

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CANFIELD SCIENTIFIC, INC.,
Petitioner,

v.

QUNATIFICARE S.A.,
Patent Owner.

IPR2021-01519
Patent 10,681,334 B2

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

McNAMARA, *Administrative Patent Judge*.

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

I. INTRODUCTION

Canfield Scientific, Inc. (“Petitioner”) filed a petition, Paper 1 (“Petition” or “Pet.”), to institute an *inter partes* review of claims 1–5, 9–12, 15, 16, and 20–23 (the “challenged claims”) of U.S. Patent No. 10,681,334 B2 (“the ’334 patent”). 35 U.S.C. § 311. QuantifiCare S.A. (“Patent Owner”) filed a Preliminary Response, Paper 8 (“Prelim. Resp.”), contending that the Petition should be denied as to all challenged claims. We authorized Petitioner to file a preliminary reply (Paper 13 “Reply”) and Patent Owner to file a preliminary sur-reply (Paper 14 “Sur-reply”).

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition “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.” A decision to institute under § 314 “authorize[s] the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.” *See* 37 C.F.R. § 42.108(a).

Having considered the arguments and the associated evidence presented in the papers, for the reasons described below, we institute *inter partes* review.

II. REAL PARTIES IN INTEREST

The Petition identifies Petitioner as the sole real party-in-interest. Pet. 2. Patent Owner identifies itself as the sole real party-in-interest. Paper 4, 1. We note that the Patent Owner identified in this proceeding is QuantifiCare S.A., but that the plaintiff in related litigation is identified as QuantifiCare, Inc. *See* Section III herein.

III. RELATED MATTERS

The Petition and Patent Owner state that the '334 patent is involved in the following litigation: *QuantifiCare, Inc. v. Canfield Scientific, Inc.*, 1:20-cv-12305-RMB-MJS (D.N.J.) filed September 3, 2020. Pet. 2; Paper 4, 1. Petitioner states that is was served on September 8, 2020. Pet. 2

IV. THE '334 PATENT

The '334 patent is titled “Device and Method to Reconstruct Face and Body in 3D.” Ex. 1022, code 54. The challenged 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 3:42–43; *see id.* 1:30–42, 1:60–67. By way of background, the '334 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 1:43–48. The stereo-pair is used to “reconstruct . . . a dense representation in 3-Dimensions of the surface of the observed object.” *Id.* at 1:49–51. The '334 patent states that “the device and method according to the disclosure are specifically intended to acquire with a single portable stereophotogrammetry camera views of subjects at two distinct distances” for “reconstruction in 3D of comprehensive representation of the head on one side of the subject and of the torso on the other sided of the subject” to meet the “needs of plastic surgeons and aesthetic dermatologists with a single and portable imaging device.” *Id.* at 11:43–50.

Figures 1 and 2, reproduced below, respectively show side- and top-views of an “implementation” of a stereophotogrammetry device and its components. *Id.* at 3:66–4:2.

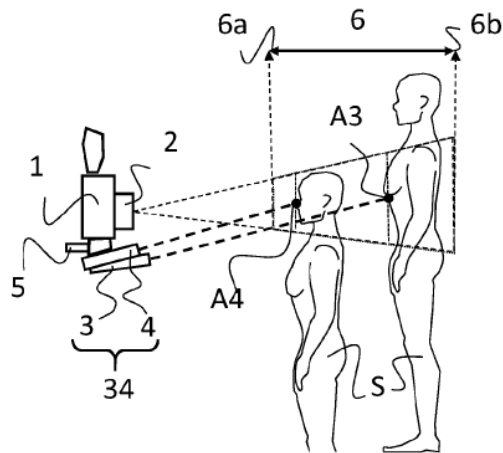


FIG. 1

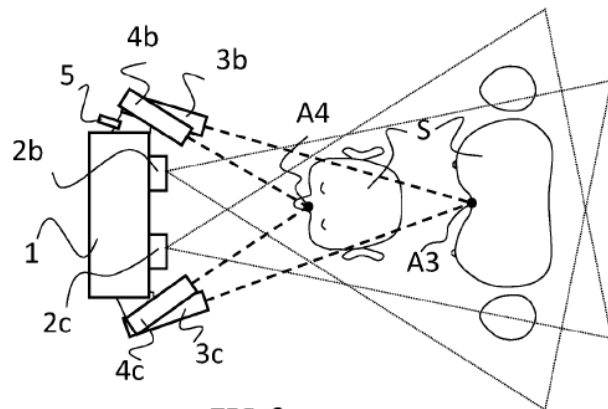


FIG. 2

In Figures 1 and 2, camera body (1) includes double optics (2). *Id.* at 8:43–44. 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 8:45–48; *see id.* at 3:28–31. For example, Figure 8 shown below shows a series of stereo-pair images taken at different angles for a face. *Id.* at 11:22–30.

