

Case IPR2023-00580
Patent No. 10,669,738

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GLOBAL SHADE CORPORATION,
Petitioner,

v.

WITH-U E-COMMERCE (SHANGHAI) CO., LTD.,
Patent Owner.

Case IPR2023-00580
Patent 10,669,738

PATENT OWNER'S RESPONSE

PURSUANT TO 37 C.F.R. § 42.120

Patent Owner's Response

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LIST OF EXHIBITS

Exhibit No.	Description
2001	Non-Final Office Action, September 26, 2019 (with accompanying Notice of References Cited, Search Notes, and EAST Search History)
2002	Non-Final Office Action, September 28, 2018
2003	U.S. Patent Publication No. 2015/0308147 (“Lee”)
2004	U.S. Patent No. 6,929,017 (“Byun”)
2005	Office Action Response, February 10, 2020
2006	Notice of Allowance, February 27, 2020
2007	Declaration of Wendy Reffeor, Ph.D. (with attached CV)
2008	U.S. Patent No. 5,230,358 (“Forell”)
2009	U.S. Patent No. 4,945,936 (“Surrendi”)
2010	U.S. Patent No. 4,202,363 (“Watts”)
2011	U.S. Patent No. 3,929,146 (“Maiken”)
2012	U.S. Patent No. 2,771,087 (“Simonson”)

I. INTRODUCTION

Pursuant to 37 C.F.R. § 42.1207 and in response to Petitioner Global Shade Corporation’s (“Global Shade” or “Petitioner”) PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 10,669,738 (Paper No. 2 (“Pet.”)) and the Board’s DECISION GRANTING INSTITUTION OF *INTER PARTES* REVIEW, (Paper No. 9 (“Institution Decision”)), With-U E-Commerce (Shanghai) Co., Ltd. (“Patent Owner”) files this Patent Owner Response refuting the patentability challenges raised in the Petition. With this response, Patent Owner respectfully contends the claims should be confirmed as patentable over the art.

This response is filed before DUE DATE 1 set by the Board in the October 27, 2023 ORDER (Paper No. 13) modifying the SCHEDULING ORDER (Paper No. 10).

A *contingent* motion to amend the claims is being submitted together with this response.

II. OVERVIEW

The ’738 Patent is directed to an innovative “**collapsible canopy frame**” that is permitted to collapse when its “central lock” is unlocked and unfolds when its central lock is pushed into the locked position. See Ex. 1001, 10:7–35, 4:24–43; 8:47 through 9:23. Petitioner alleges that claims 1, 2, 4, and 14 of the ’738 Patent

are invalid under 35 U.S.C. § 103 based on a combination of an umbrella tent (Rousselle) in view of a shelter canopy (Tsai) in Ground 1 and that claims 4, 13, and 14 are invalid under 35 U.S.C. § 103 based on further combination of the umbrella tent and shelter canopy from Ground 1 with an additional reference to a lock on the handle of a baby-stroller (Ohnishi) in Ground 2.

However, Petitioner's proposed combinations are deficient with respect to the challenged claims. Specifically, for both Grounds, Petitioner has not shown how the umbrella tent and shelter canopy combination would teach the structural limitations of the claimed **"collapsible canopy frame."** Further, Petitioner's proposed combination of an umbrella tent and shelter canopy would not be operable to achieve the claimed embodiments. Moreover, the two references cited for canopy components **teach away** from the modifications proposed by the Petitioner. Accordingly, Petitioner has failed to demonstrate, by a preponderance of the evidence, that any challenged claim is unpatentable.

Finally, Petitioner's reliance on collateral estoppel is misplaced. The issues discussed above with respect to the challenged claims have never been raised or litigated and certainly have not been judicially resolved. The fact that new issues are involved in this proceeding was confirmed by the Board's reliance on an "alternative modification" or alternative combination of the cited references (one

not presented by Petitioner as a separate ground of rejection) in instituting this trial.

The Board should consider the clear flaws in the proposed grounds of rejection and the express teaching away found in the references, and uphold the patentability of the challenged claims.

III. LEVEL OF SKILL IN THE ART

The Board determined “no express finding is necessary” regarding the level of skill in the art. Institution Decision, at 10. Accordingly, Patent Owner proposes the same standard of the level of skill as previously presented in the Preliminary Response. A person of ordinary skill in the art would have had a Bachelor’s degree in mechanical engineering and two years of relevant experience. A recipient of other academic degrees may qualify as a person of ordinary skill if they have taken coursework or have experience in a pertinent technology. Additional education could offset less work experience; additional work experience could offset less education or coursework.

IV. OVERVIEW OF THE ’738 PATENT

A. OVERVIEW OF PATENT OWNER’S INDEPENDENT CLAIM 1

Independent claim 1 is directed to a collapsible canopy frame that is defined by the following elements:

[A] at least three supporting legs,

[B] a plurality of outer retractable units, each outer retractable unit connected between two adjacent supporting legs, each said outer retractable unit comprises a plurality of hinged X-shaped rod members, each X-shaped rod member comprises a first eave pipe and a second eave pipe hinged to one another,

[C] a plurality of inner retractable units comprising inner ends, each inner retractable unit connected to a supporting leg, wherein said outer retractable units and said inner retractable units form a roof of said collapsible canopy frame, and

[D] a central lock, comprising

1. a center top cap,

2. a center bottom cap,

3. a center pole positioned between said center top cap and said center bottom cap, wherein said central lock is locked when said center pole is connected to both said center top cap and said center bottom cap, and wherein said center lock is unlocked when there is a disconnection between said center bottom cap and said center pole, wherein said central lock locks said collapsible canopy frame in an unfolded state when said central lock is

locked and permits said collapsible canopy frame to be folded into a folded state when said central lock is unlocked, wherein said inner ends of said inner retractable units are connected through said central lock.

Thus, independent claim 1 requires specific structure for the outer retractable units (X-shaped rod members) and also requires that the central lock interacts with the **entirety** of the defined collapsible canopy frame (which includes the supporting legs, **the outer retractable units with X-shaped rod members**, and the inner retractable units forming a roof) to create a folded state and an unfolded state for the collapsible canopy frame. The '738 Patent shows an embodiment of the folded state in Figure 20:

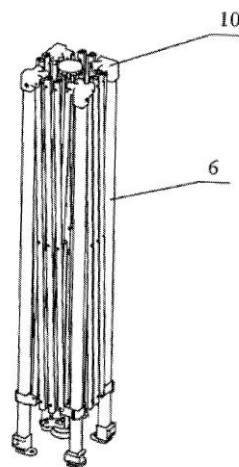


FIG. 20

As clearly shown, the entirety of the collapsible canopy frame (including each of the claimed limitations [A]–[D]) is folded together. This folded state is described in detail in the '738 Patent:

When the canopy is folded, the locking piece 4 is moved such that the inner wall of the first through hole 41 of the locking piece 4 is separated from the clamping groove 21, at this point, the clamp locking part 22 can pass through the first through hole 41, and the center pole 2 also can move out of the center bottom cap 3 to separate the center pole 2 from the center bottom cap 3; and thereafter, force is applied to pull the center bottom cap 3 away from the center pole 2, i.e., **the center bottom cap 3 is pulled downwards to enable the inner retractable units 8 to be folded towards the central lock**, as illustrated in FIG. 19, **finally the outer retractable units 7 are gradually folded and the plurality of supporting legs 6 are folded towards the central lock, as illustrated in FIG. 20.** To sum up, the canopy mounted with the central lock of the present invention **is very convenient to be unfolded or folded, has good support effect and high strength after the canopy is unfolded, and has long service life.** The central lock is simple in structure, easy to manufacture and low in cost.

Ex. 1001, 4:59– 5:10 (emphasis added). As the '738 Patent explicitly states and shows in Fig. 20, the outer retractable units, **including the X-shaped rod members**, must be foldable towards the central lock in this folded state. *Id.* at Fig. 20. Still further, the '738 Patent describes the design consideration as having “good support effect and high strength” and “a long service life.” *Id.* at 5:7–9. A critical feature of these design considerations is ensuring the robust nature of the

system (i.e., good support, high strength and long service life) which is enabled by the support provided by the claimed X-shaped outer retractable rods.

Creating such a robust collapsible canopy that satisfies these design considerations with the convenience of interacting with a central lock to unfold from the folded state was no small advancement in the art of canopy design. Further, it is an advancement that is not realized, and cannot be realized, by Petitioner's proposed combination of references as discussed in detail in the following sections.

V. CONSTRUCTION OF CLAIM TERMS

Petitioner asserted that no claim terms required construction. Pet. 7. Likewise, the Board determined there was no need to construe explicitly any claim language. Institution Decision, at 11. Patent Owner does not propose any specific construction for the terms of the challenged claims.

VI. LEGAL STANDARD

Petitioner bears "the burden of proving a proposition of unpatentability by a preponderance of the evidence." 35 U.S.C. § 316(e).

VII. PETITIONER'S GROUNDS OF REJECTION

Petitioner's stated grounds of rejection are based on Rousselle in view of Tsai (further in view of Ohnishi in Ground 2). Pet. 8.

In the Petition, Petitioner proposed starting with Rousselle's umbrella tent as a primary reference and modifying Rousselle's umbrella tent with structural elements from Tsai as a secondary reference. *Id.* For clarity and convenience, Patent Owner refers to this proposed combination of primary reference Rousselle modified by secondary reference Tsai, i.e., Rousselle's umbrella tent with Tsai's outer units and X-shaped members, as Petitioner's **primary modification**.

As discussed above, in instituting this proceeding, the Board relied on an **alternative modification** (not the primary modification) wherein Tsai is used as a primary reference and is modified by secondary reference Rousselle, i.e., where Tsai's canopy structure is used and modified with the central lock of Rousselle's umbrella tent. Institution Decision, 32–34.

As shown below, Petitioner has not established unpatentability by a preponderance of the evidence under either modification.

