UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FIRST SOLAR, INC.

Petitioner,

v.

ROVSHAN SADE,

Patent Owner.

Case IPR2023-00827
U.S. Patent No. 9,057,546
Title: Solar Tracker

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT 9,057,546

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841 F.3d 995 (Fed. Cir. 2016) 4, 7

PETITIONER'S EXHIBIT LIST

Exhibit	Description
1001	U.S. Patent No. 9,057,546 to Sade ("the '57546 Patent")
1002	U.S. Patent No. 9,917,546 to Sade ("the '17546 Patent")
1003	Declaration of Edward Kern
1004	Content retrieved from the Wayback Machine in association with the Wayback URL: https://web.archive.org/web/20051202075211/http://www.wattsun.com/PDF/Wattsun_AZ-125_Instructions.pdf (Array Technologies, Inc. Wattsun Solar Trackers AZ-125 Installation Guide. "*Wattsun*")
1005	Content retrieved from the Wayback Machine in association with the Wayback URL: https://web.archive.org/web/20081016035440/http://www.raytracker.com/products/ (http://www.raytracker.com/products/ on or before October 16, 2008. "*RayTracker Webpage*")
1006	"It's time to get tracking…" Brochure, published on http://www.raytracker.com/products/ on or before October 16, 2008. "*RayTracker*"
1007	"RayTracker™ GC200 & GC100 Series Product Specifications," published on http://www.raytracker.com/products/ on or before October 16, 2008. "*RayTracker Specification*"
1008	Declaration of Matthew Schneider

Exhibit	Description
1009	Standard Wayback Affidavit in completed form authenticating various URLs including: https://web.archive.org/web/20100701155447/http:/www.wattsun.com:80/residential_trackers.html https://web.archive.org/web/20051201071458/http://www.wattsun.com:80/manuals.html https://web.archive.org/web/20051202075211/http://www.wattsun.com/PDF/Wattsun_AZ-125_Instructions.pdf ("*Wattsun*")
1010	Standard Wayback Affidavit in completed form authenticating various URLs including: https://web.archive.org/web/20090605173603/http://www.raytracker.com/products https://web.archive.org/web/20090312062555/http://www.raytracker.com/products/ https://web.archive.org/web/20081016035440/http://www.raytracker.com/products/ ("*RayTracker Webpage*") https://web.archive.org/web/20100923030431/http://www.raytracker.com/documents/raytracker_brochure.pdf
1011	Prosecution History of the '57546 Patent (U.S. Application Serial No. 12/830,907)
1012	Prosecution History of the '17546 Patent (U.S. Application Serial No. 14/700,436)

I. Introduction

A. Patent At-Issue:

Petitioner First Solar, Inc. ("First Solar" or "Petitioner") respectfully requests *inter partes* review of U.S. Patent No. 9,057,546 (the "'57546 Patent") (EX1001) assigned to Patent Owner Rovshan Sade and cancellation of claims 5 and 6.

The challenged claims recite nothing more than a simple, predictable, and conventional technique for aiming a solar collector (*e.g.*, a solar panel) toward the sun as it moves through the sky in order to maximize solar radiant energy incident throughout the day. In the solar power industry, these have been referred to as "solar trackers," because they track the sun's movement.

First Solar has been in the solar collector business since its founding as Solar Cells, Inc. in 1990. First Solar saw the value in solar trackers and acquired RayTracker in 2011. RayTracker had been building and marketing solar trackers since 2008. First Solar continues to develop and innovate in the solar industry.

As of the effective filing date, and as early as the 1970's, the use of solar trackers to capture more incident solar radiation and increase power output throughout the day was well known. EX1003, ¶ 59.

The subject matter of the '57546 Patent (EX1001) is merely a predictable mechanical implementation of such known solar tracking techniques. EX1003, ¶ 52. There was nothing inventive about Sade's configuration and implementation.

II. Technology Background

A. Solar Tracking

A solar tracker is a device that orients solar collectors (*e.g.*, panels), toward the sun. For flat-panel photovoltaic systems, trackers are used to minimize the angle of incidence between incoming sunlight and photovoltaic solar panels (i.e., the angle between direct beam sunlight and the surface normal vector of the panels). Reducing this angle by following the sun increases the amount of energy produced from a panel. EX1003, ¶¶ 59-61.

Single axis trackers have one degree of freedom that acts as an axis of rotation. This axis is typically aligned with or parallel to a meridian (commonly referred to as toward true North). EX1003, ¶ 62. There are several common implementations of single axis trackers. One such tracker is a horizontal single axis tracker. EX1003, ¶ 62.

Horizontal single axis trackers are arranged so that the axis of rotation is generally horizontal with respect to the ground. EX1003, ¶ 63. Horizontal trackers typically have the face of the photovoltaic modules assembled into a solar panel oriented parallel to the axis of rotation. EX1003, ¶ 64. A horizontal torque tube supporting the panels can be mounted on posts. EX1003, ¶ 64. The tube will rotate on its axis to track, and direct the panels toward, the apparent motion of the sun through the day. EX1003, ¶ 64.

III. Scope and Content of the Prior Art

A. Wattsun

Petitioner relies on a non-patent literature document published on the Internet by third party entity, Array Technologies, Inc. of Alburquerque, NM, which describes a solar tracker, the AZ-125 Dual-Axis, Azimuth Drive Solar Tracker. ("*Wattsun*") (EX1004). *Wattsun* was publicly available on the Internet substantially before the respective critical date of the '57546 Patent. *Wattsun* was published in 2005 and constitutes prior art under at least pre-AIA 35 U.S.C. § 102(b) or 35 U.S.C. § 102(a)(1). *Wattsun's* prior art public accessibility is evidenced at least by its reference on a webpage verified by the Internet Archive as being publically available at as early as December 2, 2005. EX1009, pp. 1, 2, 10-52.

Wattsun is a technical document designed to inform the public about the assembly, installation, and set up of the AZ-125 solar tracker. *Wattsun* includes specifications and instructions for constructing solar trackers with rotatable mounting assemblies to move a panel assembly supporting one or more solar panels to direct the solar panels toward the sun. EX1004, pp. 5-13; EX1003, ¶ 69. *Wattsun's* panel assembly includes a central spine and panel carriers to support the solar panels, as well as an actuator assembly to move or rotate the panel carriers. EX1004, pp. 6-13; EX1003, ¶ 69.

Wattsun also includes the same fundamental structure and characteristics as the systems depicted in the '57546 Patent and the *RayTracker Collection*. EX1003, ¶ 69. The thorough technical designs and specifications detailed in *Wattsun* anticipate the challenged claims of the '57546 Patent. EX1003, ¶ 70.

Wattsun is analogous art to the '57546 Patent. EX1003, ¶ 71. It "is from the same field of endeavor"—solar panel tracking systems—and is pertinent to "one of the particular problems dealt with by the inventor"—improving solar panel efficiency and yield. *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1000–01 (Fed. Cir. 2016); EX1003, ¶ 71.

Wattsun was neither cited nor considered during prosecution of the '57546 Patent.

B. RayTracker Collection

Petitioner relies on one of a collection of documents published on the Internet by a third party entity, RayTracker, Inc., which describe certain features, functionality, and technical details of the RayTracker GC single axis solar tracker system. (collectively "*RayTracker Collection*") (EX1005-EX1007). *RayTracker Collection* was available from a single source substantially before the respective critical date of the '57546 Patent.

RayTracker Collection constitutes a single website with multiple webpages describing the RayTracker GC single axis solar tracker system. EX1003, ¶ 73.

RayTracker Collection describes a single product from a single source, the raytracker.com/products website, and constitutes a printed publication. Skilled artisans interested in the RayTracker GC system (or other solar trackers) would have been interested in reading the *RayTracker Collection*, all collected at a single location, to obtain an understanding of a single coherent system – the RayTracker GC system. EX1003, ¶ 74. Further, the various webpages of *RayTracker Collection*, as described below, sufficiently describe inherent aspects of a single product, the RayTracker GC system. *See In re Baxter Travenol Labs.,* 952 F.2d 388, 390 (Fed. Cir. 1991); *Orion IP, LLC v Hyundai Motor Am.,* 605 F.3d 967, 975 (Fed. Cir. 2010).

RayTracker Collection includes multiple documents, but we will focus on a single document of the collection for purposes of this petition.

1. RayTracker

The "It's time to get tracking…" brochure (EX1006, "*RayTracker*") was published in 2008 and constitutes prior art under at least under pre-AIA 35 U.S.C. § 102(b) or 35 U.S.C. § 102(a)(1). *RayTracker's* prior art public accessibility is evidenced at least by (1) its reference on a webpage verified by the Internet Archive as being publicly available at as early as October 16, 2008; (2) testimony by persons with personal experience and knowledge of *RayTracker*; and (3) identification of a later version of *RayTracker* as prior art by the Applicant during the prosecution of US9,917,546 (the '17546 Patent), a continuation of the '57546 Patent. *RayTracker*

was linked to within the *RayTracker Website*, which was dated by the Way Back Machine as being available on October 16, 2008. EX1010, pp. 1-2, 8-9. Mr. Schneider, a former First Solar and RayTracker employee personally familiar with these documents, confirms that the linked-to version of the *RayTracker* was available as of October 16, 2008. EX1008, ¶¶ 10-13, 17, 18. *RayTracker* discloses a solar tracker mounting and articulation system that anticipates and/or renders obvious the alleged invention(s) in the challenged claims. EX1003, ¶¶ 78, 80.

RayTracker discusses well known and predictable benefits of sun trackers. EX1003, ¶ 79. When considering fixed tilt solar systems, *RayTracker* recognized that certain modifications or technical features would improve energy production. *RayTracker* stated that "[w]hile fixed tilt increases energy production, there is more energy available to capture if the modules track the sun throughout the day." EX1006, p. 3. Such trackers described therein "[give] a 38% increase in energy production over non-tilted PV panels, and a 25% increase over flat panels tilted to 30°." *Id*. *RayTracker* describes the benefits of a system having one axis around which all moving parts rotate, namely, cost savings and simplicity of design, installation, and maintenance. EX1003, ¶ 79. "Single-axis trackers, like the RayTracker GC, provide a significant energy increase while being low cost and simple." EX1006, p. 3. "RayTracker GC is simple and elegant, with just two moving

parts – the actuator and one structural assembly that rotates on a bearing surface." *Id*., p. 4.

In addition to a wide variety of teachings regarding the state of the art and technical benefits of simple sun tracker systems, *RayTracker* describes technical designs and details that anticipate the challenged claims of the '57546 Patent. EX1003, ¶¶ 78, 80.

RayTracker is analogous art to the '57546 Patent. EX1003, ¶ 81. It "is from the same field of endeavor"—solar panel tracking systems—and is pertinent to "one of the particular problems dealt with by the inventor"—improving solar system yield and efficiency. *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1000–01 (Fed. Cir. 2016) (citation omitted); EX1003, ¶ 81.

RayTracker was neither cited nor considered during prosecution of the '57546 Patent.

2. RayTracker Specification

The "RayTracker™ GC200 & GC100 Series Product Specifications" (EX1007, "*RayTracker Specification*") was published in 2008 and constitutes prior art under at least under pre-AIA 35 U.S.C. § 102(b) or 35 U.S.C. § 102(a)(1). *RayTracker Specification's* prior art public accessibility is evidenced at least by testimony by persons with personal experience and knowledge of the *RayTracker Specification*. In addition, the *RayTracker Specification* was linked to in the

RayTracker website, which was dated by the Way Back Machine as being available on October 16, 2008. EX1010, pp. 1-2, 8-9. Mr. Schneider confirms that the linked-to version of the *RayTracker Specification* was available as of October 16, 2008. EX1008, ¶¶ 15-18. *RayTracker Specification* discloses a solar tracker mounting and articulation system that anticipates – or certainly renders obvious – the alleged invention(s) in the challenged claims. EX1003, ¶83.

Specifically, *RayTracker Specification* provides specific details for two example systems: GC200, a "Full size single-axis tracker;" and GC100, a "Half-size single-axis tracker." *RayTracker Specification* includes substantially the same fundamental structure and characteristics as the RayTracker GC system depicted in *RayTracker*. *RayTracker Specification* was neither cited nor considered during prosecution of the '17546 Patent. EX1003, ¶ 84.

3. RayTracker Website

The "First Solar RayTracker GC Product Overview" website (EX1005, "*RayTracker Webpage*") was published in 2008 and constitutes prior art at least under pre-AIA 35 U.S.C. § 102(b) or 35 U.S.C. § 102(a)(1). *RayTracker Webpage*'s prior art public accessibility is evidenced at least by testimony by persons with personal experience and knowledge of the *RayTracker Webpage* and an affidavit from the Way Back Machine. EX1010, pp. 1-2, 8-9; EX1008, ¶¶ 9, 10. *RayTracker Webpage* discloses a solar tracker mounting and articulation system that anticipates

– or certainly renders obvious – the alleged invention(s) in the challenged claims. EX1003, ¶ 88.

RayTracker Webpage discusses well known and predictable benefits of solar trackers, namely, "a single-axis tracker system that significantly increases the lifetime energy yield of a photovoltaic system, improving the return on investment for commercial-scale, ground- or carport-mount installations." EX1005, p. 1; EX1003, ¶ 89. As *RayTracker Webpage* recognized and acknowledged, such "single-axis trackers" described therein "outperform fixed-tilt installations most importantly during peak energy demand periods." *Id.* For example, "[e]nergy boosts of up to 38% are possible compared to flat-mounted panels." *Id.* "RayTracker GC achieves this with a ***simple***, low-profile, ***low-parts-count mechanism***." *Id.*; EX1003, ¶ 89.

RayTracker Website was neither cited nor considered during prosecution of the '57546 Patent.

IV. The '57546 Patent

A. The Specification

The '57546 Patent discloses "a free-standing solar tracker with a rotating panel assembly to track the movement of the sun…" EX1001, 1:6-8. The '57546 Patent explains that "[i]n most [prior] installations, the solar panels are mounted in a fixed position to maximize the exposure when the sun is at its peak." EX1001,

1:19-21. As was well known in the art, the '57546 Patent provides that "the ability to track the movement of the sun significantly increases the output of the solar panel assembly, thus increasing the user's return on the investment in the solar system." EX1001, 1:53-56; EX1003, ¶ 41. In this regard, the '57546 Patent is consistent with the prior art in describing the known benefits of solar tracking – increased output. EX1003, ¶ 41.

Unrelated to the challenged claims, the '57546 Patent describes that a primary feature of the systems therein is to be "easily moved to a site with adequate exposure to the sun" and "designed to be free-standing and requires no foundation." EX1001, 1:50-51; 1:46-47. The '57546 Patent describes the alleged inventive features as having a "base [that] forms a pan to contain a ballast material for holding the base in place." EX1001, 1:48-50. The challenged claims do not require this alleged inventive feature. EX1003, ¶ 42.

The '57546 Patent describes a solar tracker 10 that "comprises a base 20, support frame 40, panel assembly 60, and actuator assembly 90 for rotating the panel assembly 60 to follow the azimuth of the sun as it moves across the sky." EX1001, 2:23-26; Fig. 2; Fig. 4. "The support frame 40 mounts to the base 20." EX1001, 2:57.

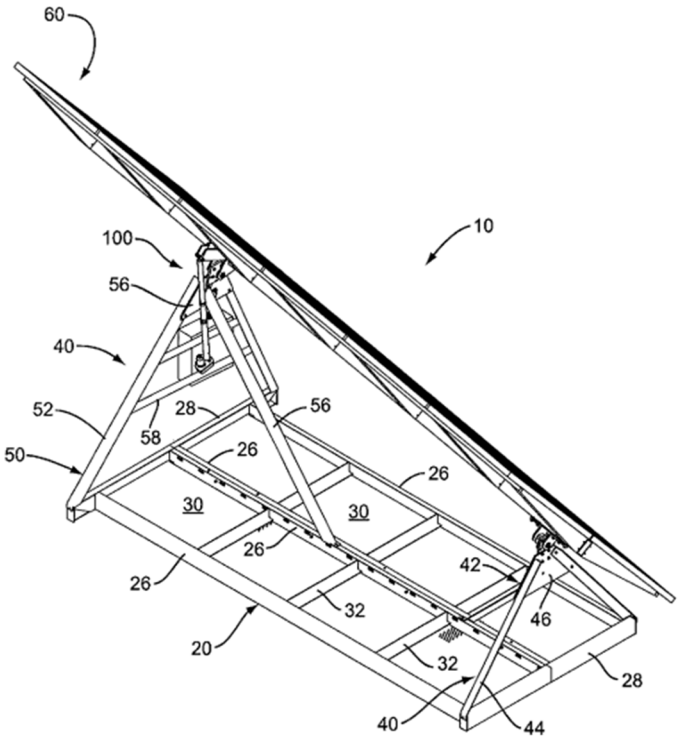

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FIG. 2

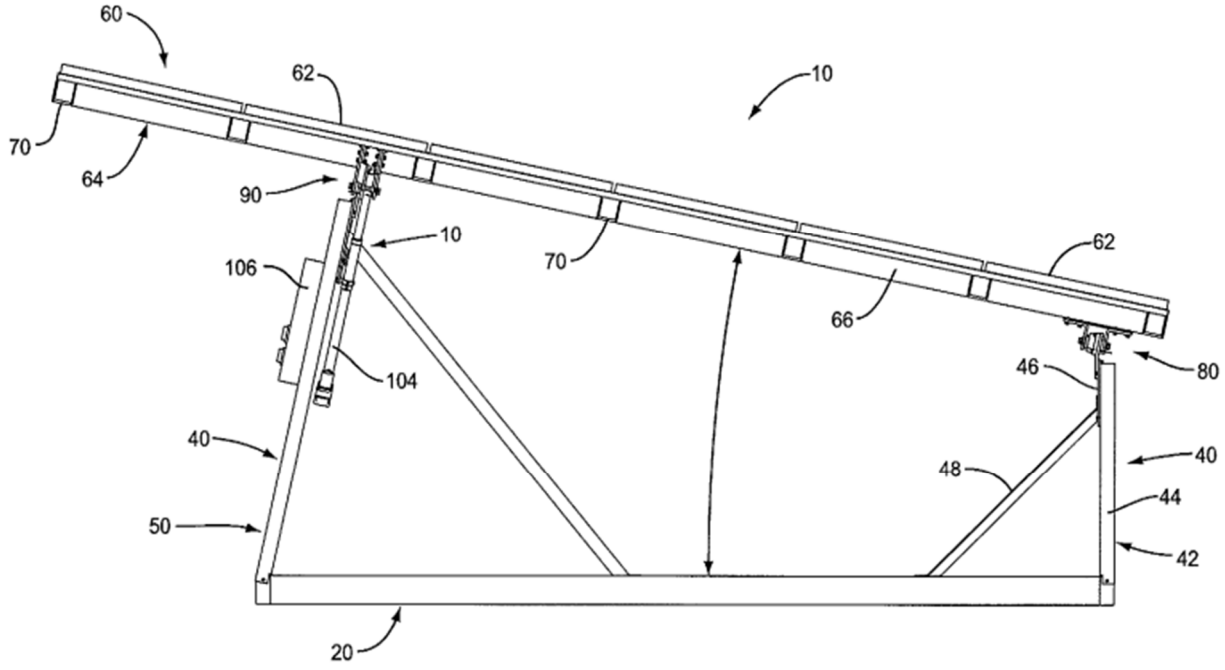

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FIG. 4

"The panel assembly 60 comprises a plurality of solar panels 62 and a panel support frame 64 to support the solar panels." EX1001, 3:24-26. "The panel support frame 64 comprises a central spine 66, a pair of laterally-spaced side members 68, and a plurality of longitudinally-spaced panel carriers 70." EX1001, 3:26-29. "The spine 66 in the exemplary embodiment is made from a metal tube, while the side members 68 and panel carriers are made of a metal channel." EX1001, 3:33-35.