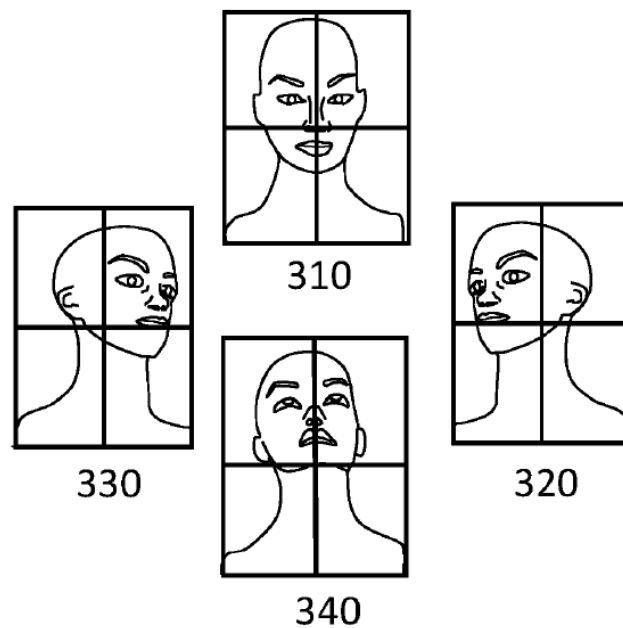


FIG. 8

The '334 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 4:17–19. Using the captured stereo-pairs, “a comprehensive representation in 3D of the surface of the subject (S)” can be constructed. *Id.* at 10:57–58.

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 8:48–59; *see id.* at 6:41–44. 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 6:22–30; *see id.* at 1:60–67. 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 A—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 8:60–64; *see id.* at 4:64–5:3. 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 pre-defined position (and similarly for the light pattern emitted by the second pair of beamers converging at the second position). *Id.* at 4:67–5:2; *see id.* 5:3–10.

Figure 8 illustrates that for the stereo pairs acquired at distance A4 for the face of subject S, it is advantageous to take a first view 310 from the front of the face, a second view 320 from the side of the face, a third view 330 from the other side and slightly under the face, and a fourth view from

the front and slightly under the face. *Id.* at 11:23–20. Figure 9 illustrates a similar approach for acquiring images of a torso at distance A4. *Id.* at 11:31–42).

V. ILLUSTRATIVE CLAIM

Claim 1 is representative of the subject matter claimed in the '334 patent. Claim 1 is reproduced below using paragraph designations from the Petition.

1. [1.01] A device for stereophotogrammetry configured for an acquisition of two views according to two different angles, said acquisition generating a pair of images, with one image corresponding to one of the two views and the other image corresponding to the other of the two views, this pair of images being referred to as a stereopair,

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

VI. ASSERTED GROUNDS

Petitioner asserts that claims 1–5, 9–12, 15, 16, and 20–23 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)
1–5, 9–12, 15, 16, 20	103	Plassmann ¹ , Treuillet ² , Staller ³
21–23	103	Plassmann, Treuillet, Staller, Peng ⁴

VII. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner asserts that

[a] person of ordinary skill in the art (“POSITA”) 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 photography, and stereophotogrammetry, as well as image processing in these fields, or an equivalent qualification.

Pet. 14 (citing Ex. 1003, Declaration of Dr. Paul Otto (“Otto Decl.”) ¶¶ 17–20).

Patent Owner alleges Petitioner asserts a “high level of skill [which] is not necessary to understand or practice the teachings of the [’]334 patent.”

Prelim. Resp. 24 (citing Ex. 2006, Declaration of Dr. Daniel van der Weide (“van der Weide Decl.”) ¶¶ 29–30). Instead, Patent Owner asserts “a

¹ WO 2010/097572 A2, *Method and Apparatus for Stereoscopic Imaging and Adaptor Therefor* (Ex. 1007)

² S. Treuillet, B. Albouy and Y. Lucas, *Three-Dimensional Assessment of Skin Wounds Using a Standard Digital Camera*, in IEEE Transactions on Medical Imaging, vol. 28, no. 5, pp. 752-762, May 2009 (Ex. 1016)

³ U.S. Patent No. 7,257,322, *Photographic Strobe Diffuser* (Ex. 1006)

⁴ Qi Peng, Lifen Tu, Kaibing Zhang, Sidong Zhong, *Automated 3D Scenes Reconstruction Using Multiple Stereo Pairs from Portable Four-Camera Photographic Measurement System*, International Journal of Optics Volume 2015 (August 17, 2015) (Ex. 1009)

POSITA 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 level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

The parties' dispute regarding level of ordinary skill in the art does not substantively impact our analysis in this decision; our analysis is the same under either parties' assertion of ordinary skill in the art. We, thus, decline to resolve this dispute at this time.