VIII. PETITIONER HAS NOT SHOWN UNPATENTABILITY BY A PREPONDERANCE OF THE EVIDENCE

Neither the primary modification nor the alternative modification satisfies Petitioner's burden to show unpatentability by a preponderance of the evidence. In fact, the proposed modification(s) cannot meet this standard. The device(s) resulting from the modification(s) would be inoperable for their intended purpose.

Further, one of skill in the art would not be taught to combine the references as needed to arrive at the challenged claims; instead, the references teach away from the respective modifications that would be required.

A. THE PRIMARY MODIFICATION (ROUSSELLE IN VIEW OF TSAI) FAILS TO SHOW UNPATENTABILITY OF CLAIM 1 BY A PREPONDERANCE OF THE EVIDENCE

Patent Owner first addresses the primary modification, i.e., modifying Rousselle's umbrella tent to include the outer units and X-shaped members of Tsai. This proposed modification would not be operable for the intended purpose and one of skill in the art would not arrive at the claimed invention.

1. THE PRIMARY MODIFICATION (ROUSSELLE IN VIEW OF TSAI) IS INOPERABLE

Petitioner's proposed modification of Rousselle in view of Tsai (primary modification) would be inoperable for the intended function of a collapsible canopy as recited in the challenged claims.

a. HISTORY OF THE INOPERABILITY ARGUMENT

Patent Owner argued inoperability in detail in the Preliminary Response. Paper 6 ("Prelim. Resp."), 12–22. Patent Owner's full argumentation regarding inoperability of the primary modification, including those points raised in the Preliminary Response, is presented below in *Infra* § IX.

The Board acknowledged this fundamental deficiency in Petitioner’s proposed ground of rejection. Institution Decision, 32. However, as discussed in more detail below, the Board relied on an alleged alternative modification. *Id.* at 32–33. The alternative modification is addressed in more detail below in *Infra* § VIII(B).

b. SUMMARY OF THE INOPERABILITY ARGUMENT

Again, Patent Owner’s full argumentation regarding inoperability of the primary modification, including those points raised in the Preliminary Response, is presented below in *Infra* § IX. Patent Owner respectfully provides the following summary for consideration at this point in the analysis.

Petitioner’s articulated grounds of rejection and primary modification are based on adding Tsai’s outer units and X-shaped members into Rousselle’s umbrella tent having the alleged central lock. For example, in arguing that the combination teaches Limitation [B], Petitioner alleges that “[a] POSITA would have been motivated to include Tsai’s outer retractable units in Rousselle’s canopy....” Pet. 20. Likewise, in arguing that the combination teaches Limitation [C], Petitioner discusses adding Tsai’s features into Rousselle’s umbrella tent. *Id.* at 27–29. Finally, with respect to Limitation [D], Petitioner discusses combination of Tsai’s outer retractable units with Rousselle’s umbrella tent. *Id.* at 34.

However, performing this combination would prevent Rousselle's canopy from operating. Instead, as Patent Owner argued in its Preliminary Response, the proposed addition of Tsai's outer units and X-shaped members to Rousselle's umbrella tent would result in an umbrella tent that was **incapable of being folded**. Prelim. Resp. 12–22. Specifically, Rousselle's umbrella tent does not use connections between the legs. *See* Ex. 1003, Fig. 1(A)–1(C). In fact, such connections cannot be used, **because Rousselle's legs are required to invert, i.e., pivot 180 degrees**, as part of the unfolding process. *Id.* at Fig. 1(D). Adding Tsai's outer units and X-shaped members to Rousselle's umbrella tent as proposed by Petitioner would result in several additional attachment points between Rousselle's leg tubes, such that Rousselle's leg tubes would not be capable of performing the required pivoting and thus the leg tubes (and the resulting structure) would not be capable of folding. Ex. 2007, ¶¶ 56–57.

As shown in the annotated Figure below prepared by Patent Owner's Expert, attaching an X-shaped member between Rousselle's leg tubes 310 will prevent the inverting/pivoting of the leg tubes 310 required during Rousselle's unfolding process.

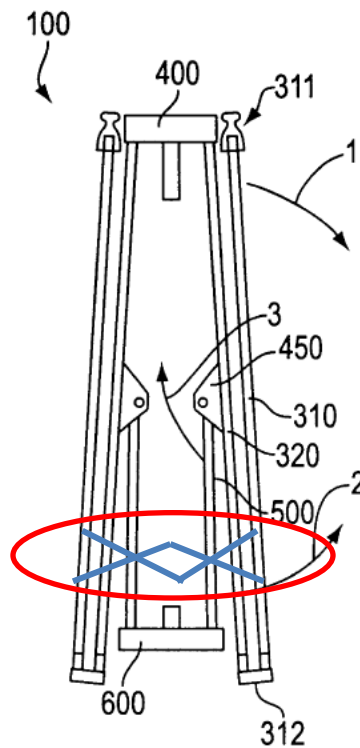


FIG. 1(D)

Ex. 2007, ¶ 57. Thus, this structure would be inoperable for a collapsible canopy frame.

Again, the Board acknowledged this deficiency in Petitioner's proposed ground of rejection. Institution Decision, 32. However, as discussed in more detail below, the Board relied on the alleged alternative modification. *Id.* at 32–33.

Before addressing the alternative modification, Patent Owner respectfully provides further reasons why the references would not be combined as proposed in the primary modification.

**2. ONE OF SKILL IN THE ART WOULD NOT COMBINE
THE REFERENCES AS PROPOSED IN PETITIONER'S
PRIMARY MODIFICATION**

Even assuming *arguendo* that the references could somehow be combined to result in device that was operable, one of skill in the art would not be taught by the references to arrive at Patent Owner's claimed embodiments.

a. ROUSSELLE IS DIRECTED TO AN UMBRELLA TENT

Rousselle is directed to an umbrella tent. Ex. 1003, Abstract, 1:13–29. As explained in Rousselle, such devices are “erected and collapsed in much the same manner as an umbrella.” *Id.* at 1:21–24. Further, these umbrella tents are understood to be made of lightweight and flexible components. *Id.* at 11:37–40, 13:14–17; *see also* Ex. 2007, ¶¶ 48, 58. For example, the tents include “sheet material walls supported by the collapsible frame.” Ex. 1003, 1:15–16. Not only do the umbrella tents have walls, but the material used for those walls is specifically identified as being a sheet material (i.e. thin and lightweight). *Id.* at 6:38–53. The sheet material walls contribute to the structural support for the umbrella tent, making it less likely one of skill in the art would look to add additional structural support with the X-shaped members of Tsai. Still further, Rousselle expressly teaches that the band bars 320 and leg tubes are flexible components that flex and bend. *Id.* at 11:34–40, 13:14–17; Ex. 2007, ¶¶ 48, 58.

Further, these umbrella tents do not use connections between the legs, as discussed above with respect to Rousselle's specific version of an umbrella tent. *See* Ex. 1003, Fig. 1(A)–1(C); Ex. 2007, ¶ 59. Collapsibility and ease of folding are prioritized in Rousselle, and these benefits would be reduced or lost by adding extra structural connections between the legs. *See* Ex. 2007, ¶ 59. Additional features of Rousselle include a central activation, for example, by a single user within the shelter/tent. *See* Ex. 1003, at 3:45–47, 13:59–65.

Rousselle also provides five examples of earlier collapsible tents or umbrella tents. Ex. 1003, 1:24–29. These are included as Exhibits 2008–2012. These background references are briefly discussed below. Even the short review provided below is sufficient to show that none of the earlier collapsible tents or umbrella tents used connections between the legs.

For example, Rousselle discusses U.S. Pat. No. 5,230,358 to Forell (a copy of Forell is included as Exhibit 2008). Ex. 1003, 1:30–36. Figure 1 of Forell is reproduced below:

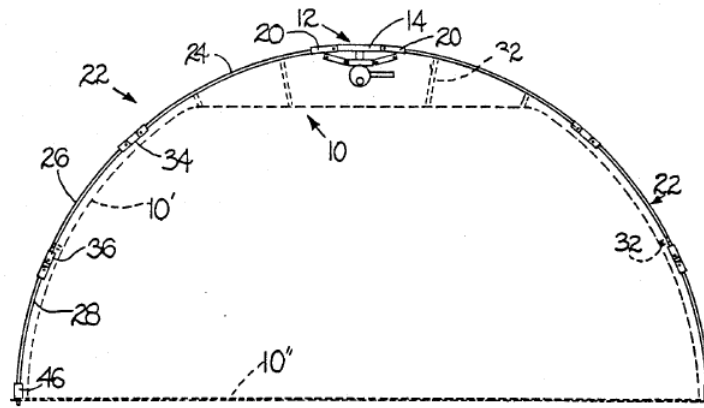
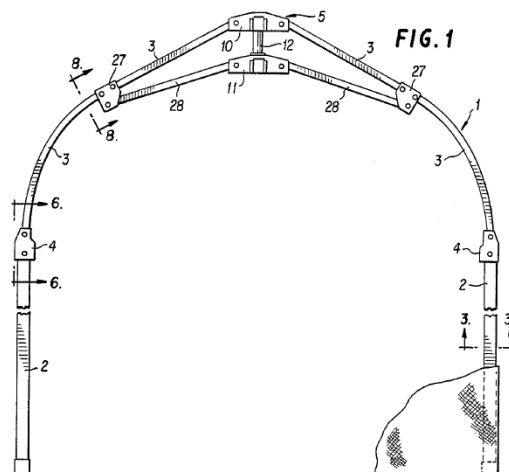


