

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CANFIELD SCIENTIFIC, INC.,
Petitioner,

v.

QUANTIFICARE S.A.,
Patent Owner.

IPR2021-01518
Patent 10,165,253 B2

Before BRIAN J. MCNAMARA, JOHN D. HAMANN, and
BRIAN D. RANGE, *Administrative Patent Judges*.

HAMANN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Canfield Scientific, Inc. (“Petitioner”) filed a petition for *inter partes* review of claims 1–4, 8–12, 15, 16, and 20–23 (“the challenged claims”) of U.S. Patent No. 10,165,253 B2 (Ex. 1020, “the ’253 patent”). Paper 1 (“Pet.”). QuantifiCare S.A. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 14, “Prelim. Reply”) to the Preliminary Response relating to claim construction, and Patent Owner filed a Preliminary Sur-Reply (Paper 15, “Prelim. Sur-Reply”) in response to the Preliminary Reply.

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018); *see* 37 C.F.R. § 42.108 (2020). Upon consideration of the papers, we conclude that the information presented shows that there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one challenged claim of the ’253 patent.

A. *Real Parties-in-Interest*

The parties identify themselves as the real parties-in-interest. Pet. 2; Paper 4, 1.

B. *Related Matters*

The parties identify the following as a related matter: *QuantifiCare, Inc. v. Canfield Scientific, Inc.*, C.A. No. 1:20-cv-12305 (D. N.J.). Pet. 3; Paper 4, 1. In addition, Petitioner has filed petitions for *inter partes* review of two additional patents related to the ’253 patent, that also are owned by

Patent Owner: (i) U.S. Patent No. 10,070,119 B2 (IPR2021-01511) and
(ii) U.S. Patent No. 10,681,334 B2 (IPR2021-01519).

C. The Challenged Patent

The '253 patent is titled "Device and Method to Reconstruct Face and Body in 3D." Ex. 1020, code 54. The '253 patent relates to a stereophotogrammetry device used "to picture and reconstruct in 3D the surface of objects of different sizes," e.g., different body parts such as the face and the torso. *Id.* at 3:27–30; *see id.* at 1:13–21, 1:48–55. By way of background, the '253 patent explains that "[s]tereophotogrammetry consists in [simultaneously] gathering the images of a subject from at least two view with a calibrated camera," i.e., a "stereo-pair." *Id.* at 1:31–36. The stereo-pair is used to "reconstruct . . . a dense representation in 3-Dimensions of the surface of the observed object." *Id.* at 1:37–39.

Figures 1 and 2, reproduced below, respectively show side- and top-views of an "implementation" of a stereophotogrammetry device and its components. *Id.* at 3:53–56.

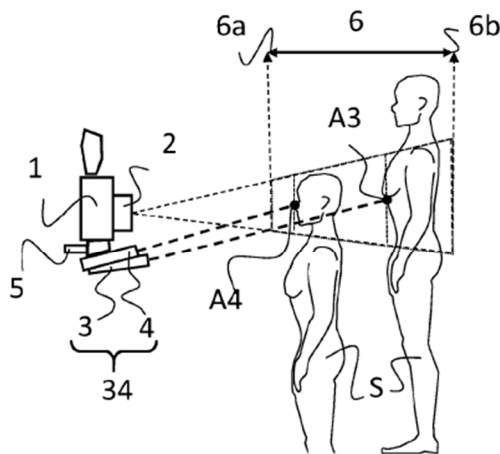


FIG. 1

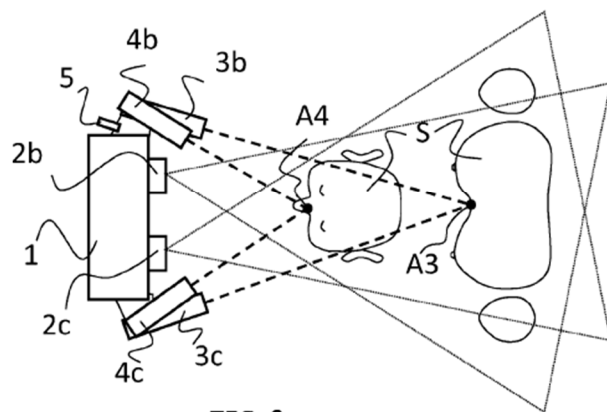


FIG. 2

Figures 1 represents a possible implementation of the '253 patent's device as viewed from the side, and Figure 2 represents a possible implementation of the device as viewed from the top. *Id.* As shown in

Figures 1 and 2, camera body (1) includes double optics (2). *Id.* at 8:34–35. As shown in Figure 2, double optics (2) are “composed of two sub-optics (2b) and (2c), enabling the acquisition of a stereo[-]pair [of images] corresponding to two slightly different viewing angles” simultaneously. *Id.* at 8:35–38; *see id.* at 3:39–42. For example, Figure 8 shows a series of stereo-pair images taken at different angles for a face. *Id.* at 11:12–19.

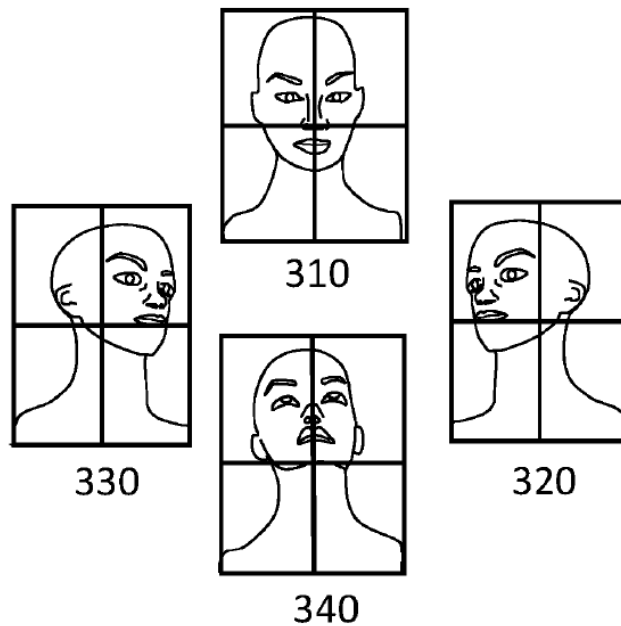


FIG. 8

The '253 patent specification describes Figure 8 as presenting “viewpoints optimized for imaging a face using a field of view close to an A4 surface format.” *Id.* at 4:4–5. Using the captured stereo-pairs, “a comprehensive representation in 3D of the surface of the subject (S)” can be constructed. *Id.* at 10:37–48.

