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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ACTIVISION BLIZZARD, INC. and RIOT GAMES, INC.,
Petitioner,

v.

GAME AND TECHNOLOGY CO., LTD.,
Patent Owner.

Case IPR2016-01885
Patent 8,253,743 B2

Before STACEY G. WHITE, DANIEL J. GALLIGAN, and SCOTT B. HOWARD, *Administrative Patent Judges*.

GALLIGAN, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a)

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.108, Activision Blizzard, Inc. and Riot Games, Inc. (collectively "Petitioner") challenge the patentability of claims 1–11 of U.S. Patent No. 8,253,743 B2 ("the '743 patent," Ex. 1001), which is owned by Game and Technology Co., Ltd. ("Patent Owner").

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision, issued pursuant to 35 U.S.C. § 318(a), addresses issues and arguments raised during the trial in this *inter partes* review. For the reasons discussed below, we determine that Petitioner has proven by a preponderance of the evidence that claims 1–11 of the '743 patent are unpatentable. *See* 35 U.S.C. § 316(e) ("In an inter partes review instituted under this chapter, the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.").

A. Procedural History

On September 23, 2016, Petitioner requested *inter partes* review of claims 1–11 of the '743 patent. Paper 2 ("Pet."). Patent Owner filed a Preliminary Response. Paper 12 ("Prelim. Resp."). Trial was instituted as to claims 1–11 of the '743 patent on the following grounds of unpatentability:

1. Whether claims 1–11 are unpatentable under 35 U.S.C. § 103(a) as obvious over the Diablo II Manual[1] alone or in combination with Rogers;[2] and

2. Whether claims 1–11 are unpatentable under 35 U.S.C. § 103(a) as obvious over the DAoC Manual[3] alone or in combination with Rogers.

Paper 15 ("Dec. on Inst."), 25–26.

During the trial, Patent Owner filed a Response (Paper 18, "PO Resp."), and Petitioner filed a Reply (Paper 22, "Reply"). In addition, Petitioner filed a Motion to exclude evidence. Paper 26. Patent Owner filed an Opposition to Petitioner's Motion to Exclude (Paper 30), and Petitioner filed a Reply in support of its Motion to Exclude (Paper 31).

An oral hearing was held on November 29, 2017, a transcript of which appears in the record. Paper 34 ("Tr.").

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[1] Diablo II Game Manual (Ex. 1013), © 2000 Blizzard Entertainment. Petitioner argues that the Diablo II Manual is a prior art printed publication under 35 U.S.C. § 102(b). *See* Pet. 5–6 (citing Exs. 1002, 1013, 1014, 1018, 1021); Dec. on Inst. 3 n.1. Patent Owner does not raise any arguments regarding the prior art status of the Diablo II Manual. Based on our review of the evidence of record, we determine the Diablo II Manual is a prior art printed publication within the meaning of 35 U.S.C. § 102(b). *See* Exs. 1013, 1014, 1018, 1021.

[2] U.S. 2005/0137015 A1, filed Aug. 19, 2004, published June 23, 2005 (Ex. 1017).

[3] Dark Age of Camelot Game Manual (Ex. 1015), © 2001–02 Mythic Entertainment, Inc. Petitioner argues that the DAoC Manual is a prior art printed publication under 35 U.S.C. § 102(b). *See* Pet. 6 (citing Exs. 1015, 1016, 1019); Dec. on Inst. 4 n.2. Patent Owner does not raise any arguments regarding the prior art status of the DAoC Manual. Based on our review of the evidence of record, we determine the DAoC Manual is a prior art printed publication within the meaning of 35 U.S.C. § 102(b). *See* Exs. 1015, 1016, 1019.

B. Real Parties in Interest

Petitioner identifies the following additional real parties in interest: Blizzard Entertainment, Inc., Activision Publishing, Inc., Activision Entertainment Holdings, Inc., and Tencent Holdings Ltd. Pet. 1.

C. Related Matters

Petitioner and Patent Owner cite a number of judicial and administrative matters involving the '743 patent and other patents owned by Patent Owner. Pet. 1–2; Paper 5, 2–3; Paper 11, 1–2.

D. The '743 Patent and Illustrative Claim

The '743 patent generally relates to providing game characters having game items functions by combining an avatar with a game item function to create a gamvatar. Ex. 1001, Abstract. As examples of game item functions, the '743 patent identifies "the function of charging and restoring cyber money, a function of reinforcing power of the gamvatar, and a function of attacking or defending other ga[m]ers." Ex. 1001, 6:18–21.

Figure 5 of the '743 patent, reproduced below, illustrates gamvatars 530 and 540.

