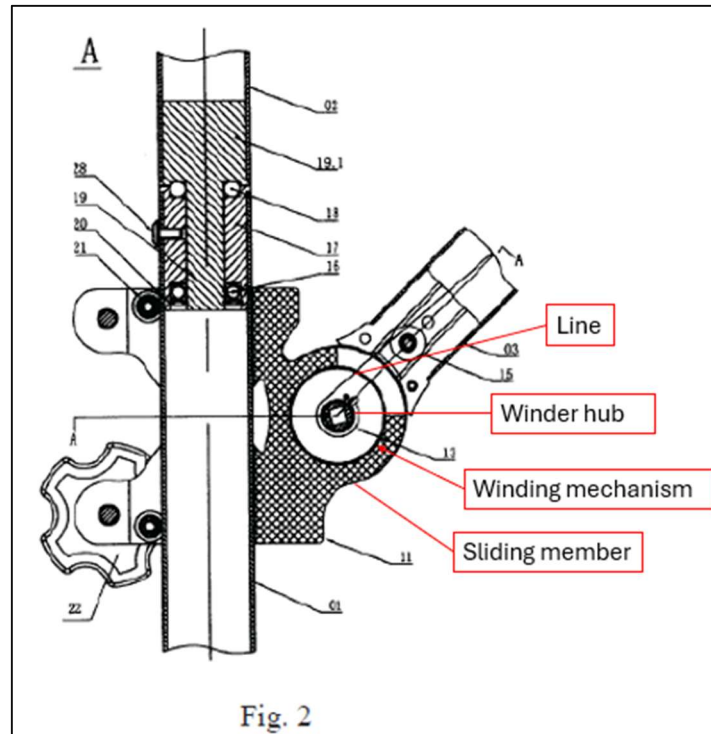


Glatz '980 Figure 8 (Ex. 1008 at 5)

Glatz '980 explains that “the securing device (80a) for fastening the [line (pulling mechanism 68)] is positioned on the slide (92) so that the canopy can be inclined in the open state” as shown below. Ex. 1008 at 6:19-26; Ex. 1004 at ¶ 157.



Although the Glatz '980 securing device is not a winder hub, winder hubs were well known in the prior art for securing a line used to tension a canopy of this type. For example, Wang '460 discloses this. As shown below, the Wang '460 umbrella has a “sliding sleeve 11 [that] slide[s] smoothly with the parasol pole” and contains a winder mechanism with a winder hub, “rope reel 26 of a winder handle 27.” Ex. 1007 at 15, 17, and 20; Ex. 1004 at ¶ 158.



Wang '460 Figures 2 and 3 (Ex. 1007 at 20)

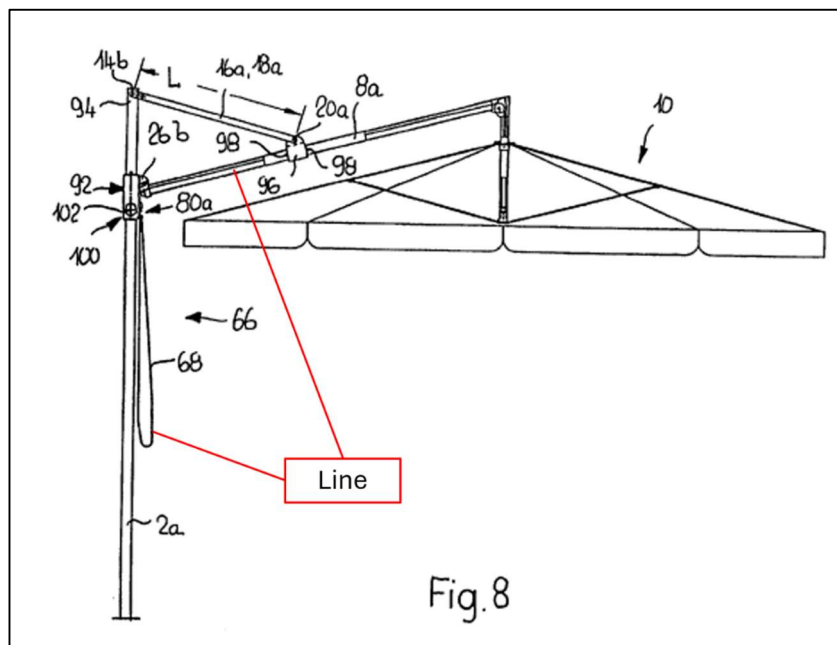
A POSITA would have understood that a simple substitution of the securing device (80a) disposed on the sliding member in Glatz '980 with the winding mechanism in Wang '460 would yield predictable results for securing the line to control the umbrella and would improve Glatz's umbrella. Ex. 1004 at ¶ 159. Wang '460 and Glatz both identify a need to improve umbrellas by making them easier to operate. 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 by creating a mechanical advantage and enables the umbrella to be rotated 360 degrees around the supporting pole. Ex. 1007 at 10-11 (Abstract); Ex. 1004 at ¶ 159. Glatz '980 also states a need to provide a device that is easier to handle and a design that can reduce user injury. Ex. 1008 at 1:46-56; Ex. 1004 at ¶ 159.