"The panel assembly 60 is rotatably mounted to the support frame 40 so as to rotate about a single, inclined axis." EX1001, 3:45-46. The system includes "a first mounting assembly 80 for securing the lower end of the panel assembly 60 to the front support frame 42." EX1001, 3:47-48.

"FIGS. 6 and 7 shows a second mounting assembly 90 for mounting the upper end of the panel support frame 64 to the rear support frame 50." EX1001, 3:62-64. "The second mounting assembly 90 comprises a connecting plate 92, a pair of mounting forks 94, a bearing 96, and a pivot member 98." EX1001, 3:64-66. "Connecting plate 92 is secured by bolts or other mechanical fasteners to the gusset plate 56 of the rear support frame 50." EX1001, 3:66-4:1. "The mounting forks 94 include a slot 95 to receive the spine 66 of the panel support frame 64." EX1001, 4:1-3.

"Actuator assembly 100, shown in FIG. 7, comprises a pivot arm 102, fluid cylinder 102 [*sic.*], and control unit 106." EX1001, 4:18-19. "Pivot arm 102 is

connected at one end to the spine 66 of the panel support frame 64." EX1001, 4:19-21. "Pivot arm 102 extends outward from the spine 66." EX1001, 4:21-22.

"The control unit 106 preferably includes a processor and associated memory for controlling the rotation of the panel assembly 60." EX1001, 4:28-30. "The control unit 106 may store ephemeras data in memory that gives the position of the sun in the sky at different times of the day." EX1001, 4:30-32. "Alternatively, the position of the sun in the sky at different times of day may be calculated based on formulas that model the sun's movement." EX1001, 4:33-35. "As the azimuth of the sun changes, the control unit 106 rotates the panel assembly 60 to minimize as much as possible the angle of incidence of the sun rays on the solar panels 62." EX1001, 4:35-38. "The panel assembly 60 rotates about a single axis that follows the azimuth of the sun." EX1001, 4:38-39.

With regard to the asserted claims, the '57546 Patent disclosed nothing more than an example implementation of systems, techniques, and approaches that were well known in the art and specifically disclosed by *Wattsun* and/or *RayTracker*. EX1003, ¶ 52.

B. Prosecution History of the '57546 Patent

US Patent Application Serial No. 12/380,907 (the application that led to the '57546 Patent) was filed on July 6, 2010. The application underwent several rounds

of prosecution, with claim amendments and remarks in attempts to traverse the Examiner's prior art rejections.

In the Notice of Allowance, the Examiner stated the following for the Reasons of Allowance:

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: The invention, Solar tracker, is in the field of solar tracking supports for a plurality of solar panels. Prior art in a similar field of endeavor belong to Strahm [8492645] and Bottger et al [6105316]. Strahm teaches a support 43 for a motor 38, which differs from the claimed invention in that the application has a mounting fork which is rotatable and has a slot for the support spine. For these reasons, the invention is unique and therefore allowable.

(EX1011, Notice of Allowance dated April 17, 2015)

The Examiner specifically references the "mounting fork which is rotatable and has a slot for the support spine" as being the unique features of the claimed invention. However, none of the claims at issue include these features that the Examiner deemed as patentable (i.e., the "mounting fork").

V. Level of Ordinary Skill in the Art

The level of ordinary skill in the art may be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). A person of ordinary skill in the art ("POSITA") at the time of the purported invention would have had a bachelor's degree in mechanical engineering or equivalent with 2-3 years of experience involving design, development, and manufacturing of support and

mounting structures for solar trackers, with additional education substituting for experience and vice versa. EX1003, ¶ 34.

VI. Claim Construction / Interpretation

Petitioner interprets the claims of the ’57546 Patent according to 37 C.F.R. § 42.100(b). To resolve the particular grounds presented herein, Petitioner does not believe that any term requires explicit construction.

VII. Statement of Precise Relief Requested

Petitioner requests *inter partes* review and cancellation of Claims 5 and 6 of the ’57546 Patent based on the grounds set forth under 35 U.S.C. § 102(b) and/or U.S.C. § 103(a) for the reasons stated herein and in the concurrently filed petition. This petition presents clear evidence of unpatentability for Claims 5 and 6 of the ’57546 Patent (the “challenged claims”), and thereby establishes a reasonable likelihood that the Petitioner will prevail in establishing that the challenged claims are unpatentable. The following chart summarizes the individual grounds, including for each ground, the statutory basis and the prior art relied upon:

Ground	References	Basis	Claims
1	*Wattsun*	§ 102	U.S. Patent No. 9,057,546: claims 5 and 6
2	*RayTracker*	§ 102	U.S. Patent No. 9,057,546: claims 5 and 6

Ground	References	Basis	Claims
3	*Wattsun* in view of *RayTracker*	§ 103	U.S. Patent No. 9,057,546: claims 5 and 6

The Petitioner appreciates that the Board is charged with securing the just, speedy and inexpensive resolution of every proceeding. 37 C.F.R. § 42.1(b). Should the Board wish to have guidance as to Petitioner's preferred grounds for institution, Petitioner respectfully submits that *Wattsun* clearly anticipates Claims 5 and 6 of the '57546 Patent under 35 U.S.C. § 102(b) as a printed publication or renders every claim obvious under 35 U.S.C. § 103 alone or in view of *RayTracker*. All of the grounds presented, however, are deserving of institution by the Board.

VIII. Relevant Legal Principles for this Proceeding

A. Anticipation and Obviousness Generally

All of the challenged claims are unpatentable under pre-AIA 35 U.S.C. §§ 102(b) and/or 103(a). *Wattsun* and *RayTracker* anticipate the challenged claims because the references disclose "each and every element as set forth in the claim…expressly or inherently." *SRI Intern., Inc. v. Internet Sec. Systems, Inc.*, 511 F. 3d 1186, 1192 (Fed. Cir. 2008), citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987); 35 U.S.C. § 102(b). Similarly, the challenged claims are invalid as obvious because any potential differences between the subject matter of the challenged claims and Petitioner's cited references are such

that the claims would have been obvious to one of ordinary skill in the art at the time of the invention. 35 U.S.C. § 103(a). EX1003, ¶ 298.

B. Standard for Institution

This Petition demonstrates that there is a reasonable likelihood that the challenged claims of the ’57546 Patent are unpatentable. 35 U.S.C. § 314(a). The petitions are supported by expert declaration of Edward Kern (EX1003), who provides claim charts charting their cited evidence of disclosure to the challenged claims.

IX. Ground 1: Claims 5 and 6 of the ′57546 Patent Were Anticipated by *Wattsun*

A. Summary

The challenged claims of the ’57546 Patent recite a solar tracker having four primary elements: (1) a support frame; (2) a panel assembly, rotatably mounted to the support frame, having a central spine; (3) a mounting assembly for mounting the panel assembly to the support frame; and (4) an actuator for rotating the panel assembly. Dependent claim 6 further recites one or more solar panels mounted to the panel assembly. As discussed in the ’57546 Patent, the solar tracker is configured so that the panel assembly can rotate to follow the sun’s position throughout the day.

Wattsun discloses a solar tracker having features that read directly on the challenged claims and includes structural members and components indistinguishable from those in the challenged claims. EX1003, ¶¶ 95, 96.

B. Claim-by-Claim Analysis

1. Claim 5 of the '57546 Patent

a. 5[p] "A solar tracker comprising:"

Should the preamble be construed as limiting, *Wattsun* discloses it. EX1003, ¶ 97. Specifically, *Wattsun* states that the device being described therein is an "AZ-125 Dual-Axis, Azimuth Drive Solar Tracker" and depicts a support structure. EX1004, p. 1.

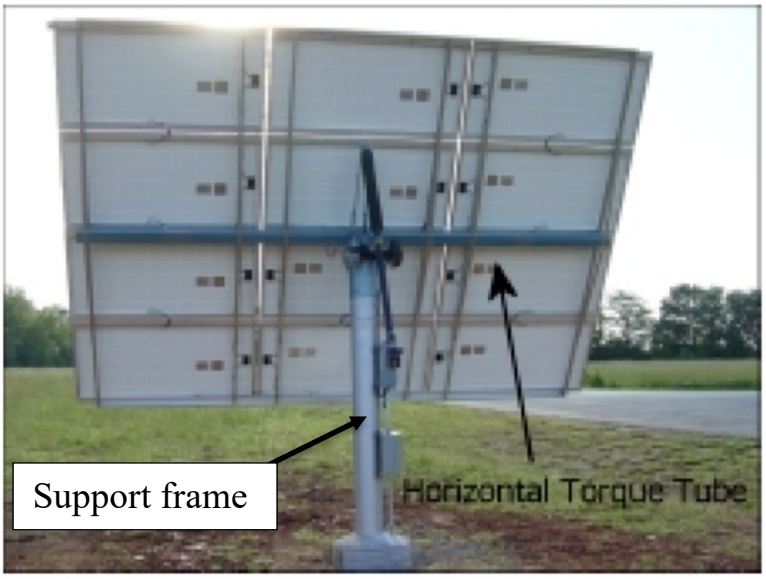
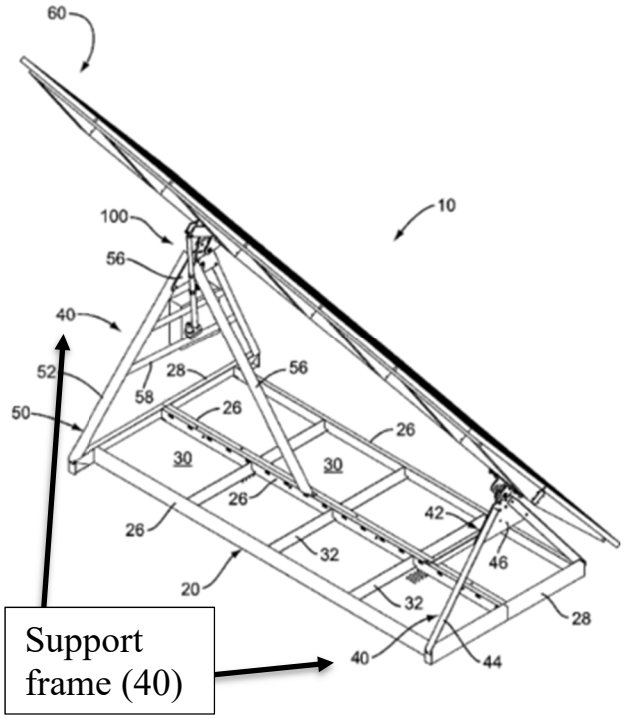
b. 5[a] "a support frame;"

Wattsun satisfies this element of the claim. EX1003, ¶ 99.

The '57546 Patent describes that the "support frame 40 mounts to the base 20." EX1001, 2:57-58. A "panel assembly 60 is rotatably mounted to the support frame 40." EX1001, 3:45-46.

Wattsun discloses a steel support frame including a support post to support other components of the tracker, which satisfies the claim element "a support frame." EX1003, ¶ 99. *Wattsun* discloses that "[t]he Wattsun™ Tracker requires a length of Eight-Inch ID Schedule 40 Steel Pipe for use as the pipe mast. Specifications for the pipe mast can be found on the data sheet for this particular tracker." EX1004, p. 1.

Below is an annotated figure from *Wattsun* depicting the support frame formed of a support post, as compared with the embodiment depicted in the '57546 Patent. EX1003, ¶ 100.

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.	 EX1001, Fig. 2 (support frame 40 (EX1001, 2:57-58)).

c. 5[b] "a panel assembly rotatably mounted to the support frame for supporting one or more solar panels, said panel assembly comprising a central spine and a plurality of panel carriers extending outwardly from said spine;"

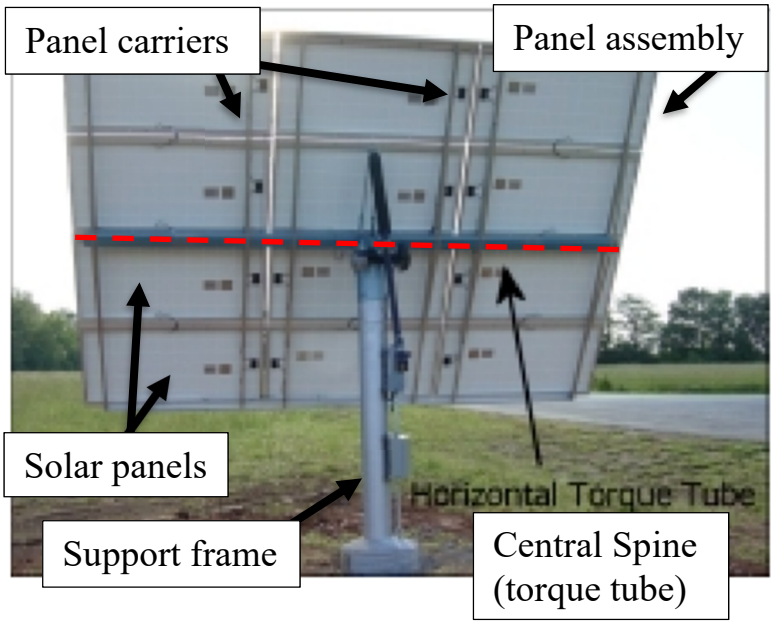
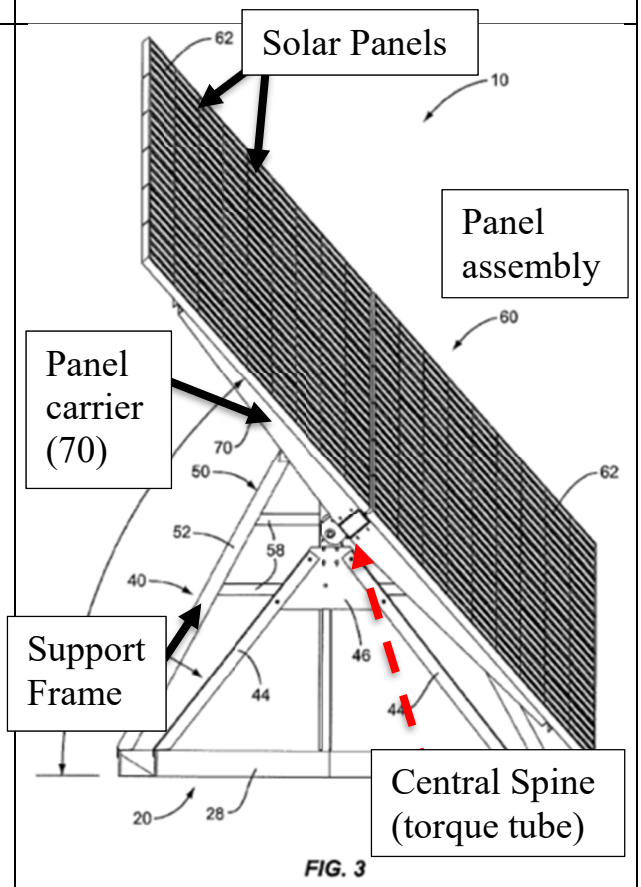
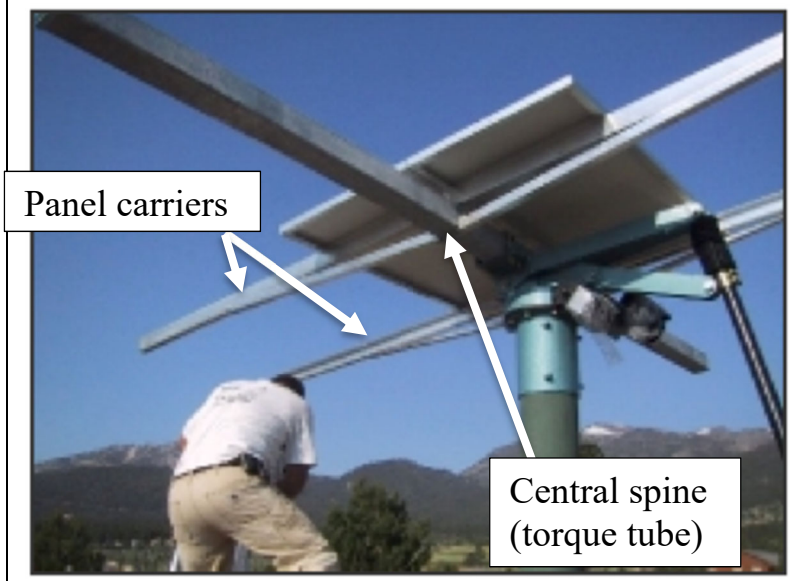
Wattsun satisfies this element of the claim. EX1003, ¶ 102. *Wattsun* discloses a set of solar panels that rotate to track the sun. *Wattsun* states "Wattsun™ Solar Trackers utilize a patented, closed loop, optical sensing system to sense the sun's position and track it." EX1004, p. 19.