FIG. 4

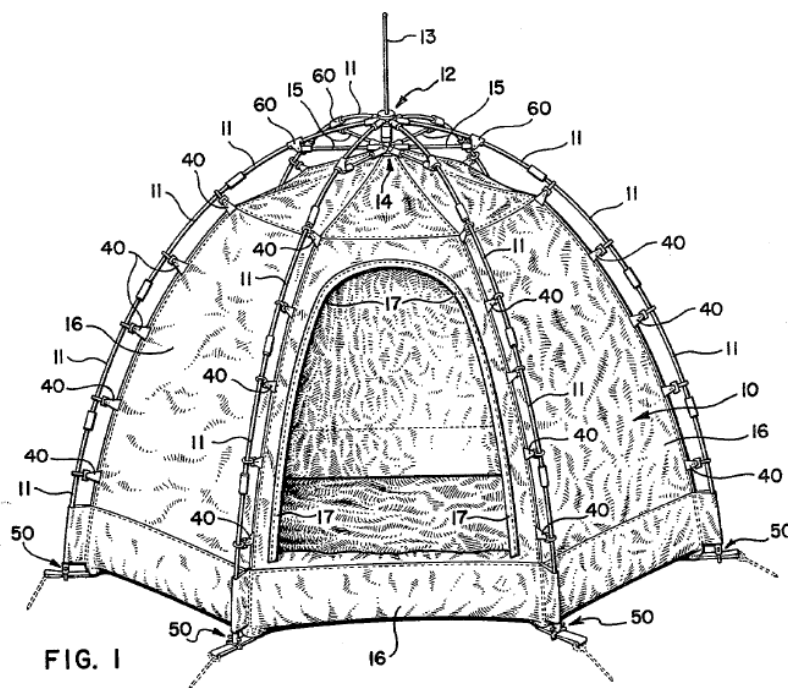
Ex. 2008, Fig. 4. Forell's leg members 22 are made of a "preferably lightweight, strong but resilient material," *id.* at 1:16–20, and unfold and extend to erect the umbrella tent, *id.* at 1:29–59. No connections between the legs are used. *Id.* at Figs. 1–4.

Rousselle also discusses U.S. Pat. No. 4,945,936 to Surrendi (a copy of Surrendi is included as Exhibit 2009). Ex. 1003, 1:37–58. Figure 1 of Surrendi is reproduced below:



Ex. 2009, Fig. 1. Surrendi expressly identifies its structure as a “collapsible tent and tent frame of the umbrella type” and uses legs having a lower stiff section and an upper flexible and resilient section. *Id.* at Abstract. No connections between the legs are used. *Id.* at Fig. 1.

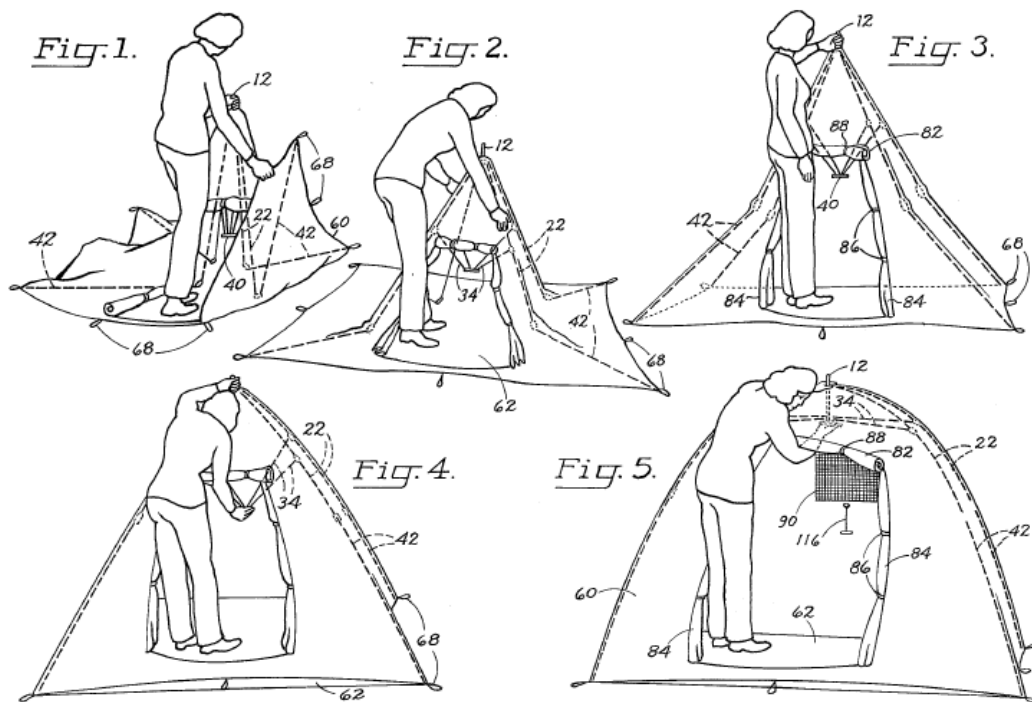
U.S. Pat. No. 4,202,363 to Watts is also discussed in Rousselle (a copy of Watts is included as Exhibit 2010). Ex. 1003, 1:59 through 2:20. Watts is titled “UMBRELLA TYPE COLLAPSIBLE SHELTER” and Figure 1 is reproduced below:



Ex. 2010, Fig. 1. Watts uses “a plurality of flexible, segmented support members 11” that are “bowed outwardly and downwardly to form a conical or bell shaped

superstructure.” *Id.* at 1:39–48. The support members forming the bell shaped superstructure are connected at the top of the bell shape without any cross connections between the support members. *Id.* at Fig. 1.

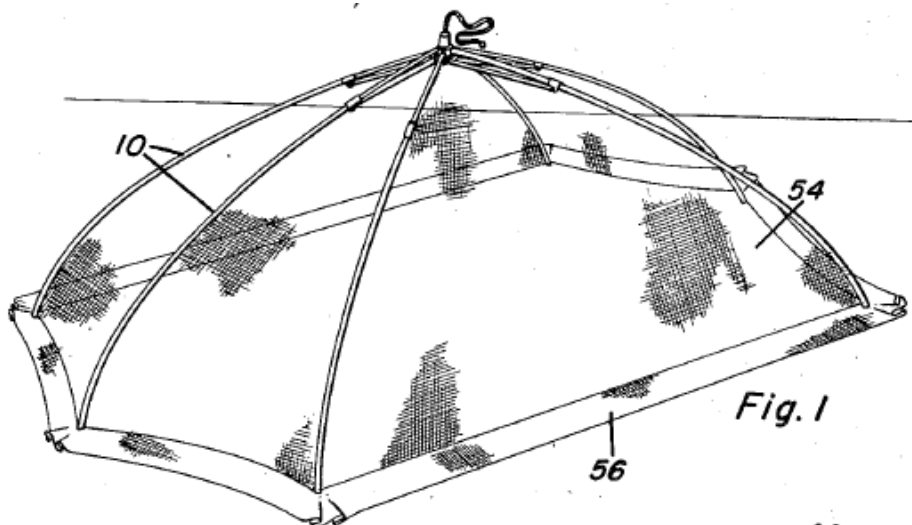
Rousselle also lists U.S. Pat. No. 3,929,146 to Maiken as another example of an umbrella tent (a copy of Maiken is included as Exhibit 2011). Ex. 1003, 1:26–28. Maiken is titled “UMBRELLA TENT” and Figures 1–5 of the reference are reproduced below:



Ex. 2011, Figs. 1–5. Maiken uses a plurality of ribs 22 that are configured with an extension rib 42 that pivots/inverts as the tent is unfolded. *Id.* at 2:62 through 3:43.

Like the other examples, Maiken does not use connections between these ribs. *Id.* at Figs. 1–5.

Finally, Rousselle also discusses U.S. Pat. No. 2,771,087 to Simonson (a copy of Simonson is included as Exhibit 2012). Ex. 1003, 2:21–38. Figure 1 of Simonson is reproduced below:



Ex. 2012, Fig. 1. Simonson uses a plurality of bow members or ribs 10 that are used to support screening 54. *Id.* at 1:44 –58, 2:4–17. Like the other examples cited by Rousselle, Simonson does not use connections between these ribs. *Id.* at Fig. 1.

As would be readily understood from Rousselle’s invention, umbrella tents are understood to use lightweight, flexible support components such as legs, rods, and the like. See Ex. 1003, 11:27–40; 13:14–17; see also Ex. 2007, ¶¶ 48, 58.

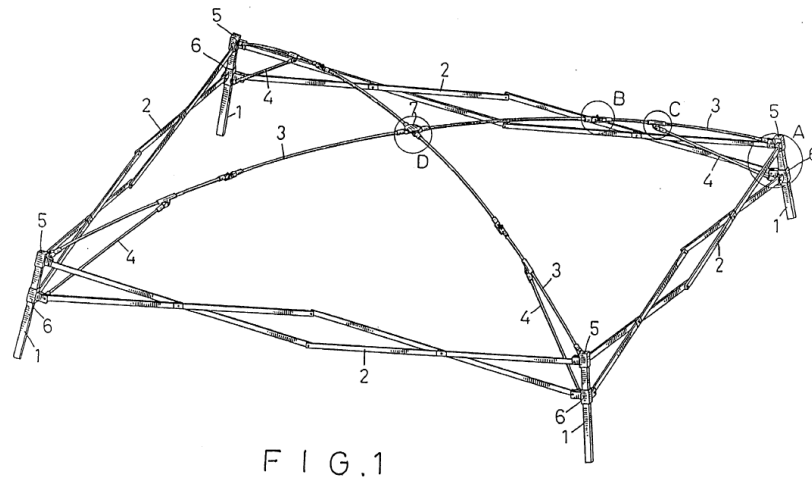
Further, the devices are tents, i.e., have sides, and in some cases, even have floors. Still further, the support components are connected at a central position and the umbrella tents do not use connections between the legs/rods. Ex. 2007, ¶ 59. This understanding is confirmed by the background references discussed in Rousselle and outlined above.

One of skill in the art would readily appreciate that Rousselle does not use such connections and neither do any of the background references discussed by Rousselle. Moreover, one of skill in the art would understand that adding such connections between the legs/rods would reduce the lightweight, flexible nature of the structure, would also impede or prevent the collapsibility and foldability, and thus would not be used with an umbrella tent.

b. TSAI IS DIRECTED TO A SHELTER FRAME WITH CONNECTIONS BETWEEN THE LEGS AND LOCKS ON EACH LEG

Tsai is not an umbrella tent, but instead contemplates a more substantial outer structure having complex scissors-type linkages between the legs along with leg locks to secure those linkages in the unfolded state. *See* Ex. 1005, Cover Page; *see also* Ex. 2007, ¶ 49.