Further, the stereophotogrammetry device captures stereo-pairs of images at “two distinct distances for picture taking corresponding respectively to position (A3) and (A4)” such that the stereo-pairs of images are in focus at positions A3 and A4, which are within the device’s depth of

field 6. *Id.* at 8:40–50; *see id.* at 6:23–26. For example, position A3 is used for capturing images of the torso while position A4 is used for capturing images of the face. *Id.* at 6:14–16; *see id.* at 1:51–59. Positions A3 and A4 can be identified by the convergence of respective light patterns projected onto the subject to be imaged, the respective light patterns converging at the distances for positions A3 and A4. *Id.* at 4:51–5:5. For example, as shown in Figure 2, a light pattern emitted by first pair of light beamers (3b) and (3c) converge at point (A3) and a different light pattern emitted by second pair of light beamers (4b) and (4c) converge at point (A4). *Id.* at 8:51–55; *see id.* at 4:61–64. Accordingly, “by placing the subject so that the light patterns projected by a first pair of beamers are superposed on the surface of the subject[,] one is placing the subject at” the first predefined position (and similarly for the light pattern emitted by the second pair of beamers converging at the second position). *Id.* at 4:57–61; *see id.* at 5:14–35.

D. Challenged Claims

Petitioner challenges claims 1–4, 8–12, 15, 16, and 20–23 of the ’253 patent. Pet. 5. Claim 1 is the only challenged independent claim. Claim 1 is illustrative of the challenged claims, and reads as follows:

1. A device for stereophotogrammetry comprising a camera body (1) and a double-optics (2) comprising two sub-optics (2b) and (2c), configured for a simultaneous acquisition of two views according to two different angles, wherein the device is comprising a positioning system (34) configured to signal when a target subject (S) is reaching a pre-defined distance position to the camera (1) corresponding to one of at least two distinct pre-defined distance positions (A3, A4) of the target subject (S) relative to the camera body (1) of the stereophotogrammetry device, the at least two distinct predefined distance positions comprising a closer distance position (A4) and a farther distance position (A3), the closer distance position (A4) being closer to the camera body (1) of the

stereophotogrammetry device than the farther distance position (A3) to the camera body (1) of the stereophotogrammetry device.

Ex. 1020, 11:42–57.

E. Asserted Grounds of Unpatentability

Petitioner asserts that the challenged claims are unpatentable based on the following grounds:

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
1–4, 8–11, 15, 16, 20	103	Plassmann, ² Treuillet, ³ Staller ⁴
12	103	Plassmann, Treuillet, Staller, Kingslake ⁵
21–23	103	Plassmann, Treuillet, Staller, Peng ⁶

Pet. 5, 28–81. Petitioner submits in support of its arguments the Declaration of Gerhardt Paul Otto, Ph.D. (Ex. 1003). Patent Owner submits in support of its arguments the Declaration of Dr. Daniel Van Der Weide (Ex. 2006).

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’253 patent issued from an application having an effective filing date after March 16, 2013, we apply the AIA version of the statutory basis for unpatentability.

² WO 2010/097572 A2, published Sept. 2, 2010 (Ex. 1007).

³ Sylvie Treuillet, et al., *Three-Dimensional Assessment of Skin Wounds Using a Standard Digital Camera*, IEEE Transactions on Medical Imaging, Vol. 28, No. 5 at 752 (2009) (Ex. 1016).

⁴ US 7,257,322 B2, issued Aug. 14, 2007 (Ex. 1006).

⁵ Rudolf Kingslake, *A History of the Photographic Lens*, Academic Press Inc. (1989), (selected portions filed as Ex. 1028).

⁶ Qi Peng et al., *Automated 3D Scenes Reconstruction Using Multiple Stereo Pairs from Portable Four-Camera Photographic Measurement System*, International Journal of Optics, Vol. 2015 (2015) (Ex. 1009).

II. LEVEL OF ORDINARY SKILL IN THE ART

To determine whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986)). “[O]ne or more factors may predominate.” *Id.*

Petitioner argues that one of ordinary skill in the art “would have had a working understanding of photography, stereophotogrammetry, and distance measuring in photography or stereophotogrammetry, a master’s degree with a scientific focus on subjects such as optics and/or image processing, with at least about three years of experience in the field of photography, and stereophotogrammetry, as well as image processing in these fields, or an equivalent qualification.” Pet. 15 (citing Ex. 1003 ¶¶ 17–20).

Patent Owner argues that Petitioner’s definition comprises a “high level of skill [which] is not necessary to understand or practice the teachings of the [’]253 patent.” Prelim. Resp. 17 (citing Ex. 2006 ¶¶ 29–30). Patent Owner argues that instead one of ordinary skill in the art “would need, and thus have, a Bachelor’s degree in Physics or Electrical Engineering or a similar field and two to three years’ experience, including in image processing and computer graphics.” *Id.*

The parties' dispute regarding the level of ordinary skill in the art does not substantively impact our analysis for purposes of institution. Rather, we find that in applying either parties' definition for what comprises the level of ordinary skill in the art that Petitioner shows that there is a reasonable likelihood that it would prevail in proving the unpatentability of at least one of the challenged claims. Thus, we do not need to choose between the parties' proposed definitions at this stage of the proceeding.

During trial, and in accordance with our Rules, the parties should address what substantive effect, if any, the different proposed definitions for the level of ordinary skill in the art have on analyzing what the prior art teaches or in evaluating unpatentability of the challenged claims.

III. CLAIM CONSTRUCTION

Because the Petition was filed after November 13, 2018, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b); 83 Fed. Reg. 51,340, 51,340–41, 51,343 (Oct. 11, 2018). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

In the Petition, Petitioner states that it “does not believe express constructions are required for any terms.” Pet. 16 (citing Ex. 1003 ¶ 62). Petitioner does not change its position in its Preliminary Reply. *See generally* Prelim. Reply.

In the Preliminary Response, Patent Owner argues that the claim term “two sub-optics (2b) and (2c), configured for a simultaneous acquisition of two views according to two different angles” “is comprised of common words used in common parlance without any special meaning in the art, and therefore the ordinary and customary meaning is clear.” Prelim. Resp. 7. Patent Owner does not change its position in its Preliminary Sur-Reply. *See generally* Prelim. Sur-Reply.

The parties agree that the terms of the challenged claims should be afforded their plain and ordinary meaning. Accordingly, we do not provide any express constructions for any terms, and afford the claim terms their plain and ordinary meaning. *See, e.g., Nidec Motor Corp. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

IV. PRINCIPLES OF LAW

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the

prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness, if present.⁷ *See Graham*, 383 U.S. at 17–18. When evaluating a claim for obviousness, we also must “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

V. ALLEGED OBVIOUSNESS OVER PLASSMANN, TREUILLET, AND STALLER

Petitioner argues that the combination of Plassmann, Treuillet, and Staller renders claims 1–4, 8–11, 15, 16, and 20 of the ’253 patent obvious. Pet. 5, 28–62. For the reasons that follow, we determine that Petitioner establishes a reasonable likelihood that it would prevail in showing that the combination of Plassmann, Treuillet, and Staller renders these claims obvious.