The '57546 Patent describes that a "panel assembly 60 includes a plurality of solar panels 62 and a panel support frame 64 to support the solar panels." EX1001, 3:24-26. "The panel support frame 64 comprises a central spine 66, a pair of laterally-spaced side members 68, and a plurality of longitudinally-spaced panel carriers 70." EX1001, 3:26-29.

Wattsun discloses a plurality of panel carriers extending outwardly from a central spine (*e.g.*, a torque tube beam) that extends along the center of the panel assembly for supporting solar panels. EX1004, pp. 8, 9, 15, 16; EX1003, ¶ 103. *Wattsun* discloses a support frame, on which solar panels (*e.g.*, an array of photovoltaic panels) are rotatably mounted with the panel assembly that includes a torque tube that extends along the center of the panel assembly. EX1004, pp. 8, 9, 15, 16; EX1003, ¶ 103. *Wattsun* discloses transversely arranged elongated members

to which the photovoltaic members are mounted. EX1004, pp. 8, 9, 15, 16; EX1003, ¶ 103.

Below is an annotated figure from *Wattsun* depicting the panel assembly with panel carriers, as compared with the panel assembly embodiment depicted in the '57546 Patent. *Wattsun's* panel carriers are clearly illustrated as extending outwardly from the torque tube. EX1003, ¶ 104.

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.	 EX1001, Fig. 3 (support frame 40 (EX1001, 2:57-58); panel assembly 60, solar panels 62 (EX1001, 3:24-26); central spine 66, panel carriers 70 (EX1001, 3:26-29)).
 One installer, one piece at a time approach. Modules are being used to "square-up: the frame. EX1004, p. 16.	

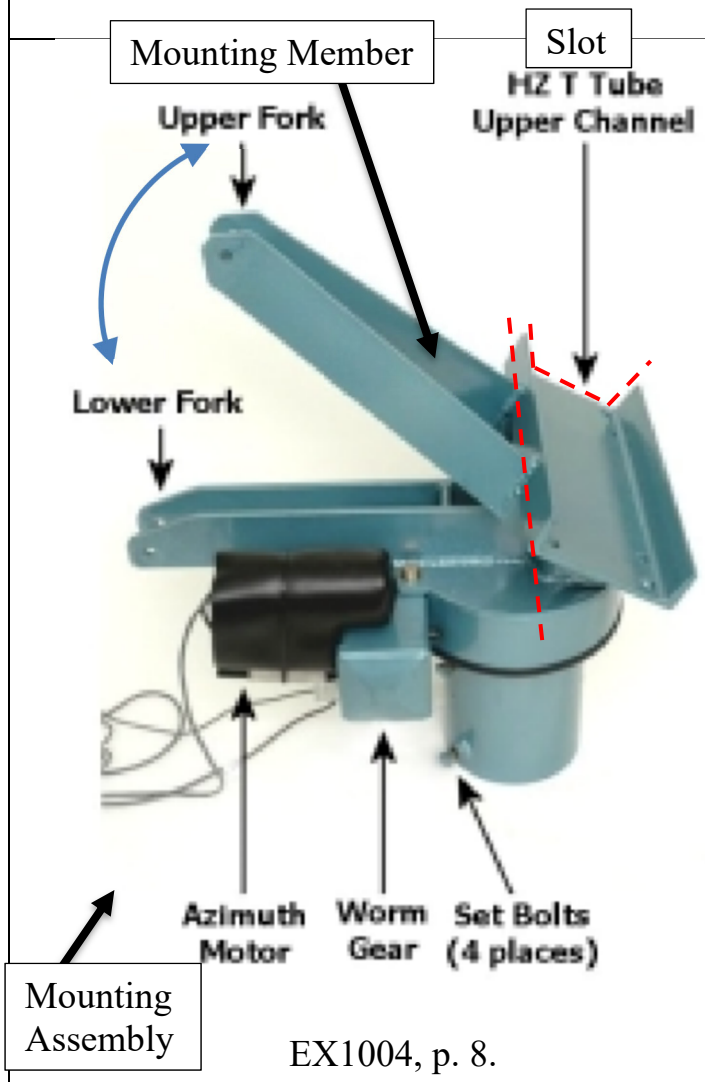
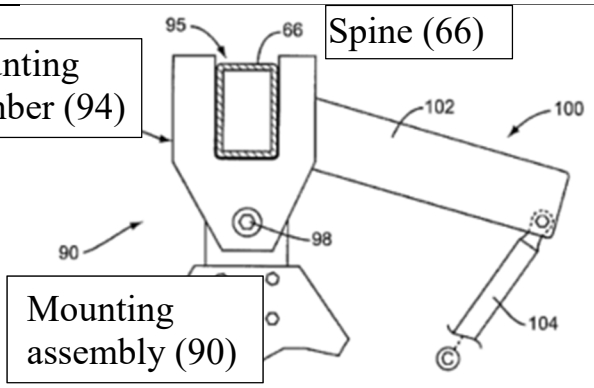
d. 5[c] "a mounting assembly for rotatably mounting the panel assembly to the support frame, the mounting assembly comprising a mounting member rotatably connected to the support frame and a slot in said mounting member configured to receive the spine of the panel assembly; and"

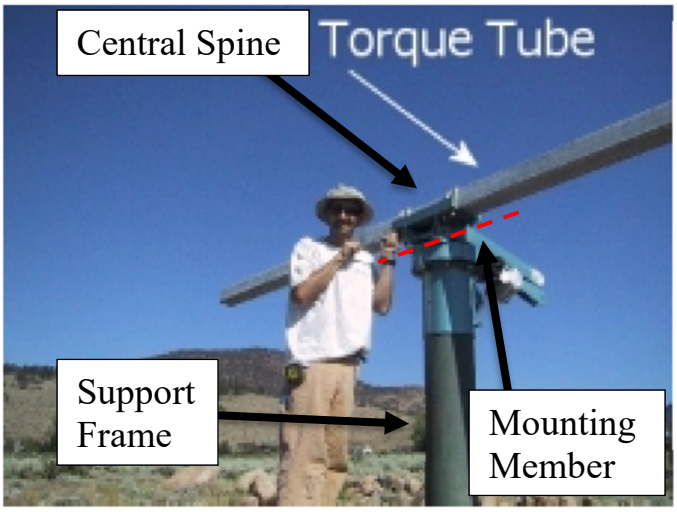
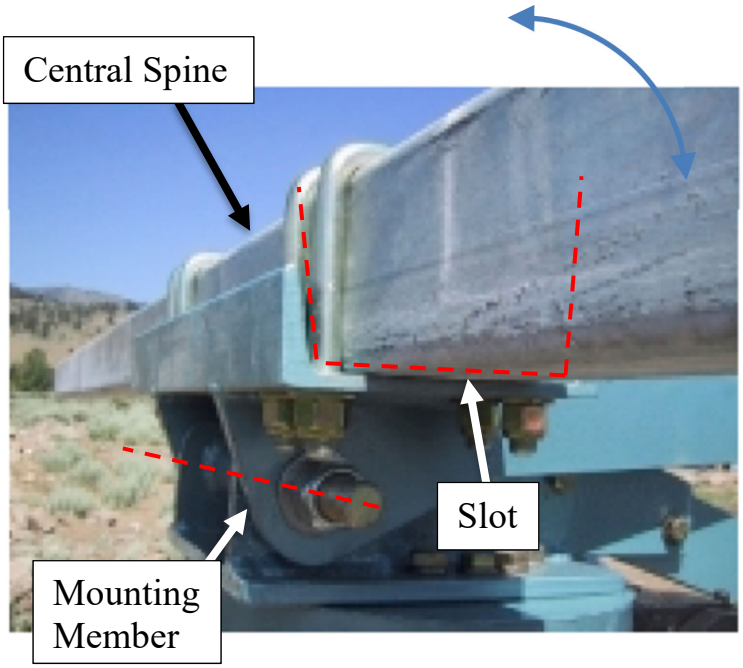
Wattsun satisfies this element of the claim. EX1003, ¶ 106.

The '57546 Patent describes a "second mounting assembly 90 [that] comprises a connecting plate 92, a pair of mounting forks 94, a bearing 96, and a pivot member 98." EX1001, 3:64-66. "The mounting forks 94 include a slot 95 to receive the spine 66." EX1001, 4:1-3. "The pivot member 98 extends through the mounting forks 94, upper end of connecting plate 92, and bearing 96, and is secured in place by a nut threaded onto the end of the pivot member 98." EX1001, 4:5-8. "Pivot member 88 on the first mounting assembly 80 and pivot member 98 on the second mounting assembly 90 are co-axially aligned along the axis and rotation of the panel assembly 60." EX1001, 4:9-12. "The rotational axis is aligned when deployed so that the plane of the rotational axis aligns with the sun at the highest altitude. Thus, the panel assembly 60 can rotate to track the path of the sun as the sun travels across the sky during the day." EX1001, 4:13-17. The specification of the '57546 Patent does not recite "mounting member." To the extent the term "mounting member" is supported by the specification of the '57546 Patent, a POSITA would interpret the claimed mounting member to be the mounting fork 94.

Wattsun discloses a mounting assembly for rotatably mounting the panel assembly to the support frame. EX1003, ¶ 106. The mounting assembly includes a mounting member. EX1003, ¶ 106. *Wattsun* discloses a horizontal torque tube drive that mounts on top of the support frame for rotatably mounting the panel assembly to the support frame (support post). EX1004, pp. 6, 8, 9, 12, 16; EX1003, ¶ 107. The horizontal torque tube drive includes a rotatably mounted upper fork that defines a torque tube upper channel. EX1004, pp. 6, 8, 9, 12, 16; EX1003, ¶ 107. The upper fork with the HZ T Tube Upper Channel is a mounting member configured to be rotatably connected to said support frame and to receive the torque tube. EX1004, pp. 6, 8, 9, 12, 16; EX1003, ¶ 107. The upper channel includes or forms a slot. EX1004, pp. 6, 8, 9, 12, 16; EX1003, ¶ 107. The torque tube spine of the panel assembly can be placed in the slot in the mounting member (upper fork). EX1004, pp. 9, 12, 16; EX1003, ¶ 107.

Below is an annotated figure from *Wattsun* depicting the mounting assembly, as compared with the mounting assembly embodiment depicted in the ’57546 Patent. EX1003, ¶ 108.

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 8.	 *FIG. 7* EX1001, Fig. 7 (mounting assembly 90, mounting member 94 (EX1001, 3:64-66); slot 95, spine 66 (EX1001, 4:1-3)).

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.  EX1004, p. 12.	

e. 5[d] "an actuator assembly for rotating the panel assembly to track the movement of the sun."

Wattsun satisfies this element of the claim. EX1003, ¶ 110.

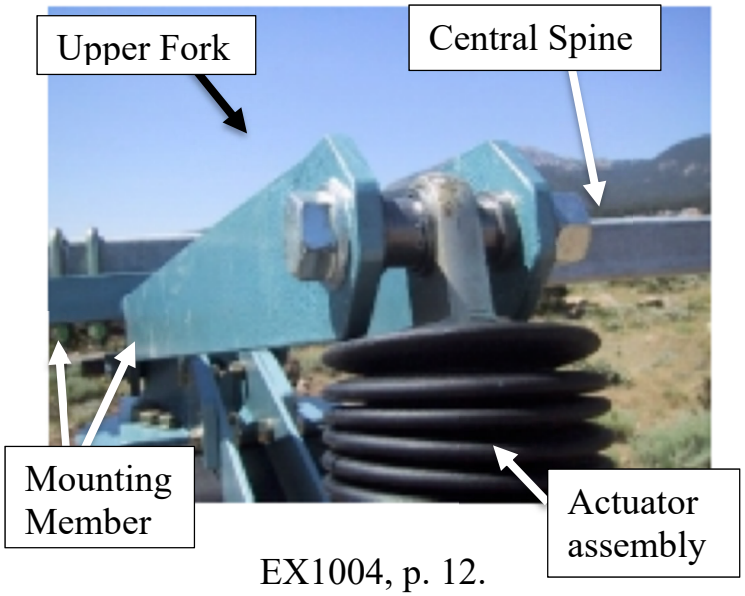
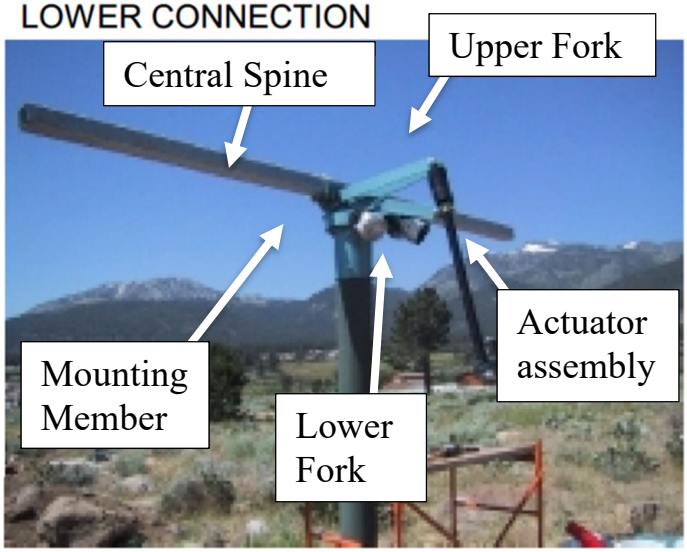
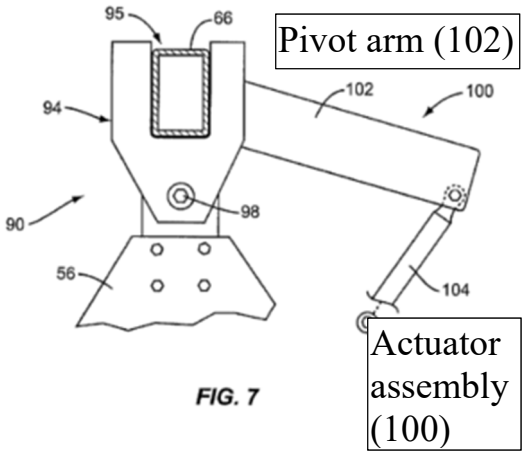
The '57546 Patent describes an "[a]ctuator assembly 100 that, shown in FIG.7, comprises a pivot arm 102, fluid cylinder 102 [*sic.*], and control unit 106." EX1001, 4:18-19. "The pivot arm 102 is connected at one end to the spine 66 and extends outward from the spine 66." EX1001, 4:19-22. The "[f]luid cylinder 104 is connected at one end to the pivot arm 102." EX1001, 4:22-23. The "[c]ontrol unit 106 is mounted to the front frame and controls operation of the fluid cylinder 104." EX1001, 4:23-25.

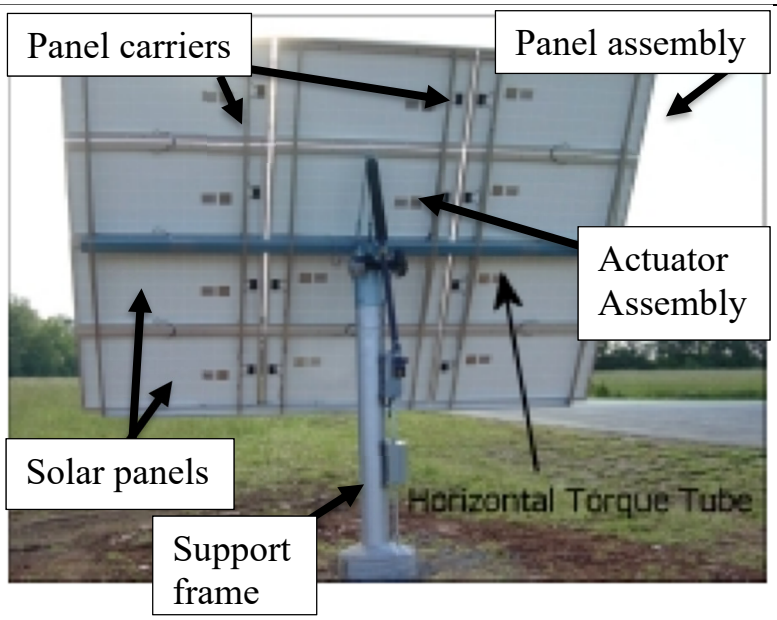
Wattsun describes an actuator assembly (*e.g.*, an actuator system) to rotate the panel assembly. EX1003, ¶ 110. *Wattsun* discloses an electromechanical actuator for rotating the panel assembly to track the movement of the sun. EX1003, ¶ 110. *Wattsun* discloses that the solar tracker includes an "actuator assembly for dual-axis operation." EX1004, p. 12; EX1003, ¶ 110. *Wattsun* discloses that this actuation is to track the sun's position. EX1004, p. 19; EX1003, ¶ 110. *Wattsun* discloses "Wattsun™ Solar Trackers utilize a patented, closed loop, optical sensing system to sense the sun's position and track it." EX1004, p. 19; EX1003, ¶ 110.

Wattsun describes attaching an actuator assembly (*e.g.*, the elevation actuator) to the forks (i.e., the upper fork and lower fork) to move the forks and move the

torque tube to rotate the panel assembly. EX1003, ¶ 111. Specifically, *Wattsun* discloses to an installer to "[c]enter both the eyelet end (the top) of the elevation actuator inside the forks and the elevation actuator clamp eyelet (the bottom)." EX1004, p. 12. *Wattsun* then discloses a series of images and assembly steps to teach how the actuator assembly is attached to the mounting assembly for rotating the panel assembly. EX1004, pp. 8-9, 12-13; EX1003, ¶ 112.