VIII. CLAIM CONSTRUCTION

For petitions filed after November 13, 2018, we interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2019). In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (citations omitted) (en banc). “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). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317 (citations omitted).

Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

We construe only those claim terms that require analysis to determine whether to institute inter partes review. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”). Petitioner contends that, except for two claim terms discussed below, no other constructions are necessary. *See* Pet. 15–20. Patent Owner generally contends that no claim construction is required and the claims should be given their plain and ordinary and customary meaning. *See* Prelim. Resp. 5–23.

A. device for stereophotogrammetry configured for an acquisition of two views according to two different angles

Arguing (i) that “device” is a generic nonce term tantamount to using the word “means” and (ii) that “configured” is language that recites function, rather than structure, Petitioner contends that the claim language “device for stereophotogrammetry configured for an acquisition of two views according to two different angles” is governed by Section 112(f). Pet. 15–16 (citing Ex. 1003, Otto Decl. ¶65). Noting that the corresponding structure is limited to that which the specification clearly links or associates with the function cited, Petitioner contends that the challenged “patent links performance of this function to a device including double optics and two sets of fixed lenses or ‘sub-optics.’” *Id.* at 16–17. According to Petitioner, based on the disclosures in the patent and the prosecution history, a person of ordinary skill would understand

this limitation encompasses a pair of optics having a fixed (i.e. non-adjustable) focus forming a single depth of field sufficient to encompass the pre-selected distances consisting of two distinct, separate sets of identical non-adjustable (i.e. fixed-focus) lenses each defining a different light path from the object to the photosensitive surface.

Id. at 18 (citing Ex. 1003, Otto Decl. ¶ 68).

Patent Owner contends that the terms in the phrase “device for stereophotogrammetry configured for an acquisition of two views according to two different angles” should be given their plain and ordinary meaning. Prelim. Resp. 7–37. Noting that the word “means” is absent from the claim, Patent Owner emphasizes the claim language “device for stereophotogrammetry” and “stereophotogrammetry device” to argue that “device” as used in the claim is not a nonce term subject to Section 112(f). *Id.* at 16–17. According to Patent Owner, Petitioner has not made the requisite showing that the term recites function without sufficient structure for performing that function to overcome the *Williamson* presumption against the application of Section 112(f). *Id.* at 17 (citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015)). According to Patent Owner, “the literature in the art is replete with usage of the term ‘stereophotogrammetry device’ to denote a type of device,” and the term “stereophotogrammetry device[s]” appears throughout the Petition. *Id.* at 18–21. Patent Owner contends that a person of ordinary skill would understand “‘device for stereophotogrammetry/stereophotogrammetry device’ to have a sufficiently definite meaning as the name for structure and not subject to Section 112(f).” *Id.* at 20.

Patent Owner further argues that, even if Petitioner could overcome the presumption against the application of section 112(f), Petitioner

improperly imports into its construction structure, i.e., the lenses are fixed, that is not necessary to perform the claimed function. Prelim. Resp. 21–22 (citing *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed Cir. 2001)). Noting Petitioner’s assertion that the function is stereophotogrammetry through the acquisition of two views according to two different angles, Patent Owner contends that it is secondary mirrors 12b, 12c, not the lenses, that perform the function of acquiring two views according to two different angles. *Id.* at 22 (citing Pet. 17 to argue that even the Petition acknowledges this fact).

Patent Owner also asserts that when read in light of the Specification, a person of ordinary skill would understand the claim language “configured for an acquisition of two views according to two different angles” to mean “the device is configured to acquire two views, where each view is according to, or in conformity with a respective angle, and the angles of the two views are different, *i.e.*, not the same.” Prelim. Resp. 16.

For purposes of this Decision, we agree with Patent Owner that the relevant term is a device for stereophotogrammetry and that no construction other than the plain and ordinary meaning for this term is required. We find support for this conclusion in the declaration of Petitioner’s expert, Dr. Otto. For example, Dr. Otto refers to “[p]rior art stereophotogrammetry devices” and a prior art publication “describing prior art stereophotogrammetry devices” having certain characteristics. Ex. 1003, Otto, Decl. ¶ 39. Dr. Otto also testifies that

[s]tereophptogrammetry involves taking pictures of a subject from at least two different angles, to obtain overlapping images of the subject, and then making measurements (often in three dimensions) from those images. In the case where there are two images, the two images are commonly called a stereo-pair. Often,

these images are combined to produce a three-dimensional (3D) representation of the subject.

Ex. 1003, Otto Decl. ¶ 34. Dr. Otto further states: “Stereophotogrammetry operates on the same principles as other forms of photography. The only difference is that stereophotogrammetry uses two or more images from somewhat different angles, to reveal the depth of the object’s surface.” *Id.* ¶ 36.