A. *Summary of Plassmann*

Plassmann is a World Intellectual Property Organization publication that relates to an apparatus for the production of stereoscopic images. Ex. 1007, at codes (10), (19), (57). Plassmann describes variations of the “MAVIS” system. *Id.* at 12:25–5. Plassmann’s apparatus captures “two images [which are] needed to form a stereo image . . . to produce a three-dimensional representation of the subject.” *Id.* at 12:25–29. The apparatus further includes two light emitting diodes (LEDs) emitting respective beams which converge at a particular distance in front of the apparatus. *Id.* at 12:7–13.

⁷ Patent Owner does not present arguments or evidence of such objective evidence of non-obviousness. *See generally* Prelim. Resp.

Below, we reproduce Plassmann Figures 1A and 1B.

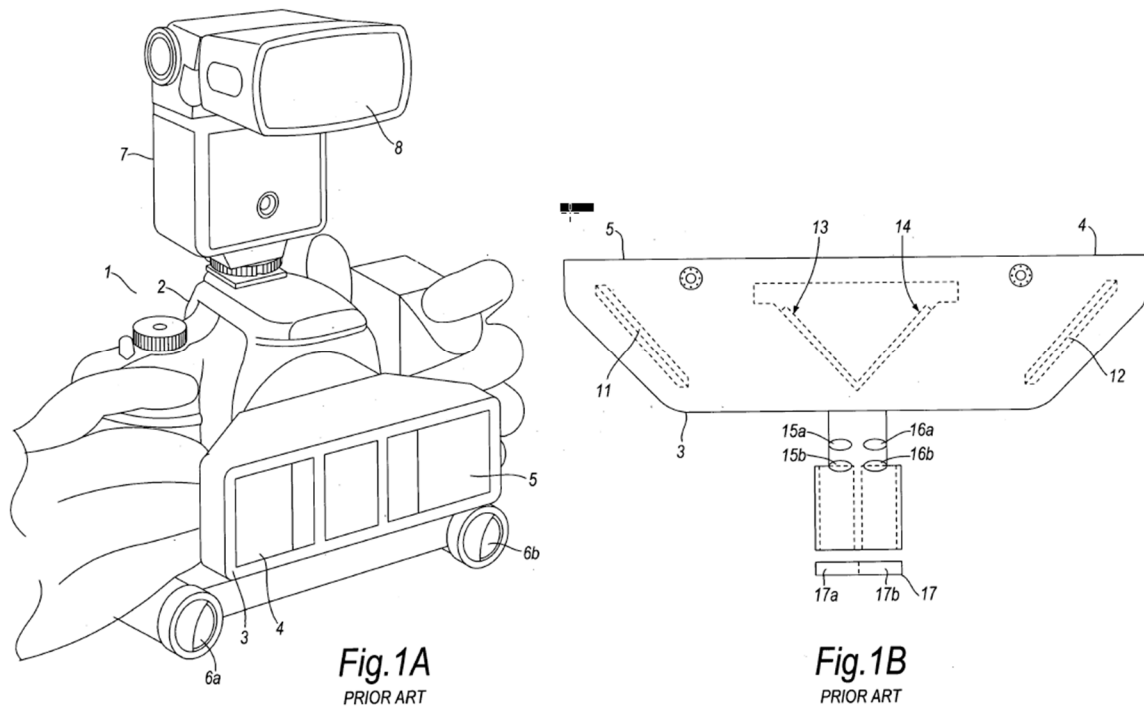


Figure 1A is a perspective representation of an apparatus for obtaining stereoscopic images, showing body 2, e.g., a camera, and adaptor 3. *Id.* at 11:3–4, 11:28–12:4. Further Figure 1B shows a “plan view” of adaptor 3 in further detail. *Id.* at 11:5–6, 12:13–14. Adaptor 3 has two apertures 4, 5 which respectively collect light which is respectively focused onto charge coupled device parts 17a, 17b, forming respective first and second images. *Id.* at 12:15–25. The first and second images form a stereo image used to produce a three-dimensional representation of a subject. *Id.* at 12:25–29.

Additionally, as shown in Figure 1A, the apparatus includes

two low-powered light emitting diodes (LEDs) 6a, 6b, each provided with a [focusing] lens to produce a beam of light and being arranged so that the beams converge and meet at a point a fixed and desired distance from the apparatus, this distance corresponding to the distance at which the camera lens is [focused].

Id. at 12:8–13. The converging beams act as “a guide to show distance between the apparatus and subject.” *Id.* at 16:12–14.

B. Summary of Treuillet

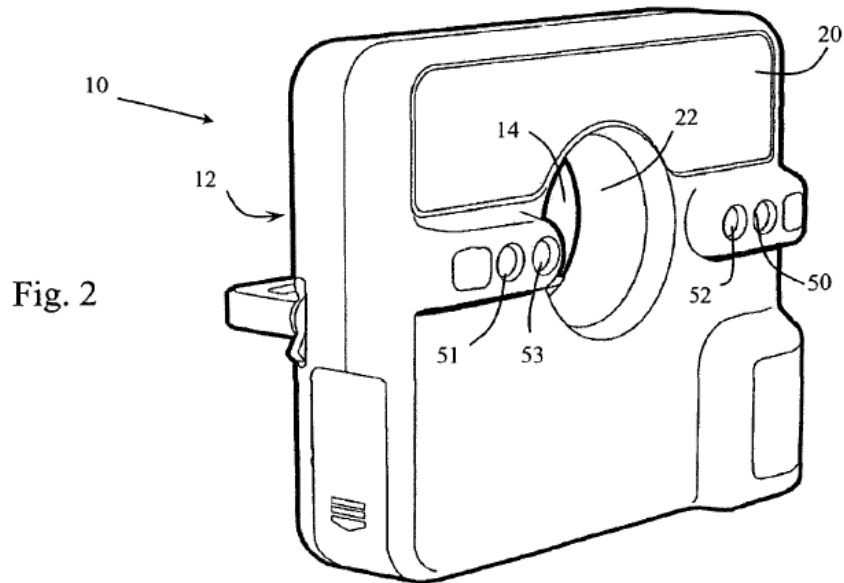
Treuillet is a paper that relates to an “approach to build 3-D models of skin wounds from color images.” Ex. 1016, 752. Treuillet explains that “[b]y taking two color images from different points of view, stereophotogrammetry allows the computation of the 3-D coordinates of numerous points on the skin lesion.” *Id.* at 754.