A POSITA would understand that a winding mechanism using a winder hub can neatly store a line in the sliding member. Ex. 1004 at ¶ 159. This can prevent the line from getting tangled, obstructing a user, inadvertently strangling a child, and/or degrading from UV exposure. Ex. 1022 at 6:24:27; Ex. 1004 at ¶ 159. By storing an end of the line within a winding mechanism mounted to the sliding member, the device is safer. Further, the mechanical advantage obtained by a winder hub can allow smaller users to easily manipulate a larger umbrella canopy. *Id.* Thus,

this substitution accomplishes the goals stated in Glatz '980 and Wang '460 of providing an improved umbrella that is easier to operate. *Id.*

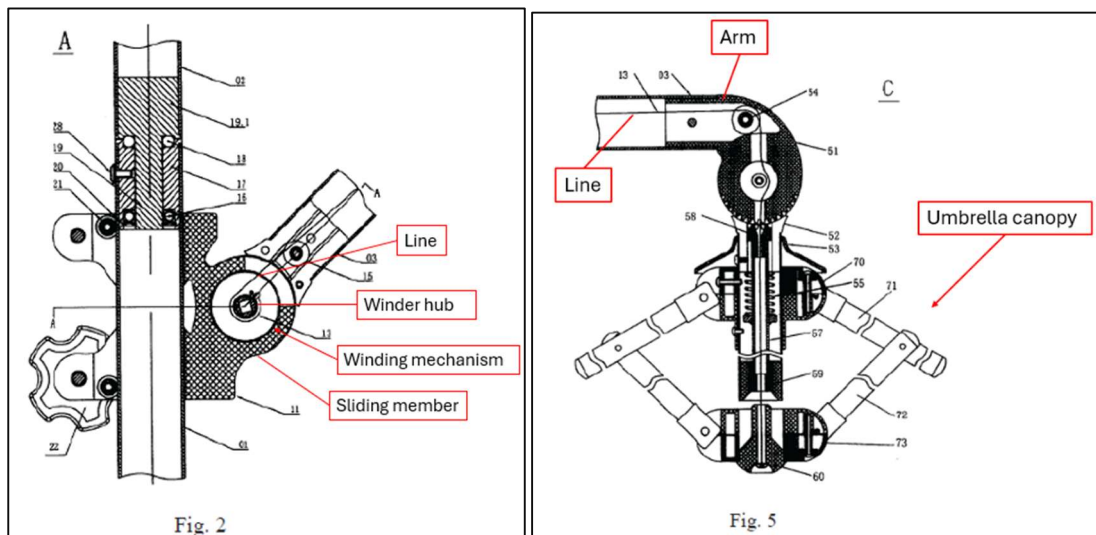
- h. **Limitation 1[H]: “a line having a first end that winds around the winder hub, an intermediate portion extending from the winder hub along the arm to the umbrella canopy, and a second end that engages the umbrella canopy”**

Glatz '980 modified to include the winder hub of Wang '460 discloses this. Glatz '980 discloses a line (pulling mechanism 68) extending from the securing device on the sliding sleeve 92 along the arm (jib 8a) to the umbrella canopy (canopy 10), and engaging the umbrella canopy (end 70) as shown below. Ex. 1004 at ¶ 160; Ex. 1008 at 5:26-49, 6:19-26.



Glatz '980 Figure 8 (Ex. 1008 at 5)

Wang '460, like Glatz '980, discloses a line (pull rope 13) extending from the securing device or winder hub (rope reel 26) along the arm to the umbrella canopy (parasol cover 112), where it engages the umbrella canopy (parasol cover 112). Ex. 1004 at ¶ 161. Wang '460 further teaches that 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...so as to be fixed to the” parasol. Ex. 1007 at 17; Ex. 1004 at ¶ 161.



Wang'460 Figures 2 and 5 (Ex. 1007 at 20-21)

As discussed above, a POSITA would be motivated to modify the Glatz '980 umbrella to have winder hub of Wang '460. Ex. 1004 at ¶ 162.