Below is an annotated figure from *Wattsun* depicting the actuator assembly, as compared with the actuator assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 112.

Wattsun	**U.S. Patent No. 9,057,546**
UPPER CONNECTION  EX1004, p. 12. LOWER CONNECTION  EX1004, p. 12.	 FIG. 7 EX1001, Fig. 7. (actuator assembly 100, fluid cylinder 104, pivot arm 102 (EX1001, 4:18-19)).

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.	

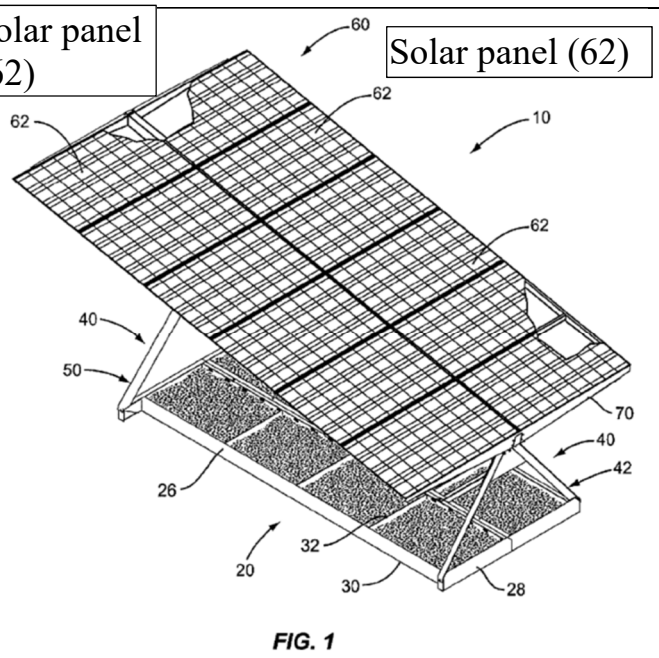
2. Claim 6

Wattsun satisfies this claim. EX1003, ¶ 114. Dependent claim 6 recites: "The solar tracker of claim 5 wherein the panel assembly further comprises one or more solar panels mounted to the panel carriers." EX1001, claim 6. *Wattsun* discloses this additional claim feature. EX1003, ¶ 113.

The '57546 Patent describes that "[t]he panel assembly 60 comprises a plurality of solar panels 62 and a panel support frame 64 to support the solar panels." EX1001, 3:24-26.

Wattsun is replete with disclosures of solar panels, referred to as a photovoltaic (PV) array or PV modules. *See e.g.*, EX1004, p. 1 ("[t]he tracker comes complete with all the hardware necessary for assembly and mounting the PV modules."); EX1004, p. 5 ("[c]hoose an optimum solar location to install the PV array for in the ground mounting."); EX1004, p. 14 ("[t]he PV modules may be mounted to the struts at this time - prior to installation onto the torque tube assembly."); EX1004, p. 17 ("[t]he azimuth tracker works by rotating the PV array about the pipe mast then tilting the array to the proper elevation angle."); and EX1004, p. 23 ("[t]he sensor mounts on the TOP CENTER (or near the center) of the PV array"). Further, *Wattsun* illustrates the system as including solar panels. EX1003, ¶ 115. For example, the panel assembly comprises one or more solar panels mounted to panel carriers. EX1003, ¶ 115.

Below is an annotated figure from *Wattsun* depicting the solar panels, as compared with the solar panels depicted in the '57546 Patent. EX1003, ¶ 116.

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.	Solar panel (62)  FIG. 1 EX1001, Fig. 2 (solar panel 62 (EX1001, 3:42-43)).

X. Ground 2: Claims 5 and 6 of the '57546 Patent Were Anticipated by *RayTracker*

A. Summary

The challenged claims of the '57546 Patent recite a solar tracker having four primary elements identified above. *See supra* at Section IX.A. Dependent claim 6 further recites solar panels mounted to the panel assembly. As discussed in the

'57546 Patent, the solar tracker is configured so that the panel assembly can rotate based on the sun's position throughout the day. EX1003, ¶ 147.

RayTracker discloses a solar tracker that reads directly on the challenged claims and includes structural members and components indistinguishable from those in the challenged claims. EX1003, ¶ 148.

B. Claim-by-Claim Analysis

1. Claim 5 of the '57546 Patent

a. 5[p] "A solar tracker comprising:"

Should the preamble be construed as limiting, *RayTracker* discloses it. EX1003, ¶ 149. *RayTracker* disclosed the many benefits of a solar tracker system. EX1006, pp. 1, 2; EX1003, ¶ 149. For example, *RayTracker* recognized and acknowledged such "single axis" solar trackers described therein "improves energy yield by optimally positioning the solar panels throughout the day. Energy boosts of up to 38% [were] possible compared to flat-mounted panels." EX1006, p. 2.

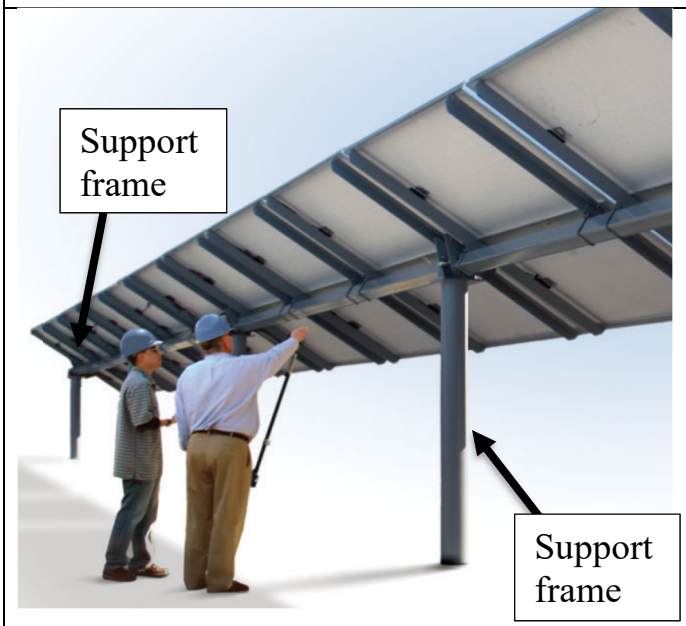
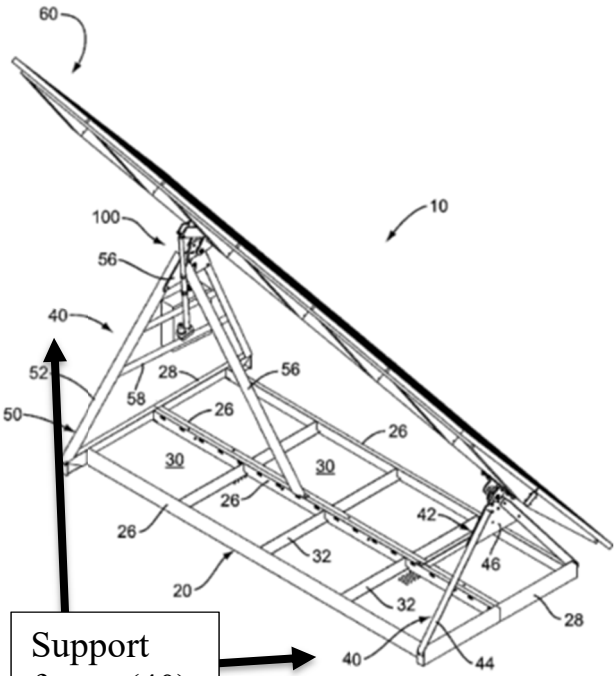
b. 5[a] "a support frame;"

RayTracker satisfies this element of the claim. EX1003, ¶ 151.

The '57546 Patent describes that the "support frame 40 mounts to the base 20." (shown below). EX1001, 2:57-58. A "panel assembly 60 is rotatably mounted to the support frame 40…" EX1001, 3:45-46.

RayTracker discloses a steel support frame of multiple support posts to support other components of the tracker. EX1003, ¶ 151. Specifically, *RayTracker* discloses "[t]he installer provides only five vertical steel posts to support the RayTracker GC structure." EX1006, p. 5.

Below is an annotated figure from *RayTracker* depicting the support frame formed of support posts, as compared with the embodiment depicted in the '57546 Patent. EX1003, ¶ 152.

RayTracker	**U.S. Patent No. 9,057,546**
 EX1006, p. 4.	 EX1001, Fig. 2 (support frame 40 (EX1001, 2:57-58)).

c. 5[b] "a panel assembly rotatably mounted to the support frame for supporting one or more solar panels, said panel assembly comprising a central spine and a plurality of panel carriers extending outwardly from said spine;"

RayTracker satisfies this element of the claim. EX1003, ¶ 154. *RayTracker* discloses a set of solar panels that rotate as a unit to track the sun's position. EX1003, ¶ 154. *RayTracker* discloses an assembly that is "simple and elegant, with just two moving parts – the actuator and one structural assembly that rotates on a bearing surface." EX1006, p. 4.

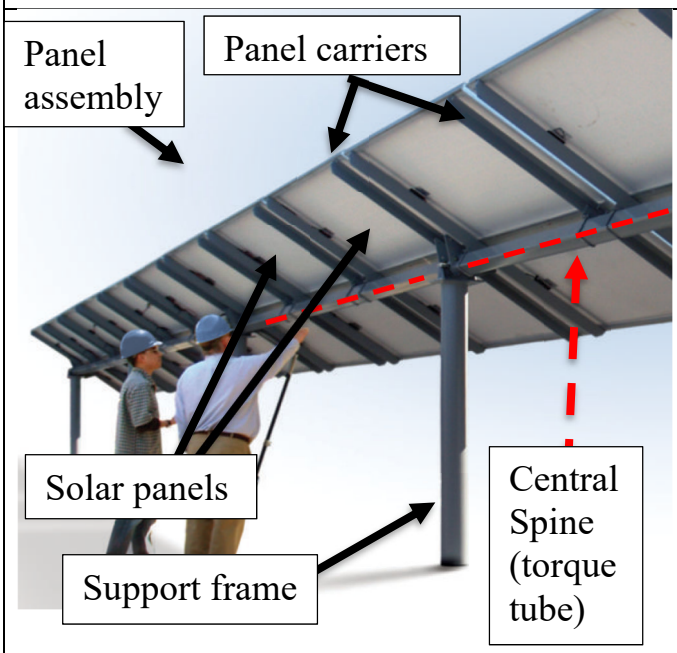
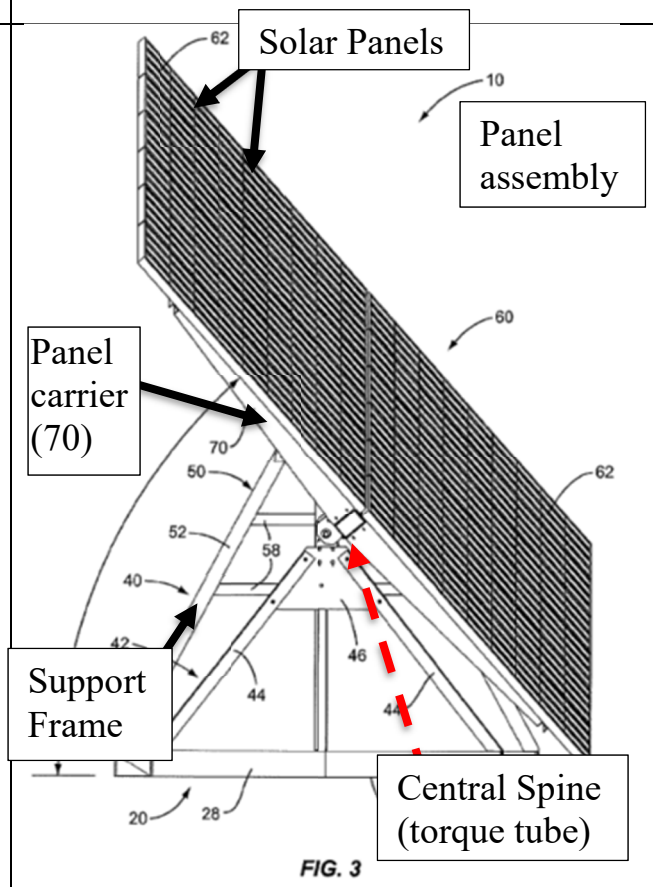
The '57546 Patent describes that "[t]he panel assembly 60 comprises a plurality of solar panels 62 and a panel support frame 64 to support the solar panels." EX1001, 3:24-26. "The panel support frame 64 comprises a central spine 66, a pair of laterally-spaced side members 68, and a plurality of longitudinally-spaced panel carriers 70." EX1001, 3:26-29.

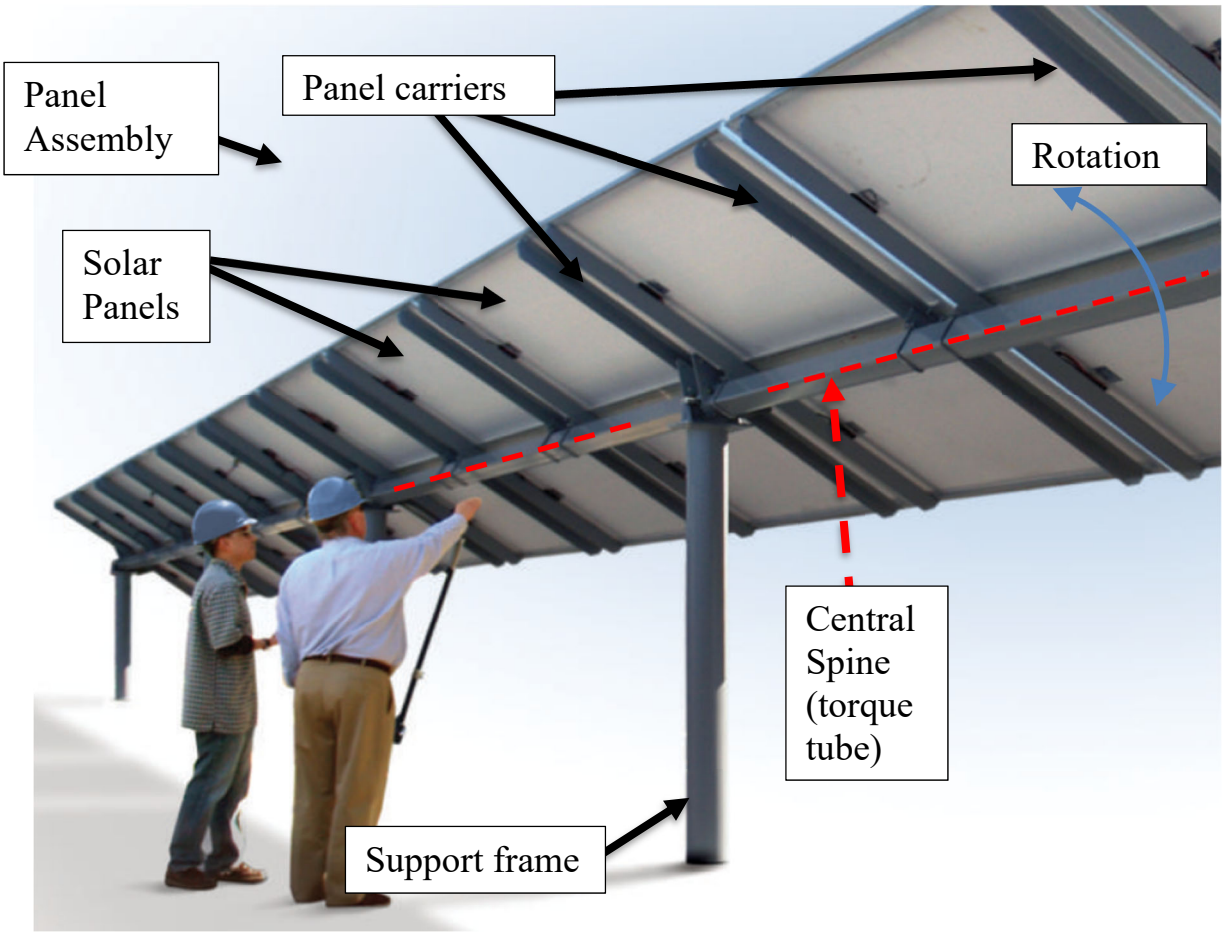
RayTracker discloses a plurality of panel carriers extending outwardly from a central spine (*e.g.*, a torque tube beam) that extends along the center of the panel assembly for supporting solar panels. EX1006, pp. 4, 5; EX1003, ¶ 155. For example, *RayTracker* discloses a support frame, on which photovoltaic solar panels are rotatably mounted by a panel assembly. EX1006, pp. 4, 5; EX1003, ¶ 155. The panel assembly includes a torque tube that extends along the center of the panel assembly. EX1006, pp. 4, 5; EX1003, ¶ 155. *RayTracker* discloses a transversely

arranged elongated member to which the photovoltaic members are mounted. EX1006, pp. 4, 5; EX1003, ¶ 155.