By way of imaging technology background, Treuillet describes the MAVIS II system as “a reflex digital camera equipped with special dual lens optics for recording two images from slightly different viewpoints, generating a stereo pair” which includes “two tube-shaped projectors produce beams of light which intersect in a single spot when the camera is held at the right distance” at “about 80 cm from the wound,” with a tolerance of plus or minus 15 cm. *Id.* at 755.

C. Summary of Staller

Staller is a US patent that relates to a diffuser attachment for a camera including a “distance measurement device [that] uses a pair of light beams which intersect at a repeatable distance from the diffuser body to readily enable positioning of an object to be photographed at that repeatable distance.” Ex. 1006, codes (10), (12), (57).

Below, we reproduce Figure 2, which shows a front perspective view of a diffuser. *Id.* at 3:13–14.



As shown in Figure 2, the diffuser “includes a distance measurement device or indicator in the form of a plurality of light beam emitters 50–53.” *Id.* at 5:13–15. “Each pair of emitters 50–51, 52–53 creates a pair of angled light beams which intersect at different distances in front of diffuser body 12.” *Id.* at 5:17–18. As such, “[e]ach of the pairs of light beams allows diffuser 10 to be relocated at the same repeatable 20 distance from a subject.” *Id.* at 5:18–21; *see id.* Fig. 4. That is, each pair of emitters indicates a different distance. *Id.* at 2:30–35; *see id.* at 5:64–6:2.

Further, either of the emitter pairs, i.e., pair 50–51 or pair 52–53, are selected using a selector switch. *Id.* at 5:38–41. By selecting a particular emitter pair, the distance measurement device indicates a particular distance measurement. *See id.*

D. Challenged Claim 1

1. A Device for Stereophotogrammetry (Preamble)

Petitioner argues that Plassmann teaches “[a] device for stereophotogrammetry,” as recited in the preamble of claim 1. Pet. 28–29. More specifically, Petitioner argues that Plassmann teaches “a device for

stereophotogrammetry including an adaptor (3) attached to a camera body (2) to capture stereo images.” *Id.* (citing Ex. 1007, Figs. 1A–1B; Ex. 1003 ¶ 229). Petitioner argues that “[t]he adaptor acquires two views of an object from two different angles via mirrors 11 and 12,” and that “Plassmann describes their use to reconstruct a 3-D representation of imaged objects.” *Id.* at 29 (citing Ex. 1007, 12:25–29). According to Petitioner, one of ordinary skill in the art “would understand Plassmann discloses a device for stereophotogrammetry.” *Id.* (citing Ex. 1003 ¶ 230).

After reviewing Petitioner’s arguments and evidence, which are not addressed by Patent Owner at this stage of the proceeding, we are persuaded that Petitioner demonstrates, for purposes of this institution decision, that Plassmann teaches “[a] device for stereophotogrammetry.” In light of our finding, we need not, and thus do not, reach whether claim 1’s preamble is limiting.

2. *A Camera Body*

Petitioner argues that Plassmann teaches “a camera body (1),” as recited in claim 1. Pet. 29–30. More specifically, Petitioner argues that Plassmann teaches camera body 2. *Id.* (citing Ex. 1007, Fig. 1A; Ex. 1003 ¶ 231). Petitioner adds that Plassmann teaches using “a camera body such as is well-known to those skilled in the art.” *Id.* at 30 (quoting Ex. 1007, 5:29–30, 12:3–4).

After reviewing Petitioner’s arguments and evidence, which are not addressed by Patent Owner at this stage of the proceeding, we are persuaded that Petitioner demonstrates, for purposes of this institution decision, that Plassmann teaches “a camera body (1).”

3. A Double-Optics Comprising Two Sub-Optics

a) Petitioner's Arguments

Petitioner argues that Plassmann teaches “a double-optics (2) comprising two sub-optics (2 b) and (2 c), configured for a simultaneous acquisition of two views according to two different angles,” as recited in claim 1. Pet. 30–32. In support of its arguments, Petitioner annotates Plassmann’s Figure 1B, which is shown below with Petitioner’s annotations. *Id.* at 31.

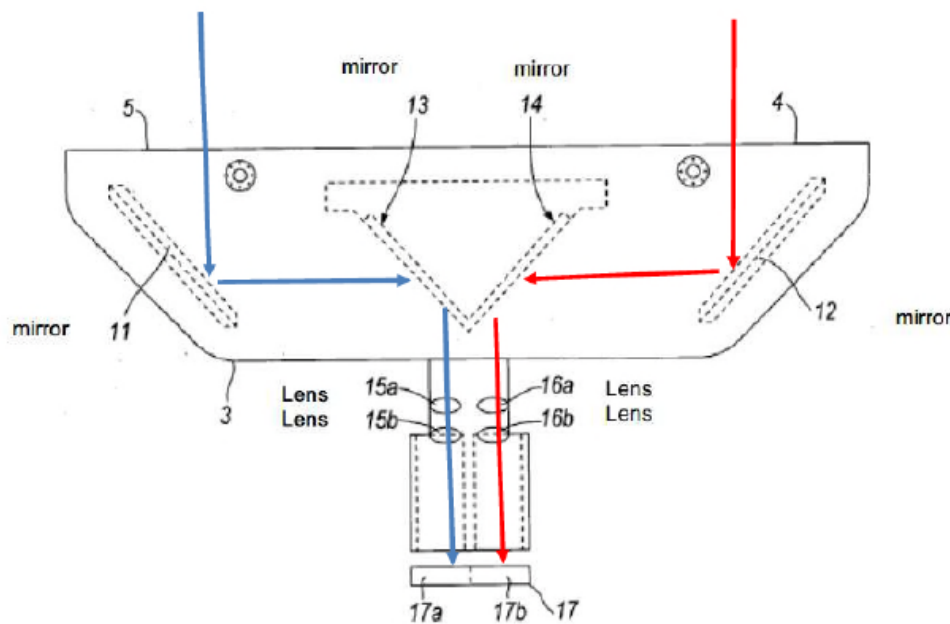


Fig.1B
PRIOR ART

Plassmann teaches that Figure 1B depicts “a plan view of a known adaptor used in” “a known apparatus for obtaining stereoscopic images.” Ex. 1007, 11:3–6. Petitioner annotates the figure with blue lines indicating a first light path through aperture 5 to charge coupled device part 17a, which Plassmann describes as follows: “Light passing through aperture 5 hits mirror 11 and then mirror 13 before passing through lenses 15a, 15b. Lenses 15a, 15b

focus the light so that, when the shutter of the camera is pressed, light is focussed onto part 17a of a charge coupled device 17 so as to form a first image.” Pet. 30–31 (annotating Ex. 1007, Fig. 1B, citing 12:14–25); Ex. 1007, 12:15–20. Similarly, Petitioner annotates the figure with red lines indicating a second light path through aperture 4 to charge coupled device part 17b, which Plassmann describes as follows: “[L]ight passing through aperture 4 hits mirror 12 and then mirror 14 before passing through lenses 16a, 16b. Lenses 16a, 16b focus the light so that, when the shutter of the camera is pressed, light is focussed onto part 17b of the charge coupled device 17 so as to form a second image.” Pet. 30–31 (annotating Ex. 1007, Fig. 1B, citing 12:14–25); Ex. 1007, 12:20–25.