The alleged outer units and X-shaped members of Tsai can be clearly seen in Tsai's Figure 1 reproduced below:



Ex. 1005, Fig. 1.

One of the main issues purportedly addressed by Tsai is the issue of stability and reliability. *See id.* at 1:19–22, 2:12–25, 5:3–5. Tsai’s outer units, alleged X-shaped members, and leg locks provide this stability, i.e., they are the main structural features. *Id.* This is clear from the Figure’s depiction of these features compared with the alleged inner units 3 (which are shown as being flexible/bowed rather than rigid/inflexible). Further, as discussed in more detail below, Tsai expressly states that all of the folding and unfolding is driven at these outer features, for example, by pulling the legs, and thus also the outer units and X-shaped members, apart to unfold the structure or pushing them together to fold the structure. *Id.* at 10:25 through 11:11; Ex. 2007, ¶ 64. Conversely, the alleged inner units 3 are “canopy supporting rods” and serve to hold up the canopy

material and prevent sagging of that canopy material. *Id.* at 4:19–22. These inner units do not provide any meaningful structural support other than holding up the canopy, nor do they drive the folding/unfolding of the structure. In fact, Tsai is clear that the canopy support (and canopy support rods) are not directly pushed. *Id.* at 4:27–28 (stating “the canopy support need not be manually pushed to its unfolded orientation”). The entire unfolding and positioning is driven by the legs and outer units. *Id.* at 10:25 through 11:11; *see also* Ex. 2007, ¶ 64.

Further, in Tsai, the legs and X-shaped connections between the legs, along with their purported stability, are structurally and functionally tied to the use of locking assemblies at the legs, i.e., “leg locks.” Tsai teaches sliding connector locking assemblies that are provided substantially within the interior of the leg pole. Ex. 1005, at 4:29–31. In fact, Tsai emphasizes this locking arrangement as a critical feature and explains that it is preferable to the locking assemblies already known at the time. *Id.* at 5:3–5. These leg locks are button-activated locks positioned on each of the four poles 1 of Tsai’s shelter frame. *Id.* at 8:5–33.

One of skill in the art would not apply Tsai’s X-shaped connections between the legs of an umbrella tent. Ex. 2007, ¶¶ 56–59. Any purported extra stability realized by such a modification would come at the expense of the main principle of operation, namely, the inversion and folding of the umbrella tent. Further, any

accompanying leg locks, like the connections between the legs, are not amenable to use with a centrally-activated umbrella tent.

**c. TSAI TEACHES AWAY FROM CENTRAL
STRUCTURES RELATED TO
FOLDING/UNFOLDING/LOCKING**

As further evidence that the primary modification would not be made by one of skill in the art, Patent Owner respectfully points to the actual teachings of Tsai regarding activation/unfolding.

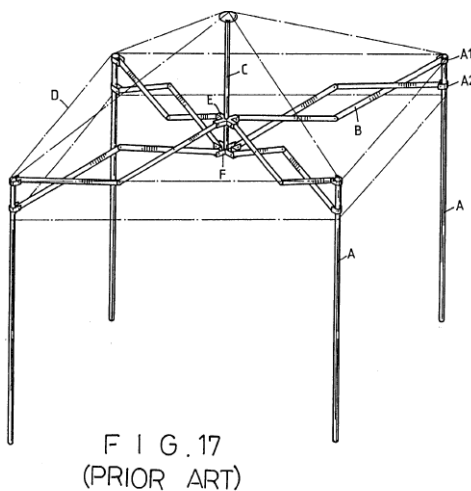
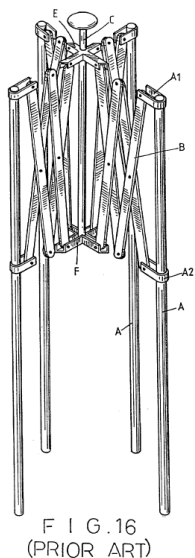
Tsai expressly teaches away from solutions involving a central activation. Ex. 2007, ¶¶ 62–65. Instead, as discussed above, Tsai contemplates that folding/unfolding is driven by pulling the legs (referred to by Tsai as poles) apart. Ex. 1005, 4:25–28, 10:25 through 11:11; *see also* Ex. 2007, ¶ 64. In fact, Tsai is clear that its shelter frame is folded/unfolded through user interaction with the legs. For example, Tsai’s most comprehensive explanation of the process is as follows:

The present shelter frame may be readily assembled, erected (i.e., unfolded) for use and folded for storage and transport. Referring to FIGURE 10, which shows the frame in a partially folded state, **the present frame may be erected by manually pulling the four poles 1 outwardly** such that the scissors-type linkages 2 urge the sliding connectors 6 upwardly. As a result, the linking rods 4 will drive the associated canopy support rods 3 upwardly as the connector 42 slides therealong. This will continue until the pivot members 31 and head 7 reach the stable orientation shown in FIGURE 1. The sliding connectors 6 will be locked in place by the locking assemblies 10. In other words, **the canopy**

support will be automatically driven upwardly into its use orientation when the poles 1 are pulled outwardly. Similarly, the frame may be folded by pressing the locking assembly buttons 12 and then pushing the poles 1 inwardly, thereby causing the scissors-type linkages 2 to urge the sliding connectors 6 downwardly. The linking rods 4 will then cause the canopy support rods 3 to pivot about their intermediate pivot members 31 until the rod members in each support rod meet one another.

Id. at 10:25 through 11:11 (emphasis added). Thus, Tsai is clear that folding/unfolding, and any locking preventing the folding/unfolding, occurs at the legs and not centrally. *Id.*; see also Ex. 2007, ¶ 64.

Still further, Tsai expressly disparages a solution involving a center strut for activation/locking. See Ex. 1005, 1:26 through 2:22 (referencing Figures 16 and 17); see also Ex. 2007, ¶¶ 55, 62. The Figures representing the disparaged solution are reproduced below:



Ex. 1005, Figs. 16, 17.

As can be seen from these Figures, the prior art solution disparaged by Tsai used a center strut mechanism. *Id.* Tsai characterizes the structure as requiring that “the linkages B are secured to the center strut C by a fixed cross-shaped connector F and a sliding connector E which slides along the center strut as the frame is moved between the folded and unfolded orientations.” *Id.* at 2:7–11. One of skill in the art would recognize the similarity between this center strut and upward movement, on the one hand, and the central lock and upward movement of Rousselle.

Turning back to Tsai, the reference disparages this center strut approach for several reasons. First, Tsai notes that a center strut results in difficulty setting up the tent because “an extra person is sometimes needed to push the center strut C upwardly to its completely extended position.” Ex. 1005, at 2:19–22; *see also* Ex. 2007, ¶¶ 55, 62. Further, the structure with the center strut reduces the headroom within the tent. *Id.* at 2:17–19; *see also* Ex. 2007, ¶¶ 55, 62.

Contrary to this “center strut” approach, Tsai uses a head 7 comprising four head connectors 71 where the rod member ends 34 can be attached. Ex. 1005, 9:11–18, Figs. 5, 9. The central head 7 is not used to perform any activation of the folding/unfolding of the structure. Rather, as discussed in detail above, Tsai

contemplates that activating the folding/unfolding centrally would require another person (pointing this out as a disadvantage of a center strut).

**d. ONE OF SKILL IN THE ART WOULD NOT MODIFY
ROUSSELLE’S UMBRELLA TENT WITH TSAI**

For at least the reasons set forth above, one of skill in the art starting with Rousselle’s umbrella tent would not incorporate Tsai and arrive at the claimed invention. Further, there is no teaching, suggestion, or motivation in the references to do so.

Starting with Rousselle’s umbrella tent and adding in Tsai’s outer units and X-shaped members would render Rousselle’s umbrella tent inoperable for its intended use, namely, converting to the folded state by inverting the legs. *See Supra* § VIII(A)(1); *Infra* § IX; Ex. 2007, ¶¶ 56–59.

Moreover, one of skill in the art is not presented with any teaching, suggestion, or motivation for why an umbrella tent like Rousselle’s should be modified to have connections between the legs, especially structures adapted from a reference that expressly teaches away from central locking/activation.

Furthermore, if Tsai’s outer units and legs were incorporated together, the entire operation of the primary reference would have to be changed. This is

expressly contrary to long-established principles of determining obviousness. See *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959).

For at least these reasons, one of skill in the art would not make the proposed primary combination, namely, taking Rousselle’s umbrella tent and adding in the structural features of Tsai’s outer units and X-shaped members. Accordingly, Petitioner has not established unpatentability by a preponderance of the evidence under the primary modification.

B. THE “ALTERNATIVE MODIFICATION” ALSO FAILS TO SHOW UNPATENTABILITY OF CLAIM 1 BY A PREPONDERANCE OF THE EVIDENCE

The Board found that the Petitioner satisfied its burden of a reasonable likelihood of success based on an “alternative rationale and evidence” with respect to Petitioner’s alleged “alternative modification” involving taking Tsai’s shelter frame (with the alleged legs, inner units, and outer units) and adding the central lock of Rousselle’s umbrella tent. Institution Decision, 32–33. Accordingly, the Board instituted this trial. Institution Decision, 32–34.

However, the “alternative modification” would not be made by one of skill in the art. In fact, the references teach away from such a modification. Instead, the alternative modification relies solely on conclusory opinions and attorney argument.

