

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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META PLATFORMS, INC. ET AL.,  
Petitioner,

v.

ANGEL TECHNOLOGIES GROUP LLC,  
Patent Owner.

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IPR2023-00060  
Patent 10,628,480 B2

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Before MIRIAM L. QUINN, SHARON FENICK, and  
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, *Administrative Patent Judge*.

DECISION  
Final Written Decision  
Determining All Challenged Claims Unpatentable  
*35 U.S.C. § 318(a)*

I. INTRODUCTION

A. *Background and Summary*

Meta Platforms, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting institution of *inter partes* review of claims 1–30 of U.S. Patent No. 10,628,480 B2 (Ex. 1001, the “’480 patent”). Petitioner submitted a declaration by Dr. Benjamin Bederson in support of the Petition. Ex. 1003 (“Bederson Decl.”). Angel Technologies LLC (“Patent Owner”) filed a Preliminary Response. Paper 9. We authorized additional briefing on certain matters. Ex. 1036; Paper 14, Paper 15. We instituted trial on all claims. Paper 16.

Patent Owner filed a response to the Petition, supported by a declaration by Dr. Eli Saber. Paper 24 (“PO Resp.”); Ex. 2022 (“Saber Decl.”). Petitioner filed a Reply, accompanied by a second declaration of Dr. Bederson. Paper 29 (“Pet. Reply”), Ex. 1039 (“2<sup>nd</sup> Bederson Decl.”). Patent Owner filed a Sur-reply (Paper 30, “PO Sur-reply”). Transcripts of depositions of Dr. Bederson (Ex. 2021) and Dr. Saber (Exs. 1039, 1040) were filed. Oral argument was held, and a transcript of the argument was entered into the proceeding. Paper 39 (“Tr.”).

B. *Real Parties in Interest*

Petitioner identifies Meta Platforms, Inc. (formerly Facebook, Inc.) and Instagram, LLC as the real parties in interest. Pet. 2. Patent Owner identifies Angel Technologies Group LLC as the real party in interest. Paper 4, 2.

C. *Related Matters*

Petitioner represents that the ’480 patent is involved in *Angel Techs. Group LLC v. Facebook, Inc. and Instagram LLC*, No. 2:21-cv-08459-CBM-JPR (C.D. Cal.), and that

On June 30, 2022, the district court found the asserted patents, including the '480 Patent, invalid under 35 U.S.C. § 101 and dismissed the case. On July 29, 2022, PO filed a Notice of Appeal. The case has been docketed as the following: *Angel Techs. Group, LLC v. Meta Platforms, Inc.*, No. 2022-2100 (Fed. Cir.). The opening appeal brief is currently due on November 2, 2022.

Pet. 2–3. The parties represent that Petitioner has filed, at substantially the same time that this Petition was filed, petitions for *inter partes* review against related family members U.S. Patent No. 8,954,432 B2 (IPR2023-00057), U.S. Patent No. 9,959,291 B2 (IPR2023-00058), and U.S. Patent No. 10,417,275 B2 (IPR2023-00059). Pet. 2; Paper 4, 2.

#### *D. The '480 Patent*

The '480 patent is titled “Linking Tags to User Profiles.” Ex. 1001, code (54). The '480 patent issued from Application Serial No 16/537,227, filed on August 9, 2019, and claims priority, via continuation applications, to Provisional Application No. 60/248,994, filed on November 15, 2000. *Id.* at codes (21), (22), (60), (63).

The '480 patent relates to storing and sharing images through a communications network, and supplying and receiving information about the existence of objects within images. Ex. 1001, 1:20–25. A users database (230) receives, stores, and provides information about people, who access the host computer, and may include information for each user such as a user identifier, the user's name, and user's email address. *Id.* at 7:18–25. An image database (250) receives and stores information about photos. *Id.* at 7:27–34. An identifications database (240) receives, stores, and provides information about relationships between users and photos, such as whether the user is in the photo, including the coordinates of the user or other person

within the photo. *Id.* at 7:45–56. The following is an example of the three databases:

User database			
User I.D.	Name	Email	Contacts
007	John Doe	jdoe@doe.com	John, Jane, Lisa
008	Jane Doe	janedoe@doe.com	Jane, John, Fuzzie

Images database			
Image I.D.	Location	Caption	Uploaded by
ABCD	C:\dir\my_image.jpg	John and Jane at the beach	007

Identifications database			
User I.D.	Image I.D.	Shared by	Coordinates
007	ABCD	007	50, 50, 25
008	ABCD	007	25, 75, 10

*Id.* at 8:34–60. Through uploading of user data by users John Doe and Jane Doe to the user database, and creation of an image record in the Image database when a user uploads a photo to the host computer, a relationship is created between the user and the image that appears in the Identifications database. *Id.* at 7:58–8:63, 9:49–50.

#### *E. Illustrative Claim*

Claim 3 is illustrative, and recites as follows:

A method implemented on one or more computing devices connected via a communications network, the method comprising:

by one or more computing devices, storing in memory accessible to the one or more computing devices descriptive naming information about a first user of the communications network, the descriptive naming information determined from a naming input received from a computing device of the first user;

by the one or more computing devices, storing in memory accessible to the one or more computing devices information determined from an associating input received from a computing device of a user of the communications network, the associating input indicating an association between the first user and an item of digital media, the associating input received separately from the naming input;

by the one or more computing devices, transmitting display data for presentation in a graphical user interface on a computing device of a viewing user, the display data indicating the association between the first user and the item of digital media such that a graphical display of the display data in the graphical user interface includes:

- i) information determined from the associating input,
- ii) descriptive naming information determined from the naming input, the descriptive naming information in the display data being information other than information received from the associating input, and
- iii) an element configured to provide a prompt to the viewing user to add an association between the first user and the viewing user;

by the one or more computing devices, receiving an input initiated by the viewing user indicating a request to add the association between the first user and the viewing user; and

responsive to receiving the input initiated by the viewing user, storing the association between the first user and the viewing user in memory accessible to the one or more computing devices.

*F. Evidence*

Petitioner relies on the following patent evidence.

<b>Name</b>	<b>Patent Document</b>	<b>Exhibit</b>
Robertson	US 7,739,139 B2, iss. June 15, 2010	1012
Lloyd-Jones	US 2002/0055955 A1, pub. May 9, 2002	1013

*G. Prior Art and Asserted Grounds*

Petitioner asserts that claims 1–30 would have been unpatentable on the following ground (Pet. 5):

<b>Claim(s) Challenged</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>
1–30	103(a) <sup>1</sup>	Robertson, Lloyd-Jones

II. ANALYSIS

*A. Legal Standards*

A patent claim is unpatentable under 35 U.S.C. § 103(a) 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 the invention was made to a person having ordinary skill in the art [to which said subject matter pertains].” *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

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<sup>1</sup> Petitioner asserts, and we agree, that the pre-AIA patentability statutes apply to the ’480 patent. *See* Pet. 5 n. 1–2.

of non-obviousness.<sup>2</sup> *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

*B. Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art in 2001

would have had at least a bachelor’s degree in computer science, electrical engineering, computer engineering, or a similar technical field, with at least two years of experience in the field of networked and Web-based media applications. Additional experience could substitute for less education, and additional education could likewise substitute for less experience.

Pet. 23 (citing Ex. 1003 ¶¶ 38–44). Patent Owner submits an essentially identical description of this hypothetical person. PO Resp. 8. We do not determine any meaningful significance to the differences between the parties’ representations. For purposes of this Decision, we adopt Petitioner’s proposed level of ordinary skill as to its described lower limit, because it appears to be consistent with the specification of the ’480 patent and the prior art of record.

*C. Claim Construction*

In an *inter partes* review, we construe a patent claim “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). Under this standard, the words of a claim generally are given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the

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<sup>2</sup> Neither party presents evidence or arguments regarding objective evidence of non-obviousness.

entire patent including the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Here, both parties assert that no term requires express construction. Pet. 24; PO Resp. 9. We note that no term is in controversy, and therefore, we do not need to construe any term. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we 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))). Consequently, each claim term is given its ordinary and customary meaning.

#### *D. Obviousness over Robertson and Lloyd-Jones*

Petitioner asserts that claims 1–30 are unpatentable under § 103(a) as obvious over Robertson and Lloyd-Jones. Patent Owner provides arguments and evidence against these assertions.

Upon consideration of Petitioner’s explanations and the totality of evidence in this current record, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 1–30 are unpatentable under § 103(a) as obvious over the combination of Robertson and Lloyd-Jones.

##### *1. Robertson and Analogous Art Issue*

Robertson is titled “Social Network System.” Ex. 1012, code (54). Robertson relates to “multi-user computer systems, such as contact management systems, that provide services for users to locate and share personal information with other users.” *Id.* at 1:16–20. Robertson describes a multitude of tables to enable a variety of user services. *Id.* at 6:54–55. For example, Robertson may use a relational database containing a customer table, a friend table, a group table, an affinity table, an address table, a phone table, and a travel event table. *Id.* at 4:35–43. Information in these tables



may be gathered through user inputs on graphical user interfaces displayed on the user's computer. *Id.* at 6:11–64.