Petitioner argues that “Plassmann’s Figure 1B is substantially identical to the ’253 [p]atent’s Figure 6 depicting claimed double optics and two sub-optics.” Pet. 31–32 (citing Ex. 1007, Fig. 1B; Ex. 1020, Fig. 6; Ex. 1003 ¶ 234). Petitioner argues that “Plassmann teaches adaptor 3 combines two sets of mirrors and nonadjustable, fixed focus lenses (15a,b and 16a,b), each transmitting an image of an object (red and blue) recorded from different angles to a photosensitive surface (charge coupled device 17).” *Id.* at 30 (citing Ex. 1007, 12:14–25; Ex. 1003 ¶ 233). According to Petitioner, one of ordinary skill in the art “would recognize the combination of mirrors and lenses traversed by each light path in Plassmann comprises double-optics employing two sets of sub-optics (*i.e.* 11, 13, 15a, and 15b (blue) and 12, 14, 16a, and 16b (red)) as recited.” *Id.* at 32 (citing Ex. 1003 ¶ 235). Petitioner adds that “[d]ue to spaced mirrors 11 and 12, two images are necessarily taken at different angles.” *Id.* In addition, Petitioner argues that “[b]ecause images are captured using a single camera, [one of ordinary skill in the art] would understand they are obtained simultaneously.” *Id.*

b) Patent Owner's Arguments

Patent Owner disputes that Plassmann teaches this limitation. Prelim. Resp. 19–25. More specifically, referring to Petitioner's annotated Figure 1B, Patent Owner argues that “[t]he blue and red light paths defining the angles at which the two views are acquired by mirrors 11 and 12 are parallel, and thus establish that Plassmann simultaneously acquires the two views at the same angle, not ‘two different angles.’” *Id.* at 20. Similarly, Patent Owner argues that Plassmann's Figure 1B is significantly different than the '253 patent's Figure 6 because “the red and blue arrows hitting the mirrors 11 and 12 in annotated Fig[ure] 1B of Plassmann are parallel,” and “the arrows hitting the mirrors (12b) and (12c) in Figure 6 of the [']253 patent are not parallel, but are at ‘two different angles,’ as claimed.” *Id.* at 21 (citing Ex. 2006 ¶ 59).

In addition, Patent Owner argues that Petitioner sets forth “attorney argument without citation to any evidentiary support” when Petitioner argues that “[d]ue to spaced mirrors 11 and 12, [the] two images are necessarily taken at different angles.” *Id.* at 22 (citing Pet. 32); *see also id.* at 22–23 (citing Ex. 2006 ¶ 60) (arguing that “the red and blue optical paths demonstrates that the mirrors may be spaced but nevertheless simultaneously acquire their images at the same angle, not different angles”).

In addition, Patent Owner argues that Plassmann's Figure 1B “shows that the mirrors 11 and 12 are spaced and therefore record the stereo images from the different viewpoints of the mirrors.” *Id.* at 23 (citing Ex. 2006 ¶ 60). According to Patent Owner, “[a]ny camera that obtains multiple images from different light paths that are spaced acquires different views of the imaged subject, i.e., from different viewpoints.” *Id.* at 23–24 (citing Ex. 2006 ¶ 62). Patent Owner argues that “[t]his is a different characteristic

than the *angle* at which the views are acquired.” *Id.* at 24 (citing Ex. 2006 ¶ 62).

c) Our Analysis

At this stage of the proceeding, and based on the current record, we find that Petitioner sufficiently demonstrates that Plassmann teaches “a double-optics (2) comprising two sub-optics (2 b) and (2 c), configured for a simultaneous acquisition of two views according to two different angles.” In particular, at this stage of the proceeding, we agree with Petitioner and find that Plassmann teaches having two sub-optics, which are displaced from one another, and which each collect light via different paths from the subject to be imaged. *See, e.g.*, Ex. 1007, 12:14–25, Fig. 1B. More specifically, Plassmann teaches that the light collected by each sub-optic comprises the light that passes through the respective aperture 4 or 5, and traverses different sets of mirrors and lenses to be focused on a different part of a charged coupled device to form respective first and second images. *Id.* at 12:14–25, Fig. 1B. And at this stage of the proceeding, we agree with Petitioner and find that due to spaced mirrors 11 and 12—which are part of different light paths and which are hit by the light that passes through their respective aperture 4 or 5—the two images are necessarily taken at different angles. *Id.* at 12:14–25, Fig. 1B; Ex. 1003 ¶ 235. In addition, at this stage of the proceeding, we find that Plassmann’s Figure 1B and the ’253 patent’s Figure 6 have substantively the same teachings as they relate to this limitation. *Compare* Ex. 1007, Fig. 1B, *with* Ex. 1020, Fig. 6 (each showing separate sub-optics for each image with spaced mirrors being hit by the light that passes through the respective apertures). Lastly, we also agree with Petitioner, at this stage of the proceeding, that because the images are

captured using a single camera, that they are obtained simultaneously.
Ex. 1003 ¶ 235.

At this stage of the proceeding, we find unavailing Patent Owner's arguments that are premised on Petitioner annotating Figure 1B with blue and red lines that are parallel to each other when entering the adaptor 3. Prelim. Resp. 20–23. Simply put, Patent Owner overreads the annotations to limit incorrectly the light used to form the images to light having a perpendicular orientation when passing through the respective apertures. *Id.* Plassmann, however, teaches no such limitation, but rather refers to “[l]ight passing through” the apertures, which includes light of any orientation that passes through the apertures. *See* Ex. 1007, 12:15–25, Fig. 1B. Thus, each sub-optic will receive light from, for example, the center point of the object to be imaged from a different angle due to the spaced mirrors 11 and 12, as well as depending on the curvature of the subject and the point of the subject from which the light originates. *Id.* In other words, all light passing through the respective apertures forms the respective images, and not just light having a perpendicular orientation. *Id.* At this stage of the proceeding, we view Petitioner's annotations as simply being illustrative of the light paths through the components of the sub-optics, without limiting the orientation of the light passing through the apertures. *See* Pet. 31 (annotating Ex. 1007, Fig. 1B).