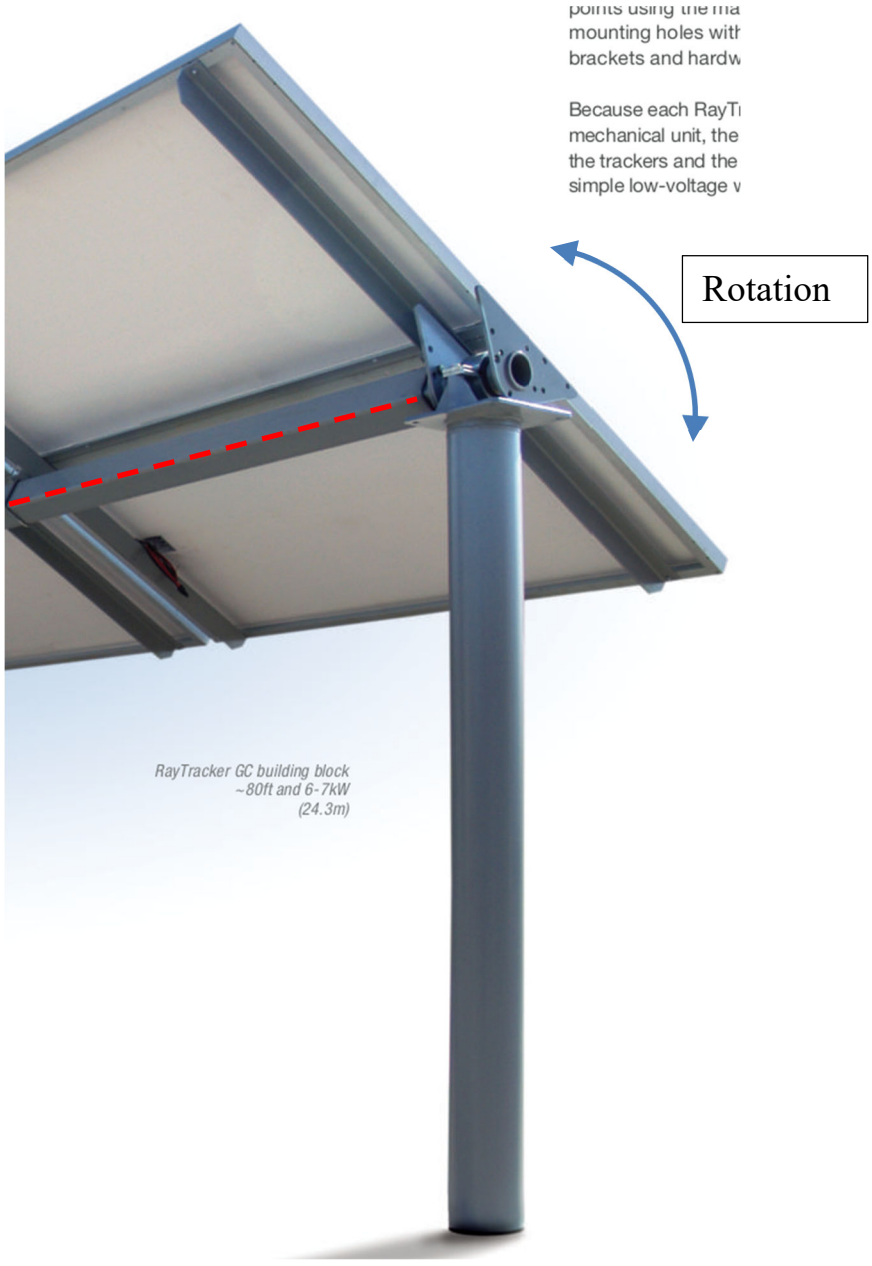
RayTracker further specifically discloses "a complete PV [photo voltaic] racking system, supplied with module-specific, pre-drilled panel mounts and hardware. Each RayTracker GC unit… accommodates 24 to 32 standard PV modules." EX1006, p. 2. As depicted below, *RayTracker's* panel carriers are clearly illustrated as extending outwardly from the torque tube. EX1003, ¶ 156.

Below is an annotated figure from *RayTracker* depicting the panel assembly with panel carriers, as compared with the panel assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 157. *RayTracker* also illustrates several examples of the rotatable bearings mounted between the support posts and the panel assembly to rotate the panel assembly relative to the support posts. EX1003, ¶ 157.

RayTracker	**U.S. Patent No. 9,057,546**
 EX1006, p. 4.	 FIG. 3 EX1001, Fig. 3 (support frame 40 (EX1001, 2:57-58); panel assembly 60, solar panels 62 (EX1001, 3:24-26); central spine 66, panel carriers 70 (EX1001, 3:26-29)).


Panel Assembly
Panel carriers
Rotation
Solar Panels
Central Spine (torque tube)
Support frame

EX1006, p. 4.


points using the ma
mounting holes with
brackets and hardw
Because each RayTr
mechanical unit, the
the trackers and the
simple low-voltage v
Rotation
RayTracker GC building block
~80ft and 6-7kW
(24.3m)

EX1006, p. 5.

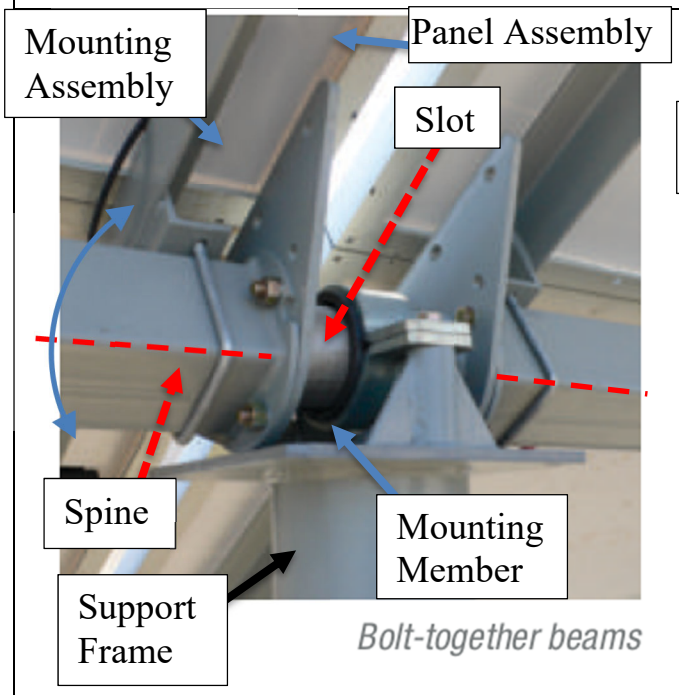
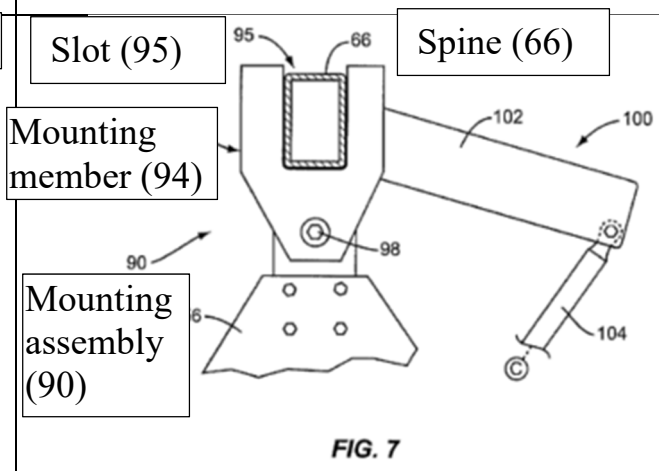
d. 5[c] "a mounting assembly for rotatably mounting the panel assembly to the support frame, the mounting assembly comprising a mounting member rotatably connected to the support frame and a slot in said mounting member configured to receive the spine of the panel assembly; and"

RayTracker satisfies this element of the claim. EX1003, ¶ 159.

The '57546 Patent describes a "second mounting assembly 90 [that] comprises a connecting plate 92, a pair of mounting forks 94, a bearing 96, and a pivot member 98." EX1001, 3:64-66. "The mounting forks 94 include a slot 95 to receive the spine 66." EX1001, 4:1-3. "The pivot member 98 extends through the mounting forks 94, upper end of connecting plate 92, and bearing 96, and is secured in place by a nut threaded onto the end of the pivot member 98." EX1001, 4:5-8. "Pivot member 88 on the first mounting assembly 80 and pivot member 98 on the second mounting assembly 90 are co-axially aligned along the axis and rotation of the panel assembly 60." EX1001, 4:9-12. "The rotational axis is aligned when deployed so that the plane of the rotational axis aligns with the sun at the highest altitude. Thus, the panel assembly 60 can rotate to track the path of the sun as the sun travels across the sky during the day." EX1001, 4:13-17. The specification of the '57546 Patent does not recite "mounting member." To the extent the term "mounting member" is supported by the specification of the '57546 Patent, a POSITA would interpret the claimed mounting member to be the mounting fork 94.

RayTracker discloses a mounting assembly for rotatably mounting the panel assembly to the support frame. EX1006, pp. 1, 4, 5; EX1003, ¶ 159. The mounting assembly includes a mounting member. EX1006, pp. 1, 4, 5; EX1003, ¶ 159. *RayTracker* discloses a bearing assembly that mounts on top of the support posts for rotatably mounting the panel assembly to the support posts. EX1006, pp. 1, 4, 5; EX1003, ¶ 159. A POSITA would readily understand that the bearing assembly is formed of a split two-piece bearing. EX1003, ¶ 159. The bearing assembly includes an inner bearing race that rotates within outer bearing races. EX1003, ¶ 159. The inner bearing race is a mounting member. EX1003, ¶ 159. The spine of the panel assembly can be placed in a slot in the mounting member (i.e., in the lower portion of the bearing). EX1003, ¶ 159.

Below is an annotated figure from *RayTracker* depicting the mounting assembly, as compared with the mounting assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 160.

RayTracker	**U.S. Patent No. 9,057,546**
 EX1006, p. 5.	 FIG. 7 EX1001, Fig. 7 (mounting assembly 90, mounting member 94 (EX1001, 3:64-66); slot 95, spine 66 (EX1001, 4:1-3)).

e. 5[d] "an actuator assembly for rotating the panel assembly to track the movement of the sun."

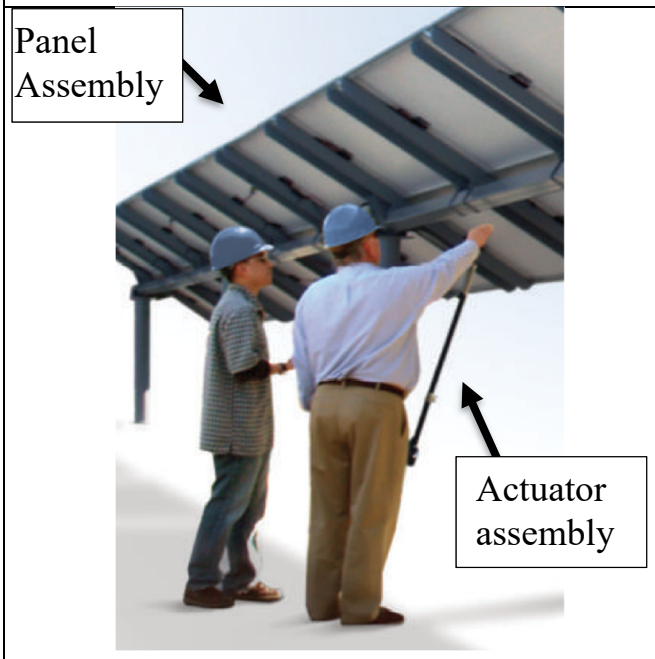
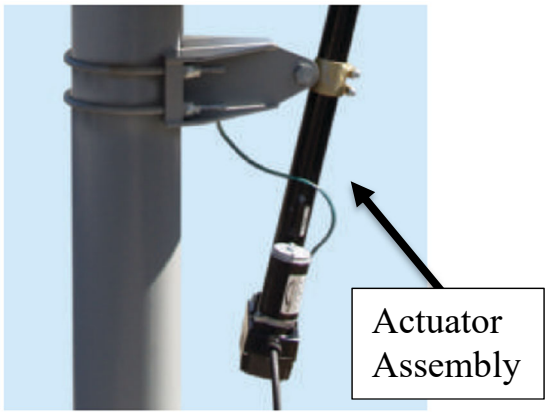
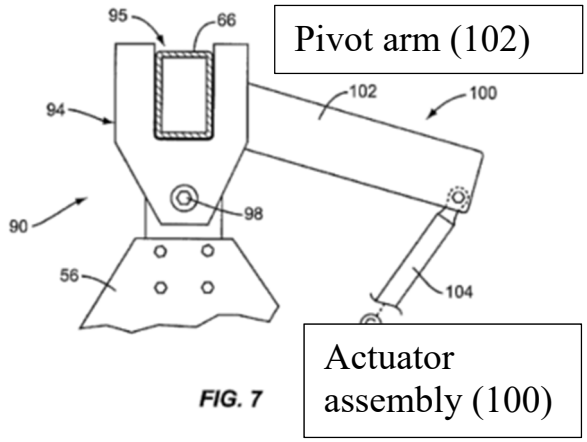
RayTracker satisfies this element of the claim. EX1003, ¶ 162.

The '57546 Patent describes an "[a]ctuator assembly 100 that, shown in FIG.7, comprises a pivot arm 102, fluid cylinder 102 [*sic.*], and control unit 106." EX1001, 4:18-19. "The pivot arm 102 is connected at one end to the spine 66 and extends outward from the spine 66." EX1001, 4:19-22. The "[f]luid cylinder 104 is connected at one end to the pivot arm 102." EX1001, 4:22-23. The "[c]ontrol unit

106 is mounted to the front frame and controls operation of the fluid cylinder 104." EX1001, 4:23-25.

RayTracker describes an actuator assembly (*e.g.*, an actuator system) to move (*e.g.*, rotate) the panel assembly. EX1006, pp. 2, 4, 5; EX1003, ¶ 162. *RayTracker* discloses an electromechanical actuator for rotating the panel assembly to track the movement of the sun. EX1006, pp. 2, 4, 5; EX1003, ¶ 162. Specifically, *RayTracker* discloses that the system has "just two moving parts – the actuator and one structural assembly that rotates on a bearing surface." EX1006, p. 4; EX1003, ¶ 162.

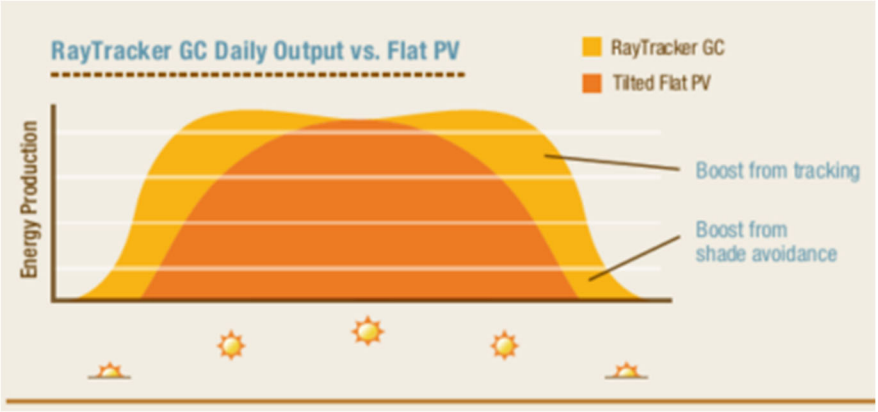
Below is an annotated figure from *RayTracker* depicting the actuator assembly, as compared with the actuator assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 163.

RayTracker	**U.S. Patent No. 9,057,546**
 EX1006, p. 4.  EX1006, p. 2.	 EX1001, Fig. 7 (actuator assembly 100, fluid cylinder 104, pivot arm 102 (EX1001, 4:18-19)).

In addition, *RayTracker* discloses that the system is actuated specifically to track the movement of the sun. EX1003, ¶ 164. "The tracking function is provided

by a custom microprocessor controller that uses a GPS time reference and a precise astronomical algorithm to automatically and accurately point the panels at the sun. The position of each actuator is monitored by the controller to ensure alignment. One controller serves 12 RayTracker GC units, and is included with the system." EX1006, p. 2.

RayTracker further discloses specific benefits of tracking the movement of the sun. EX1003, ¶ 165. "RayTracker GC improves energy yield by optimally positioning the solar panels throughout the day. Energy boosts of up to 38% are possible compared to flat-mounted panels. Single-axis trackers outperform fixed-tilt installations most importantly during peak energy demand periods. RayTracker GC achieves this with a simple, low-profile, low-parts-count mechanism." EX1006, p. 2.



EX1006, p. 2.

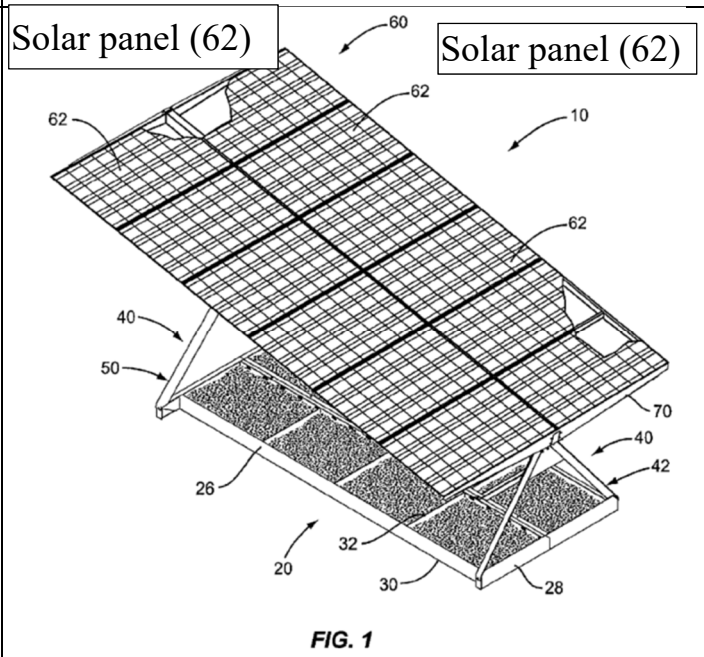
2. Claim 6

RayTracker satisfies this claim. EX1003, ¶ 167. Dependent claim 6 recites: "The solar tracker of claim 5 wherein the panel assembly further comprises one or more solar panels mounted to the panel carriers." EX1001, claim 6. *RayTracker* disclosed a solar tracker wherein the panel assembly further comprises one or more solar panels mounted to the panel carriers and anticipated this additional claim feature. EX1003, ¶ 167.

The '57546 Patent describes that "[t]he panel assembly 60 comprises a plurality of solar panels 62 and a panel support frame 64 to support the solar panels." EX1001, 3:24-26.