Dr. Otto’s testimony is consistent with Patent Owner’s arguments that a device for stereophotogrammetry and photogrammetry device are not nonce terms. Accordingly, we do not provide any express constructions for this term, and afford the claim term its 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))). Below, we further address this recitation when considering the asserted prior art.

B. a positioning system configured to signal when a target subject (S) is reaching one of at least two distinct pre-defined distance positions (A3, A4) relative to the stereophotogrammetry device

Petitioner contends that the term “a positioning system configured to signal when a target subject (S) is reaching one of at least two distinct pre-defined distance positions (A3, A4) relative to the stereophotogrammetry device” should be construed as a means plus function term under the provisions of 35 U.S.C. § 112(f). Pet. 19–20. According to Petitioner “[t]he recited function is signaling when a target subject is reaching one of at least two distinct pre-defined distance positions relative to the stereophotogrammetry device” and a person of ordinary skill “would not

recognize the phrase to refer to any specific structure.” *Id.* at 19. Petitioner further argues that to the extent the signaling includes the superimposition of two light beams on the subject, the Specification identifies structure including at least two pairs of light beamers. *Id.*

Patent Owner “agree[s] that this limitation is subject to 35 U.S.C. § 112(f) and that corresponding structure in the specification includes at least two pairs of light beamers.” Prelim. Resp. 23. Patent Owner contends that Petitioner’s identification of the recited function fails to recognize that the rest of the claim limitation, which defines distance positions, but acknowledges that it is not necessary to resolve that matter for purposes of this Decision. *Id.* 24–24 fn.4. For purposes of this decision, we agree with Patent Owner and construe the claim as proposed by Petitioner.

IX. ANALYSIS

A. Introduction

“In an [inter partes review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring inter partes review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

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

nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; accord *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the “interrelated teachings of multiple patents”; “any need or problem known in the field of endeavor at the time of invention and addressed by the patent”; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR* 550 U.S. at 418–21).

Before determining whether a claim is obvious in light of the prior art, we consider any relevant evidence of secondary considerations of non-obviousness. *See Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Petitioner argues there are no secondary considerations applicable in this proceeding. Pet. 74–76.⁵

We analyze the asserted grounds of unpatentability in accordance with these principles to determine whether Petitioner has met its burden to establish a reasonable likelihood of success at trial.

B. Plassmann

Plassmann is a World Intellectual Property Organization publication that relates to an apparatus for the production of stereoscopic images. Ex. 1007 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.

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

⁵ The last correctly numbered page of the Petition is page 73. The Petition incorrectly numbers subsequent pages, with page 74 unnumbered and pages 75–76 numbered pages 2 and 3.

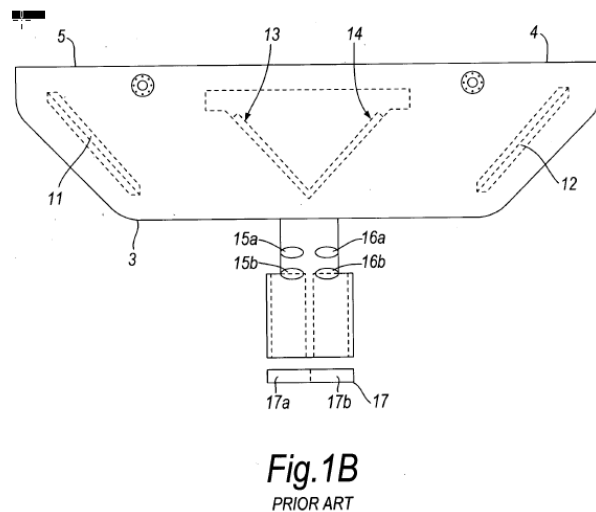
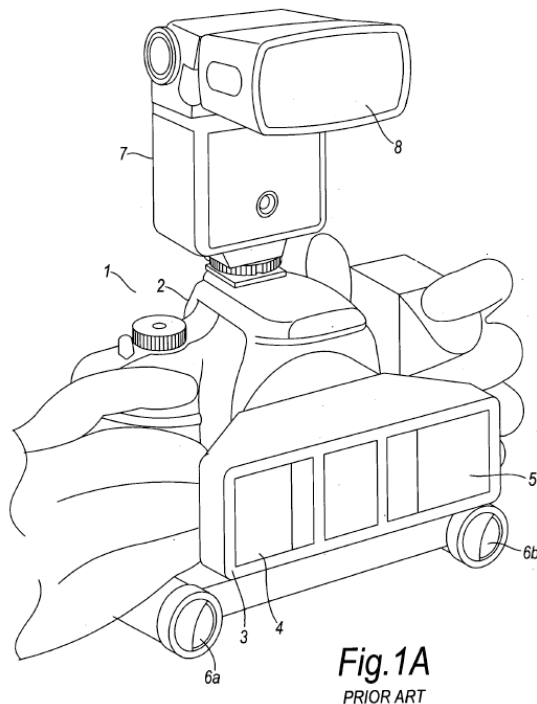


Figure 1A is a perspective representation of an apparatus for obtaining stereoscopic images, showing body 2, e.g., a camera, and adaptor 3. *Id.* at 11:3–4, 11:28–12:4. Further Figure 1B shows a “plan view” of adaptor 3 in further detail. *Id.* at 11:5–6, 12:13–14. Adaptor 3 has two apertures 4, 5 which 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.