Patent Owner argues that Petitioner has not established that Robertson is analogous art. PO Resp. 9. To be available as prior art, a reference must be within the scope of analogous art. *Donner Technology, LLC v. Pro Stage Gear LLC*, 979 F.3d 1353, 1359 (Fed. Cir. 2020). The scope of analogous art includes that which is in the same field of the inventor's endeavor regardless of the problem addressed by the inventor, and that which is outside the field of endeavor yet reasonably pertinent to the particular problem with which the inventor is involved. *Id.*; *In re Clay*, 966 F.2d 656, 658–659 (Fed. Cir. 1992). The analogous art inquiry requires a flexible approach that takes into account any relevant evidence in the record concerning the knowledge and perspective of a person of ordinary skill in the art. “Updated Guidance for Making a Proper Determination of Obviousness,” 89 Fed. Reg. 14449, 14451 (Feb. 27, 2024) (collecting cases).

*a) Field of Endeavor*

Determination of the applicable field of endeavor requires consideration of “explanations of the invention's subject matter in the patent application, including the embodiments, function, and structure of the claimed invention.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). For example, our reviewing court has found a reference's pump to be in the same field of endeavor as a claimed compressor because both moved fluids by piston, cylinder, and valves. *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986). A field of endeavor should not be drawn too narrowly, but instead “closely approximate the reality of the circumstances surrounding the making of an invention.” *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979) (disagreeing with Appellant's assertion that the field of endeavor should be

limited only to “sonic” carburetors, and finding “subsonic” carburetors to fall within a “more realistic description of the field”). The field of endeavor should be limited by the scope of the field generally, and not by the particulars of the problem being solved, “the specific point of novelty, the narrowest possible conception of the field, or the particular focus within a given field.” *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1001 (Fed. Cir. 2016); see *Clay*, 966 F.2d at 659 (describing the field as “the storage of refined liquid hydrocarbons” rather than “maximizing withdrawal of petroleum stored in petroleum reservoirs.”); *Deminski*, 796 F.2d at 441–442 (finding the claimed invention directed to the “problem of removing worn or damaged valves from compressors,” but the field of endeavor to encompass prior art that moves fluids by a double-acting piston, cylinder, and valves, regardless of whether such art pertains to a pump or compressor).

Petitioner asserts that Robertson is in the same field of endeavor as the claimed invention. Pet. Reply 3. Petitioner points to statements of both Dr. Saber and Dr. Bederson that a person having ordinary skill in the art would have experience in the field of “networked and web-based media applications.” *Id.*

Petitioner also asserts that there are similarities in the structures of the ’480 patent and Robertson. *Id.* at 4–5. With respect to the ’480 patent, Petitioner points to its computer software, computer device, and communications network components, and to an embodiment as a website using Internet, HTML, and databases. *Id.* (citing Ex. 1001, 1:20–26, 4:10–37. With respect to Robertson, Petitioner points to its networked computer system, implemented as a website using “standard Internet architecture” and databases. *Id.* at 4–5 (citing Ex. 1012, 1:16–20, 3:65–4:9, Fig. 5). Petitioner relies on *Unwired Planet* for the finding that analogous art existed “where

patent-in-dispute and prior art both ‘in the field of interface design.’” *Id.* at 5 (citing *Unwired Planet*, 841 F.3d at 1001). Petitioner asserts that both the ’480 patent and Robertson “relate to networked and web-based media applications that address contact management.” *Id.* at 8 (citing Ex. 1039 ¶¶ 20–25).

Petitioner argues that the field of endeavor should not be confined to images because neither the claims nor the independent claims recite “images.” *Id.* at 56 (citing Ex. 1001, code (54), 1:20, claims 1–3, 30). Petitioner further argues that the field of endeavor should not be confined to the problem to be solved by the ’480 patent; i.e., by identifying objects in images for storing and sharing. *Id.* at 7. Petitioner further argues that Robertson relates to an image-sharing field because a person having ordinary skill in the art would have understood that the technology disclosed in Robertson includes images. *Id.* at 8–9 (citing Ex. 1019 ¶¶ 29–32; Ex. 2021, 15:9–17:20, 18:17–19:11). Petitioner argues that the problem to be solved by the patent is relevant to the “reasonable pertinence” prong, not the “field of endeavor” prong, of the test for analogous art. *Id.* (citing *Netflix, Inc. v. DivX, LLC*, 80 F.4<sup>th</sup> 1352, 1359 (Fed. Cir. 2023)).

Patent Owner argues that the field of endeavor of the ’480 patent is “the storing and sharing of images and the identification of objects and location of objects within those images.” PO Resp. 13–14 (citing Ex. 1001, Figs. 1–10, 5:24–22:50; Ex. 2022 ¶¶ 65–66; Ex. 2021, 10:20–11:10). Patent Owner argues that Robertson relates to managing contact relationships based on group affiliations by providing “various services for assisting users in locating, and establishing *contact relationships* with, other users.” *Id.* at 14 (citing Ex. 1012, Abstr., 1:16–20, 3:56–24:24). Patent Owner argues that

Robertson is not in the same field of endeavor as the '480 patent because “[i]mage’ does not appear a single time in Robertson.” PO Sur-Reply 1; PO Resp. 13 (“Robertson does not make a single reference to images or photos”). Patent Owner further argues that Petitioner’s characterization of “networked and web-based media applications” is overly broad because it “would include virtually any reference involving the Internet. Patent Owner further argues that the level of a person having ordinary skill in the art is a separate inquiry from that of analogous art. PO Sur-Reply at 2–3.

Regarding the structure of the '480 patent, “all of the claimed webpages and databases are within the context of an item of digital media and creating associations using the item of digital media, *e.g.*, images.” PO Sur-reply 4 (citing Ex. 1001, Fig. 2 (“Images database”)). Patent Owner argues that the Petition and Dr. Bederson also refer to the '480 patent as relating to images. *Id.* (citing Pet. 1, 7; Ex. 1003 ¶ 45).

For purposes of determining the field of endeavor, we need not determine whether it is limited by images, because Petitioner has not shown Robertson to be in the same field of the '480 patent inventor’s endeavor, even under the broader field relating to digital media. We begin our analysis by pointing out that both parties rely on the same disclosure of the '480 patent as evidence of the relevant field of endeavor, *i.e.*, “the storing and sharing of images and the identification of objects and location of objects within those images.” Ex. 1001, code (57); PO Resp. 13–14; Pet. Reply 4.

The '480 patent describes a computer that operates or hosts a website and serves as a repository for images and for information that identifies objects within the images. *See* Ex. 1001, 6:50–62. The forms of the computer and storage are described in broad terms, and as not limiting the

scope of the invention. *See* Ex. 1001, 5:24–6:59. The '480 patent further describes its operational structure through three databases, “Users,” “Identifications,” and “Images.” Ex. 1001, Fig. 2. The “Images” database is described as containing fields such as “Image ID,” “Location,” and “Caption.” *Id.* The databases that contain image-related data are used “to support the functionality” needed “to implement the invention.” *Id.* at 7:4–57. Each of the described embodiments relates to identifying objects within digital media; i.e., forming associations between objects (such as people) and photos.

Robertson is instead in the field of social networking; i.e., establishing relationships between people (users). Ex. 1012, codes (54), (57). We agree with Patent Owner that Petitioner’s characterization of Robertson’s field of endeavor as “the field of networked and Web-based media applications” is too broad. Although Robertson’s use of associations may be used in a photo-based context (*see* Ex. 1039 ¶¶ 30–31), Robertson is concerned with forming associations *between people* through user textual input (*see* Pet. 19–21), not by associating *people with their representations* in media. Robertson’s affinity table relates users based on matching fields of data between these users, i.e., which group these users self-identify with (*see* Ex. 1012, 5:12–22). Robertson, however, does not identify whether persons are represented in a media item (including an image), much less associate the media item to a person located or represented within the media item. The fact that there may be a “convergence of groupware software like Robertson with multimedia applications that incorporated images” (Ex. 1039 ¶ 31) simply underscores that these are separate fields of endeavor.

Based on the foregoing, we determine that Robertson is not in the same field of endeavor as the '480 patent.

*b) Reasonably Pertinent to Inventor's Problem*

A reference is reasonably pertinent if “it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem.” *Clay*, 966 F.2d at 659. The pertinence analysis must be carried out through the lens of a person having ordinary skill in the art who is considering turning to art outside her field of endeavor. *Donner Tech.*, 979 F.3d at 1360.