RayTracker is replete with disclosures of solar panels. EX1003, ¶ 169. For example, the system accurately points "the panels" (p. 2); the system helps to "keep the panels clean" (p. 4); the system "supports near all panel types" (p. 6), etc. EX1003, ¶ 169-170.

Below is an annotated figure from *RayTracker* depicting the solar panels, as compared with the solar panels depicted in the '57546 Patent. EX1003, ¶ 171.

RayTracker	**U.S. Patent No. 9,057,546**
 EX1006, p. 1.	 FIG. 1 EX1001, Fig. 2 (solar panel 62 (EX1001, 3:42-43)).

For the sake of completeness, while *RayTracker* describes that the specific commercial offering contemplated therein may not include the panels themselves as part of a sale/installation, it is clear that the complete system described in *RayTracker* includes solar panels. EX1003, ¶ 172.

XI. Ground 3: Claims 5 and 6 of the ′57546 Patent Were Rendered Obvious by *Wattsun* in view of *RayTracker*

A. Summary of Combination

The challenged claims of the ’57546 Patent recite a solar tracker having four primary elements identified above. *See supra* at Section IX.A.

Wattsun discloses a solar tracker that reads directly on the challenged claims and includes structural members and components indistinguishable from those in the challenged claims. EX1003, ¶ 210.

To the extent that it is argued that *Wattsun* fails to anticipate any particular element, either structurally or functionally, the teachings in *RayTracker* sufficiently remedy any such potential gaps and would have motivated a POSITA to operate *Wattsun’s* system to meet all of the limitations of the asserted claims. EX1003, ¶ 211.

A POSITA seeking to further improve the power generation yield of a set of solar panels on the solar tracker of *Wattsun* would be motivated to seek teachings regarding improved solar trackers, such as those in *RayTracker*. EX1003, ¶ 213. Both *Wattsun* and *RayTracker* describe the same types of systems – solar trackers – and are in the same field of endeavor. EX1003, ¶ 213. A POSITA would further have recognized that the techniques in *RayTracker* would improve the functionality

of the solar tracker of *Wattsun*, which is a similar device that operates in a similar way. EX1003, ¶ 212.

Further, a POSITA would have expected a benefit (*e.g.*, in efficiency and operation control from *RayTracker's* GPS tracking methods) from the combination of the teachings of *RayTracker* with the solar trackers of *Wattsun*. EX1003, ¶ 213. Further, integrating the teachings of *RayTracker* into *Wattsun* would be obvious to try and would yield expected results. EX1003, ¶ 213. Thus, it would have been ample motivation to combine the teachings of *Wattsun* and *RayTracker.* EX1003, ¶ 213.

B. Claim-by-Claim Analysis

1. Claim 5 of the '57546 Patent

a. 5[p] "A solar tracker comprising:"

Should the preamble be construed as limiting, *Wattsun* discloses it. EX1003, ¶ 214. Specifically, *Wattsun* states that the device being described therein is an "AZ-125 Dual-Axis, Azimuth Drive Solar Tracker." EX1004, p. 1.

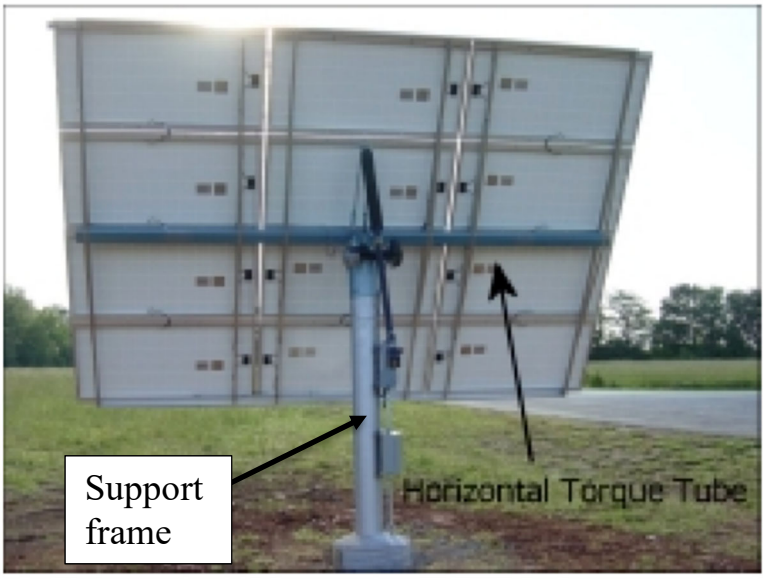
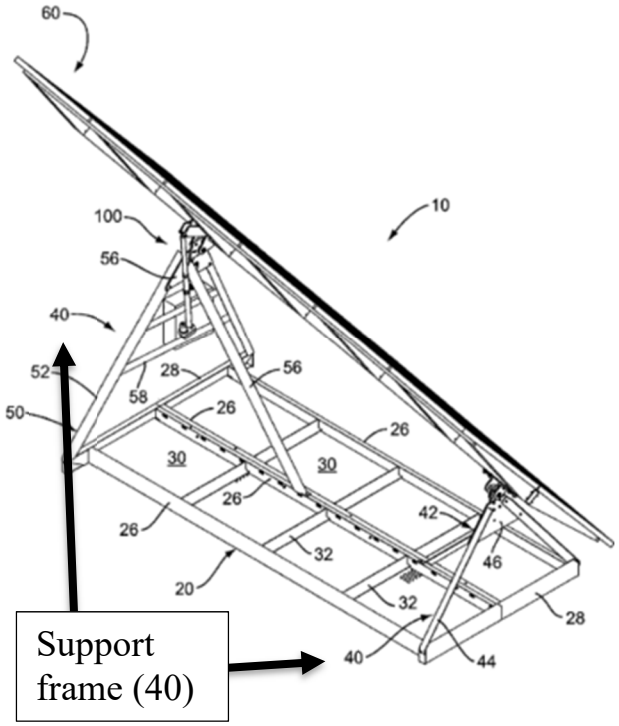
b. 5[a] "a support frame;"

Wattsun discloses or at least renders obvious this element of the claim. EX1003, ¶ 216.

The '57546 Patent describes that the support frame 40 mounts to the base 20 (shown below). EX1001, 2:57-58. A panel assembly 60 is rotatably mounted to the support frame 40. EX1001, 3:45-46.

Wattsun discloses a steel support frame including a support post to support other components of the tracker. EX1003, ¶ 216. *Wattsun* discloses "The Wattsun™ Tracker requires a length of Eight-Inch ID Schedule 40 Steel Pipe for use as the pipe mast. Specifications for the pipe mast can be found on the data sheet for this particular tracker." EX1004, p.1.

Below is an annotated figure from *Wattsun* depicting the support frame formed of a support post, as compared with the embodiment depicted in the '57546 Patent. EX1003, ¶ 217.

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.	 EX1001 Fig. 2 (support frame 40 (EX1001, 2:57-58)).

c. 5[b] "a panel assembly rotatably mounted to the support frame for supporting one or more solar panels, said panel assembly comprising a central spine and a plurality of panel carriers extending outwardly from said spine;"

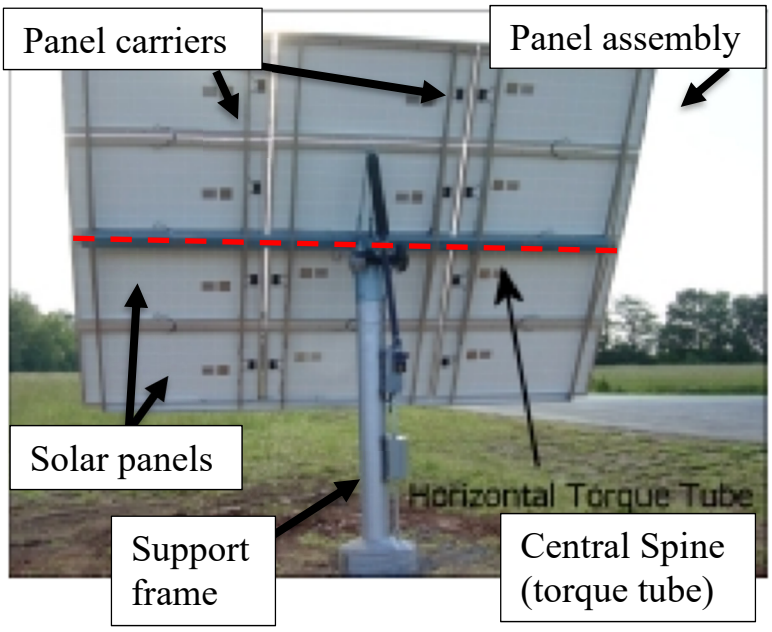
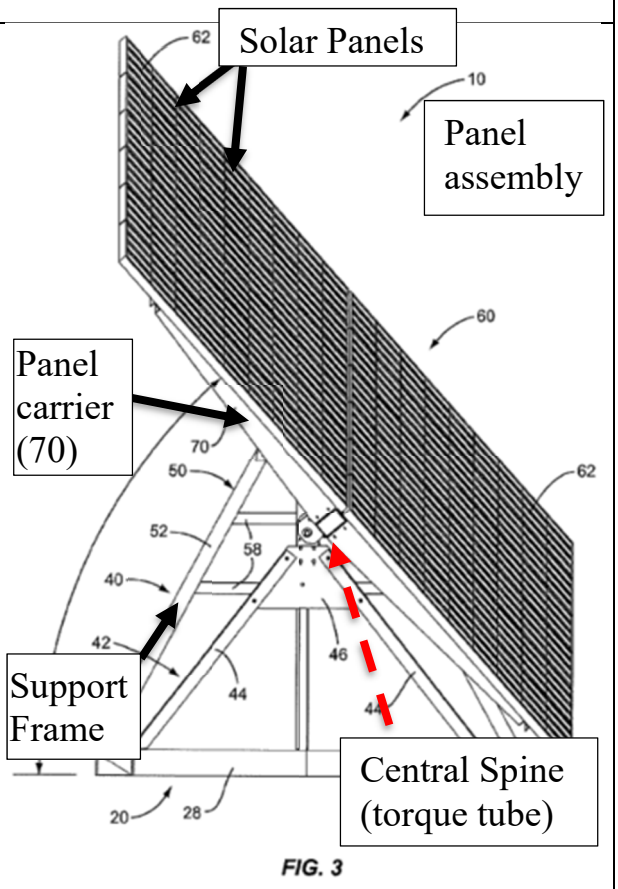
Wattsun discloses or at least renders obvious this element of the claim. EX1003, ¶ 220. *Wattsun* discloses a set of solar panels that rotate as a unit to track the sun's position. EX1003, ¶ 220. *Wattsun* discloses "Wattsun™ Solar Trackers utilize a patented, closed loop, optical sensing system to sense the sun's position and track it." EX1004, p. 19; EX1003, ¶ 220.

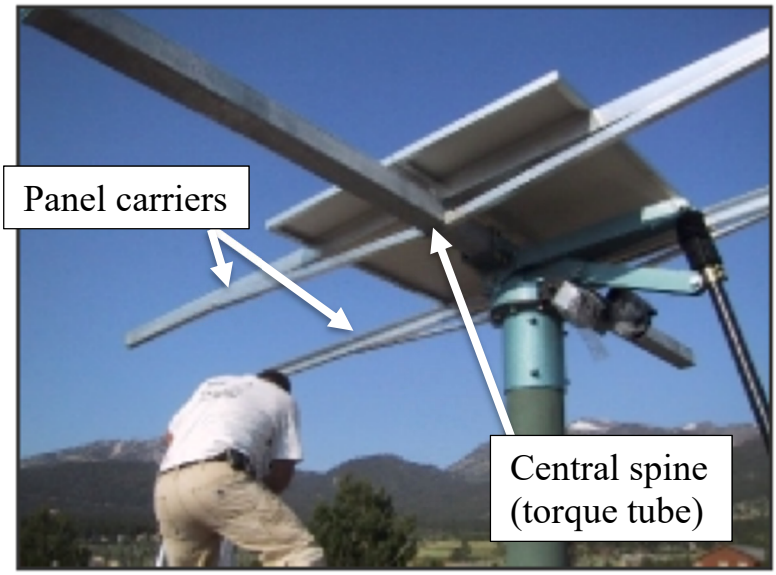
The '57546 Patent describes that "[t]he panel assembly 60 comprises a plurality of solar panels 62 and a panel support frame 64 to support the solar panels." EX1001, 3:24-26. The panel support frame 64 comprises a central spine 66, a pair of laterally-spaced side members 68, and a plurality of longitudinally-spaced panel carriers 70, which can be removably connected by bolts and nuts, or other fasteners. EX1001, 3:26-29.

Wattsun discloses a plurality of panel carriers (elongated members) extending outwardly from a central spine (*e.g.*, a torque tube beam) that extends along the center of the panel assembly for supporting solar panels. EX1004, pp. 8, 9, 15, 16; EX1003, ¶ 221. *Wattsun* discloses a support frame (support post), on which solar panels (*e.g.*, an array of photovoltaic panels) are rotatably mounted with the panel assembly that includes a torque tube that extends along the center of the panel

assembly. EX1004, pp. 8, 9, 15, 16; EX1003, ¶ 221. *Wattsun* discloses transversely arranged elongated members to which the photovoltaic members are mounted. EX1004, pp. 8, 9, 15, 16; EX1003, ¶ 221.

Below is an annotated figure from *Wattsun* depicting the panel assembly with panel carriers, as compared with the panel assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 222. As depicted below, *Wattsun's* panel carriers are clearly illustrated as extending outwardly from the torque tube. EX1003, ¶ 222.

Wattsun	**U.S. Patent No. 9,057,546**
	
EX1004, p. 9.	EX1001, Fig. 3

Wattsun	**U.S. Patent No. 9,057,546**
 One installer, one piece at a time approach. Modules are being used to "square-up: the frame. EX1004, p. 16.	(support frame 40 (EX1001, 2:57-58); panel assembly 60, solar panels 62. (EX1001, 3:24-26); central spine 66, panel carriers 70 (EX1001, 3:26-29)).

d. 5[c] "a mounting assembly for rotatably mounting the panel assembly to the support frame, the mounting assembly comprising a mounting member rotatably connected to the support frame and a slot in said mounting member configured to receive the spine of the panel assembly; and"

Wattsun discloses or at least renders obvious this element of the claim. EX1003, ¶ 225.

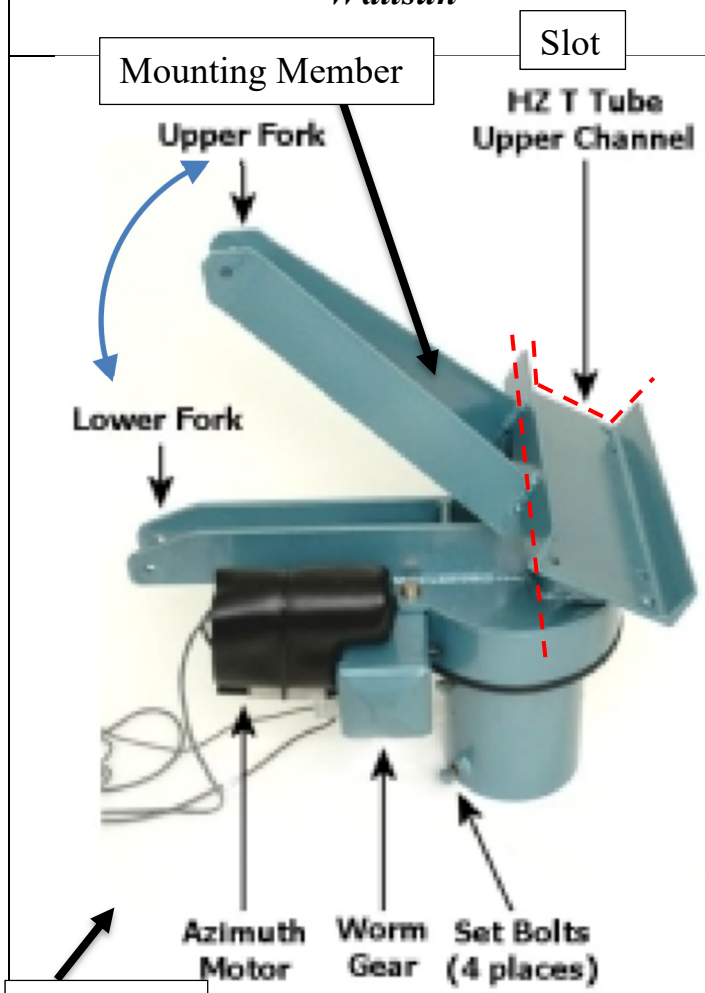
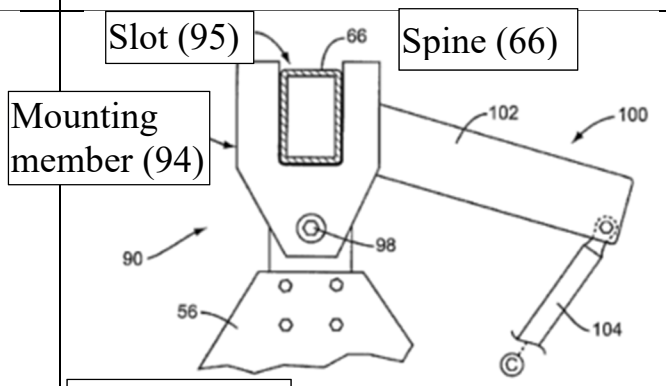
The '57546 Patent describes a "second mounting assembly 90 [that] comprises a connecting plate 92, a pair of mounting forks 94, a bearing 96, and a pivot member 98." EX1001, 3:64-66. "The mounting forks 94 include a slot 95 to