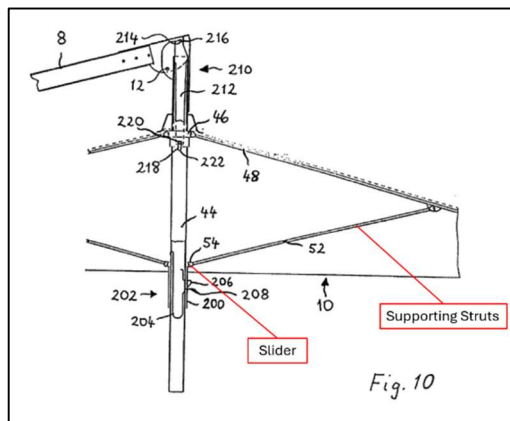
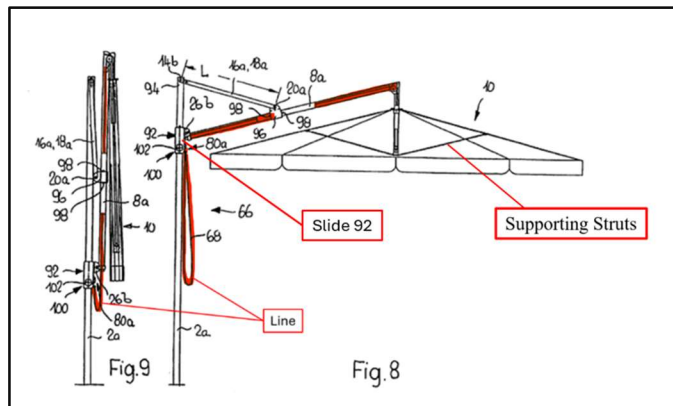
i. **Limitation 1[I]: “wherein rotation of the winder hub tensions or relaxes the line depending upon the direction of rotation of the winder hub”**

Winder hubs were well known in the prior art, and Wang '460 discloses this limitation. Ex. 1004 at ¶ 163. Specifically, Wang '460 explains that when opening the parasol, “the rope winder is [] operated to wind the parasol rope so as to lift the lower parasol disc.” Ex. 1007 at 15; Ex. 1004 at ¶ 164. A POSITA would understand that the rotation of the rope reel provides a mechanical advantage that enables a user to open and close the umbrella canopy with less effort by tensioning or relaxing the line depending upon the direction of the rotation of the rope reel. Ex. 1004 at ¶ 164. Further, as explained above, a POSITA would be motivated to combine Wang '460 with Glatz to accomplish the goals stated in both references. Ex. 1004 at ¶ 165.

j. **Limitation 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”**

In the Glatz '980 umbrella, applying tension to the line opens and closes the umbrella canopy in response to movement of the line in the same way as in the umbrella of the '492 Patent. Specifically, Claim 2 of Glatz '980 describes a pulling mechanism (68), which is a line used to open and close the canopy. Ex. 1008 at 9:8-11; Ex. 1004 at ¶ 166. Claim 2 explains that “the slider (54) interacts with a pulling mechanism (68) of an actuating device (66) which is guided to the mast (2, 2a) in

the direction of the jib (8, 8a).” Ex. 1008 at 9:8-11; Ex. 1004 at ¶ 166. As shown in Figures 8-10 below, the pulling mechanism (68) is a line that runs from the “slider” (a piece that moves upward to open the canopy) up through the crown of the canopy and along the arm (jib 8,8a), to the main pole (mast 2, 2a). Ex. 1008 at 9:8-11; Ex. 1004 at ¶ 166.



Glatz '980 Figures 8 & 10 (Ex. 1008 at 5-6)

Figure 8 shows that the line/pulling mechanism (68) is affixed to “slide (92) that can be slid along and be secured to the mast (2a).” Ex. 1008 at 9:25-26.

As discussed above, although Glatz '980 uses a “securing device” rather than a winding hub to anchor the line/pulling mechanism (68), Wang '460 discloses a winder hub (rope reel 26) used to anchor the line in a similar cantilever umbrella. Wang '460 also explains that using the winder hub to tension or relax the line (pull rope 13) opens and closes the canopy. Ex. 1004 at ¶ 168. A POSITA would understand that rotation of the rope reel tensions or relaxes the line to open and close the umbrella. Ex. 1004 at ¶ 168. A POSITA also would have been motivated to make the simple substitution to replace the cleat in the Glatz '980 umbrella with the winder hub disclosed in Wang '460 as discussed above. Ex. 1004 at ¶ 168.

k. Limitation 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 that the angle of the umbrella canopy with respect to the main pole (mast 2) can be controlled by moving the sliding member (slide 92) along the main pole (mast 2). Ex. 1004 at ¶ 169. Glatz '980 explains that the manipulation of the slide (92) affects the “the inclination of the canopy.” Ex. 1008 at 3:14-37, 6:12-26, Figures 1-2 and 8-9; Ex. 1004 at ¶ 169.