Petitioner asserts that Robertson is reasonably pertinent to “the particular problem that PO asserts the ’480 Patent addresses—establishing new contact relationships among users of an application.” Pet. Reply 9–11 (citing Ex. 1046 ¶¶ 47; Ex. 1039 ¶¶ 33–39; PO Resp. 15, 26; Ex. 1047, 20, 27–28; Ex. 1049, 39). Petitioner asserts that Robertson relates to that problem because Robertson provides services for establishing contact relationships with other users. *Id.* at 12 (citing Ex. 1012, code (54), Abstr., 2:58–60). Petitioner points to Robertson’s “Travel Event” feature as encouraging the creation of contact relationships with other users of its system. *Id.* (citing Pet. 25–26). Petitioner asserts that although Patent Owner argues that Robertson is unrelated to images, Robertson discloses the use of images and that a person having ordinary skill in the art would have looked to Robertson as a source of solutions to image-based problems because Robertson uses image-relevant features such as web browsers, Microsoft Outlook and scanners, and discloses examples of adding contact relationships among users. *Id.* at 9 (citing Ex. 1039 ¶¶ 29–32, 38; Ex 2021, 15:9–17:20, 18:17–19:11; Ex. 1012, 3:53–4:30 (web browsers), 1:26–36 (Microsoft Outlook), 1:40–45 (scanners)).

Patent Owner argues that, in the Patent Owner Response, it did not characterize the ’480 patent as addressing the problem of forming new

contact relationships as Petitioner contends. PO Sur-reply 11. Patent Owner characterizes the problem that the '480 patent addresses as “identifying objects in images, and storing associations for sharing.” PO Sur-Reply 12. Patent Owner argues that Petitioner agrees with this characterization. *Id.* (citing Pet. Reply 7). Patent Owner characterizes Robertson as addressing “the problem of providing a contact management system that links individual users based on group affiliations and provides notifications when information for a particular user has changed.” *Id.* at 11. Patent Owner argues that adding contacts, as per Robertson, “is just one part of a *solution* that the '480 patent provides to this problem.” *Id.* at 12 (citing Ex. 1001, 9:44–48 (“The use of contacts, while not necessary, enables the system to filter the number of records in the users database and provide only the most relevant people to the user when identifying people or searching for photos.”)). Patent Owner argues that the problems of the '480 patent and of Robertson are different, and that Petitioner “fails to identify and compare the problem to be solved in the '480 patent and the problem to be solved by Robertson.” PO Resp. 14–15; PO Sur-reply 19–20. Patent Owner further argues that Petitioner has not established that a person having ordinary skill in the art would understand Robertson to disclose images. PO Resp. 14–15.

We determine that the record supports Petitioner’s assertion that Robertson would have been considered to be reasonably pertinent to the problem to be solved by the '480 patent. Petitioner asserts that the '480 patent addresses a problem of establishing new contact relationships among users of an application. Pet. Reply 9 (citing Ex. 1046 ¶ 47). Patent Owner has stated that adding contacts to provide connections to the most relevant people is part of a solution to the problem faced by the '480 patent, which Patent Owner identifies as identifying objects in images for storing and

sharing. PO Sur-reply 12 (citing Ex. 1001, 9:44–48). Specifically, Patent Owner states that the '480 patent indicates that such contact management provides the most relevant people for identification or search. *Id.* Based on the foregoing, we determine that a person seeking to solve the '480 patent's problem of better associating people and images would look to other contact management techniques to better focus its list of relevant people to better associate images with the people therein. Consequently, we determine that contact management is reasonably pertinent to the problem sought to be solved by the inventor in the '480 patent.

With respect to Robertson, Patent Owner states that Robertson is directed to adding contacts and managing users based on group affiliations. PO Resp. 14–15 (citing Ex. 1012, code (57), 3:56–24:24). We agree that Robertson addresses management of contacts by assisting users in locating and establishing contact relationships, including by providing a mechanism for a user to selectively establish contact connections with other users and enabling users to identify contacts of their respective contacts. Ex. 1012, code (57), 2:57–67. Based on the record evidence, we agree that Robertson, through its description of establishing and managing contact connections, logically would have commended itself to the '480 patent inventor's attention when considering his problem of storing associations between objects, such as the identity of people in photos, and sharing.

To the extent that Patent Owner argues that Petitioner does not compare the problem of Robertson to the problem of the '480 patent, that is not the applicable test. The reasonably pertinent analysis inquires not into the reference's problem, but instead, into “the matter with which [the reference] deals.” *Clay*, 966 F.2d at 659.



Patent Owner also argues that the problem of the '480 patent is inseparable from its use of images, and that Robertson does not disclose images. PO Resp. 15–16; PO Sur-reply 12. However, we do not determine that this prevents Robertson from being reasonably pertinent. First, the '480 patent claims are not limited to images, instead reciting the broader term “digital media.” Ex. 1003 ¶¶ 68, 71; Ex. 1001, 9–48. During oral argument, Patent Owner’s counsel stated that she could not rule out non-images, such as the text that is the subject of Robertson, as defining an object that might be part of a digital media within the scope of the claims of the '480 patent. Tr. 48:4–49:2. The evidence therefore does not support Patent Owner’s argument that the '480 patent is so narrowly focused on images that a person having ordinary skill in the art would disregard non-image teachings.

Second, reasonable pertinence requires only that the teachings of the reference have relevance to “one of the particular problems” addressed by the inventor of the patent. *Unwired Planet*, 841 F.3d at 1001–02. To the extent that Patent Owner argues that a reference must address every feature or every problem faced by the inventor of the '480 patent, this argument does contravert Petitioner’s showing of reasonable pertinence.

Based on the foregoing, we determine that Petitioner has sufficiently shown Robertson to be reasonably pertinent to the problem faced by the inventor in the '480 patent, and therefore, analogous art to the '480 patent.

## 2. *Lloyd-Jones*

### a) *Summary*

Lloyd-Jones is titled “Method of Annotating an Image.” Ex. 1013, code (54). Lloyd-Jones relates to “a method and apparatus for generating metadata based on multi-media content.” *Id.* ¶ 1. Lloyd-Jones describes methods for annotating digital images, contemplating further applications to

documents, video clips, or other computer-generated pages. *Id.* ¶ 23. In the described method, the user provides data through a user interface, and the computer software annotates an image using metadata. *Id.* ¶ 24. For example, a list of people’s names (metadata labels) may be extracted from an existing database or manual user input, and a user may annotate a feature in an image by selecting an icon, such as the name of a user appearing in the image. *Id.* ¶¶ 29–30.

### 3. *Analysis of Claims 3 and 30*

We begin our analysis of Petitioner’s obviousness contentions with Petitioner’s assertions as to claim 3.

*a) 3[pre]: method implemented on one or more computing devices connected via communications network*

Petitioner asserts that this limitation, to the extent limiting, is described by Robertson, pointing to Robertson’s description of client computers connected via the World Wide Web to each other and a server. Pet. 27–28 (citing Ex. 1012, 3:65–41; Ex. 1003 ¶¶ 146–147). Patent Owner does not specifically contest this assertion. *See* PO Resp. We determine that Petitioner’s assertion is supported by the cited record evidence.

*b) 3[a]: storing in memory descriptive naming information about first user determined from naming input received from first user*

Petitioner asserts that this limitation is described by Robertson, pointing to Robertson’s description of storing descriptive naming information about a first user of the communications network, such as user’s first and last name, which is entered by the user through a pseudo graphical user interface on the user’s computer, and stored on a server computer in a “Customer Table.” Pet. 28–30 (citing Ex. 1012, 4:48–54; 6:29–34, 6:57–64;

Ex. 1003 ¶ 150). Patent Owner does not specifically contest this assertion. *See* PO Resp. We determine that Petitioner’s assertion is supported by the cited record evidence.

*c) 3[b]: storing in memory information determined from an associating input received from a user, the associating input indicating an association between the first user and an item of digital media, the associating input received separately from the naming input*

Petitioner points to Robertson’s description of storing information associating a user to other information, such as schools, groups or other organizations, specified by the user. Pet. 31–32 (citing Ex. 1012, 2:60–62, 6:39–56; Ex. 1003 ¶¶ 153–155). Petitioner points to this information as being stored in an “Affinity Table.” *Id.* at 32 (citing Ex. 1012, 5:14–15, Fig. 6). Petitioner characterizes the different data fields through which the user submits this information as describing that the user’s associations are received separately from the user’s name. *Id.* at 33 (citing Ex. 1012, Fig. 7; Ex. 1003 ¶ 156). Additionally, Petitioner asserts that Robertson’s description that the user can later update their personal record is a description of information from different data fields being submitted and received separately from each other. *Id.* at 33–34 (citing Ex. 1012, 6:19–23, 11:15–17; Ex. 1003 ¶ 157).

With respect to the other associated information being an item of digital media, Petitioner points to Lloyd-Jones’s description of an association list, in a storage device, indicating an association between a person’s name and an image. *Id.* at 34–35 (citing Ex. 1013 ¶¶ 30–31).

Patent Owner argues that because Robertson does not teach digital media, it does not teach the claimed associating input that indicates an association between the first user and an item of digital media, and that is

separately received from the naming input. PO Resp. 17 (citing Pet. 31–34; Ex. 1003 ¶¶ 152–157; Ex. 2002 ¶ 72). Patent Owner argues that Robertson “only discloses input or text received in a different data field relating to group affiliations.” *Id.* (citing Ex. 1012, 6:39–41, Fig. 7; Ex. 2022 ¶ 72).