At this stage of the proceeding, we also find unavailing Patent Owner's argument that Petitioner cites no evidentiary support for its argument that Plassmann's two images are necessarily taken at different angles due to spaced mirrors 11 and 12. Prelim. Resp. 22. Rather, at this stage of the proceeding, we find that Petitioner's reliance on portions of

Plassmann and Dr. Otto's testimony provides sufficient support. *See* Pet. 30–31 (citing Ex. 1007, 12:14–25, Fig. 1B; Ex. 1003 ¶ 235).

At this stage of the proceeding, we also find unavailing Patent Owner's argument that Plassmann teaches that the images are “from the different viewpoints of the mirrors,” rather “than the *angle* at which the views are acquired.” Prelim. Resp. 23–24. Rather, as we discuss above, we find that Plassmann teaches that the views are from different angles. *See supra*; Ex. 1007, 12:14–25, Fig. 1B; Ex. 1003 ¶ 235. Moreover, at this stage of the proceeding, we afford the testimony of Dr. Van Der Weide, Patent Owner's declarant, on this issue little weight as it is based on the incorrect premise that “the light paths of the views are parallel and thus at the same angle,” and does not explain otherwise the basis for the testimony that the two images are acquired at the same angle. Ex. 2006 ¶¶ 60, 62.

In sum, we are persuaded that Petitioner demonstrates, for purposes of this institution decision, that Plassmann teaches “a double-optics (2) comprising two sub-optics (2 b) and (2 c), configured for a simultaneous acquisition of two views according to two different angles.”

4. Wherein the Device is Comprising a Positioning System

The remaining limitation of claim 1 reads as follows:

wherein the device is comprising a positioning system (34) configured to signal when a target subject (S) is reaching a pre-defined distance position to the camera (1) corresponding to one of at least two distinct pre-defined distance positions (A3, A4) of the target subject (S) relative to the camera body (1) of the stereophotogrammetry device, the at least two distinct predefined distance positions comprising a closer distance position (A4) and a farther distance position (A3), the closer distance position (A4) being closer to the camera body (1) of the stereophotogrammetry device than the farther distance position (A3) to the camera body (1) of the stereophotogrammetry device.

Ex. 1020, 11:46–57. We agree with Petitioner and find that the combination of Plassmann, Treuillet, and Staller teaches this limitation. First, we agree with Petitioner and find that Plassmann teaches a positioning system that uses a pair of light beamers to signal when a target subject is reaching a predefined distance position to the camera. *See* Ex. 1007, Fig. 1A (light beamers 6a, 6b); Pet. 33. Plassmann teaches that light beams converge at a predefined distance “corresponding to the distance in which the camera lens is focussed.” Ex. 1007, 12:7–13. More specifically, Plassmann states the following:

The apparatus is also provided with two low-powered light emitting diodes (LEDs) 6a, 6b, each provided with a focussing lens to produce a beam of light and being arranged so that the beams converge and meet at a point a fixed and desired distance from the apparatus, this distance corresponding to the distance at which the camera lens is focussed.

Id.; Pet. 34. Accordingly, we find, at this stage of the proceeding, that Plassmann teaches the limitation, save for having a second predefined distance position—if there are two different distance positions, one necessarily is closer to the camera body and the other one farther. Ex. 1007, 12:7–13, Fig. 1A.

Second, at this stage of the proceeding, we agree with Petitioner and find that Staller teaches a positioning system having more than one predefined imaging distance position. Pet. 38. More specifically, we find that Staller teaches a strobe diffuser attachment for a camera, which includes a “distance measurement device [that] may be adapted to selectively produce one of a plurality of pairs of light beams which intersect at different repeatable distances from the diffuser body.” Ex. 1006, code (57), 2:29–32, 5:13–15; *see also id.* at 5:56–6:2 (“[T]wo pairs of light beam emitters . . .

may be used to provide three or four separate pairs of intersecting bea[m]s and three or four corresponding repeatable distances for diffuser 10.”); Pet. 38. In other words, Staller teaches having at least two distinct predefined distance positions for the camera. Ex. 1006, code (57), 2:29–32, 5:13–15, 5:56–6:2. We also agree with Petitioner and find that Staller teaches that its “distance indicator improves the usefulness of close range photography by providing a repeatable scale to photographs[, which] . . . improves the usefulness of close ranges photographs for medical and other organic growth measurement applications.” Ex. 1006, 6:10–15; Pet. 38.

In addition, we agree with Petitioner and find that Plassmann teaches that “[s]tereoscopic imaging has been known for many years,” and “ha[s] been used to measure the shape of wounds and the like which are otherwise difficult to measure by conventional techniques.” Ex. 1007, 1:6–15; Pet. 35. We also agree with Petitioner and find, based on the current record, that Treuillet teaches applying imaging technologies to wound assessments, including teaching positioning a camera’s focus at different distances depending upon a wound’s size and location, and taking periodic follow-up images. Ex. 1016, 752–53, 59; Pet. 35. And at this stage of the proceeding, we agree with Petitioner and find that one of ordinary skill in the art would have understood that in assessing changes in wounds over time, images should be taken at the same distance. Ex. 1003 ¶¶ 244, 256.

We also agree with Petitioner and find that it was known in the art before the ’253 patent to use a camera having multiple predefined distances for imaging a subject in connection with wound or lesion treatment. *See*

Ex. 1017,⁸ 579; Ex. 1011,⁹ 164, Fig. 2, Table 2; Ex. 1008,¹⁰ 481.

Additionally, it was known in the art to vary the focal distance from a subject in selecting a distance for optimal medical measurements. *See* Ex. 1015,¹¹ 4; Pet. 38. Thus, at this stage of the proceeding, we find that one of ordinary skill in the art would have found it obvious to modify Plassmann's stereophotogrammetry device, based on what was known in the art, which also includes Staller's teachings, to have multiple predefined distance positions. *See KSR Int'l, Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).

At this stage of the proceeding, we find unavailing Patent Owner's arguments that Treuillet (i) does not teach a device that takes stereo images, (ii) uses a standard digital camera, (iii) “takes ‘only two images’ at ‘two successive camera positions,’” and (iv) has “successive camera positions [that] are *unknown*.” Prelim. Resp. 26–29 (quoting and citing Ex. 1016, 752, 756, 758, 760–61); *see also id.* at 28–30 (making same arguments). We find that Patent Owner incorrectly focuses on Treuillet's teachings

⁸ Gwen Clark, *Recording Wounds: Polaroids New Medically Designed Camera*, British Journal of Community Nursing, vol. 5, no. 11 (Sept. 27, 2013) (“Clark”).