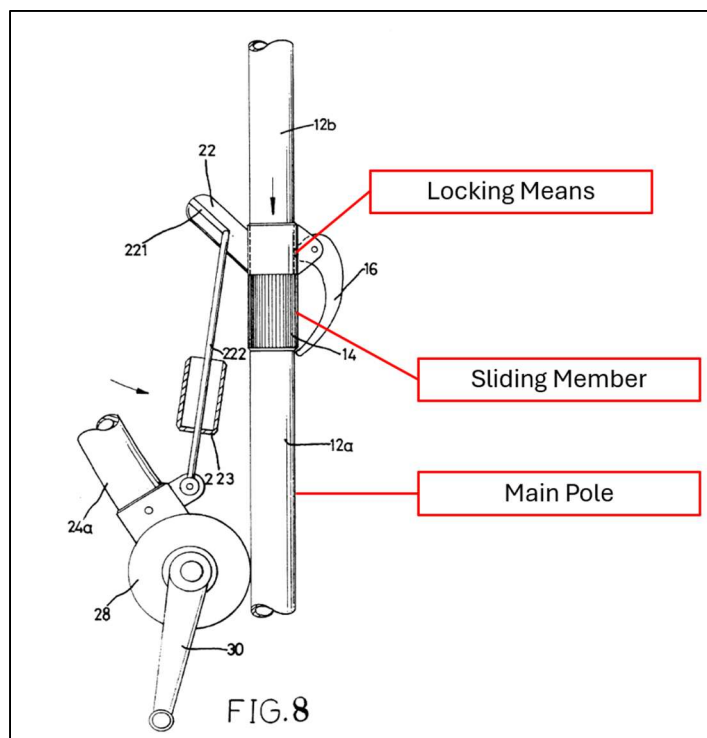
Accordingly, Glatz '980 in view of Wang '460 or in further view of Bertola invalidates claim 1 under pre-AIA 35 U.S.C. § 103. Ex. 1004 at ¶ 170.

2. Claim 2

Claim 2 of the '492 Patent recites “[t]he umbrella of claim 1, wherein the locking means for releasably securing the sliding member to the main pole comprises a cam latch member having a cam surface, the cam latch member being rotatable with respect to the sliding member between a first position in which the cam surface causes the sliding member to be clamped against the main pole, and a second position in which the cam surface permits movement of the sliding member with respect to the main pole.” Ex. 1001 at 5:12-18.

Tung discloses a locking means comprising a cam latch member having a cam surface (lever 16). Further, the Tung cam latch member (lever 16) is rotatable with respect to the sliding member adjusting sleeve 14, control sleeve 13) between a first position in which the cam surface causes the sliding member (adjusting sleeve 14, control sleeve 13) to be clamped against the main pole (supporting rod 12), and a second position in which the cam surface (lever 16) permits movement of the sliding member (adjusting sleeve 14, control sleeve 13) with respect to the main pole (supporting rod 12). Ex. 1004 at ¶ 171. For example, Tung states “[t]he 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.” Ex. 1010 at 3:36-46; Ex. 1004 at ¶ 171. *See* Ex. 1010 at 4:57-63 and Figs. 1, 5, and 6-7 and 10. Moreover, the cam latch mechanism taught in Tung is advantageous over the locking means taught in Glatz ’980 because the latter only locks in discrete positions whereas the former locks in any user-defined position. Ex. 1004 at ¶ 173.



Tung Figure 8 (Ex. 1010 at 9)

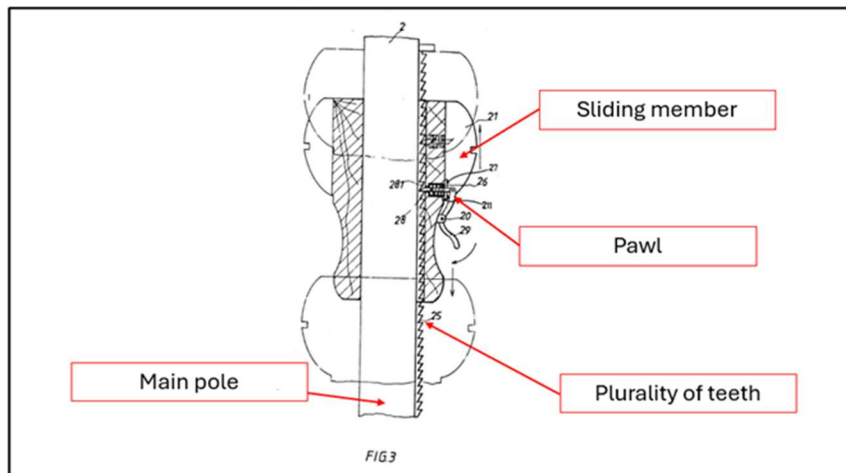
Id. at Figure 8. A POSITA would have understood that a simple substitution of the first detent device 100 with stop bolt in Glatz with the cam latch locking mechanism of Tung would yield predictable results to improve adjustable collapsible umbrella products and to secure the umbrella into place. Ex. 1004 at ¶ 172.