C. Treuillet

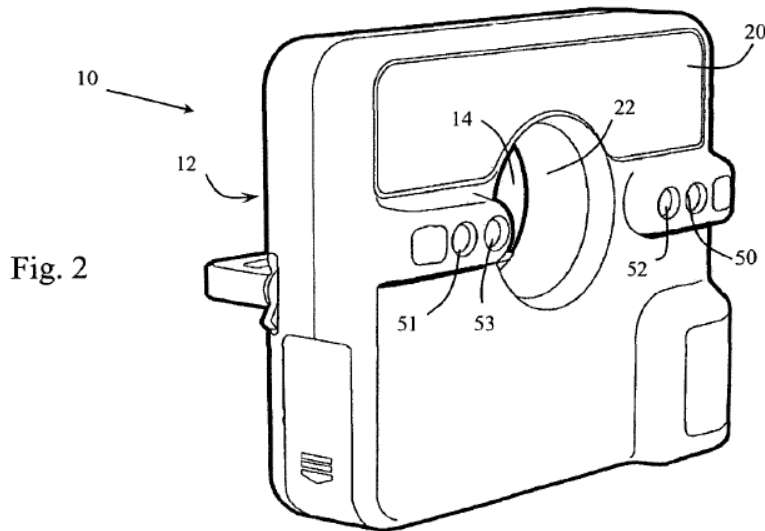
Treuillet is a paper that relates to an “approach to build 3-D models of skin wounds from color images.” Ex. 1016, 752. Treuillet explains that “[b]y taking two color images from different points of view, stereophotogrammetry allows the computation of the 3-D coordinates of numerous points on the skin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

D. Staller

Staller is a U.S. 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 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.*

E. Peng

Peng is a paper that relates to an “automatic 3D reconstruction method” to reconstruct a 3D scene using “complementary stereo information from four cameras.” Ex. 1009, 1. In particular, Peng’s “3D model reconstruction system us[es] images acquired from multiple stereo pairs.” *Id.* at 2. Peng explains that a “normal camera” has a “limited field-of-view.”

Id. at 6. Accordingly, Peng describes a process to “reconstruct a large and integrated scene” by “finding more than three spatial matched points between different 3D models [and] can achieve 3D model stitching.” *Id.*; *see id.* at 2–3.

F. Claims 1–5, 9–12, 15–16, and 20–23 As Obvious over Plassmann, Treuillet, and Staller

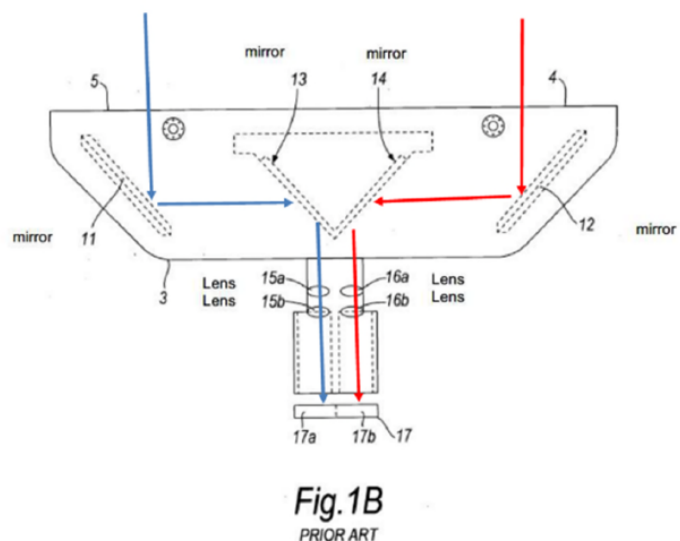
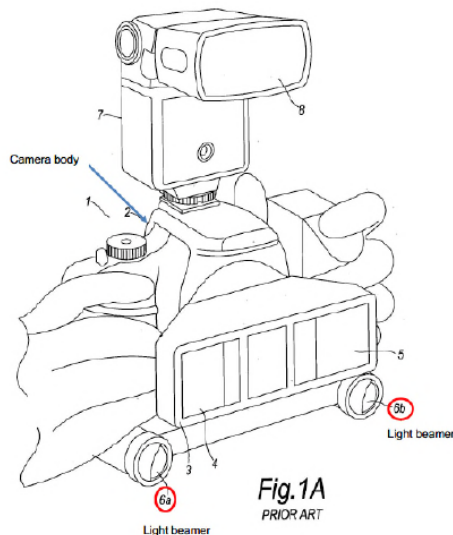
1. *Claim 1*

a) *Claim Limitation 1.01*

Claim limitation 1.01 recites

[a] device for stereophotogrammetry configured for an acquisition of two views according to two different angles, said acquisition generating a pair of images, with one image corresponding to one of the two views and the other image corresponding to the other of the two views, this pair of images being referred to as a stereo-pair.