Petitioner responds, arguing that Lloyd-Jones, not Robertson, is relied upon for teaching an association list that associates a user with an image. Pet. 34–35 (citing Ex. 1003 ¶¶ 156–161). Petitioner relies on the combination of Lloyd-Jones with Robertson’s teaching of separate data fields that separately receive data. *Id.*

Patent Owner responds, arguing that Lloyd-Jones associates metadata, not a user, with images. PO Sur-reply 13. Patent Owner argues that Lloyd-Jones does not disclose its metadata being associated with any users of the system. *Id.* (quoting Ex. 1013 ¶ 29 (“For example, one of the icons could be associated with the name ‘Jenny Smith’ which was included in an imported e-mail address book.”)).

We determine that Petitioner has shown the combination of Robertson and Lloyd-Jones to teach the claimed associating input that indicates an association between the first user and an item of digital media, and is separately received from the naming input. Petitioner points to Robertson’s “Name” field 560-2 as a separate input from Robertson’s associating input 560-14, 560-16, 560-18, 560-20, 560-22, 560-24. Pet. 31–33 (citing Ex. 1012, Fig. 7). Petitioner then points to Lloyd-Jones’ teaching that “if the image depicts a person called ‘Liza Hayward’, then the icon associated with the name ‘Liza Hayw[ar]d’ can be selected” and “the metadata (e.g., the name ‘Liza Hayward’) associated with the selected icons is stored . . . linked to the rendered image.” *Id.* at 34–35 (citing Ex. 1012 ¶¶ 30–31). Petitioner asserts that the teachings would be combined to “include associations

between users and photos.” *Id.* at 36 (citing Ex. 1003 ¶ 161). Although Patent Owner argues that Lloyd-Jones associates metadata, not users, with an image, Petitioner points to an example in Lloyd-Jones in which that metadata is a name; i.e., “Liza Hayward.” Although Lloyd-Jones’ name is not taught to be that of a user, in Petitioner’s combination, the use of user names is taught by Robertson. Dr. Bederson attests that a person having ordinary skill would have combined those teachings “to include an association between a user and an image,” citing to Robertson’s teaching that information relating to a particular member (user) is linked together, and that Robertson’s objective is to assist “users” in establishing contact relationships with other “users.” Ex. 1003 ¶¶ 160–161. We credit Dr. Bederson’s testimony in this regard and agree that it would have been obvious, when combining the user name-group association of Robertson with the name-image association of Lloyd-Jones, that the teaching of Robertson that the name correspond to a user be retained in the combination.

d) *Limitations 3[c]–3[e]*

(1) *3[c]: transmitting display data for presentation in a graphical user interface on a computing device of a viewing user, the display data indicating the association between the first user and the item of digital media*

Petitioner points to Robertson’s description of transmitting pseudo graphical user interfaces for display on the user’s computer. Pet. 36–37 (citing Ex 1012, 6:12–15, 6:65–67). Petitioner further points to Lloyd-Jones’s description that a user hovering a mouse cursor over the image of a tagged person will cause that person’s name to appear at the position of the person in the image; i.e., an association between the user and the image. *Id.* at 37 (citing Ex. 1013 ¶¶ 30–31, 36, 40; Ex. 1003 ¶ 164). As detailed for

limitation 3[b], Petitioner asserts that the combination of Lloyd-Jones’s image association features with Robertson “would have advanced Robertson’s objective to establish contact relationships by sharing information about shared contacts. *Id.* at 38 (citing Ex. 1012, 2:60–62; Ex. 1003 ¶ 165).

(2) *3[c1]: display includes information determined from the associating input*

Petitioner points, in the combination to Lloyd-Jones’s display of the user’s name on the corresponding person in an image as teaching this limitation. Pet. 39–40 (citing Ex. 1013 ¶¶ 30–31).

(3) *3[c2]: display descriptive naming information determined from naming input, that is information other than information received from the associating input*

Petitioner points, in the combination, to the user’s name being received from a user entering information into a graphical user interface in Robertson, and to the image association being received by the user creating an affiliation between the user’s Customer ID and the image ID 1; i.e., different information. Pet. 40–41 (citing Ex. 1012, 4:44–48, 5:12–22; Ex. 1013 ¶¶ 30–31, 36; Ex. 1003 ¶¶ 173–174). Petitioner asserts that the displayed user’s name (e.g., “Liza Hayward”) is different than the non-displayed associating input (“CustomerID”). *Id.* at 41.

(4) *3[c3]: display element configured to provide prompt to viewing user to add an association between first user and viewing user; 3[d]: receiving input initiated by viewing user indicating request to add association between first user and viewing user; 3[e]: responsive to receiving the*

*input, storing association between first user and viewing user in memory.*

Petitioner points, in the combination, to the text in the graphical user interface of Robertson's Figure 8, which states, "Click on the boxes next to the names of people you'd like to add to your Address Book," in which the boxes indicate the names of "other members who went to your college at about the same time," as the claimed prompt. Pet. 41–43, 48–50 (citing Ex. 1012, Fig. 8). Petitioner further points to Lloyd-Jones's tagging functionality, and reasons to combine such with Robertson's system, as previously discussed. *Id.* at 44–48. Petitioner asserts that submitting such input adds information to the viewing user's personal address book, where it is stored in the appropriate tables of the database 340 on server computer 330, such as "Friend Table 460 [that] relates users to each other." *Id.* at 48–49 (citing Ex. 1012, 4:49–62, 7:28–36, Figs. 6, 8; Ex. 1003 ¶ 182).

(5) *Patent Owner's Arguments*

Patent Owner first argues that limitations 3[c]–[d] require "a graphical user interface displaying the data indicating the association between the first user and the item of digital media *with* an element configured to prompt the viewing user to add an association." PO Resp. 20. Patent Owner argues that neither Robertson nor Lloyd-Jones, considered by themselves, lacks any disclosure of images or user associations, e.g., through a prompt to add a contact from an image. *Id.* at 20–21 (citing Ex. 2021, 48:12–50:5). Patent Owner argues that Petitioner has relied on hindsight, such as through its annotations to Figures 8 and 11, to recreate the claim limitations. *Id.* at 22 (citing Pet. 46–48).

Patent Owner also argues that Robertson does not disclose the claimed "viewing user"; i.e., "a user viewing the association of the first user and the

item of digital media (such as viewing another user's images)." PO Resp. 22 (citing Ex. 2022 ¶ 78). Patent Owner argues that Robertson's graphical user interface is a prompt to the first user, who enters affiliations of that user, not a second ("viewing") user who views another user's images and then adds an association (e.g., of a name to an object of the image). *Id.* at 22–23.

(6) *Analysis*

We do not agree that Petitioner's obviousness assertion fails because neither Robertson nor Lloyd Jones, considered separately, teaches the entirety of limitations 3[c]–[d]. As pointed out by Petitioner, an obviousness assertion "cannot be overcome by attacking references individually where the rejection is based upon the teachings of a combination of references." *Bradium Techs LLC v. Iancu*, 923 F.3d 1032, 1050 (Fed. Cir. 2019); Pet. Reply 16. Petitioner has relied upon the combined teachings of Robertson and Lloyd-Jones. We do not agree that such is merely the product of hindsight reconstruction of the claim because we determine that one having ordinary skill in the art would have combined the teachings of these references in the asserted manner. *Infra* at §II(D)(4).

In its Sur-reply, Patent Owner provides additional arguments against the combined teachings of Robertson and Lloyd-Jones. PO Sur-reply 17–18. Patent Owner contends that Petitioner's asserted combination "would, at best, result in Robertson's first user identifying a person in an image and forming an association between the person and the image." *Id.* at 17.

We do not agree with Patent Owner's characterization of Petitioner's asserted combination. Petitioner asserts that Robertson teaches the viewing user adding other users to its address book (forming an association) with reference to annotated Figure 8, in which other users are displayed by their names along with their graduation year. Pet. 42–43. Petitioner, in its



discussion of the first user, asserts that the first user may enter their graduation year in affiliation with their name. Pet. 31–32 (citing Ex. 1012, Fig. 7). In Petitioner’s combination, the first user would also associate their name with a photo having their image. Pet. 35–36 (asserting that the name of the first user is associated with an image). Later, a viewing user would be presented with the ability to add other users to its address book (forming associations) through pictures of other users, including a photo annotated with the name of the first user, presented in the graphical user interface. Pet. 46–48 (citing Ex. 1012, Fig. 8, 11:45–48).

Thus, Petitioner’s assertions do not require the first user and the viewing user to be the same person. Accordingly, we do not agree with Patent Owner’s argument. Moreover, Patent Owner’s argument was not timely presented in its Response, and we do not discern that its Sur-reply argument was response to any new position taken by Petitioner in its Reply that would permit such a new argument to be raised. We further determine that Petitioner’s other, uncontested assertions for limitations 3[c]–3[e] are supported by the above-cited record evidence. For the foregoing reasons, we determine that Petitioner’s asserted combination for limitations 3[c]–3[e] is supported by the record evidence.