Thus, claim 2 is invalid under § 103. Ex. 1004 at ¶ 174.

3. Claim 3

Claim 3 of the '492 Patent recites “[t]he umbrella of claim 1, wherein the locking means for releasably securing the sliding member to the main pole comprises a plurality of teeth formed on the main pole and a cooperating pawl associated with the sliding member and selectively operative to engage a selected one of the teeth to prevent movement of the sliding member with respect to the main pole.” Ex. 1001 at 5:19-6:5.

Liu discloses this. Ex. 1004 at ¶ 175. The Abstract of Liu discloses a “rack-like member is equipped with a plurality of consecutive Z-shaped teeth” located on the main shaft of the sunshade where the runner (i.e. sliding member) can slidably be move along the rack. Ex.1011 at Abstract; 2:21-38; 3:1-6; Ex. 1004 at ¶ 175. The front tip of the supporting pin located on the runner engages “with the teeth of the rack-like member and can disengaged there with by actuation of the arc arm so as to make the supporting pin retrievably actuated.” Ex. 1011 at Abstract; Ex. 1004 at ¶ 175; *see also* Ex.1011 at 1:19-31, 2:21-38, 3:10-30, Figure 2.



Liu Figure 3 (Ex. 1011 at 4)

A POSITA would have understood that a simple substitution of the first detent device 100; stopping bolt in Glatz '980 with the known locking means in Liu would yield predictable results to improve adjustable collapsable umbrella products and to secure the umbrella into place. Ex. 1004 at ¶ 176. Indeed, Liu and Glatz '980 both relate to collapsable umbrella products. Ex. 1004 at ¶ 176. Similar motivations to combine are also found in both references. Ex. 1004 at ¶ 177. Glatz '980 states there was a need to have a safe and reliable locking means. Ex. 1008 at 1:51-57; Ex. 1004 at ¶ 177. Liu also explains that certain prior art umbrellas require “great effort” to operate because the operator must “hold the runner in place with one hand” and operate the locking device with the other. Ex. 1004 at ¶ 178; Ex. 1011 at 1:57-66. Liu explains how teeth disposed on the main shaft of the 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. Ex. 1011 at 1:57-2:11, 2:38-42, 3:50-4:8; Ex. 1004 at ¶ 178. A POSITA would recognize that Glatz '980's first detent device 100 requires holding the slide in place while using the other hand to lock it. Ex. 1004 at ¶ 178. Thus, using the locking mechanism in Liu would improve the ease of use of the umbrella while achieving the goals recited in Glatz '980. *Id.* Moreover, a POSITA would recognize that the locking means in Liu would offer more adjustability due to its finer teeth as compared to the discreet locking locations in Glatz '980. *Id.* Thus, a POSITA would understand to use the locking mechanism used in Liu to improve the Glatz '980 umbrella while achieving Glatz's goals. Ex. 1004 at ¶ 178.

Thus, claim 3 is invalid under § 103. Ex. 1004 at ¶ 178.

4. Claim 4

Claim 4 of the '492 Patent recites “[t]he umbrella of claim 1, wherein the locking means for releasably securing the sliding member to the main pole comprises a plurality of holes formed in the main pole and a pin associated with the sliding member and operative to engage a selected one of the holes.” Ex. 1001 at 6:6-10. As set forth above regarding Claim 1, Glatz '980 describes a locking device that is essentially the same as the latch pin and hole structure corresponding to the § 112 ¶ 6 “locking means” limitation described in the '492 Patent. Glatz '980 specifically

describes a “stop bolt which can engage into various detent openings along the mast.” Ex. 1008 at 3:31-38; Ex. 1004 at ¶ 179. A POSITA would recognize that the stop bolt “detent” described by Glatz ’980 could be spring-loaded as detents commonly are. Ex. 1004 at ¶ 179.