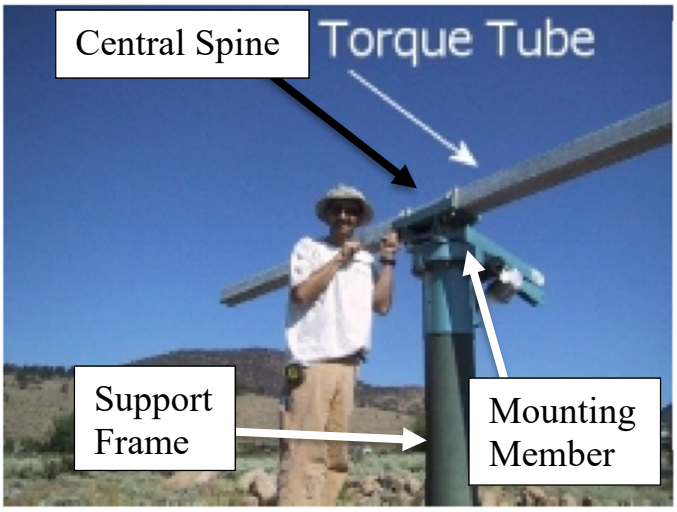
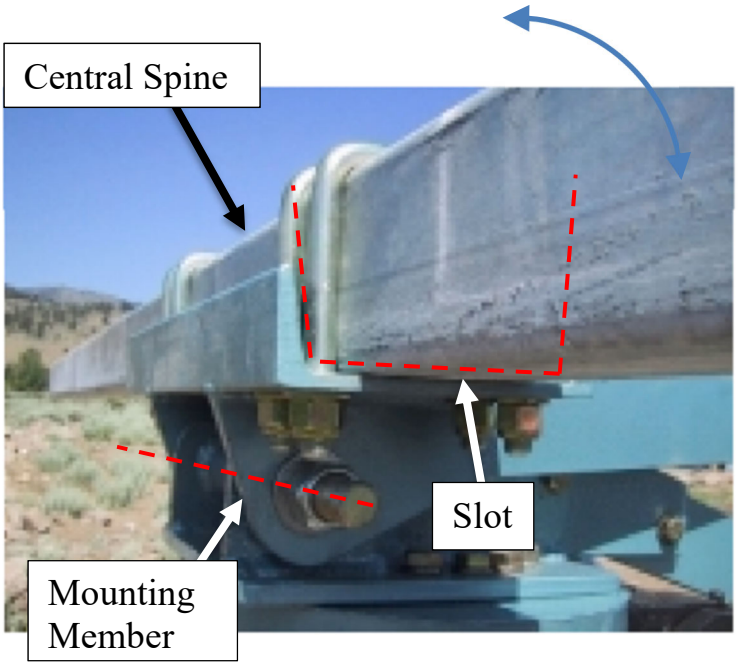
receive the spine 66." EX1001, 4:1-3. "The pivot member 98 extends through the mounting forks 94, upper end of connecting plate 92, and bearing 96, and is secured in place by a nut threaded onto the end of the pivot member 98." EX1001, 4:5-8. "Pivot member 88 on the first mounting assembly 80 and pivot member 98 on the second mounting assembly 90 are co-axially aligned along the axis and rotation of the panel assembly 60." EX1001, 4:9-12. "The rotational axis is aligned when deployed so that the plane of the rotational axis aligns with the sun at the highest altitude. Thus, the panel assembly 60 can rotate to track the path of the sun as the sun travels across the sky during the day." EX1001, 4:13-17. The specification of the '57546 Patent does not recite "mounting member." To the extent the term "mounting member" is supported by the specification of the '57546 Patent, a POSITA would interpret the claimed mounting member to be the mounting fork 94.

Wattsun discloses a mounting assembly for rotatably mounting the panel assembly to the support frame. EX1003, ¶ 225. The mounting assembly includes a mounting member. EX1003, ¶ 225. *Wattsun* discloses a horizontal torque tube drive that rotatably mounts on top of the support posts for rotatably mounting the panel assembly to the support frame (support post). EX1004, pp. 6, 8, 9, 12, 16; EX1003, ¶ 226. The horizontal torque tube drive includes a rotatably mounted upper fork that defines a torque tube upper channel. EX1004, pp. 6, 8, 9, 12, 16; EX1003, ¶ 226. The axis of rotation is denoted in a dashed line below. The upper fork with the HZ

T Tube Upper Channel is a mounting member configured to be rotatably connected to said support frame and to receive the torque tube. EX1003, ¶ 226. The upper channel includes a slot. EX1003, ¶ 226. The torque tube spine of the panel assembly can be placed in a slot in the mounting member (upper fork). EX1004, pp. 6, 8, 9, 12, 16; EX1003, ¶ 226.

Below is an annotated figure from *Wattsun* depicting the mounting assembly, as compared with the mounting assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 227.

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 8.	 EX1001, Fig. 7 (mounting assembly 90, mounting member 94 (EX1001, 3:64-66); slot 95, spine 66 (EX1001, 4:1-3))

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.  EX1004, p. 12.	

e. 5[d] "an actuator assembly for rotating the panel assembly to track the movement of the sun."

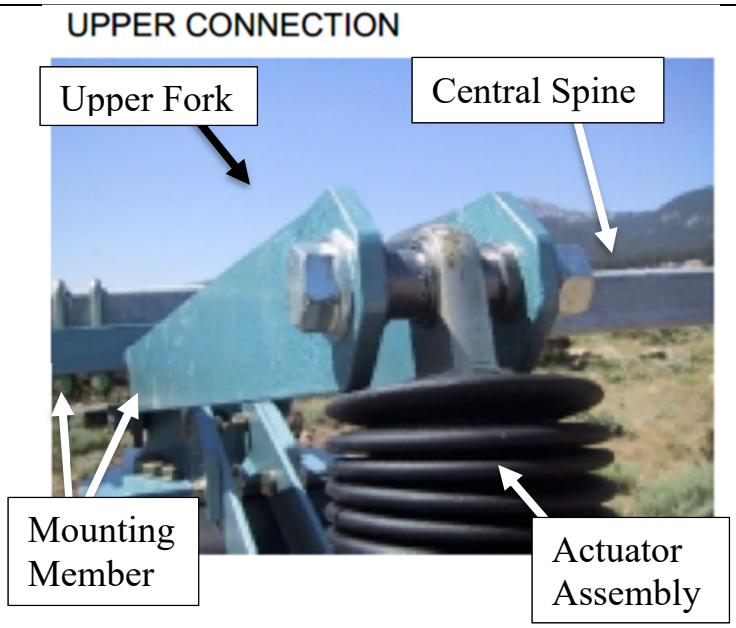
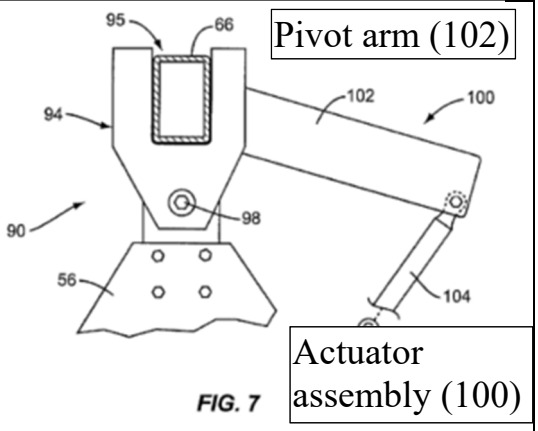
Wattsun discloses or at least renders obvious, alone or in view of *RayTracker*, this element of the claim. EX1003, ¶ 230.

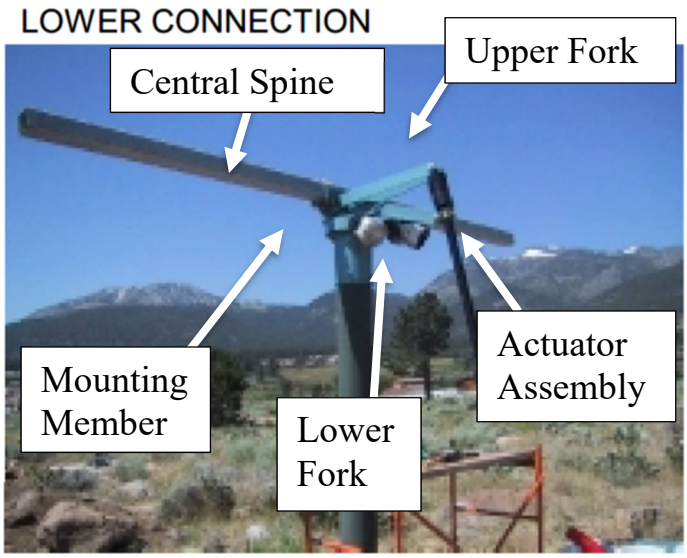
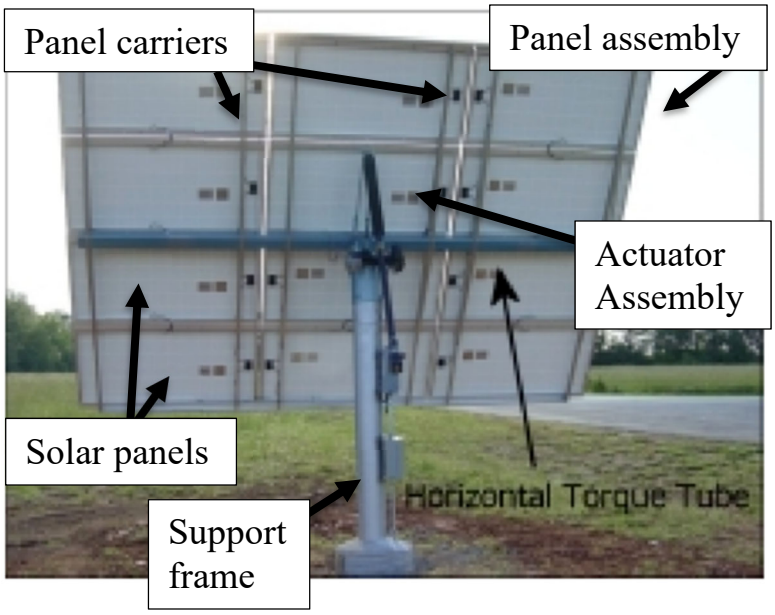
The '57546 Patent describes an "[a]ctuator assembly 100 that, shown in FIG.7, comprises a pivot arm 102, fluid cylinder 102 [*sic.*], and control unit 106." EX1001, 4:18-19. "The pivot arm 102 is connected at one end to the spine 66 and extends outward from the spine 66." EX1001, 4:19-22. The "[f]luid cylinder 104 is connected at one end to the pivot arm 102." EX1001, 4:22-23. The "[c]ontrol unit 106 is mounted to the front frame and controls operation of the fluid cylinder 104." EX1001, 4:23-25.

Wattsun describes an actuator assembly (*e.g.*, an actuator system) to rotate the panel assembly. EX1003, ¶ 230. *Wattsun* discloses an electromechanical actuator for rotating the panel assembly to track the movement of the sun. EX1003, ¶ 230. Specifically, *Wattsun* discloses that the solar tracker includes an "actuator assembly for dual-axis operation." EX1004, p. 12. *Wattsun* discloses that this actuation is to track the sun's position. EX1003, ¶ 230. *Wattsun* discloses "Wattsun™ Solar Trackers utilize a patented, closed loop, optical sensing system to sense the sun's position and track it." EX1004, p. 19.

Wattsun describes attaching an actuator assembly (*e.g.*, the elevation actuator) to the forks (i.e., the upper fork and lower fork) to move the forks and move the torque tube to rotate the panel assembly. EX1003, ¶ 231. Specifically, *Wattsun* discloses to an installer to "[c]enter both the eyelet end (the top) of the elevation actuator inside the forks and the elevation actuator clamp eyelet (the bottom)." EX1004, p. 12. *Wattsun* then discloses a series of images and assembly steps to teach how the actuator is attached to the mounting assembly for rotating the panel assembly. EX1004, pp. 8-9, 12-13; EX1003, ¶ 231.

Below is an annotated figure from *Wattsun* depicting the actuator assembly, as compared with the actuator assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 232.

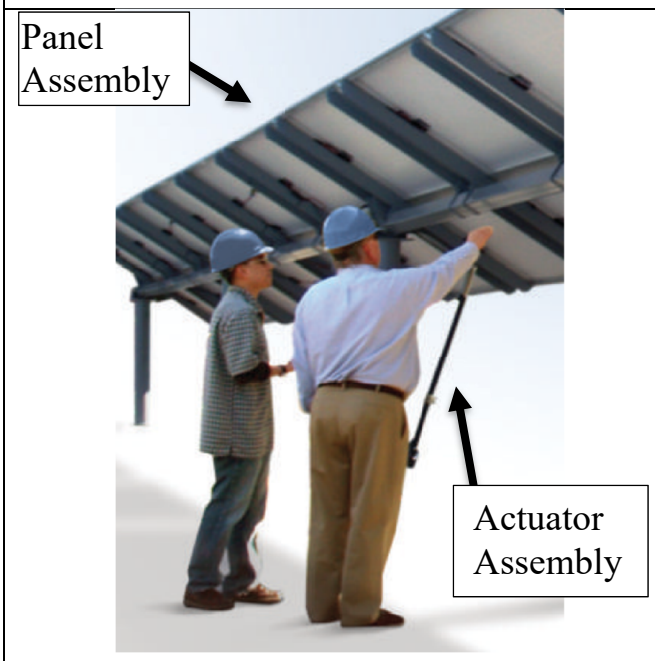
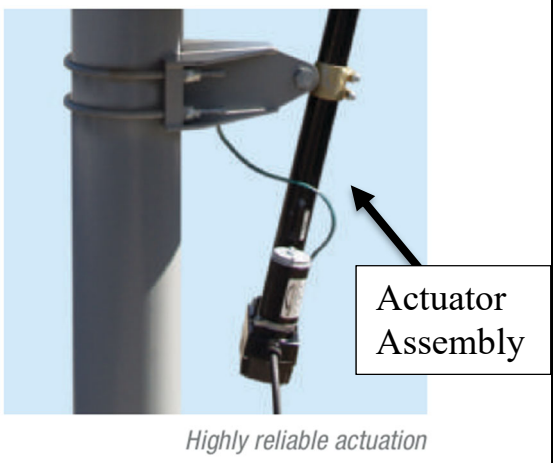
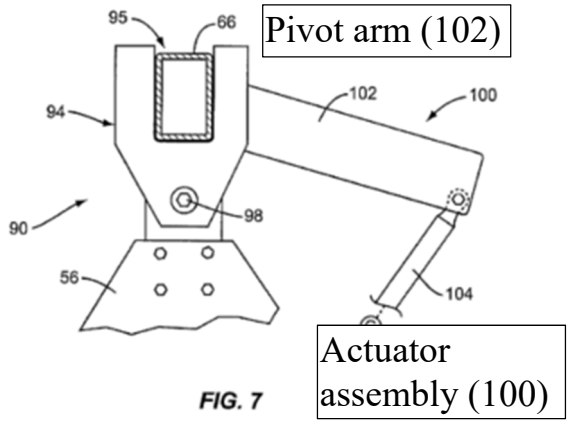
Wattsun	**U.S. Patent No. 9,057,546**
	 EX1001, Fig. 7 (actuator assembly 100, fluid

Wattsun	**U.S. Patent No. 9,057,546**
EX1004, p. 12.  EX1004, p. 12.  EX1004, p. 9.	cylinder 104, pivot arm 102 (EX1001, 4:18-19)).

To the extent that it is argued, considered by the Board, or argued by Patent Owner, that *Wattsun* fails to adequately describe or otherwise anticipate this element, namely the limitation that "an actuator assembly for rotating the panel assembly to track the movement of the sun," such limitations would have been obvious to a POSITA, either in view of a POSITA's knowledge at the time, or in view of *RayTracker*, which would remedy any such deficiency and render the claim element, and the claim as a whole, invalid as being obvious. EX1003, ¶ 233.

RayTracker describes an actuator assembly (an actuator system) to rotate the panel assembly (i.e., structural assembly) to track the movement of the sun. EX1006, pp. 2, 4, 5; EX1003, ¶ 234. For example, *RayTracker* discloses an electromechanical actuator for rotating the panel assembly to track the movement of the sun. EX1006, pp. 2, 4, 5; EX1003, ¶ 234. Specifically, *RayTracker* discloses that the system has "just two moving parts – the actuator and one structural assembly that rotates on a bearing surface." EX1006, p. 4.

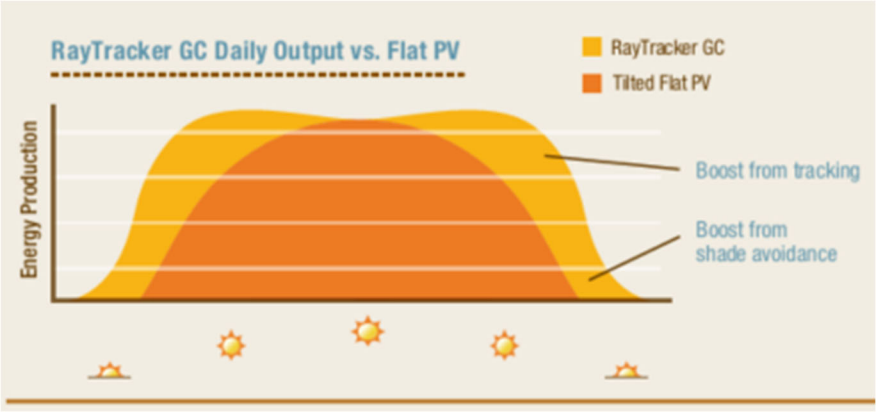
Below is an annotated figure from *RayTracker* depicting the actuator assembly, as compared with the actuator assembly embodiment depicted in the '57546 Patent. EX1003, ¶ 236.

RayTracker	**U.S. Patent No. 9,057,546**
 EX1006, p. 4.  EX1006, p. 2.	 FIG. 7 EX1001, Fig. 7 (actuator assembly 100, fluid cylinder 104, pivot arm 102 (EX1001, 4:18-19)).

In addition, *RayTracker* discloses that the system is actuated specifically to track the movement of the sun. EX1003, ¶ 237. For example, "[t]he tracking function

is provided by a custom microprocessor controller that uses a GPS time reference and a precise astronomical algorithm to automatically and accurately point the panels at the sun. The position of each actuator is monitored by the controller to ensure alignment. One controller serves 12 RayTracker GC units, and is included with the system." EX1006, p. 2.