*e) Robertson and Lloyd-Jones Combination*

*(1) Reasons to Combine*

Petitioner asserts that a person of ordinary skill in the art would have modified Robertson’s social networking system to include an association between a user and an image in an association list, as an Image Affinity Table, including the image ID and the user’s Customer ID. *Id.* at 35–36 (citing Ex. 1003 ¶ 160). Petitioner asserts that such a combination would further Robertson’s objective of providing “services or assisting users in

locating, and establishing contact relationships, with other users.” *Id.* at 36 (citing Ex. 1012, 2:60–62). Petitioner asserts that the additional associations provided between users and images would assist users to connect with other users appearing in the same images. *Id.* (citing Ex. 1003 ¶ 161).

Dr. Bederson states that a person having ordinary skill in the art would have recognized the importance of images to establishing relationships and connections. *Id.* at 25 (citing Ex. 1003 ¶ 139). Dr. Bederson further states that such image associations “would have been a natural extension of Robertson’s Travel Event feature . . . [in which] the user may be notified that he will be crossing paths with another user. *Id.* at 24–25 (citing Ex. 1003 ¶ 140). Dr. Bederson also states that the use of photo management was a known design option in a social networking system. *Id.* at 25 (citing Ex. 1003 ¶ 141). Dr. Bederson further states that Robertson and Lloyd-Jones share a web-based, multi-user collaborative design having the capability of searching for user information, such that a person having ordinary skill in the art would have expected success in combining the relied-upon teachings. *Id.* at 25–27 (citing Ex. 1003 ¶¶ 142–144).

Patent Owner argues that Petitioner’s reasons to combine are unsupported and conclusory because Petitioner does not provide any reasoning for why a person having ordinary skill in the art looking to achieve the claimed invention would have wanted to further “Robertson’s so-called social networking goals, or how or why images, and associations between users and images, would further or improve Robertson’s group affiliations.” PO Resp. 25–26 (citing Pet. 24–26, 36, 45). Patent Owner also argues that Dr. Bederson’s opinion that “using images in a social networking system was also a known design option” is a mere statement of obviousness, and therefore, inadequate. *Id.* at 27 (citing Ex. 1003 ¶¶ 141, 178). Patent

Owner further argues that Petitioner does not explain why a person having ordinary skill in the art would look to Lloyd-Jones to combine with Robertson, because Lloyd-Jones does not concern social networking, social networking goals, or adding contacts from other users. PO Resp. 28–29. Patent Owner argues that, lacking such explanation, Petitioner and Dr. Bederson rely solely upon hindsight. *Id.* at 29–30; PO Sur-reply 19–20.

Petitioner responds, arguing that the Petition provides specific reasons why a person having ordinary skill in the art would have been motivated to apply Lloyd-Jones’ image annotation and association to facilitate Robertson’s goal of establishing contact relationships. Pet. Reply 18 (citing Pet. 24–26; Ex. 103 ¶¶ 138–141). Petitioner points to its citation of “contemporary publications documenting the known importance of images in social networks and the need to annotate those images with text.” *Id.* at 19 (citing Pet. 24–26 (citing Ex. 1005, Ex. 1029, Ex. 1033)). Petitioner further points to its explanation of how and images, and associations between users and images, would improve Robertson’s group affiliations. *Id.* Petitioner points to support for Dr. Bederson’s opinion in “Robertson’s stated objective to provide ‘services for users to locate and share personal information,’ and the 2000 study that examined the use of images in social networks and ‘expressly identified a user need to annotate images with text.’” *Id.* at 20 (citing Ex. 2021, 26:3–27:21; Ex. 1003 ¶ 141; Ex. 1033). Regarding Robertson’s Travel Event feature, Petitioner asserts that Dr. Bederson’s opinion is based on his experience in the field. *Id.* at 19–20. Petitioner further points to Dr. Saber’s statement that social networks allow users to share information, and that Dr. Bederson testified that Lloyd-Jones is focused on the context of social networking because a skilled artisan would have been “motivated to perform such tagging in the context of a

group of people.” *Id.* at 21 (citing Ex. 1041, 259:23–260:3; Ex. 2021, 20:6–22).

The record evidence supports Petitioner’s assertion that incorporating the teachings of Lloyd-Jones would be considered by a person having ordinary skill in the art to lead to improvement in associating contacts and the known use of images in social networking at the relevant time. Specifically, Dr. Bederson’s testimony, which we credit, is that “supplementing a user’s group affiliations with image associations would have advanced the user’s ability to add more contacts” because a person having ordinary skill in the art “would have recognized the importance of images to establishing relationships and connections.” Ex. 1003 ¶ 139. Dr. Bederson’s testimony was not merely unsupported opinion, because it cites to statements in other documents of record for support.” *Id.* (citing Ex. 1005, 1:20–22 (“[G]roups of people now readily establish archives of digital media items that reflect their activities, relationships and interests.”); Ex. 1029, 1:27–29 (“Today, most digital stories are created by people with computer skills using special-purpose software for editing images and authoring Web pages.”)).

Based on the foregoing, we determine that Petitioner has sufficiently shown, and supported in the record, reasoning to combine the teachings of Robertson and Lloyd-Jones.

(2) *Reasonable Expectation of Success*

We further determine that Petitioner has shown a reasonable expectation of success in the combination. Supported by its declarant, Petitioner asserts that both Robertson and Lloyd-Jones are “web-based, multi-user collaborative systems with the express capability of searching for user information,” and can be implemented “over the Internet via the World

Wide Web” through the use of graphical interfaces to interact with users and to import information from a database. Pet. 26 (citing Ex. 1003 ¶¶ 142–144). We determine in view of Dr. Bederson’s testimony that the record presents sufficient evidence of a reasonable expectation of success in the combination.

Patent Owner argues that the Petition fails to clearly explain or show how the combination of the two references would work in combination. PO Resp. 31. Patent Owner argues that “implementing tagging of images using icons as disclosed in Lloyd-Jones in Robertson’s relational database system and text-based graphical user interface would not have been known or easily accessible to a POSITA at the time of the invention.” *Id.* at 32 (citing Ex. 2022 ¶¶ 86–87). Patent Owner argues that Petitioner does not explain how a person having ordinary skill in the art at the relevant time would have implemented such tagging functionality, and how such tagging functionality would operate. *Id.*

Petitioner points to statements of Dr. Saber that such functionality would include image manipulation algorithms known to a person having ordinary skill at the time. Pet. Reply 22 (citing Ex. 1041, 273:1–14, 276, 24–279:11). Petitioner also points to statements of Dr. Saber that “HTML web pages (like those disclosed in Robertson) could include images (like those disclosed in Lloyd-Jones).” *Id.* (citing Ex. 1041, 251:22–252:5).

Patent Owner disputes the import of Dr. Saber’s testimony, and argues that the Petition must “provide a technical analysis” of how the asserted combination would have worked. Dr. Saber attests that neither Robertson nor Lloyd-Jones provides any technical details of “how the combination of Robertson with Lloyd-Jones would have operated to support images and tagging of images.” Ex. 2022 ¶ 86. Dr. Saber further attests that such a

combination “would have required significantly more than just importing and adapting an XML file from Lloyd-Jones,” but would “have entailed specific infrastructure and algorithms for image processing and artificial intelligence that would not have easily been accomplished in Robertson’s relational database system.” *Id.* ¶ 87.

Upon review of the record, we determine that Petitioner has sufficiently provided a technical analysis of how the asserted combination would have worked. With regards to the requirements of artificial intelligence, although this is cited as an embodiment of the procedure to locate images in the ’480 patent, it is not an express requirement of the claims. *See, e.g.*, Ex. 1001, 4:6–9). Nor is it part of the teaching relied upon by Petitioner in Robertson or Lloyd-Jones. *See* Pet. Dr. Saber’s statements concerning artificial intelligence are therefore not germane to the claims and combination of references at issue. Dr. Saber has also stated that some parts of the infrastructure, such as compression and decompression algorithms, were known in the art. Ex. 1041, 273:3–273:14, 278:7–279:11.

As to how photos would have been tagged, Dr. Bederson points to Lloyd-Jones’ implementation of tagging functionality. Ex. 1003 ¶ 87. To implement such functionality in Robertson, Dr. Bederson points to Robertson’s use of “personal information management software, such as Microsoft Outlook.” Ex. 1039 ¶ 30. Dr. Bederson further points to “a wide range of technologies and commercial systems to organize, annotate, and share photos . . . with innumerable kinds of databases.” Ex. 1003 ¶ 88. Dr. Bederson further points to FotoFinder as an example of the use of databases “to store information about users in photos and then share that information with others by multiple means, including on the web,” including “annotation (or tagging) of photos with the names of the people in the photo” in which

“annotations were stored in a Microsoft Access database containing five linked tables.” *Id.* ¶ 97 (citing Ex. 1016, 6–7). We credit this testimony of Dr. Bederson and determine that Petitioner has shown that a person having ordinary skill in the art would have had a reasonable expectation of success in combining the teachings of Robertson and Lloyd-Jones.