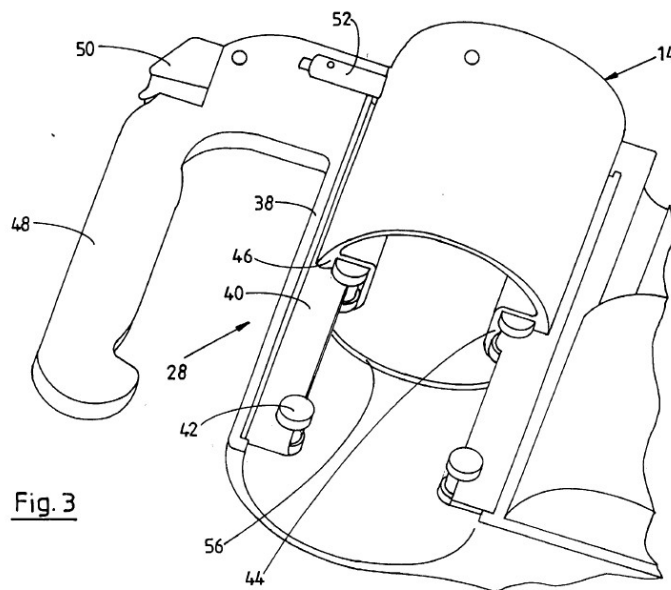
Alternatively, Bertola discloses a button 50 that is used to is to operate a spring-loaded pin (latch 52) under “spring pretension” that engages with a hole (hole 54) “for fixation of the slider [] on the mast.” Ex. 1013 at 30; Ex. 1004 at ¶ 180. As explained above, a POSITA would have understood that a simple substitution of the “spring pretensioned” locking pin and hole locking mechanism on the sliding member of Bertola for the “stop bolt which can engage into various detent openings along the mast” of Glatz would yield predictable results of automatic engagement of the pin with the hole to improve adjustable collapsable umbrella products and to secure the umbrella into place without requiring the user to push the pin into the hole. Thus, claim 4 is invalid under § 103. Ex. 1004 at ¶ 180.

5. Claim 5

Claim 5 of the ’492 Patent recites “[t]he umbrella of claim 1, wherein the sliding member has a handle associated therewith.” Ex. 1001 at 6:11-12. Glatz ’980 discloses this limitation. Glatz ’980 teaches that the “slide (92) which can be moved along the mast (2a) and against which the jib (8a) supports itself.” Ex. 1008 at 6:12-13. Because “handle” is construed with its plain of ordinary meaning and slide 92

must have a “handle” because a user must hold slide 92 to adjust the height of the umbrella, a POSITA would understand Glatz ’980 has a handle on the sliding member. Ex. 1004 at ¶ 182.

To the extent Glatz ’980 does not disclose a handle on the sliding member, Bertola discloses a handle on the sliding member as shown below.



Bertola Figure 3 (Ex. 1013 at 18)

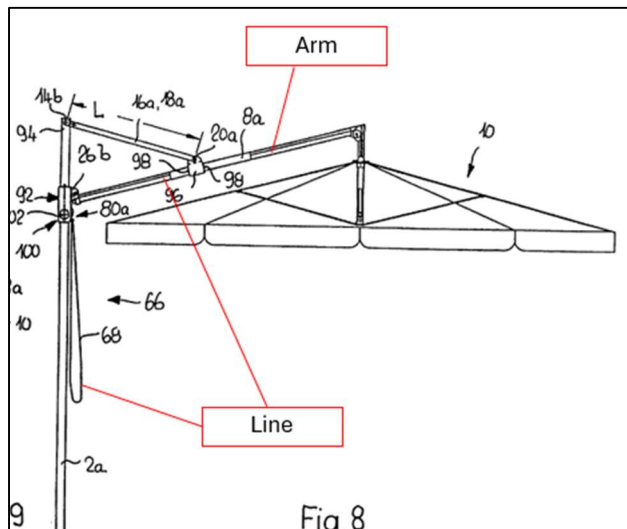
Bertola explains that the slider 28 further comprises a handle 48, which is preferably integrally connected to the sleeve 38. Ex. 1013 at 30; Ex. 1004 at ¶ 184. As explained above, a POSITA would have understood that a simple substitution of the sliding member in the Glatz ’980 umbrella with the slider on the Bertola umbrella

would yield predictable results to provide a structure to manipulate the sliding member. Ex. 1004 at ¶ 186. Both umbrellas use a sliding member for adjusting the umbrella and have a similar device for locking the sliding member in place along the main pole. *Id.* The added benefit of the handle on the Bertola sliding member would have motivated a POSITA to make this substitution. *Id.*

Thus, claim 5 is invalid. Ex. 1004 at ¶ 187.