Figures 1A and 1B of Plassmann, as annotated by Petitioner are reproduced below.



Pet. 32 (citing Ex. 1007, Figs. 1A, 1B). Plassmann identifies Figure 1A as showing a known apparatus for obtaining stereoscopic images and Figure 1B

as showing a known adaptor used in the apparatus of Figure 1A. Ex. 1007, 12:3–6. Petitioner cites Plassmann as disclosing a device for stereophotogrammetry including adapter 3 attached to camera body 2 to capture stereo images along paths labelled in red and blue. Pet. 31. Petitioner states that Plassmann’s adaptor 3 “acquires two views of an object from two different angles via mirrors 11 and 12, to reconstruct a 3-D representation of imaged objects.” *Id.* at 32 (citing Ex. 1007, 12:25–29).

Patent Owner cites Petitioner’s description of Plassmann that describes light forming the first image (annotated in blue) entering the adaptor, hitting mirror 11 and then mirror 13 before passing through lenses 15a, 15b and for the second image light (annotated in blue) hitting mirror 12, then mirror 13 before passing through lenses 16a, 16b. Prelim. Resp. 26 (citing Pet. 22–23). According to Patent Owner, “the 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 acquires the two views at the same angle, not two different angles.” *Id.* at 27. Patent Owner further argues that Petitioner does not provide any further evidence of how Plassmann’s “adaptor acquires two views of an object according to two different angles via mirrors 11 and 12.” *Id.* (citing Pet. 32). Patent Owner then compares Petitioner’s annotated Figure 1 of Plassmann to Petitioner’s annotated Figure 6 of the challenged patent, noting that the challenged patent states secondary mirror 12b, 12c “each receiv[es] one image of the subject with a slightly different angle.” *Id.* at 28 (citing Ex. 1022, 4:44–46). According to Patent Owner, although Plassmann has mirrors 11 and 12 to acquire two views, Plassmann acquires those views at the same angle, not at different angles. *Id.* at 30.

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. Ex. 1022, 12:14–25, Fig. 1B. 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, Otto Decl. ¶ 235. In addition, at this stage of the proceeding, we find that Plassmann’s Figure 1B and the ’334 patent’s Figure 6 have substantively the same teachings as they relate to this limitation. *Compare* Ex. 1007, Fig. 1B, *with* Ex. 1022, 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, Otto Decl. ¶ 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. 26–30. Patent Owner overreads the annotations to incorrectly limit 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 understand 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. 32 (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. 27. 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, Otto Decl. ¶ 235).

b) Claim Limitation 1.02

Claim limitation 1.02 recites

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

Petitioner asserts that the combined teachings of Plassmann, Treuillet, and Staller disclose claim limitation 1.02. *See* Pet. 33–39. Petitioner cites

Plassmann as disclosing a camera equipped with a positioning system having LEDs that produce low powered light beams 6a, 6b. Pet. 33. The LEDs have focusing lenses arranged to cause the light beams 6a, 6b to converge at a point that is a fixed and desired distance from the apparatus, such that the distance corresponds to the distance where the camera lens is focused. *Id.* at 33–34 (citing Ex. 1007, 12:7–13; Ex. 1003, Otto Decl. ¶¶ 371–372).

Petitioner contends a person of ordinary skill would have understood that the device described in Plassmann (i.e., the later generation MAVIS II referred to Treuillet), like any stereophotogrammetry device, has a depth of field containing many distances at which the camera is focused. Pet. 34. *See also* fn. 5 (citing Ex. 1016, 755; Ex. 1003 Otto Decl. ¶ 374). Petitioner relies on Treuillet to confirm that Plassmann’s device was capable of an expanded depth of field sufficient to image a subject at multiple positions within a 30 cm range, including at least three predefined distance of 65, 80 and 95 cm. *Id.* at 34–37 (citing Ex. 1003, Otto Dec. ¶ 755; Ex. 1016 ¶755). Petitioner argues that both Plassmann and Treuillet describe the use of stereophotogrammetry for wound assessment and monitoring and that Treuillet counsels positioning the device at different distances depending on a wound’s size, locations and healing progress over time. *Id.* at 35–36

Petitioner cites Staller as disclosing a positioning system employing multiple pairs of light beams to define more than one predefined position. Pet. 38. According to Petitioner, a person of ordinary skill would have understood Staller’s disclosure of light beams 56, 57 converging at point 58 on the subject a distance 59, to provide further positioning for taking a picture of a face. Pet. 38–39 (citing Ex. 1006, 6:9–15, Fig. 4; Ex. 1003. Otto Decl. ¶ 387). Petitioner argues a person of ordinary skill “would understand

Staller's different light beam pairs, because all intersect along a centerline, converge at locations closer to, and farther away from, the device." *Id.* at 39 (citing Ex. 1003, Otto Decl. ¶ 388).