⁹ Melvin A. Shiffman, *A New Camera for Cosmetic Surgery*, The Am. J. Cosmetic Surgery, vol. 15, no. 2 (June 1, 1998) (“Shiffman”).

¹⁰ Clare Williams, *Wound care assessment with the Polaroid Macro 3 SLR*, British J. Community Nursing, vol. 6, no. 9 (2001) (“Williams”).

¹¹ H. Hoeffelin, et al., *A Methodological Evaluation of Volumetric Measurement Techniques including Three-Dimensional Imaging in Breast Surgery*, BioMed Research Int'l, vol. 2014, 8 (Jan. 2014) (“Hoeffelin”).

individually, rather than the combined teachings of Plassmann, Treuillet, and Staller. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references”). The relevant inquiry is whether the claimed subject matter would have been obvious to those of ordinary skill in the art in light of the combined teachings of Plassmann, Treuillet, and Staller. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). As we discuss above, Plassmann teaches that its stereophotogrammetry device includes a positioning system that is configured to signal when a target subject is reaching a predefined distance position to the camera. *See supra*; Ex. 1007, 12:7–13, Fig. 1A. As we also discuss above, both Staller and Treuillet teach taking images at more than one distance position from the subject. *See supra*; Ex. 1006, code (57), 2:29–32, 5:13–15, 5:56–6:2; Ex. 1016, 752–53, 759. Moreover, Plassmann teaches predefining a distance position of the camera from the subject, and Staller teaches doing so for multiple distances. *See* Ex. 1006, code (57), 2:29–32, 5:13–15, 5:56–6:2; Ex. 1007, 12:7–13, Fig. 1A; *see also* Prelim. Resp. 27 (citing Ex. 1007, 12) (agreeing that Plassmann teaches “record[ing] images at the same scale”). We find that the combined teachings render the claim limitation obvious to one of ordinary skill in the art.

At this stage of the proceeding, we also find unavailing Patent Owner’s argument that “Treuillet denigrates stereophotogrammetry devices like Plassmann as ‘cumbersome’ and ‘unsuitable for general use in clinical settings.’” Prelim. Resp. 26 (quoting Ex. 1016, 752, 755, 761), 28 (making same argument) (citing Ex. 2006 ¶ 66). A reference teaches away from a claimed invention only when it criticizes, discredits, or otherwise

discourages making the modifications to arrive at the claimed invention. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (teaching away requires that a reference “criticize, discredit, or otherwise discourage” investigation into the claimed solution). At this stage of the proceeding, we find that these purported criticisms are not directed to taking images at different distances from the subject, nor that these different distances are predefined. Ex. 1016, 752, 755, 761. Simply put, these purported criticisms do not discourage modifying Plassmann’s teachings in the manner Petitioner does, and do not teach away from this limitation. *See Fulton*, 391 F.3d at 1201.

At this stage of the proceeding, we also find unavailing Patent Owner’s argument that Treuillet teaches “account[ing] for wounds of different sizes by adjusting the zoom of the camera’s zoom lens, not by taking images at different distances.” Prelim. Resp. 30–31 (citing Ex. 1006, 759). Patent Owner similarly argues that Treuillet teaches “account[ing] for the ‘wide range of wound dimensions and locations’ via the camera’s zoom lens, where the clinician ‘choose[s] the *optical zoom factor*,’ not by changing the camera-to-subject distance.” *Id.* at 31 (citing Ex. 2006 ¶ 68; Ex. 1016, 755–56, 759). At this stage of the proceeding, we view these teachings as at least suggesting taking images at different distances as the zoom lens varies the focal distance of the camera. Ex. 1016, 755–56, 759. Regardless, Treuillet’s teachings concerning zoom lenses do not negate its teachings regarding taking images at different distances with respect to at least the same wound. *Id.* at 759.

At this stage of the proceeding, we also find unavailing Patent Owner’s argument that “Treuillet’s imaging device and procedure are completely different than, and incompatible with Plassmann’s imaging device and procedure.” Prelim. Resp. 27 (citing Ex. 2006 ¶ 70); *see also id.*

at 31–32 (arguing that modifying Plassmann with Treuillet’s teachings would not work). It is not necessary, however, that Plassmann and Treuillet’s teachings be physically combinable to render the challenged claims obvious. *See Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (quoting *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983)); *see also id.* (quoting *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc)) (“Etter’s assertions that Azure cannot be incorporated in Ambrosio are basically irrelevant, the criterion being not whether the references could be physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole.”).

At this stage of the proceeding, we also find unavailing Patent Owner’s arguments that relate to Plassmann’s depth of field. *See* Prelim. Resp. 33–41. These arguments are directed to Plassmann’s teachings individually, which is the incorrect focus. *See Merck*, 800 F.2d at 1097; *Keller*, 642 F.2d at 425. As we discuss above, however, we find that the combination of Plassmann, Treuillet, and Staller teaches this limitation, including having a second predefined distance position. For example, as we discuss above, Staller and Treuillet each teach taking images of a subject at different distances. *See supra*; Ex. 1006, 2:29–32, 5:13–15, 5:56–6:2; Ex. 1016, 754, 759. And a camera having multiple predefined distances for imaging a subject in connection with medical treatment is taught by Staller, and was known in the art. *See supra*; Ex. 1006, code (57), 5:56–6:2, 6:10–15; Ex. 1008, 481; Ex. 1011, 164, Fig. 2, Table 2; Ex. 1017, 579. Accordingly, the parties’ arguments concerning whether Plassmann individually teaches (i) an expanded depth of field; (ii) certain predefined distances (e.g., 65, 80, and 95 centimeters) due to its depth of field; and

(iii) a particular stereophotogrammetry device (e.g., MAVIS or MAVIS II), are issues upon which our institution decision does not turn. *See* Pet. 34–35 & n.5; Prelim. Resp. 33–41.

As way of guidance to the parties, however, we provide the following discussion. At this stage of the proceeding, and based on the current record, we find that Petitioner sufficiently shows that Plassmann’s device has a depth of field of at least 30 centimeters, and that one of ordinary skill in the art would have understood that Plassmann’s device was a MAVIS II device. *See* Pet. 34–35, 34 n.5, 40 & n.6 (citing Ex. 1016, 755; Ex. 1003 ¶¶ 129, 239–241, 255). We also find, at this stage of the proceeding, and based on the current record, that Petitioner does not sufficiently show that due to this depth of field range that Plassmann’s device “includes at least three ‘predefined’ distances at which imaging may occur: 65 centimeters, 80 centimeters, and 95 centimeters from the camera.” *Id.* at 35 (citing Ex. 1003 ¶ 242). In particular, based on the current record, we find that Petitioner does not sufficiently show that the edges of the range (i.e., 65 centimeters and 95 centimeters) are predefined distances for which Plassmann’s device would signal when a subject is reaching that edge distance. *Id.* And thus, at this stage of the proceeding, we do not find that Plassmann individually teaches a second predefined distance position, as required by the limitation. Again, however, our Decision does not turn on whether Plassmann individually teaches multiple predefined distance positions.