6. Claim 6

Claim 6 of the '492 Patent recites “[t]he umbrella of claim 1, wherein the line extends along at least substantially the entire length of the arm.” Ex. 1001 at 6:13-14. Glatz '980 discloses wherein the line (pulling mechanism 68) extends along at least substantially the entire length of the arm (jib 8a). Ex. 1004 at ¶ 188. As shown in Figure 8 below, the pulling mechanism 68 extends to an outer end of the jib, over a pulley and down into the central part of the canopy 10. Ex. 1008 at 5:26-49; Ex. 1004 at ¶ 188.



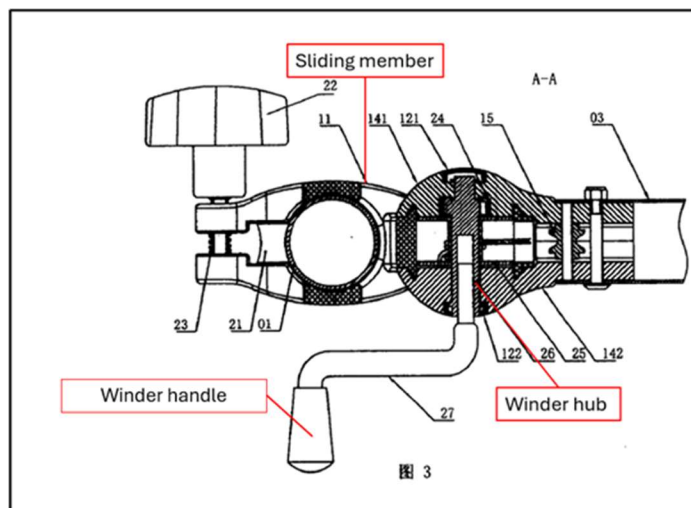
Glatz '980 Figure 8 (Ex. 1008 at 5)

Thus, claim 6 is invalid. Ex. 1004 at ¶ 189.

7. Claim 7

Claim 7 of the '492 Patent recites “[t]he 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.” Ex. 1001 at 6:15-17. 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. Ex. 1004 at ¶ 190. As shown in Figure 3 (annotated below), “[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.” Ex. 1007 at 17 and 20 (Figure 3); Ex. 1004 at ¶ 190.



Wang'460 Figure 3 (Ex. 1007 at 20)

As discussed above, a POSITA would be motivated to combine these references to accomplish the goals stated in both references. Ex. 1004 at ¶ 191.

VII. THE BOARD SHOULD NOT EXERCISE DISCRETION TO DENY INSTITUTION

A. Under 35 U.S.C. §314(a)

The *Fintiv* factors weigh strongly in favor of institution. Factor 1 is neutral or favors institution because, although Petitioner will move to stay the litigation, the district court has not considered or ruled on any stay motion. *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 14 (P.T.A.B. Dec. 1, 2020). Additionally, the district court is likely to stay the case to benefit from the Board's

expertise as the district court intends to appoint a special master to preside through summary judgment. Ex. 1027.

Factor 2 weighs in favor of institution. The district court has not yet set a trial date, and the parties' most recent stipulated litigation schedule sets the close of fact discovery for five months out and the close of expert discovery for at least nine months from now. Exs. 1028, 1029. Factor 3 favors institution because the district court and the parties have expended few resources in litigation. The parties have engaged in written discovery but no depositions. The Markman hearing has not been set, and the special master has not yet been appointed by the Court. Exs. 1027, 1028.

Factor 4 favors institution. This Petition challenges all the claims in the '492 Patent which is more than the claims at issue in the litigation. Exs. 1030, 1031. Under Factor 5, Petitioner is the defendant in the litigation. Factor 6 favors institution because of the strong merits of this Petition.

B. Under 35 U.S.C. §325(d)

First, there is no evidence the Examiner evaluated the priority claim or any prior art under a proper, May 2009, priority date, as presented here in Grounds 1 and 2. Second, the factors in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-18 (P.T.A.B. Dec. 15, 2017) favor institution. Wang '109, Wang '439, and Glatz '980 were not previously presented to or considered by the Office during prosecution of the '492 Patent. Thus, the combinations of prior art

relied on in this Petition have not previously been presented to or considered by the Office. Moreover, during examination the Office did not have the benefit of the arguments and evidence presented in this Petition, including the testimony of Petitioner's expert, Dr. Klopp (*see* Ex. 1004).

For the reasons above, this Petition presents new, noncumulative prior art and arguments and the Board should not exercise its discretion under § 325(d).

VIII. MANDATORY NOTICES

Petitioner provides the following mandatory notices pursuant to 37 C.F.R. § 42.8(a)(1).

A. Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))

The real parties-in-interest are ATLeisure and Treasure Garden. No other entity is controlling, directing, or funding the submission of this petition.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

The '492 Patent is asserted against Petitioner in *ATLeisure, LLC v. Treasure Garden, Inc.*, Case No. 1:24-cv-02270-TWT (N.D. Ga. May 23, 2024) (i.e., the Underlying Litigation).