*f) Claim 30*

Claim 30 has substantially the same limitations as claim 3. Limitations 30[pre], 30[a], 30[b], 30[d], and 30[e] are identical to their counterparts in claim 3, and Petitioner asserts the same teachings from the combination of Robertson and Lloyd-Jones. For the reasons expressed above, we determine that these limitations are taught by the combination of Robertson and Lloyd-Jones.

Limitation 30[c] differs from limitation 3[c] only in that the display indicates “a representation of” the association between the first user and the item of digital media, rather than “indicating the association” itself. Limitations 30[c1] and 30[c2] are identical to limitations 3[c1] and 3[c2]. Patent Owner does not argue against Petitioner’s assertions for claim 30 beyond its arguments for claim 3. For the reasons expressed above, we determine that these limitations are taught by the combination of Robertson and Lloyd-Jones.

*g) Determination*

For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 3 and 30 are obvious over the combination of Robertson and Lloyd-Jones.

*4. Analysis of Independent Claims 1 and 2*

Claim 1 has similar limitations to those of claims 3 and 30, except as noted below, and Petitioner asserts the same combination of Robertson and

Lloyd-Jones. Patent Owner does not present arguments against claim 1 separate from those presented against claims 3 and 30. PO Resp. 16–32. We find Patent Owner’s arguments unavailing for the same reasons expressed with respect to claim 3.

Limitation 1[pre] is identical to limitation 3[pre], and we find limitation 1[pre] taught for the same reasons as expressed above with respect to limitation 3[pre].

Limitation 1[a] recites, “determining a unique user identifier for a first user of the communications network.” Petitioner asserts that this limitation is taught by Robertson’s CustomerID, determined by software on the computer server, described as a field in Customer Table 440 which “contains one record for each unique user.” Pet. 51 (citing Ex. 1012, 4:44–48; Ex. 1003 ¶ 189. We agree that this description in Robertson teaches limitation 1[a].

Limitation 1[b] is identical to limitation 3[a], and we find limitation 1[b] taught for the same reasons as expressed above with respect to limitation 3[b].

Limitation 1[c] recites, “responsive to receiving the naming input initiated by the first user, storing an association between the unique user identifier of the first user and the descriptive naming information in memory accessible to the one or more computing devices.” Petitioner asserts that Robertson teaches this limitation by storing a record with the unique number for the user in the CustomerID field and the user’s first and last name in associated fields of the Customer Table. Pet. 52–53 (citing Ex. 1012, 6:57–64, Figs. 5, 7; Ex. 1002 ¶¶ 192–194). We agree that this description in Robertson teaches limitation 1[c].



Limitation 1[d] recites, “storing a unique digital media identifier for an item of digital media accessible to the one or more computing devices in memory accessible to the one or more computing devices.” Petitioner asserts this limitation is taught through the combination of Lloyd-Jones’ description of an association list having image ID corresponding to an image linked to a name of a person depicted in that image. Pet. 54 (citing Ex. 1013 ¶¶ 30–31, Figs. 1, 3). Petitioner asserts that modifying Robertson’s table-based storage to include an additional Image ID in an Image table would have furthered Robertson’s social network goals by creating additional affiliations with other users based on photos. *Id.* at 55 (citing Ex. 1012, 2:60–62; Ex. 1003 ¶ 198). Petitioner further asserts that such implementation would be consistent with how Robertson creates a table for each data type and assigns its data type its own unique ID. *Id.* at 55–56 (citing Ex. 1003 ¶ 198; Ex. 1012, 5:4–11). We agree that the combined teachings of Lloyd-Jones and Robertson teach limitation 1[d].

Limitation 1[e] recites, “by the one or more computing devices, receiving an associating input initiated by a second user of the communications network, the associating input initiated on one of the one or more of the computing devices, the second user being different than the first user, the associating input indicating an association of the first user with the item of digital media.” Petitioner refers to its assertions for limitation 3[b]. Pet. 56–57. Petitioner further asserts that a person having ordinary skill would have understood that the second user need not be the user tagged in the photo, because Lloyd-Jones teaches that a user can tag multiple people in an image. *Id.* at 57 (citing Ex. 1013 ¶¶ 29–31, Fig. 3; Ex. 1003 ¶ 201). We agree that the combined teachings of Lloyd-Jones and Robertson teach limitation 1[e].

Limitation 1[f] recites, “responsive to receiving the associating input initiated by the second user, storing an association between the unique user identifier for the first user and the unique digital media identifier for the item of digital media, the association determined from the associating input initiated by the second user.” Petitioner refers to its assertions for limitations 3[b] and 1[e]. Pet. 57–58. Petitioner further asserts that a person having ordinary skill in the art would understand that the record of the affiliation between tagged user and photo is stored in an Image Affinity Table responsive to receiving photo tagging input from the user, because Robertson describes that “once the user clicks the Submit button in GUI 560, the information entered is transferred via the network to the server computer, where software stores the information in the appropriate tables of a database. *Id.* at 58 (citing Ex. 1012, 6:57–64, Figs. 5, 7). We agree that the combined teachings of Lloyd-Jones and Robertson teach limitation 1[f].

Limitation 1[g] recites, “transmitting display data for presentation on a graphical user interface on a computing device of a viewing user, the display data indicating the association between the first user and the item of digital media.” Petitioner refers to its assertions for limitation 3[c]. Pet. 58. Petitioner further asserts that it would have been obvious to display the association between the first user and the item of digital media because Lloyd-Jones teaches that the tagged user’s first and last name overlays the location corresponding to the tagged user. *Id.* (citing Ex. 1013 ¶¶ 30–31, Fig. 5; Ex. 1003 ¶ 207). We agree that the combined teachings of Lloyd-Jones and Robertson teach limitation 1[g].

Limitation 1[g1]–1[g3] recite, “such that a graphical display of the display data in the graphical user interface includes: (i) the descriptive naming information included in the naming input initiated by the first user,

[and] (ii) information determined from the associating input initiated by the second user, and (iii) an element configured to provide a prompt to the viewing user to add an association between the first user and the viewing user.” Petitioner refers to its assertions for limitations 3[c1]–3[c3]. Pet. 59–60. Petitioner further explains that such a combination results in the group list graphical user interface including the image in which the tagged user appears, and the first and last name of the user on the image corresponding to their location. *Id.* at 59 (citing Ex. 1012, 4:44–48, 5:12–22, Figs. 7, 8, Ex. 1013 ¶¶ 30–31, Fig. 5; Ex. 1003 ¶¶ 209–210). We agree that the combined teachings of Lloyd-Jones and Robertson teach limitations 1[g1]–1[g3].

For limitations 1[h] and 1[i], identical to limitations 3[d] and 3[e], Petitioner refers to its assertions for limitations 3[d] and 3[e]. We agree that the combined teachings of Lloyd-Jones and Robertson teach limitations 1[h] and 1[i].

For claim 2, having limitations similar to claim 1, Petitioner refers to its assertions for claims 1 and 30. Pet. 60–62. We agree that the combined teachings of Lloyd-Jones and Robertson, as asserted against claim 1, teach the similar limitations of claim 2.

For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1 and 2 would have been obvious over the combination of Robertson and Lloyd-Jones.

#### 5. *Analysis of Dependent Claims 4–29*

Petitioner asserts that dependent claims 4–29 are obvious over the combination of Robertson and Lloyd-Jones. Patent Owner argues against these assertions for the same alleged deficiencies in Petitioner’s assertions against independent claims 1–3. PO Resp. 33. Patent Owner provides

additional arguments against Petitioner's assertions against claims 8, 11–13, 18, 21, 26, and 29. *Id.* at 33–35.

*a) Claims 4–7, 9, 10, 14–17, 19, 20, 22–25, 27, and 28*

Claim 4 depends from claim 1, and further recites, “wherein the item of digital media includes image data from a digital image.” Claims 14 and 22 are identical, and depend from claims 2 and 3, respectively. Petitioner asserts that Lloyd-Jones's association of images with user names includes annotating the image with the name; i.e., with image data. Pet. 63.

Claim 5 depends from claim 4, and further recites,

by the one or more computing devices, receiving an image coordinate input initiated by the second user on one of the one or more of the computing devices, the image coordinate input corresponding to a location of the first user within the image data from the digital image; and storing coordinate data corresponding to the location of the first user within the image data from the digital image in memory accessible to the one or more computing devices.

Petitioner asserts that the user in Lloyd-Jones selects an icon associated with the name of the person in a displayed image, resulting in a bounding box around that person having x, y coordinates associated therewith. Pet. 64–65 (citing Ex. 1013 ¶¶ 30–31). Claims 15 and 23 set forth limitations identical to claim 5, and depend from claims 2 and 3, respectively.

Claim 6 depends from claim 1, and further recites, “wherein the descriptive naming information includes a name, email address, screen name, image, or combinations thereof.” Claims 16 and 24, dependent from claims 2 and 3, respectively, are identical. Petitioner asserts that Robertson describes storing the user's first name, last name, and email address in a

customer database table. Pet. 65–66 (citing Ex. 1012, 4:48–52, Fig. 6; Ex. 1003 ¶¶ 234–235).