1. THE ALTERNATIVE MODIFICATION WOULD NOT BE MADE

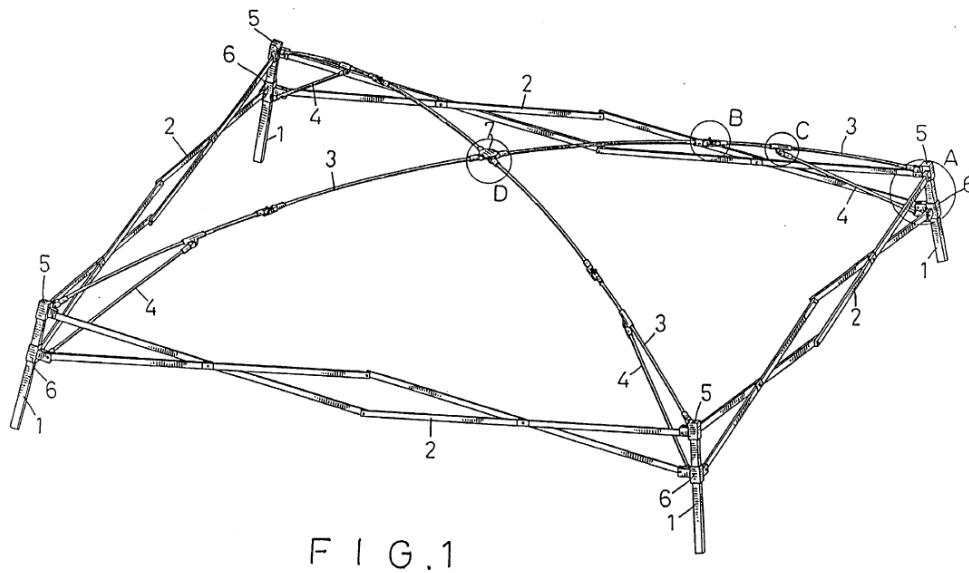
As discussed above, Tsai is a shelter frame with connections between the legs and sliding connector locking assemblies at the each of the legs. One of skill in the art would not combine Tsai's frame with the umbrella tent central lock and activation from Rousselle. Patent Owner addresses the use of Tsai as a primary reference in more detail below.

a. TSAI AS A PRIMARY REFERENCE

As discussed above, Tsai's shelter frame uses heavy-duty support legs, leg locks, outer units, and X-shaped members. These features provide stability and reliability. *See* Ex. 1005, at 1:19–22, 2:12–25, 5:3–5. As explained in detail above, the leg locks built into the poles are critical for this stability and reliability. *Id.* at 5:3–5.

Tsai uses alleged inner units (canopy supporting rods 3) that are more lightweight and flexible. Ex. 2007, ¶¶ 53, 63. As discussed above, these units function to support the canopy material. *Id.* at 4:19–22.

The representative structure of Tsai is reproduced again for convenience:



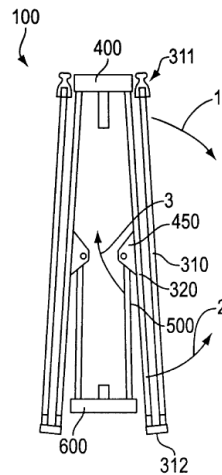
Ex. 1005, Fig. 1.

In the alternative modification referenced by the Board, Tsai's canopy frame, supporting legs, inner retractable units (canopy supporting rods 3), and outer retractable units are all retained and used in the proposed modified device. Institution Decision 32–33.

b. ROUSSELLE AS A SECONDARY REFERENCE

The alternative modification uses the full structure of Tsai (canopy frame, supporting legs, inner retractable units (canopy supporting rods 3), outer retractable units, X-shaped members, etc.) and adding the hinges 450 and center tubes 500 of Rousselle to connect Tsai's inner retractable units with to the top and bottom of Rousselle's central lock. Institution Decision 32–33.

A depiction of the pertinent features of Rousselle is reproduced again for convenience.



Ex. 1003, Fig. 1(D).

c. THE ALTERNATIVE MODIFICATION WOULD NOT FUNCTION

This alternative modification would not function as suggested by Petitioner's casual and overly simplistic presentation. Instead, Tsai's heavy duty legs, leg locks, outer units, and X-shaped members are not capable of activation from a center lock. *See* Ex. 2007, ¶¶ 63–64. In fact, Tsai teaches away from central activation as is discussed in more detail above. *See* Ex. 1005, 4:25–28, 10:25 through 11:11; *see also* Ex. 2007, ¶¶ 55, 62–65. More specifically, as noted above, Tsai disparages solutions with center struts, teaches away from requiring a user in

the center of the tent during the unfolding process, teaches that its structure is unfolded at the legs, and teaches against requiring the user to push the canopy up. *See* Ex. 1005, 1:26 through 2:22 (referencing Figures 16 and 17); *see also* Ex. 2007, ¶¶ 55, 62–65.

Moreover, even limiting the analysis to just the relevant structures is sufficient to reveal deficiencies in the proposed arrangement. As discussed above, the alleged “inner units” of Tsai are canopy supporting rods 3. These canopy supporting rods are lightweight and flexible units that function to support the canopy material. *Id.* at Specification 4:19–22; Ex. 2007, ¶¶ 53, 63–65. These canopy supports are not intended to drive (or even capable of driving) activation of the larger and heavier outer units, X-shaped members, and legs. Ex. 2007, ¶¶ 53, 63–65. In fact, Tsai is clear that the reverse is required—namely, it is the legs, and the larger and heavier outer units and X-shaped members, that must drive the unfolding of the canopy support rods. *Id.* at 10:25 through 11:11; Ex. 2007, ¶¶ 53, 63–65.

Petitioner has not pointed to any specific evidence in the references or offered any explanation for how the lightweight, flexible canopy support rods would be capable of driving the unfolding of the larger and heavier outer units, X-

shaped members, and legs. Further, as explained by Patent Owner’s Expert, such a structure is not operable. Ex. 2007, ¶¶ 63–65.

Instead, using a central lock to drive the canopy support rods 3 with the intent of unfolding the tent structure would result in one of the following two outcomes: 1) no or little change as the canopy support rod flexes or bends but is unable to push the larger and heavier outer units, X-shaped members, and legs; or 2) snapping or breaking of the lighter canopy support rods under the tension created by activation of the center lock.

Accordingly, like the primary modification, the proposed alternative modification would be inoperable.

**d. THE ALTERNATIVE MODIFICATION RELIES ON
CONCLUSORY STATEMENTS BY PETITIONER’S
EXPERT**

With respect to obviousness, “[a]n obviousness determination requires finding that a [PHOSITA] would have been motivated to combine or modify the teachings in the prior art and would have had a reasonable expectation of success in doing so.” *Endo Pharm., Inc. v. Actavis LLC*, 922 F.3d 1365, 1373 (Fed. Cir. 2019). Additionally, “[w]hether there was a motivation to combine references, and a reasonable expectation of success in doing so to meet the limitations of the claimed invention are questions of fact.” *Samsung Elecs. Co. v. Elm 3DS*

Innovations, LLC, 925 F.3d 1373, 1380 (Fed. Cir. 2019). Further, “a conclusory assertion with no explanation is inadequate to support a finding that there would have been a motivation to combine.” *TQ Delta, LLC v. Cisco Sys.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019). Therefore, in order to meet its burden, Petitioner must provide evidence and an explanation (e.g. articulated reasoning) with particularity.

Here, Petitioner has not met that burden. Petitioner relies on its Expert’s largely conclusory testimony to prove an alleged motivation to combine. Most statements from Petitioner’s Expert discussing a motivation to combine are essentially conclusory, formulaic recitations lacking articulated reasoning. These opinions should not be given weight. *See Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624 (Paper 9 at 15–17) (PTAB August 10, 2023) (explaining that expert opinions that do not point to supporting evidence or provide technical reasonings are conclusory and entitled to little weight).

Instead, Petitioner’s Expert’s statements are inconsistent with Tsai’s teachings as discussed in the following sections.

e. TSAI TEACHES AWAY FROM THE ALTERNATIVE MODIFICATION

Tsai teaches away from the alternative modification and Petitioner’s Expert’s conclusions for several reasons.

First, as discussed above, Tsai teaches away from central activation and from any central structure. *See* Ex. 1005, 4:25–28, 10:25 through 11:11; *see also* Ex. 2007, ¶¶ 55, 63–65. Instead, Tsai is clear that activation is done at the legs and driven by the legs and outer units. *See* Ex. 1005, 4:25–28, 10:25 through 11:11; *see also* Ex. 2007, ¶¶ 55, 63–65.

In addition, Tsai teaches that its solution is an improvement because it does not require the canopy support to “be manually pushed into the unfolded orientation.” *Id.* at 4:27–28. Yet the proposed alternative modification is based on requiring the user to manually push up the canopy support to the unfolded position instead of pulling on the legs. Putting the central lock of Rousselle into Tsai’s existing structure would require manual pushing in direct contradiction to Tsai’s teachings.

Petitioner ignores the clear teachings of the Tsai reference in favor of recreating Patent Owner’s device using hindsight bias. However, one of skill in the art reviewing Tsai from an unbiased position would recognize these clear teachings and would not apply Rousselle to Tsai in light of them. *See* Ex. 2007, ¶¶ 60–65.

**f. TSAI CONTRADICTS THE ALLEGED BENEFITS
SURMISED BY PETITIONER’S EXPERT**

Further, Tsai's teachings also clearly contradict Petitioner's Expert's conclusory opinions regarding the alleged benefits of modifying Tsai with Rousselle's central lock.

The Board points to Petitioner's conclusory statements that Rousselle discloses the benefits of a central lock over Tsai's individual leg locking system. Institution Decision, 33 (citing Pet. 35–36 (citing Ex. 1002 ¶¶ 102–103)). The cited portions of Petitioner's Expert's declaration reference Rousselle's high level statements about its central lock. However, Petitioner's Expert ignores the fact that such statements are made in the context of an umbrella tent as discussed above, and are presented as applicable for such an umbrella tent, without any discussion of whether the central lock would be suitable for a more substantial shelter frame such as Tsai's.

Instead, the most relevant statements about the use of a central lock with Tsai's shelter frame logically come from Tsai itself. Tsai is clear on this point. However, Petitioner's Expert ignores these teachings.