ATLeisure has previously asserted the '492 Patent in the following actions: *ATLeisure, LLC v. Ace Evert, Inc.*, Case No. 1:12-cv-01260 (N.D. Ga. Apr. 12, 2012) (settlement, dismissed with prejudice), *ATLeisure, LLC v. Red Star Traders, LLC*, Case No. 1:12-cv-02253 (N.D. Ga. June 28, 2012) (settlement, dismissed with

prejudice), *ATLeisure, LLC v. Sunvilla Corp.*, Case No. 1:20-cv-04662 (N.D. Ga. Nov. 16, 2020) (dismissed with prejudice), *ATLeisure, LLC v. Lowe’s Home Centers, LLC*, Case No. 6:22-cv-682-WWB-GJK (M.D. Fla. Apr. 8, 2022) (settlement, dismissed with prejudice).

The ’492 Patent has also been previously challenged before the Board in *Zhejiang Zhengte Co., Ltd. v. ATLeisure, LLC*, IPR2021-00430 (PTAB Jan. 22, 2021) and the Board denied institution.

C. Lead and Back-up Counsel (37 C.F.R. § 42.8(b)(3))

Petitioner appoints the following attorneys as lead and back-up counsel from Knobbe Martens Olson & Bear LLP. Filed herewith are a powers of attorney in accordance with 37 C.F.R. § 42.10(b).

Lead Counsel	Back-up Counsel
Lauren Keller Katzenellenbogen (Reg. No. 56,553) 2LXK@knobbe.com Knobbe, Martens, Olson, & Bear, LLP <u>Postal and Hand-Delivery Address:</u> 2040 Main St., 14 th Floor Irvine, CA 92614 Telephone: 949-760-0404 Facsimile: 949-760-9502	Andrew M. Douglas (Reg. No. 51,212) 2AMD@knobbe.com Knobbe, Martens, Olson, & Bear, LLP <u>Postal and Hand-Delivery Address:</u> 2040 Main St., 14 th Floor Irvine, CA 92614 Telephone: 949-760-0404 Facsimile: 949-760-9502

D. Service Information (37 C.F.R. §42.8(b)(4))

Petitioner consents to electronic service by email to its lead and back-up counsel at the following email addresses:

- Lauren.Katzenellenbogen@knobbe.com;
- Andrew.Douglas@knobbe.com;
- Matthew.Petersen@knobbe.com; and
- BoxTGINCL.330LP@knobbe.com

IX. CONCLUSION

Petitioner respectfully requests that the Board institute *inter partes* review and find all claims of the '492 Patent unpatentable.

Dated: May 22, 2025

By: /Lauren Keller Katzenellenbogen/

Lauren Keller Katzenellenbogen (Reg. No. 56,553)

Andrew M. Douglas (Reg. No. 51,212)

KNOBBE MARTENS OLSON & BEAR, LLP

Attorney for Petitioner Treasure Garden, Inc.

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,104,492 contains 13,719 words according to the word-processing program used to prepare this paper. The foregoing word count complies with the 14,000-word type-volume limit specified by 37 C.F.R. § 42.24(a)(1).

Dated: May 22, 2025

By: /Lauren Keller Katzenellenbogen/

Lauren Keller Katzenellenbogen (Reg. No. 56,553)

Andrew M. Douglas (Reg. No. 51,212)

KNOBBE MARTENS OLSON & BEAR, LLP

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the date below a copy of this PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,104,492, PETITIONER’S POWER OF ATTORNEY, AND EXHIBITS 1001-1031, were served by FedEx on the Patent Owner at the correspondence address of record for the subject patent as follows:

104839 – Jack G. Abid
1135 East State Road 434, Suite 3001
Winter Springs, FL
UNITED STATES

A courtesy copy has been sent by email on this day to Patent Owner’s counsel of record in the matter identified in Section VIII.B of the Petition as follows:

PERILLA KNOX & HILDEBRANDT LLP
Cynthia Jeannette Lee
5871 Glenridge Drive, Suite 350
Atlanta, GA 30328
Email: c.lee@pkhip.com
litigation@pkhip.com

ALLEN DYER DOPPELT
MILBRATH & GILCHRIST
Ryan T. Santurri
255 South Orange Ave., Suite 1401
Orlando, FL 32802
Email: rsanturri@allendyer.com

Dated: May 22, 2025

By: /Lauren Keller Katzenellenbogen/
Lauren Keller Katzenellenbogen (Reg. No. 56,553)
Andrew M. Douglas (Reg. No. 51,212)
KNOBBE MARTENS OLSON & BEAR, LLP