Petitioner contends that a person of ordinary skill would have had reason to combine the teachings of Plassmann, Treuillet, and Staller. *See* Pet. 39–42. Noting that Plassmann and Treuillet are closely related, Petitioner observes that "[t]he device Treuillet describes is identical to that depicted in Plassmann." *Id.* at 40 n. 6 (quoting Ex. 1016, 755, describing MAVIS II as "a reflex digital camera equipped with special dual lens optic for recording two images from slightly different viewpoints, generating a stereo pair" in which "two tube-shaped projectors produce beams of light which intersect in a single spot when the camera is held at the right distance (about 80 cm from the wound)"). Petitioner states that, as both Treuillet and Plassmann concern two versions of the same stereophotogrammetry device, a person of ordinary skill would have been motivated to predefine two distances, one closer and one farther away, for different levels of magnification. *Id.* at 39–40. Petitioner further states that "[t]he need to reproducibly image features from these repeatable distances would have further motivated POSITA to apply the teachings of Staller, regarding use of two pairs of light beamers, with the device disclosed in Plassmann/Treuillet, to identify those positions." *Id.* (citing Ex. 1003, Otto Decl. ¶¶ 138–143, 391).

Patent Owner contends that Petitioner has not demonstrated the prior art discloses a device for stereophotogrammetry of an acquisition of two views according to two different angles. *See* Prelim. Resp. 25–31. Patent Owner further contends that Petitioner has not demonstrated a person of ordinary skill would have had reason to combine the prior art. *See id.* at 31–52. Patent Owner argues that Petitioner has not demonstrated a person of

ordinary skill would had reason to combine Plassmann's method of taking multiple stereo images at a fixed and desired distance with Treuillet's method of using a standard digital camera to take successive photos at unspecified distances (i.e., a frontal view with best centering, and an image moving the camera to a distance back 20% while rotating to the left or right about 20 degrees). *Id.* at 31–33. Patent Owner contends that Treuillet characterizes stereophotogrammetry devices, such as Plassmann, as cumbersome, unsuitable for use in clinical settings, and too expensive. Prelim. Resp. 34–35. Patent Owner argues that Treuillet advocates for its methodology using a standard handheld digital camera with a zoom lens that takes single 2D pictures. Prelim. Resp. 34–35. Patent Owner further argues that, in contrast to taking images at multiple fixed distances depending, e.g., on the size of a wound, Treuillet teaches imaging with a zoom lens. Patent Owner also argues that Staller does not mention Plassmann and is unrelated to stereophotogrammetry. *Id.* at 30.

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). Plassmann further 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 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. Accordingly, we find, at this stage of the proceeding, that Plassmann teaches the limitation, except 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.

We agree with Petitioner that Staller teaches a positioning system having more than one predefined imaging distance position. Pet. 37–38. 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 5:66–6:2 (“[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.”). 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 note that Staller teaches 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.

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. 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, 759. 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. Pet. 36 (citing Ex. 1003, Otto Decl. ¶ 380).

We also agree with Petitioner and find that it was known in the art before the '334 patent to use a camera having multiple predefined distances for imaging a subject in connection with wound or lesion treatment. *See* Pet. 36–37 (citing Ex. 1017, 579; Ex. 1011, Fig. 2, Table 2; Ex. 1003, Otto Decl. ¶¶ 381–383). Additionally, it was known in the art to vary the focal distance from a subject in selecting a distance for optimal medical measurements. *See* Pet. 38 (citing Ex. 1015, 4). 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*, 550 U.S. at 417 (“[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.” *See* Prelim. Resp. 32–33 (quoting and citing Ex. 1016, 752, 755–756, 758, 760–61). We find that Patent Owner incorrectly focuses on Treuillet's teachings 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. 33 (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. 34 (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. 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. 36–37 (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 37 (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 and incompatible with Plassmann’s imaging device and procedure.” Prelim. Resp. 37–38 (citing Ex. 2006, van der Weide Decl. ¶¶ 79–82); *see also id.* at 38 (arguing that modifying Plassmann with Treuillet’s