At this stage of the proceeding, we also find unavailing Patent Owner’s argument that Petitioner “cites nothing in the prior art to suggest that [one of ordinary skill in the art would have understood] that it is, in fact, ‘important to record images at the same scale’ or to take ‘a successive series of images at the same distance’ . . . , or why.” Prelim. Resp. 42 (citing Pet.

36; Ex. 2006 ¶¶ 93–94). We disagree. As we discuss above, at this stage of the proceeding, we are persuaded, for example, by Petitioner’s arguments that Plassmann and Staller teach positioning systems that signal when a predefined distance is reached. *See supra*.

At this stage of the proceeding, we also find unavailing Patent Owner’s argument that “the issue of ‘scale’ in Staller is inapplicable to Plassmann.” Prelim. Resp. 49 (citing Ex. 2006 ¶¶ 104–115); *see also id.* at 49–51. Patent Owner argues that “‘scale’ is the correlation between the size of the object in the image and the actual size of the object,” and that “[t]he scale varies with the distance between the camera and the object.” *Id.* at 50 (citing Ex. 2006 ¶ 108). According to Patent Owner, “with a single 2D image, one cannot determine the distance between the subject and the camera from the image alone.” *Id.* Patent Owner argues that “Staller’s solution to this problem is its distance indicator, which permits images of a subject to be taken over time at the same distance.” *Id.* (citing Ex. 1006, code (57), 2:22–26; Ex. 2006 ¶ 109). Patent Owner argues, however, that “[u]nlike single-image 2D systems like Staller . . . , stereophotogrammetry devices such as Plassmann present no such scale issues.” *Id.* at 51 (citing Ex. 2006 ¶¶ 111–113). Put differently, “Plassmann, unlike Staller, does not require light beams to address a ‘scale’ problem or ‘to ensure ‘repeatable scale,’”” according to Patent Owner. *Id.* at 52 (citing Ex. 2006 ¶ 115). At this stage of proceeding, we find Patent Owner’s arguments to be contrary to the teachings of the prior art. In particular, as Patent Owner acknowledges, and as we discuss above, Plassmann teaches using LEDs so that emitted light “beams converge and meet at a point a fixed and desired distance from the apparatus, this distance corresponding to the distance at which the camera lens is focussed.” Ex. 1007, 12:7–13; Prelim. Resp. 51. Moreover,

even if, as Patent Owner argues, one of ordinary skill in the art could develop or utilize different solutions to address scale, this does not make Staller’s solution less obvious. *Cf. Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (“[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.”).

We also find unavailing Patent Owner’s argument that Petitioner improperly supports its grounds of unpatentability with Shiffman, Clarke, and Hoefflin. Prelim. Resp. 52–55. Petitioner does not rely on these references’ teachings to meet any claim recitation. Pet. 36–38. Rather, Petitioner uses these reference to further evidence the knowledge that one of ordinary skill in the art would have had. *Id.* We appropriately consider such knowledge as part of our obviousness analysis. *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362–63 (Fed. Cir. 2013).

In summary, we are persuaded that Petitioner demonstrates, for purposes of institution, that the combination of Plassmann, Treuillet, and Staller teaches this limitation. We also find, for purposes of institution, that Petitioner has provided sufficiently articulated reasoning with rational underpinning to support Petitioner’s combining of Plassmann, Treuillet, and Staller’s teachings for this limitation. *See Kahn*, 441 F.3d at 988 (citations omitted), *cited with approval in KSR*, 550 U.S. at 418.

5. Summary

In summary, based on the current record, and for purposes of this institution decision, we determine that Petitioner shows a reasonable likelihood that it would prevail in showing that claim 1 would have been obvious to one of ordinary skill in the art in view of the combination of Plassmann, Treuillet, and Staller.

E. Challenged Claims 2–4, 8–11, 15, 16, and 20

At this stage in the proceeding, Patent Owner does not address separately Petitioner’s arguments and evidence as to how the combination of Plassmann, Treuillet, and Staller teaches the limitations of claims 2–4, 8–11, 15, 16, and 20. *See generally* Prelim. Resp. We have reviewed Petitioner’s arguments and evidence regarding these claims, and, on the current record, we find them persuasive for purposes of institution.

VI. REMAINING OBVIOUSNESS GROUNDS

Petitioner argues that the combination of (i) Plassmann, Treuillet, Staller, and Kingslake renders claim 12 obvious, and (ii) Plassmann, Treuillet, Staller, and Peng renders claims 21–23 obvious. Pet. 63–79. Patent Owner argues that Petitioner improperly supports the Plassmann, Treuillet, Staller, and Kingslake ground with Schneider¹² and Wilson.¹³ Prelim. Resp. 60–61. We find this argument unavailing. As we discuss above, Petitioner does not rely on these references’ teachings to meet any claim recitation, and we appropriately consider evidence of the knowledge that one of ordinary skill in the art would have had as part of our obviousness analysis. *See Randall Mfg.*, 733 F.3d at 1362–63.

At this stage in the proceeding, Patent Owner does not otherwise separately address Petitioner’s arguments and evidence as to how these remaining combinations teach these claims. *See generally* Prelim. Resp. We have reviewed Petitioner’s arguments and evidence regarding these

¹² Jason Schneider, *The Horseman 3D; Is It the Most Convenient and AUTOMATED 35mm Stereo Camera Ever?*, Shutterbug, May 1, 2007 (Ex. 1029).

¹³ Louis B. Wilson & Henry G. Andrews, *Stereo-Photography of Pathological Specimens: Some Improvements in technic, and new Apparatus*, J. of Med. Research, 1908 (Ex. 1030).

grounds and respective claims, and, on the current record, we find them persuasive for purposes of institution.

VII. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail in proving the unpatentability of at least one of the challenged claims of the '253 patent. We thus institute an *inter partes* review of all of the challenged claims of the '253 patent on all grounds asserted in the Petition. *See* 37 C.F.R. § 42.108(a).

Any findings or conclusions in this Decision are made only for the purposes of institution and are not dispositive of any issue. We have not made a final determination with respect to the patentability of any challenged claim. Our final determination will be based on the record as fully developed during trial, including any evidence or argument timely presented by the parties under our Rules.

VIII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of the '253 patent is instituted on all of the challenged claims and all grounds asserted in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial commences on the entry date of this Decision.

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