RayTracker further discloses specific benefits of tracking the movement of the sun. EX1003, ¶ 238. For example, "RayTracker GC improves energy yield by optimally positioning the solar panels throughout the day. Energy boosts of up to 38% are possible compared to flat-mounted panels. Single-axis trackers outperform fixed-tilt installations most importantly during peak energy demand periods. RayTracker GC achieves this with a simple, low-profile, low-parts-count mechanism." EX1006, p. 2.



EX1006, p. 2.

a. Rationale to Combine Wattsun and RayTracker

It would have been obvious to a POSITA to combine the teachings of RayTracker with the system disclosed in *Wattsun*, including making any implementation modifications that could be required in order to do so, to arrive at the claimed limitation of an actuator assembly for rotating the panel assembly to track the movement of the sun. EX1003, ¶ 239.

Wattsun discloses a solar tracker that is configured to rotate solar panels toward the sun as the sun moves throughout the sky. EX1004, pp. 12, 19; EX1003, ¶ 240. *Wattsun* states "Wattsun™ Solar Trackers utilize a patented, closed loop, optical sensing system to sense the sun's position and track it." EX1004, p. 19. *RayTracker* also describes a solar tracker system that rotates solar panels toward the sun as the sun moves through the sky. EX1003, ¶ 240 *RayTracker* states "RayTracker GC improves energy yield by optimally positioning the solar panels throughout the day…Single-axis trackers outperform fixed-tilt installations most importantly during peak energy demand periods." EX1006, p. 2.

A POSITA would have found it "obvious to try" modifying *Wattsun's* solar tracker to include features or components of *RayTracker*. EX1003, ¶ 241. *Wattsun* and *RayTracker* address the same problem (increasing energy yield over fixed-panel solar systems) with similar solutions (mechanically rotating the solar panels about an axis using a solar tracker). EX1003, ¶ 241. Thus, *RayTracker's* actuator and

controller system was therefore a known, predictable, suitable, and thus obvious, technique for addressing that *Wattsun's* problem of directing the solar panel toward the sun to increase power yield. EX1003, ¶ 241; *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023) ("That [a first reference] and [a second reference] address the same problem and that [the second reference presents] a known way to address that problem is precisely the reason that there's a motivation to combine [the first and second references] under KSR and our precedent.")

2. Claim 6

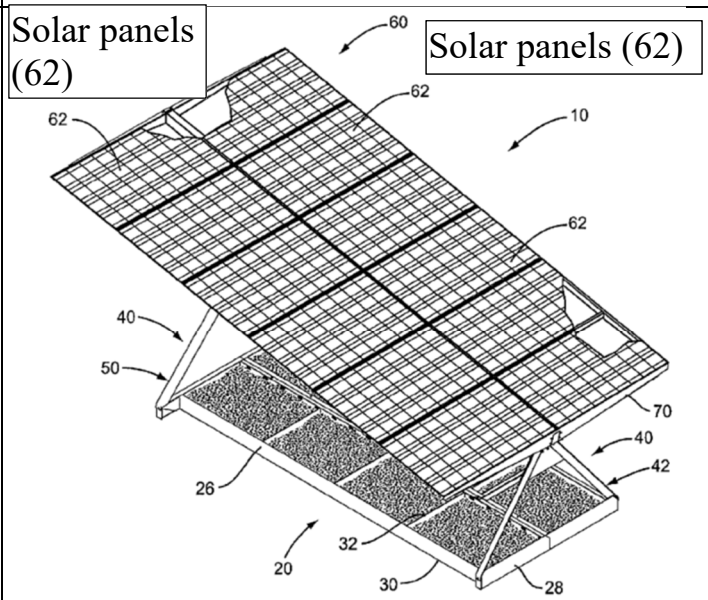
Wattsun discloses or at least renders obvious, alone or in view of RayTracker, this claim. EX1003, ¶ 245. Dependent claim 6 recites: "The solar tracker of claim 5 wherein the panel assembly further comprises one or more solar panels mounted to the panel carriers." EX1001, claim 6. *Wattsun* disclosed a solar tracker wherein the panel assembly further comprises one or more solar panels mounted to the panel carriers and anticipated or rendered obvious this additional claim feature. EX1003, ¶ 245.

The '57546 Patent describes that "[t]he panel assembly 60 comprises a plurality of solar panels 62 and a panel support frame 64 to support the solar panels." EX1001, 3:24-26.

Wattsun is replete with disclosures of solar panels, referred to as a photovoltaic (PV) array or PV modules. *See e.g.*, EX1004, p. 1 ("[t]he tracker comes

complete with all the hardware necessary for assembly and mounting the PV modules."); EX1004, p. 5 ("[c]hoose an optimum solar location to install the PV array for in the ground mounting."); EX1004, p. 14 ("[t]he PV modules may be mounted to the struts at this time - prior to installation onto the torque tube assembly."); EX1004, p. 17 ("[t]he azimuth tracker works by rotating the PV array about the pipe mast then tilting the array to the proper elevation angle."); and EX1004, p. 23 ("[t]he sensor mounts on the TOP CENTER (or near the center) of the PV array"); EX1003, ¶ 246. Further, *Wattsun* illustrates the system as including solar panels. EX1003, ¶ 246. For example, the panel assembly comprises one or more solar panels mounted to panel carriers.

Below is an annotated figure from *Wattsun* depicting the solar panels, as compared with the solar panels depicted in the '57546 Patent. EX1003, ¶ 247.

Wattsun	**U.S. Patent No. 9,057,546**
 EX1004, p. 9.	 FIG. 1 EX1001, Fig. 2 (solar panel 62 (EX1001, 3:42-43)).

To the extent that it is argued or determined that *Wattsun* fails to explicitly disclose any particular limitation of this element, such limitations would have been obvious to a POSITA, either in view of a POSITA's knowledge at the time, or in view of *RayTracker*. EX1003, ¶ 248

To the extent that it is argued, or considered by the Board that *Wattsun* fails to adequately describe or otherwise anticipate this element, namely due to the limitation that the "rotat[ion] of the panel assembly [is] to track the movement of the sun" in the independent claim 5 from which claim 6 depends, *RayTracker* remedies

such a deficiency and renders the claim element, and the claim as a whole, invalid as being obvious for at least the reasons discussed above at claim element 5(d). EX1003, ¶ 249. The arguments from Section 5(d) above are hereby incorporated here by reference in their entirety.

XII. Discretionary Analysis for Review

The General Plastic factors weigh in favor of institution. (*See*, *General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (P.T.A.B. Sept. 6, 2017)). This is the first petition filed against U.S. Patent No. 9,057,546. Institution would be an efficient use of resources. No issues are presented that would inhibit the issuance of a final determination within one year of institution. As discussed below, denial of institution under §325(d) would not be appropriate because the grounds and arguments relied on by this Petition were not previously presented to the Patent Office. Further, the underlying litigations are in their infancy with no discovery and no claim construction briefing yet. Institution is consistent with the rationale for the one-year bar expressed in the AIA's legislative history. *See Intel Corp. v. VLSI Tech. LLC*, IPR2019-01192, Paper 15 (PTAB Jan. 9, 2020).

XIII. 35 U.S.C. § 314(a)

Taking "a holistic view" of the six *Apple Inc. v. Fintiv, Inc.* factors here, relating "to whether efficiency, fairness, and the merits support the exercise of authority to deny institution," the Board should not exercise its discretion under §

314(a) to deny institution in this case. IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020) (precedential).

a. *Fintiv* Factor 1

The first *Fintiv* factor considers whether a motion to stay has been granted or evidence exists that a stay may be granted if the IPR is instituted. *Fintiv*, IPR2020-00019, Paper 11 at 6-9. This factor weighs in favor of institution.

Courts in the Western District of North Carolina routinely grant motions to stay after IPRs have instituted. *See Larada Sciences, Inc. v. Pediatric Hair Solutions Corporation et al.*, 3-18-cv-00320 (WDNC); *Simpson Performance Products, Inc. v. Zamp Inc.*, 5-16-cv-00157 (WDNC).

And, while Courts in the Middle District of North Carolina have denied motions to stay pending IPRs, such motions have typically been denied due to progress and the advanced stage of the case. *See Altria Client Services LLC et al v. RJ Reynolds Vapor Company*, 1-20-cv-00472 (MDNC) where stay was not requested until after a *Markman* heading was held and after the close of fact and expert discovery; *Controls Southeast, Inc. v. QMax Industries, Inc. et al.*, 3-16-cv-00230 (WDNC) where a stay was denied "because the matter [was] scheduled for a Markman hearing in [3 months], the parties and the Court [had] already invested a lot of time on the matter and a delay or stay would be a waste of judicial resources."

Here, the pending cases are in their early stages and discovery has not yet begun. Defendants intend to, and will, move to stay the District Court cases. The opportunity for simplification in this forum greatly increases the likelihood that the District Courts will grant stays in view of IPR institution to simplify multiple litigations involving multiple parties. Accordingly, this factor weighs in favor of institution.

b. *Fintiv* Factor 2

The second *Fintiv* factor relates to the "proximity of the court's trial date to the Board's projected statutory deadline for a final written decision." *Fintiv*, Paper 11, 6. Here, the District Court cases are in their infancy, and District Courts have not ordered any schedules or set a trial dates.

On balance, given the circumstances of this case and the uncertainty regarding the trial dates, this factor weighs in favor of institution. At a minimum, it is at least neutral. *Google LLC v. Parus Holdings, Inc.*, IPR2020-00846, Paper 9 at 12-14 (PTAB Oct. 21, 2020).

c. *Fintiv* Factor 3

The third *Fintiv* factor relates to "the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision." *Fintiv*, IPR2020-00019, Paper 11 at 9-12. Here, the District Court case schedules have not yet been set as of the filing of this Petition, and

Defendants intend to, and will, move to stay the District Court cases. This strongly favors institution. *See, MED-EL Elektromedizinische Gerate GmbH v. Advanced Bionics AG*, IPR2020-00190, Paper 15 at 12 (PTAB June 3, 2020).

Further, a "countervailing consideration" with respect to this *Fintiv* factor is whether "Petitioner acted diligently" in filing its petition. *Fintiv* at 11. Petitioner files this Petition over three months before the statutory deadline for doing so. Accordingly, Petitioner acted diligently in filing this Petition. *Id*.

For the reasons above, this factor favors institution.

d. *Fintiv* Factor 4

The fourth *Fintiv* factor relates to whether there is "overlap between issues raised in the petition and in the parallel proceeding." *Fintiv*, Paper 11 at 6. If this IPR proceeding is instituted, Defendants will not pursue invalidity in the District Court cases on the same grounds raised in this Petition or any other ground that could have been reasonably raised in this Petition. Therefore, this factor weighs strongly against the Board exercising its discretion to deny institution under § 314(a). *Sotera Wireless, Inc. v. Masimo Corp*., IPR2020-01019, Paper 12 (Dec. 1, 2020) at 18-19.

e. *Fintiv* Factor 5

The fifth *Fintiv* factor relates to "whether the petitioner and the defendant in the parallel proceeding are the same party." *Fintiv*, IPR2020-00019, Paper 11 at 13-14. In addition, "[i]f a petitioner is unrelated to a defendant in an earlier court

proceeding, the Board has weighed this fact against exercising discretion to deny institution . . . ." *Fintiv*, Paper 11 at 13.

Here, Petitioner is not a named defendant in the District Court cases and Petitioner and defendants are not the same party. The named defendants in the District Court cases are customers of Petitioner, or entities related to customers of Petitioner, but they are all nevertheless separate and distinct entities under separate control from Petitioner. Thus, this factor weighs against the Board exercising its discretion under §314(a).

f. *Fintiv* Factor 6

Finally, factor six relates to "other circumstances that impact the Board's exercise of discretion, including the merits." *Fintiv*, IPR2020-00019, Paper 11 at 14-15. As established herein, the Petition's Grounds are objectively strong, not just "reasonably" strong. And where Petitioner has set forth even just "a ***reasonably*** strong case for the obviousness of most challenged claims," this factor weighs against the Board exercising its discretion under §314(a). *Sand Revolution*, Paper 24 at 13 (emphasis added). Given the strength and breadth of the prior art here and the failure to consider such prior art during the prosecution of the patents at issue, and the pendency of a number of litigation cases that could result in inconsistent judgments, considerations of justice and judicial efficiency weigh in favor of institution.

XIV. Non-Institution Under 35 U.S.C. § 325 Would be Improper

If Patent Owner asserts redundancy with the art considered by the Patent Office in the prosecution of the challenged patents, non-institution under § 325 would be improper based on weighing the factors in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, at 17–18 (PTAB Dec. 15, 2017).

Regarding the '57546 Patent, none of the prior art cited herein was at all considered during the prosecution of the patent. And no prior art cited during the prosecution of the '57546 Patent is materially similar to any of the prior art cited herein. Regarding factors (a) and (b), the asserted combinations are materially different than and not cumulative of the prior art involved during examination of the patent. Regarding factors (c) and (d), there is little to no overlap because the Examiner did not use any of the references used herein to reject any claim during prosecution of the application that led to the '57546 Patent and did not make any arguments regarding them. Regarding factor (e), the Examiner erred in allowing the claims to issue at least because "the Examiner was simply not aware" of the teachings of the most pertinent art and "[t]he Petition...presents different prior art than the Office was aware of." *Oticon Med. AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 at 19−20 (PTAB Oct. 16, 2019) (precedential) (granting institution). Factor (f) is inapplicable because none of the asserted combinations were substantively

considered by the Examiner. Weighing the remaining factors together, non-institution under § 325 would be improper.

XV. Mandatory Notices Under 37 C.F.R. § 42.8

As set forth below and pursuant to 37 C.F.R. § 42.8, the following mandatory notices are provided as part of this Petition.

A. Real Parties-in-Interest

First Solar, Inc. is the real party-in-interest. First Solar, Inc. is not controlled by any other entity.

Seville Solar One LLC, Seville Solar Two LLC, Blackwell Solar LLC, SP Butler Solar LLC, North Star Solar LLC, SP Sandhills Solar LLC, and SP Decatur Parkway Solar LLC are also real parties-in-interest.

B. Related Matters

Rovshan Sade is the owner of U.S. Patent No. 9,057,546. Rovshan Sade has filed several district court litigations against several third parties, alleging infringement of U.S. Patent No. 9,057,546. Specifically, Rovshan Sade has filed the following cases:

Cases	District Court:	Civil Action No.
Sade v. Seville Solar Two LLC	W.D.N.C.	3:22-cv-00678
Sade v. Seville Solar One LLC	W.D.N.C.	3:22-cv-00677
Sade v. Blackwell Solar LLC	M.D.N.C.	1:22-cv-01111
Sade v. SP Butler Solar LLC	M.D.N.C.	1:22-cv-01113
Sade v. North Star Solar LLC	M.D.N.C.	1:22-cv-01109
Sade v. SP Sandhills Solar LLC	M.D.N.C.	1:22-cv-01112

Cases	District Court:	Civil Action No.
Sade v. SP Decatur Parkway Solar LLC	M.D.N.C.	1:22-cv-01110

Petitioner is not aware of any other judicial proceedings that may affect or be affected by a decision in this proceeding.

C. Lead and Back-Up Counsel

Lead Counsel	**Back Up Counsel**
Michael J. McNamara (Reg. No. 52,017) MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C. One Financial Center Boston, MA 02111 Telephone: 617-348-1884 Facsimile: 617-542-2241 E-mail: MMcNamara@mintz.com	Gregory J. Penoyer (Reg. No. 67,193) MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C. One Financial Center Boston, MA 02111 Telephone: 617-348-3094 Facsimile: 617-542-2241 E-mail: GJPenoyer@mintz.com

Petitioner consents to electronic service at the above email addresses.

XVI. Grounds for Standing

First Solar certifies U.S. Patent Nos. 9,057,546 is available for IPR and First Solar is not barred or estopped from requesting IPR challenging the patent claims on the grounds identified herein.

XVII. Payment of Fees

Pursuant to 37 C.F.R. §§ 42.103 and 42.15(a), the requisite filing fee of $41,500 (*inter partes* review request fee of $19,000 and *inter partes* review post-institution fee of $22,500) for a Petition for *Inter Partes* Review is submitted herewith. Claims 5 and 6 of '57546 Patent are being reviewed as part of this Petition.

The undersigned further authorizes payment from Deposit Account No. 50-0311 for any additional fees or refund that may be due in connection with the Petition.

XVIII. Conclusion

For the foregoing reasons, Petitioner respectfully requests that *inter partes* review be instituted and that claims 5 and 6 of the '57546 Patent be found unpatentable.

Dated: April 28, 2023

/s/ Michael J. McNamara

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner hereby certifies, in reliance on the word count of the word-processing system (Microsoft Office Word 2010) used to prepare this petition, that the number of words in this paper is 11,865. This word count excludes the tables of contents, tables of authorities, mandatory notices under 37 C.F.R. § 42.8, certificate of word count, certificate of service, or appendix of exhibits or claim listing. Petitioner certifies that this Petition for *Inter Partes* Review does not exceed the applicable type-volume limit of 37 C.F.R. § 42.24(a).

Dated: April 28, 2023

/s/ Michael J. McNamara

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CERTIFICATE OF SERVICE

I certify that copies of the foregoing Petition for *Inter Partes* Review, all referenced exhibits, and the Petitioner's Power of Attorney were served on April 28, 2023, via overnight courier upon the following counsel of record for Patent Owner:

24112 - COATS & BENNETT, PLLC
1400 Crescent Green, Suite 300
Cary, NC 27518

Courtesy copies of this Petition and accompanying exhibits were also served via electronic mail on Patent Owner's counsel of record in a related district court litigation Ron Sade at ron@trabantsolar.com.

Dated: April 28, 2023

/s/ Michael J. McNamara
Michael J. McNamara
(Reg. No. 52,017)