Tsai teaches its leg locks are preferable to the locking assemblies already known at the time, including the center strut approaches disparaged in the reference. *Id.* at 5:3–5; 2:12–25. Thus, one of skill in the art would recognize that

the leg locks would be preferable to a center lock, at least according to Tsai. *See* Ex. 2007, ¶¶ 55, 62.

Further, Tsai expressly disparages prior solutions involving a center strut. *Id.* at 1:26 through 2:22 (referencing Figures 16 and 17). One of skill in the art would readily apply this disparagement to Rousselle as discussed above. *See* Ex. 2007, ¶¶ 55, 62.

In fact, as noted above, Tsai expressly teaches away from solutions involving central activation, whether by central lock, central strut, or similar arrangement. According to Tsai, the center strut results in difficulty setting up the tent because “an extra person is sometimes needed to push the center strut C upwardly to its completely extended position.” Ex. 1005, at 2:19–22. This is directly contrary to Petitioner’s Expert’s conclusory opinion that the central lock would be recognized as definitively easier and more convenient for a single user to operate. *See* Ex. 1002 ¶¶ 102–103; *see also* Institution Decision 33 (crediting Petitioner’s Expert’s conclusion). Thus, the alleged benefit of Rousselle’s lock discussed by Petitioner’s expert would not be realized but is instead contradicted by the reference.

In addition to disparaging the center strut approach, Tsai expressly teaches that its folding/unfolding is driven at the legs themselves. Thus, additional alleged

benefits of Rousselle's lock proffered by Petitioner's expert would not be realized. For example, the user would not be able to unfold the device from the position within the shelter tent as Petitioner's Expert concluded, Ex. 1002, ¶ 102, instead, the user would still have to "manually pull[] the four poles 1 outwardly" as taught by Tsai, Ex. 1005, 10:27–33.

Still further, Tsai teaches that as a result of its solution, "the canopy support need not be manually pushed to its unfolded orientation." Ex. 1005, 4:27–28. Petitioner's Expert failed to consider this teaching and how the proposed alternative modification would undo this benefit of Tsai by requiring such manual pushing from inside the canopy.

For at least these reasons, the alternative combination would not be made. In fact, the references teach away from making the modified structure, and the modified structure would not function as intended.

2. PETITIONER FAILS TO PROVIDE ANY WORKABLE SOLUTION FOR TSAI'S LEG LOCKS

Even assuming one of skill in the art would ignore the clear teachings of Tsai and attempt the alternative modification, the leg locks and main principle of operation of Tsai would need to be addressed. The Petitioner contemplates starting with Tsai's canopy structure, including its outer units, inner units, and legs, but

then “*replacing* Tsai’s locking assemblies 10 with Rousselle’s central lock.” See Institution Decision at 31 (emphasis in original). This additional modification would be entirely contradictory to Tsai’s teachings and intent as discussed in detail above. Further, Petitioner offers no satisfactory evidence for why it would be attempted.

Tsai is not directed to umbrella tents, relies on leg locks while expressly disparaging other locking mechanisms, and teaches away from central activation and locking. In fact, Tsai credits the leg locks as “making the frame easier to fabricate and more reliable than those having the locking assemblies known heretofore.” See Ex. 1005, 5:3–5. Removing these features of Tsai and ignoring the reference’s teachings in order to cobble together a device using Rousselle’s central lock would completely obviate Tsai as the primary reference.

Indeed, no rationale or evidence for such a modification is provided—Petitioner’s only support/evidence on this point is a bare citation to conclusory statements made by Petitioner’s expert. See Pet. at 36 (citing Ex. 1002, ¶ 103). Neither Petitioner nor Petitioner’s expert points to any teaching, suggestion, or motivation in either reference to perform such a replacement. *Id.* Instead, Petitioner’s expert surmises, with no support or citation whatsoever, that one of skill in the art might find it more convenient to remove the critical structural

features of the reference, namely, the assembly that Tsai touts as providing the benefits of the more reliable frame. *See* Ex. 1005, 5:3–5.

As discussed above, these opinions are not, and cannot be accepted as, a substitute for the teachings in the reference itself; instead, they are nothing more than improper legal conclusions offered by Petitioner and are entitled to little, if any, weight. *See Xerox Corp.*, IPR2022-00624 (Paper 9 at 15–17).

Instead, the alternative modification would require a significant change in the principle of operation of a reference, contrary to long-established principles of determining obviousness. *See In re Ratti*, 270 F.2d 810, 813 (CCPA 1959).

Likewise, the alternative modification entirely disrupts the primary reference’s contribution to the art, namely, the improved stability granted by the poles having the leg locks, and thus renders Tsai unsatisfactory for its intended purpose. *See In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

C. CONCLUSION ON THE PROPOSED MODIFICATIONS WITH RESPECT TO INDEPENDENT CLAIM 1

For at least these reasons, neither the primary modification nor the alternative modification satisfies Petitioner’s burden to show unpatentability of independent claim 1 by a preponderance of the evidence. Accordingly, the claim should be confirmed as patentable.

**D. THE PROPOSED MODIFICATIONS ALSO FAIL TO SHOW
UNPATENTABILITY OF THE DEPENDENT CLAIMS**

1. DEPENDENT CLAIM 2

Claim 2 depends from independent claim 1, and Petitioner's burden is not met for at least the same reasons discussed above.

Claim 2 recites that each said supporting leg comprises a sliding sleeve for moving along a length of said respective supporting leg. Ex. 1001, 10:36–51. The sliding sleeve also connects with a second eave pipe and a second connecting rod as shown in Patent Owner's Figure 18 reproduced below:

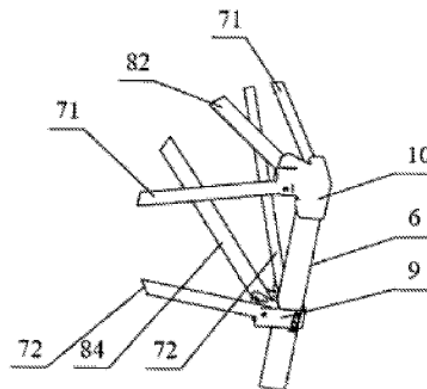


FIG 18

Ex. 1001, 10:49–51, Fig. 18.

Petitioner alleges Tsai teaches similar structure. Pet. 49–50.

However, with respect to the primary modification, Petitioner has failed to provide any explanation for how this sliding sleeve and attachment points would

be operable in combination with Rousselle's device. In fact, these additional attachment points are yet further structural elements that would make that movement impossible and the proposed modified device incapable of folding. Thus, the primary modification would not arrive at the limitations of claim 2 both for the reasons discussed above with respect to the independent claim and because the additional structural limitations of claim 2 would also render the modified device inoperable.

The alternative modification also suffers from the same defects as discussed above with respect to the independent claim. Tsai teaches that its sliding connectors 6 are locked by locking assemblies 10. Ex. 1005, 8:5–33. Thus, the user needs to depress a button 12 in order to release the sliding member 6. *Id.* In fact, Tsai teaches its leg locks are preferable to the locking assemblies already known at the time, including the center strut approaches disparaged in the reference. *Id.* at 5:3–5; 2:12–25. Thus, as discussed above, Tsai teaches away from a central locking mechanism and there is no teaching, suggestion, or motivation to add Tsai's locking sliding sleeves into Rousselle's centrally activated umbrella tent.

Accordingly, the modifications would not be made and/or would not be operable and Petitioner has not shown unpatentability of dependent claim 2 by a preponderance of the evidence.

2. DEPENDENT CLAIMS 4, 13, AND 14

Patent Owner respectfully contends the analysis presented above with respect to independent claim 1 and/or dependent claim 2 applies with equal force to dependent claims 4, 13, and 14 and the Petitioner has not shown unpatentability by a preponderance of the evidence. Accordingly, the claims should be confirmed as patentable.

IX. PATENT OWNER RESPECTFULLY REITERATES THE INOPERABILITY ARGUMENTS FROM THE PRELIMINARY RESPONSE

While Patent Owner contends the primary modification is clearly inoperable for at least the reasons presented above, Patent Owner respectfully reiterates the previously presented arguments regarding inoperability of the primary modification. *See* Prelim. Resp. 12–22. These arguments are presented in full below.

Under Federal Circuit case law, “where the prior art’s teachings undermine the very reason being proffered as to why a person of ordinary skill would have combined the known elements,” there is a strong case for non-obviousness. *DuPuy*

Spine, Inc. v. Medtronic Sofamor Danek, Inc., 567 F.3d 1314, 1326 (Fed. Cir. 2009). Likewise, “the loss of key functions in the primary reference” and resulting inoperability weighs heavily against any motivation to combine. *Cook Grp., Inc. v. Boston Sci. Scimed, Inc.*, 809 F. App’x 990, 1000 (Fed. Cir. 2020). In fact, as clearly stated in *Cook Grp.*, “where the motivation to combine rests on a modification alleged to improve the primary reference, ... the Board may consider whether the modification renders the reference inoperable for its intended function” when analyzing assertions of obviousness. *Id.* at 1000.

1. Independent Claim 1

As discussed above and referring again to Patent Owner’s Figure 20 reproduced below, the collapsible canopy of independent claim 1 can fold into a fully collapsed state and must be configured to do so.

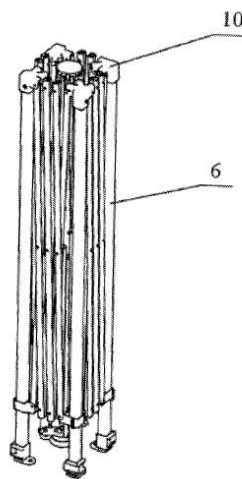


FIG. 20

Ex. 1001, 10:29–33, Fig. 20.