Claim 7 depends from claim 1, and further recites, “sending, to a device of the viewing user, a graphical interface configured to display a list of users with a stored association with the viewing user, the graphical interface configured to receive an input from the viewing user indicating a selection of the first user; receiving, from the graphical interface configured to display the list of users with the stored association with the viewing user, an indication of the selection of the first user; and retrieving a list of digital media having an association with the first user.” Claims 17 and 25, dependent from claims 2 and 3, respectively, are identical. Petitioner asserts that Robertson describes multiple graphical user interfaces that display a list of users associated with the viewing user, and enables the viewing user to add new contacts by choosing from a list of other users. Pet. 66–67 (citing Ex. 1012, Figs. 8, 11; Ex. 1003 ¶ 237). Petitioner asserts that this would have been obvious to extend to digital media having an association with the first user in view of Lloyd-Jones’ teaching of tagging users in photos including an association between a user and an image. *Id.* at 68.

Claim 9 depends from claim 1, and further recites,

sending, to a device of the viewing user a graphical interface configured to display a list of users with a stored association with the viewing user, the graphical interface configured to receive an input from the viewing user indicating a selection of the first user; receiving, from the graphical interface configured to display the list of users with the stored association with the viewing user, an indication of the selection of the first user; receiving from the viewing user an input indicating a selection of digital media; and in response to receiving the input indicating the selection of digital media and

the indication of the selection of first user, storing an association between the first user and the selection of digital media.

Claims 19 and 27 recite similar limitations, depending from claims 2 and 3, respectively. Petitioner refers to its assertions for claim 7, and further that Lloyd-Jones teaches creating an association between a user and a photograph by selecting a photograph. Pet. 70–72 (citing Ex. 1013 ¶¶ 29–30, 33–34, Fig. 4). Petitioner further asserts that Lloyd-Jones teaches storing an association list including a tag indicating an association of an identifier of the selected image and the identified person. *Id.* at 72–73 (citing Ex. 1013 ¶¶ 30–31; Ex. 1013 ¶ 248).

Claim 10 depends from claim 9 and further recites, “wherein the selection of digital media comprises image data from a digital image, and the method further comprising: receiving from the viewing user an input indicating a set of coordinates corresponding to a location of the first user in the image data; and storing coordinate data corresponding to the location of the first user within the image data.” Claims 20 and 28 recite similar limitations, depending from claims 2 and 3, respectively. Petitioner asserts that Robertson in view of Lloyd-Jones teaches these limitations for same reasons as asserted with respect to claim 5. Pet. 73 (citing Pet. 64–65).

We determine that the record supports Petitioner’s assertions, and that Petitioner has provided sufficient reasons to combine Robertson and Lloyd-Jones. *See* § II(D)(3)(h). For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 4–7, 9, 10, 14–17, 19, 20, 22–25, 27, and 28 would have been obvious over the combination of Robertson and Lloyd-Jones.

*b) Claims 8, 18, and 26*

Claim 8 depends from claim 1, and further recites,

sending, to a device of the viewing user, a graphical interface configured to display a list of users with a stored association with the viewing user, the graphical interface configured to receive an input from the viewing user indicating a selection of the first user and a different user; receiving, from the graphical interface configured to display the list of users with the stored association with the viewing user, an indication of the selection of the first user and the different user; and retrieving a list of digital media having associations with both the first user and the different user.

Claims 18 and 26 set forth identical limitations, and depend from claims 2 and 3, respectively. Petitioner points to its assertions with respect to claim 7, and further addresses the limitation of a different user. Petitioner asserts that Robertson describes a viewing user having associations with more than one person, and Lloyd-Jones having associations with more than one item of digital media. Pet. 69 (citing Ex. 1003 ¶ 242). In its Reply, Petitioner points to the many-to-many relationships between users and digital media in the Robertson-Lloyd-Jones combination as teaching the “different user” limitation. Pet. Reply 23 (citing Ex. 1003 ¶¶ 242–243).

Patent Owner argues that neither Robertson nor Lloyd-Jones suggests retrieving a list of digital media for both a first user and another user as claimed. PO Resp. 33–34 (citing Ex. 2022 ¶ 90).

Petitioner responds by arguing that Patent Owner did not challenge Petitioner’s analysis for claim 7, which lacked the “different user” limitation. Pet. Reply 23. Patent Owner disputes this, noting that they challenged Petitioner’s claim 7 analysis for the same reasons they challenged Petitioner’s analysis for claims 1–3. PO Sur-reply 22.

The “different user” limitation appears in limitation 1[e]. Patent Owner did not specifically argue against limitation 1[e],<sup>3</sup> and we determined that limitation 1[e] was taught by the combination of Robertson and Lloyd-Jones based upon Lloyd-Jones’ teaching that a user can tag multiple people in an image. *See* §II(D)(4). With respect to retrieving a list of digital media having associations with a first user, Petitioner addressed this with respect to claim 7, asserting that Robertson describes multiple graphical user interfaces that display a list of users associated with the viewing user, and enables the viewing user to add new contacts by choosing from a list of other users. Pet. 66–67 (citing Ex. 1012, Figs. 8, 11; Ex. 1003 ¶ 237). Petitioner asserts with respect to claim 8 that it would have been obvious to extend this teaching of Robertson to digital media having an association with the first user in view of Lloyd-Jones’ teaching of tagging users in photos including an association between a user and an image. *Id.* at 68.

We determine that Petitioner has accounted for all limitations of claim 8 in its asserted combination of Robertson and Lloyd-Jones, and that its assertions are supported by the record. For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 8, 18, and 26 would have been obvious over the combination of Robertson and Lloyd-Jones.

*c) Claims 11, 21, and 29*

Claim 11 depends from claim 1, and further recites, “wherein the element configured to provide a prompt to the viewing user comprises a link

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<sup>3</sup> Patent Owner is not required to make any arguments because the burden of proof rests with the Petitioner. Patent Owner is free to argue against a limitation in one claim and not argue against the same limitation in a different claim.



to a different graphical user interface, the different graphical user interface including the prompt to the viewing user to add an association between the first user and the viewing user.” Claims 21 and 29 depend from claims 2 and 3, respectively, and set forth identical limitations.

Petitioner asserts that the combination of Robertson and Lloyd-Jones, in view of the knowledge of a person having ordinary skill in the art, teaches these limitations. Pet. 73 (citing Ex. 1003 ¶¶ 251–254). Petitioner relies on its pictorial explanation (in the form of a modified version of Robertson’s Figure 8 combining elements of Robertson and Lloyd-Jones according to Petitioner’s assertions) and on Robertson’s teaching that the Group List Form graphical user interface of Figure 8 may be used in conjunction with Robertson’s Member Update graphical user interface, which is automatically displayed in the user interface at preset intervals. *Id.* at 74–75 (citing Ex. 1012, Fig. 8, 11:45–48, 10:34–36). Petitioner further asserts that Robertson’s Member Update GUI provides the user with updated information about existing contacts and “new information about contacts to whom the first user may want to link.” *Id.* at 75 (citing Ex. 1012, Fig. 11, 10:27–30). Petitioner also contends that if the user decides to add a suggested contact, Robertson teaches that the “user can do so in a [graphical user interface] similar to the group list form pseudo [graphical user interface] 580 shown in Fig. 8.” *Id.* at 76–77 (citing Ex. 1003 ¶ 253; Ex. 1012, 11:45–48).

Petitioner argues that the limitation, “*the element configured to provide a prompt to the viewing user comprises a link*” is not explicitly described by Robertson, but would have been obvious to a person having ordinary skill in the art because Robertson’s system is web-based, and web-based systems operate by links. Pet. 77. Petitioner states that Robertson’s

web-based system would add a new identified member by moving from the Member Update graphical user interface webpage to another webpage, which would be accomplished by embedding a link leading to the Group List Form or Add Contact From Image graphical user interface webpages. *Id.* (citing Ex. 1003 ¶ 254). Petitioner states that such a link would be placed in text because “(1) Robertson discloses that this text already prompts the user to add an association, and (2) it is consistent with general principles of website design to use the text as a link.” *Id.* (citing its analysis of limitation 3[c3]; Ex. 1003 ¶ 254).

Patent Owner argues that Petitioner has not shown that the combination of Robertson and Lloyd-Jones teaches “wherein the element configured to provide a prompt to the viewing user comprises a link to a different graphical user interface.” PO Resp. 34 (citing Ex. 2022 ¶ 91). Patent Owner argues that Robertson does not describe any such different graphical user interface, or any prompt to the user to add an association from an image. *Id.* Patent Owner argues that Petitioner improperly relies on the knowledge of the prior art to teach this limitation missing from the references, particularly because Petitioner’s reasoning is merely conclusory. *Id.* at 34–35 (citing Dr. Bederson’s statement “it is consistent with general principles of website design to use the text as a link”); PO Sur-reply 23.