teachings would not work because of calibration differences). 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. 38–48. 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, 34 n.5; Prelim. Resp. 38–48. 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, 40 n.6 (citing Ex. 1016, 755; Ex. 1003, Otto Decl. ¶¶ 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’ [imaging] distances: 65, 80, and 95 centimeters from the camera.” *Id.* at 35 (citing Ex. 1003, Otto Decl. ¶ 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.* Thus, at this stage of the proceeding, we do not find that Plassmann individually teaches at least two distinct predefined distance positions (a closer distance position and a farther distance position), as required by the claim limitation. 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 no prior art teaching that assessing wounds over time in fact ‘requires recording images at the same scale’ or why.” Prelim. Resp. 48 (citing Pet. 36; Ex. 2006, van der Weide Decl. ¶¶ 101–102), *see also id.* at 32–33. 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 “Staller concerns regarding scale are inapplicable to Plassmann.” Prelim. Resp. 53 (citing Ex. 2006, van der Weide Decl. ¶¶ 112–123); *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 the “[s]cale varies with the distance between the camera and the object, but neither scale nor imaging distance can be determined from a single 2D image.” *Id.* at 53 (citing Ex. 2006, van der Weide Decl. ¶ 116). According to Patent Owner, “[w]ith the scale unknown, one can neither determine the size of an imaged object, nor assess changes in size by comparing images taken over time.” *Id.* Patent Owner argues that “Staller’s distance indicator permits subsequent imaging at the same distance and, accordingly, scale, and permits determining changes by comparing images.” *Id.* (citing Ex. 1006, code (57), 2:22–26; Ex. 2006, van der Weide Decl. ¶ 117). Patent Owner argues, however, that stereophotogrammetry devices such as Plassmann present no such scale issues. *Id.* at 54 (citing Ex. 2006, van der Weide Decl. ¶ 120). According to Patent Owner, “[a]ccordingly], unlike Staller, Plassmann does not require additional light beams to address a ‘scale’ problem or ‘to ensure “repeatable scale.”’ *Id.* at 55 (citing Ex. 2006, van der Weide Decl. ¶ 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 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. 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. 55–56. Petitioner does not rely on these references’ teachings to meet any claim recitation. Pet. 36–38. Rather, Petitioner uses these references 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.

c) Claim 1 Conclusion

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.

2. *Claims 2–5, 9–12, 15, 16, and 20*

Claims 2–5 and 9–12 are device claims that depend directly or indirectly from claim 1. Claims 15, 16, and 20 directly or indirectly recite a method using the device recited in claim 1. 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 2–5, 9–12, 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. *See* Pet. 42–61.

G. *Claims 21–23 As Obvious Over Plassmann, Treuillet, Staller and Peng*

Claims 21–23 are method claims that depend directly or indirectly from claim 15. Claim 15 recites a method of using the device recited in claim 1. Claims 21–23 are directed to reconstructing 3-D dimensional surface of the target subject. *See* Ex. 1022, 14:48–15:19. Petitioner observes “[t]he ’334 patent does not explain how POSITA is to perform these steps, stating only such processing be performed ‘by a program in a computer’” and “[t]he use of a stereo-pair of images to reconstruct a 3-Dimensional surface would have been well-known to POSITA—this is the primary purpose in stereophotogrammetry for such image pairs.” Pet. 61, 63 (citing Ex. 1022 7:42–47; *see also* 10:38–48; Ex. 1003, Otto Decl. ¶¶ 334, 428). Nevertheless, noting that Peng “discusses methods for ‘3D model stitching for adjacent scenes’ from multiple stereo-pairs . . . by spatially matching at least three noncollinear points between different 3D models,”

Petitioner cites Peng as “disclos[ing] reconstruction of comprehensive 3D geometries using passive, image-based methods, such as those referred to in Plassmann and Treuillet. Pet. 66–67 (citing Ex. 1009, 1-6; Ex. 1003, Otto Decl. ¶¶ 342, 346, 428).

Patent Owner argues that Peng does not cure the deficiencies in Petitioner’s arguments concerning claim 1, but does not otherwise separately address Petitioner’s arguments and evidence concerning claims 21–23 and Peng. Prelim. Resp. 61. As discussed above, we find Petitioner’s arguments concerning claim 1 persuasive for purposes of institution. We have reviewed Petitioner’s arguments and evidence regarding claims 21–23 and Peng and, on the current record, we find them persuasive for purposes of institution

X. 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 ’334 patent is hereby instituted, commencing on the entry date of this Order, and 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.

FURTHER ORDERED that the trial is authorized on all grounds set forth in the Petition, in particular:

Claims 1–5, 9–12, 15, 16, and 20 as obvious over Plassmann, Treuillet, and Staller; and

Claims 21–23 as obvious over Plassmann, Treuillet, Staller, and Peng; and

FURTHER ORDERED that the trial will be conducted in accordance with a corresponding separately issued Scheduling Order.

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Patent 10,681,334 B2

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