Petitioner cites Rousselle's Figure 1(D) as allegedly teaching similar collapsing, and refers to that figure, for example, in the overview of Rousselle and in analyzing Limitations [C], [D][1], [D][2], [D][3], and [D][3][iii]. Pet. 10–11, 24–25, 37–43, and 45–46. Figure 1(D) is reproduced below:

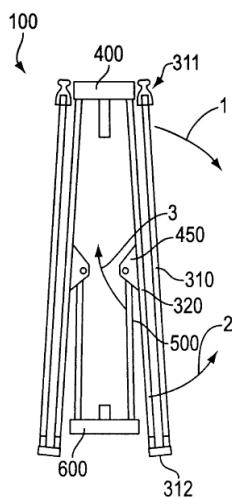


FIG. 1(D)

Ex. 1003, Fig. 1(D). Absent from the Petition is any explanation of how this folded configuration would still be achievable in combination with the limitations from claim 1 that are allegedly taught in Tsai. The Petition relies on Tsai as teaching the outer retractable units found in Limitation [B] of independent claim 1. Pet. 14–22. Combining the structural members 104, 108 of Tsai, as Petitioner suggests, would prevent Rousselle's folded configuration cited by Petitioner in

Rousselle, Figure 1(D). As described in more detail below, the proposed combination would therefore cause the Rousselle device to be inoperable.

Limitation [B] of independent claim 1 requires:

...a plurality of outer retractable units, each outer retractable unit connected between two adjacent supporting legs, each said outer retractable unit comprises a plurality of hinged X-shaped rod members, each X-shaped rod member comprises a first eave pipe and second eave pipe hinged to one another...

Ex. 1001, 10:9–14. The Petition relies exclusively on the secondary reference of Tsai as teaching the plurality of outer retractable units as claimed. Pet. 18–20.

Contrarily, for the purposes of analyzing the folded state of claim 1, (Limitation [D][3][iii]), the Petition ignores that Tsai has been relied on for teaching the outer retractable units an X-shaped rod members. Instead, the Petition relies only on Rousselle's folded state. However, Rousselle's folded state could not be possible in combination with Tsai.

As clearly shown in Figure 1(D) of Rousselle, the leg tubes 310 (identified by Petitioner as the supporting legs, Pet. 12–13) extend from feet 311 to hinge 312. Ex. 1003, Fig. 1(D). Importantly, in the folded configuration, the leg tubes 310 pivot 180 degrees on the hinge 312 such that the feet 311 are at the top of the folded device. The result of this transition is depicted in Figure 1(D) in which the feet 311 are proximate to element 400 (identified by Petitioner as the center **top**

cap, Pet. 37–39). Further, Rousselle teaches, and Figure 1(D) shows, that when the device is to be unfolded and the canopy erected, the leg tube 310 must rotate downward following arrow 1. *Id.* at 13:5–21, Fig. 1(D). Rousselle’s user can also swing the band bars 320 (identified by Petitioner as the inner retractable units, Pet. 23–25) upward following arrow 2. *Id.* at 13:8–21, Fig. 1(D). Movement of the leg tubes 310 and the band bars 320 is made possible by hinge 312. *Id.* at 6:54–64, Fig. 1(D).

In summary, Rousselle’s leg tubes 310 and feet 311 move from pointing upward and being proximate to the top of Rousselle’s device and the alleged center top cap 400, to pointing downward and forming the lowest portion of Rousselle’s device, for example, contacting the ground and being located well below the alleged center bottom cap 600 as shown in Rousselle’s Figure 1(A), 1(B), and 1(C). Figure 1(A) is reproduced below:

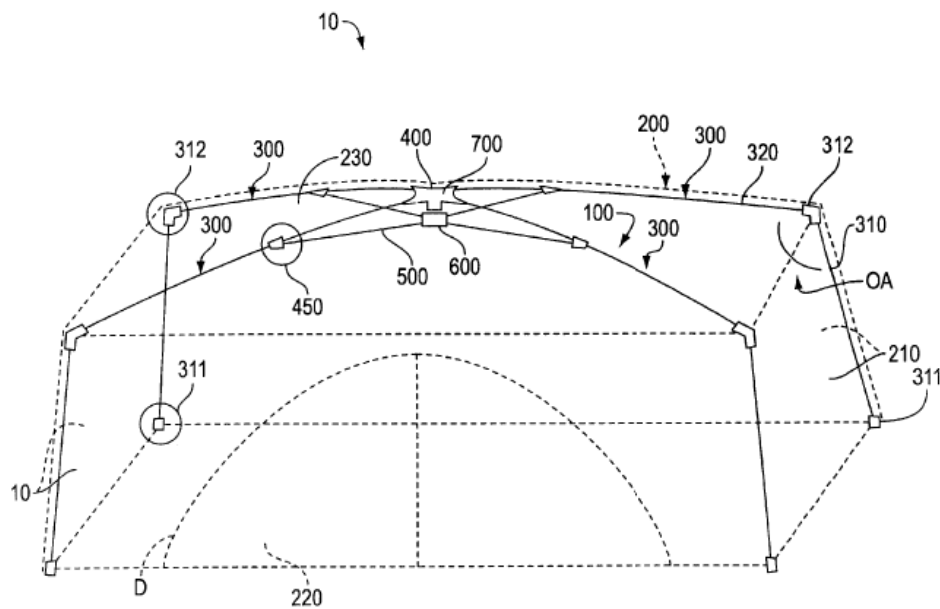


FIG. 1(A)

Id. at Fig. 1(A).

As discussed above, the only X-shaped rod members cited by Petitioner are those found in Tsai. Petitioner proposes including Tsai's alleged outer units, including alleged X-shaped rod members on Rousselle's canopy in Figures 1(A)–(D). Pet. 14–22. However, while asserting Tsai teaches the X-shaped rod members and offering rationale for why one of skill in the art might use X-shaped rod members such as Tsai's, Pet. 14–22, **Petitioner tellingly omits any explanation of how the X-shaped rod members can successfully be incorporated into Rousselle's structure while maintaining operability.**

Petitioner’s expert similarly fails to explain how this could be done and what the resulting structure would look like. This is because the modification

proffered by Petitioner as a mere “simple addition”, Pet. 21, would not be so simple. In reality, it would cause Rousselle’s shelter/tent to be inoperable.

As discussed above, Rousselle relies on a hinged structure in which the leg tubes 310 (alleged to be supporting legs) pivot or swing to transition from a substantially downward-facing orientation below the alleged center **bottom** cap to an almost completely upward-facing orientation even with or proximate to, the alleged center **top** cap. Ex. 1003, Fig. 1(D). The “simple addition” of an outer unit with an X-shaped rod member would now present several additional attachment points (for example, four additional attachment points) for each leg tube 310. As shown in Patent Owner’s Figure 19 reproduced below, the X-shaped rod members connect the supporting legs and provide structural support:

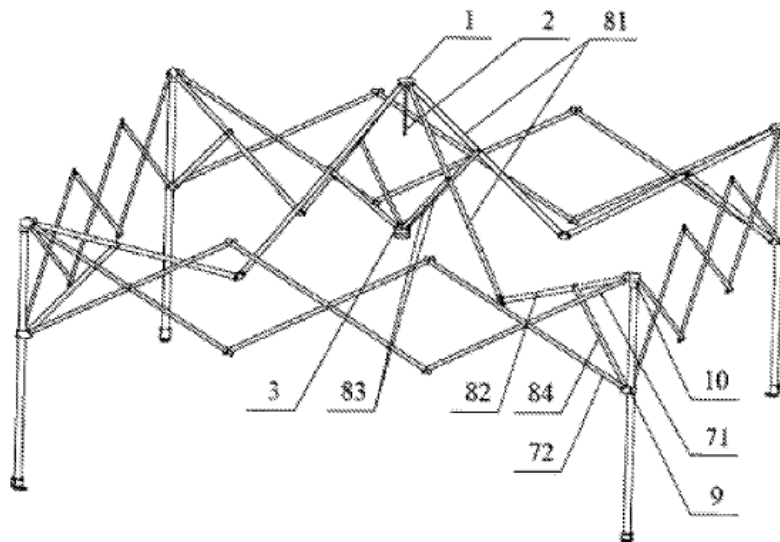


FIG. 19

Ex. 1001, Fig. 19. Independent claim 1 recites the feature of “each outer retractable unit connected between two adjacent supporting legs.” Ex. 1001, 10:9–11. Thus, even as interpreted by Petitioner, each set of adjacent leg tubes 310 **must be connected together with an X-shaped rod member from Tsai and therefore each leg tube 310 must be connected to two other leg tubes 310 by respective X-shaped rod members from Tsai.** Each leg tube 310 would thus have four (4) additional attachment points providing connections to structural members extending orthogonally from each other.

The leg tubes 310 so connected by X-shaped rod members from Tsai are not capable of swinging upward as taught by Rousselle and as depicted in Figure 1(D). Petitioner has not offered any explanation for how such motion could even be physically possible. Instead, the proposed modified device would no longer be capable of having the leg tubes 310 invert to accomplish the folding.

Moreover, the structure resulting from the proposed modification of Rousselle with Tsai would be distinct from the structure of Patent Owner’s independent claim 1 which does not require inverting the supporting legs to achieve a folded state. *See* Ex. 1001, Figs. 19 and 20. Patent Owner’s claimed structure (without inverting legs) allows the outer retractable units with X-shaped rod members to serve as structural supports without preventing transition into the

folded state. Contrarily, Petitioner does not offer any explanation for how Rousselle and Tsai could be combined to arrive at such structure, i.e., without requiring legs that invert and without restricting/preventing folding.

For at least these reasons, Patent Owner respectfully contends that incorporating Tsai's alleged X-shaped rod members into Rousselle's device would result in a device that would be incapable of undergoing the folding taught by Rousselle, would therefore be inoperable, and certainly would not meet the limitations of independent claim 1 (for example, the collapsible canopy of the preamble, the X-shaped rod members of Limitation B, and the details of the folded/unfolded state in Limitation [D][3][iii] together). Accordingly, Petitioner has not, and cannot, show by a preponderance of the evidence that independent claim 1 is unpatentable based on the proposed ground.