Petitioner counters by explaining its position that because the Robertson system is web-based, a person having ordinary skill in the art would understand that its graphical user interfaces are implemented as different web pages connected by links. Pet. Reply 23 (citing Ex. 1003 ¶¶ 251–254). Petitioner points to Dr. Saber’s deposition testimony, stating with regard to websites, “obviously you can include a link on the web

page you see here, you can include a submit button and check boxes”).  
*Id.* at 24 (citing Ex. 1041, 217:8–14, 235:14–16, 251:22–252:5).

Claim 11 specifies that the “element configured to provide a prompt” further “comprises a link to a different graphical user interface” in which the “different graphical user interface” includes the prompt. As discussed for limitation 3[c3], Petitioner asserts that Robertson teaches a prompt in the form of text in that asks the viewing user to click a checkbox and then click a submit button to add an association between the viewing user and another user. *Supra* § II(D)(3)(g). These items appear on the “Group List Form” depicted in Figure 8. Pet. 42–43 (citing Ex. 1012, Fig. 8). Petitioner asserts that the “element configured to provide” a prompt is taught by language on the “Member Update” Form depicted in Figure 11. *Id.* at 43–44 (citing Ex. 1012, Fig. 11, elements 650-14, 650-16). Petitioner points to Robertson’s teaching that the Group List Form interface of Figure 8 may be “used in conjunction with” the Member Update interface of Figure 11. *Id.* at 74–75 (citing Ex. 1012, 45–48). Petitioner attempts to show that it would have been obvious, based on the knowledge in the art and Robinson’s teaching that the interface of Figure 11 indicates an opportunity for adding a contact that would require action on the interface of Figure 8, that it would have been obvious for the Member Update interface of Figure 11 to comprise a link to the Group List From interface of Figure 8 that contains the prompt to associate the users.

As a general matter, the record evidence supports Petitioner’s assertion that a person of ordinary skill in the art would have knowledge of the use of links in a web-based system such as Robertson. Dr. Bederson attests that because Robertson’s system is web-based, its graphical user interfaces are implemented as different web pages at different URLs

(“Universal Resource Locators”). Ex. 1003 ¶¶ 131, 254. Dr. Bederson’s testimony provides sufficient context and explanation on this issue, detailing the state of client-server web systems and hyperlinks at the relevant time. *Id.* at 95. Furthermore, Dr. Saber characterizes setting up links in an HTML web page as “general knowledge” to a person having ordinary skill in the art. Ex. 1041, 241:20–242:4. We agree with the combined testimony of these declarants—that it was general knowledge for each HTML web page to be implemented with a specific URL.

However, Petitioner must provide more than mere general knowledge of awareness of web-based links to show that a person having ordinary skill in the art would “extrapolate from this general background knowledge” to apply web-based links between the interfaces of Figures 11 and 8 in Robertson. *See Arendi S.A.R.L. v. Apple, Inc.*, 832 F.3d 1355, 1365 (Fed. Cir. 2016). Supporting Petitioner’s assertion, Robertson’s communications network 360 is accessed via “web browser 382” and uses a “Web-based” personal contact manager 343 to interact with the client computers 370 and the database 340 that “contains contact information entered by registered users.” *Id.* at 3:65–4:4:14. This indicates that communication through the network would be accomplished through web systems, which to one having ordinary skill as attested by Dr. Saber, would include web-based links.

As to incorporating such a link into the interface of Figure 11 to the different interface of Figure 8, Robertson goes no further than providing a notification in the interface of Figure 11 and the ability to separately access the interface of Figure 8. Ex. 1012, 11:45–48. Robertson provides the teaching that a viewing user would want to access the interface of Figure 8 following a notification in the interface of Figure 11, and the general teaching of access to interfaces via web-based connections, but not the

claimed linkage between the two interfaces. The operative question is whether this is sufficient to show that it is more likely than not that a person having ordinary skill in the art would have found it obvious to create such a linkage based upon this evidence.

The Federal Circuit addressed a similar factual posture in *Koninklijke Philips. Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330 (Fed. Cir. 2020). The court considered a situation in which the applied reference “did disclose each and every element of the claimed invention,” but evidence was presented that “a skilled artisan would have known about [the missing element] and been motivated to combine” it with the applied reference. *Id.* at 1337. Considering its earlier decision in *Arendi*, the court clarified that reliance on unrebutted expert evidence, rather than conclusory statements and unspecific expert testimony, was sufficient to determine that the differences between the claimed invention and the applied reference were such that the claimed invention would have been obvious to a person having ordinary skill in the art. *Id.* at 1337–38. *Accord Fleming v. Cirrus Design Corp.*, 28 F.4<sup>th</sup> 1214, 1222–23 (Fed. Cir. 2022). The court made this determination despite patent owner’s argument that there was no explanation of “how” the knowledge in the art would have been combined with the applied reference. *Id.* at 1334.

*Koninklijke Philips* guides our analysis. Petitioner presents evidence, consistent statements from Patent Owner’s declarant Dr. Saber, that web-based systems may operate through links. Petitioner points to Robertson’s teaching that one would, in some circumstances, access the interface of Figure 8 in response to information provided on the interface of Figure 11. Although no evidence specifically addresses “how” the two interfaces are linked together, such is not required under *Koninklijke Philips*. Because

Petitioner has shown evidence that web-based links were generally known, that sequential access of the two interfaces is taught by Robertson, and that Robertson is grounded in web-based technology, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 11 would have been obvious.

For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 11, 21, and 29 would have been obvious over the combination of Robertson and Lloyd-Jones.

*d) Claims 12 and 13*

Claim 12 depends on claim 11, and further recites, “wherein the link to the different graphical user interface comprises a link to a contact information page of the first user.” Petitioner asserts that Robertson does not explicitly describe a link to a contact information page. Pet. 78. However, Petitioner asserts that Robertson describes a contact information page (address book interface) having multiple levels. *Id.* (citing Ex. 1012, 9:41–44, Fig. 10). When the user clicks on a letter of the alphabet (level 1), all contacts whose last names begin with that letter are then displayed (level 2). Because Robertson operates through a web-based system, Petitioner asserts that the letter in level 1 serves as a link to level 2, a “different web page (*different graphical user interface*) that displays all contacts with last names that begin” with that letter. *Id.* at 79 (citing Ex. 1003 ¶ 257).

Claim 13, depends on claim 11, and further recites, “wherein the link to the different graphical user interface comprises a link to a listing of digital media having a stored association with the first user.” Petitioner points to its assertion that the combined teachings of Robertson and Lloyd-Jones would result in an “Image Affinity Table that associates a user’s CustomerID and an image’s Image ID.” Pet. 79–80. Petitioner further points to its assertions

for claims 11 and 12 that a person having ordinary skill in the art would have been motivated to include a link to a different graphical user interface as part of the Member Update interface. *Id.* at 80. Petitioner asserts that a person having ordinary skill in the art “would have recognized that users with the same group affiliations as the *viewing user* would likely appear in images with other users with the same group affiliation” and “would have understood that *a link to a listing of digital media having a stored association with the first user* would further Robertson’s goal of establishing contacts, particularly, identifying contacts of a user’s respective contacts.” *Id.* (citing Ex. 1003 ¶ 260). Petitioner asserts that such an image affiliation listing would be present in the Image Affinity Table in Petitioner’s proposed combination, and that querying the Table would have been within the skill of a person having ordinary skill in the art. *Id.* (citing Ex. 1003 ¶ 261). Petitioner further asserts that including such a list of images in the Image Affinity Table would “support identifying additional potential contacts of a new contact.” *Id.* (citing Ex. 1003 ¶ 261).

Patent Owner argues against the obviousness of the combinations proposed for claims 12 and 13 for the same reasons as for claim 11; i.e., that conclusory statements are insufficient under *Arendi* to show obviousness based upon knowledge in the art to supply the missing claim limitations of a link to a different graphical user interface that comprises a contact page or a listing of digital media. PO Resp. 35; PO Sur-reply 23.

Patent Owner does not contest Petitioner’s reasoning or its evidence; merely that the provided reasoning and evidence are insufficient under *Arendi* to show obviousness. Because Petitioner has shown evidence that web-based links were generally known, that links between contact page levels were taught by Robertson, that the combination would result in an

Image Affinity page listing images having relevant images and explaining that such images would lead to useful additional contacts, and that Robertson is grounded in web-based technology, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 12 and 13 would have been obvious.

For the foregoing reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 12 and 13 would have been obvious over the combination of Robertson and Lloyd-Jones.

### III. CONCLUSION<sup>4</sup>

Based on the fully developed record, Petitioner has demonstrated by a preponderance of the evidence that claims 1–30 are unpatentable under § 103 as being obvious over the combination of Robertson and Lloyd-Jones. A summary of our conclusions is set forth in the table below.

<b>Claim(s)</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Claim(s) Shown Unpatentable</b>	<b>Claim(s) Not Shown Unpatentable</b>
1–30	103(a)	Robertson, Lloyd-Jones	1–30	

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<sup>4</sup> Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).



#### IV. ORDER

For the foregoing reasons, it is:

ORDERED that, Petitioner has shown by a preponderance of the evidence that claims 1–30 of the '480 patent are unpatentable;

FURTHER ORDERED that because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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