X. PETITIONER HAS NOT SHOWN A LIKELIHOOD OF SUCCESS ON GROUND 2

Petitioner's second proposed ground of unpatentability is that challenged claims 4, 13, and 14 are unpatentable as obvious over Rousselle in view of Tsai further in view of Ohnishi (Ground 2). Pet. 74. Claim 4 depends from independent claim 1 and therefore includes the limitations of that claim. Ex. 1001,

11:1–17. Claims 13 and 14 depend from claim 4 and therefore include the limitations of that claim and independent claim 1. Ex. 1001, 11:37–47.

As characterized by the Petitioner, Ground 2 incorporates the proposed combination of Rousselle and Tsai presented in Ground 1, while replacing Rousselle’s lock with Ohnishi. Pet. 75–76. Accordingly, Petitioner does not present a full analysis of the structure of the canopy (to avoid repetition) and only discusses Ohnishi’s lock. Pet. 75–76.

In response, Patent Owner also avoids any repetitious discussion of Rousselle and Tsai, and only notes that Ground 2 would be deficient and inoperable for the same reasons discussed with respect to Ground 1.

Further, with respect to Ohnishi specifically, Patent Owner does not admit the reference teaches the recited limitations of the locking piece.¹ Patent Owner contends the Ohnishi reference does not relate to canopies and thus does not and cannot remedy any of the deficiencies with the structures of Rousselle and Tsai nor

¹ In fact, Patent Owner notes the Board previously upheld the patentability of Claim 7 of the parent ’710 Patent, finding that Petitioner failed to show that Ohnishi discloses or suggests the pertinent structure. Ex. 1016, at 76–77.

provide any insight into how the proposed structural combination could be operable.

Accordingly, Petitioner has not satisfactorily shown how the combination teaches the pertinent limitations nor how the combination could be operably combined to arrive at the claims.

In light of the deficiencies in the Petition's proffered rejection and the clear inoperability of the proposed combination, the Petitioner has not demonstrated unpatentability by a preponderance of the evidence.

The Board should uphold the patentability of the claims against the challenges presented in Ground 2.

XI. COLLATERAL ESTOPPEL DOES NOT APPLY

The Board did not determine whether collateral estoppel applies. Institution Decision, at 36. Accordingly, Patent Owner again contends that collateral estoppel does not apply in this case.

Collateral estoppel acts to protect a party from the burden of “having to litigate issues that have been fully and fairly tried in a previous action and adversely resolved against a party-opponent.” *Ohio Willow Wood Co. v. Alps S., LLC*, 735 F.3d 1333, 1342 (Fed. Cir. 2014) (citing *Pharmacia & Upjohn Co. v. Mylan Pharm., Inc.*, 170 F.3d 1373, 1379 (Fed.Cir.1999)).

In asserting that collateral estoppel compels a finding of unpatentability of the different claims at issue in the instant proceeding, Petitioner seeks to expand this limited protection beyond the scope of the previous *inter partes* review to issues and claim limitations which have not yet been raised in any way, much less fully and fairly tried.

In fact, if collateral estoppel is adopted by the Board as requested by Petitioner, Patent Owner would be prevented from making arguments defending the patentability of issued claims that Petitioner has admitted contain additional limitations that were not present in the previously reviewed claims and that have never been reviewed by the Board or any entity other than the Examiner who allowed the '738 Patent. Further, Patent Owner would be prevented from responding to new, “alternative” modifications and interpretations of alleged prior art references. See Institution Decision, at 32–34 (instituting review based on Petitioner’s “proposed alternative modification”).

A. Collateral Estoppel Standard

Collateral estoppel applies in patent cases when:

- (1) the issue is identical to the one decided in the first action;
- (2) the issue was actually litigated in the first action;
- (3) resolution of the issue was essential to a final judgment in the first action; and
- (4) [the party] had a full and fair opportunity to litigate the issue in the first action.

SynQor, Inc. v. Vicor Corp., 988 F.3d 1341, 1353 (Fed. Cir. 2021) (quoting *In re Freeman*, 30 F.2d 1459, 1465 (Fed. Cir. 1994)).

B. The Issues are Not the Same

As evident from the factors listed above, determining the pertinent “issue” is a critical first step in determining whether collateral estoppel applies. Even though the claims are not required to be identical in order to involve the same issue, the application of collateral estoppel is only proper when the issues are “indeed identical” and the rules are “carefully observed.” *See B&B Hardware, Inc. v. Hargis Indus., Inc.*, 575 U.S. 138, 153–54 (2015) (quotations omitted). Put differently, collateral estoppel applies “to prevent repetitious litigation of what is *essentially* the same dispute.” *Id.* at 157 (emphasis added) (quotations and citations omitted).

Turning specifically to patent issues, the presence of additional claim limitations that were not previously addressed demonstrates the existence of a different question/issue. *See Rimfrost AS v. Aker Biomarine Antarctic AS*, IPR2020-01534 (Paper 25 at 14–19) (PTAB May 18, 2022). Accordingly, collateral estoppel should not be applied when claim elements at issue were “not present in any of the claims for which unpatentability was determined in the prior *inter partes* review[s].” *Id.* at 18.

The situation in *Ohio Willow Wood* is distinguishable from the present matter. In that case, no new limitations were involved; instead, the Federal Circuit was addressing “the mere use of different words” to claim the **same** pertinent features. *Ohio Willow Wood Co.*, 735 F.3d at 1342–43. The Court described the differences as using “slightly different language to describe substantially the same invention.” *Id.* at 1342. Thus, the invalidity argument for the claim sets was determined to be the same issue. *Id.* at 1342–43.

The situation in *Soverain* is also distinguishable from the present matter, in which a different independent claim includes additional new elements. In *Soverain*, the Federal Circuit was addressing a dependent claim that added nothing more than specifying a network was an Internet. *Soverain Software LLC v. Victoria’s Secret Direct Brand Mgmt., LLC*, 778 F.3d 1311, 1319 (Fed. Cir. 2015). The court found the minor additional feature did not change the invalidity analysis based on the patent owner’s expert’s admission the feature was “a routine incorporation” of existing technology. *Id.* at 1319–20.

Finally, the pertinent question is not whether the additional limitation is non-obvious, but whether the additional limitation alters the analysis. *Bourns, Inc. v. United States*, 537 F.2d 486, 493 (Fed. Cir. 1976); *see also Ohio Willow Wood*, 735 F.2d at 1343 (applying collateral estoppel based on the patent owner’s failure

to show how the language choice “changes the invalidity analysis”); *Rimfrost*, Paper 25 at 16 (agreeing with the patent owner’s argument that the presence of the completely new claim elements “materially alters the question of invalidity”).

In the instant proceeding, it is clear that the additional limitations were, and still are, relevant to the obviousness/invalidity analysis. Petitioner admits that the claims at issue in this proceeding include several material differences. Pet. 91–96. These different limitations were **never** at issue in the earlier *inter partes* review. With respect to the specific outer retractable units, the addition of these features to the claims prompted the Examiner to withdraw pending anticipation rejections and allow the ’738 Patent. See Ex. 2005 (amending the claims to include the limitations at issue); Ex. 2006. The Examiner found these limitations to be material to the analysis and allowed the patent to issue. Likewise, the details of the central lock’s operation with respect to the folded and unfolded state have been raised for the first time in the instant Petition. **Still further, the fact that additional limitations alter the relevant analysis is made clear by the Board’s initial positions regarding inoperability and the alternative modification discussed above.** The Final Written Decision in the Parent Case never discussed the “alternative modification” now relied on by the Board; instead, the Final Written Decision in the Parent Case relied solely on Rousselle in view of Tsai, i.e.,

applying Tsai's outer/inner units to Rousselle's canopy. Ex. 1016, 45, 52–53. The issue of this new, alternative modification is being adjudicated for the first time in the instant proceedings. Accordingly, a different analysis is required and collateral estoppel does not and cannot apply.

Moreover, Patent Owner has shown that Petitioner's proposed combinations would be **completely inoperable** for a collapsible canopy when these additional structural limitations are incorporated. *Supra* §§ VIII(A)(1), VIII(B)(1), IX. Thus, these new limitations present in the '738 Patent and absent from the patent challenged in the prior proceedings materially alter the physical structure required by the claims and the corresponding questions of unpatentability. Collateral estoppel does not and cannot apply in this situation.

Finally, as shown above, Petitioner's proposed combinations fail to teach or suggest any of the limitations at issue, namely, the different limitations at issue in this case. *Supra* §§ VIII. For example, Petitioner has failed to show how the references could be combined to arrive at a collapsible canopy with the recited central lock and outer retractable units comprising a plurality of hinged X-shaped rod members.

C. The Remaining Factors Cannot be Met

Where the issues are not the same, the other factors cannot be met—the pertinent issue was not actually litigated in the first action; resolution of the pertinent issue was not essential to a final judgment in the first action; and the party never had a full and fair opportunity to litigate the pertinent issue in the first action.

D. Conclusion on Collateral Estoppel

For at least these reasons, collateral estoppel does not apply. The claims at issue include additional limitations that change the invalidity analysis and the Board has instituted review on the basis of a proposed modification that has never before been adjudicated. Application of collateral estoppel would operate to prevent Patent Owner from defending independent claims that have never been the subject of any review, and also from addressing the merits of a proposed art combination raised for the first time during the instant proceeding.

XII. CONCLUSION

For at least the foregoing reasons, Petitioner has failed to show unpatentability by a preponderance of the evidence. Therefore, Patent Owner respectfully requests that the Board deny both proposed grounds of rejection and confirm the patentability of the challenged claims.

Case IPR2023-00580
Patent No. 10,669,738

Respectfully submitted,

Date: November 13, 2023

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24, the undersigned certifies that the Patent Owner's Response, exclusive of parts exempted, contains 10,475 words and complies with the type-volume limitations of 37 C.F.R. § 42.24.

Date: November 13, 2023

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the Patent Owner's Response is being served on November 13, 2023, via email directed to counsel of record for the Petitioner at the following:

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