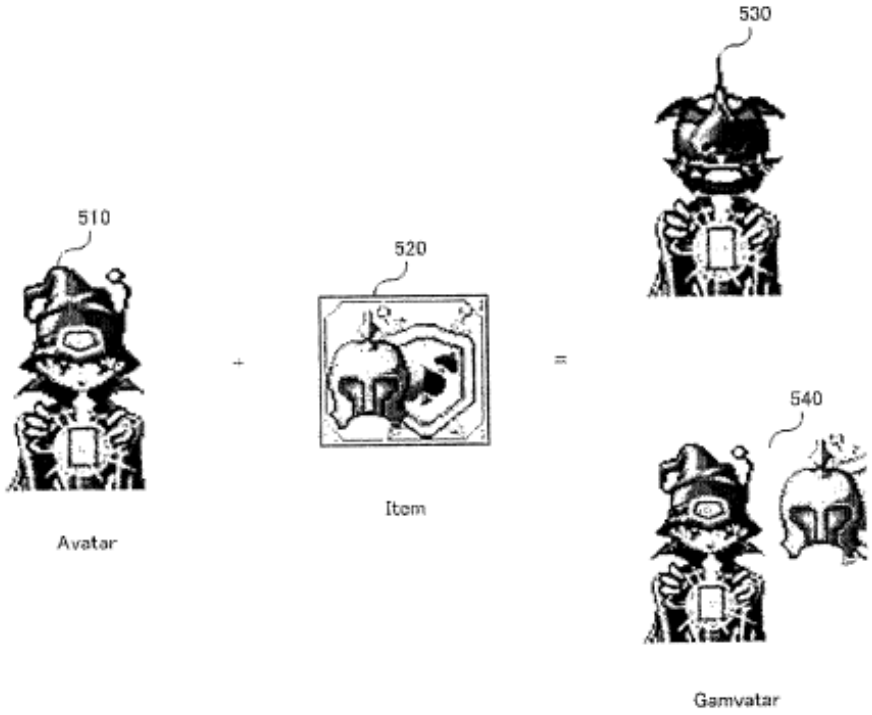

Figure 5 depicts "characters having a game item function according to an embodiment of the present invention." Ex. 1001, 4:66–67. The '743 patent states:

> FIG. 5 shows avatars (gamvatars) having a game item function according to an embodiment of the present invention, and it exemplifies gamvatars 530 and 540 generated by combining an avatar 510 which wears clothes purchased at the avatar shop 430 and a game item 520 purchased at the item shop 440. The gamvatar 530 shows the avatar 510 wearing the item 520, and the gamvatar 540 shows that the item 520 is not attached to the avatar 510 but is arranged in the background layer. As described above, it is possible for the avatar 510 to wear the item 520 or not to wear the item 520 depending on the user's setting.

Ex. 1001, 6:33–43. Thus, the '743 patent describes that both gamvatars 530 and 540 have items arranged in a layer, but in gamvatar 540 the layer is a background layer, so the item is not attached to the gamvatar.

The '743 patent has 11 claims, of which claims 1, 3, 6, 7, and 9 are independent. Claim 1 is illustrative and is reproduced below:

> 1. A method for generating a character associated with a character generating system comprising a gamvatar provider, a gamvatar controller, and a game server, the method comprising:
>
> providing an avatar to a user accessing an avatar shop via a network, the avatar comprising multiple layers for displaying avatar functions or performing game item functions by using the respective layers; and
>
> combining each of a plurality of game item functions with the avatar by adding the respective layers to the avatar to create a gamvatar associated with the plurality of the game item functions,
>
> wherein the gamvatar is configured to be used to perform the plurality of the game item functions and each of the plurality of game item functions being combined with the respective layers is exhausted in response to detection of each time of using the each of the plurality of game item functions associated with playing a game provided by the game server.

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Citing the testimony of its declarant, Mr. David Crane, Petitioner argues that the level of ordinary skill in the art is "(1) at least a four-year Bachelor of Science degree OR at least 5 years of professional experience as a video game designer/developer; and (2) a working understanding of computer programming, either through education or experience of the equivalent thereof." Pet. 13–14 (citing Ex. 1002 ¶ 20). Patent Owner contends "that the skilled artisan during the time frame of the priority date of the '743 Patent (2004), would have possessed a four-year Bachelor of Science degree in computer science and a working understanding of online

computer gaming, attained through either education or experience." PO Resp. 9, n.1.

Based on the evidence of record, including the testimony of Petitioner's declarant, the subject matter at issue, and the prior art of record, we determine that Petitioner's proposed skill level is the appropriate lens through which to evaluate obviousness in this proceeding. In particular, we find persuasive Petitioner's argument that a person of ordinary skill in the art may have professional experience as a video game designer/developer in lieu of a formal degree, and we also agree with Petitioner that a person of ordinary skill in the art would have had a working understanding of computer programming. Pet. 13–14; Ex. 1002 ¶ 20. In Patent Owner's proposal, it is not clear whether "a working understanding of online computer gaming" requires experience with the design and development of video games or merely experience playing video games.

Based on the foregoing, we determine that the skill level of a person of ordinary skill in the art would have been that of a person having (1) at least a four-year Bachelor of Science degree in computer science, computer engineering, electrical engineering, or a related field OR at least 5 years of professional experience as a video game designer/developer; and (2) a working understanding of computer programming, either through education or experience of the equivalent thereof. Ex. 1002 ¶ 20. However, we note that our analysis would be the same if we adopted either party's proposed level of ordinary skill.

B. Claim Construction

The Board interprets claims in an unexpired patent using the "broadest reasonable construction in light of the specification of the patent in which

[they] appear[].” 37 C.F.R. § 42.100(b). In applying a broadest reasonable construction, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). This presumption may be rebutted when a patentee, acting as a lexicographer, sets forth an alternate definition of a term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

The Decision on Institution provided discussions addressing the broadest reasonable interpretations of various claim terms. Dec. on Inst. 5–10. Based on the parties’ arguments during the trial, we provide the following analysis with respect to the broadest reasonable interpretations of several claim terms.

1. “Avatar”

Both parties assert that “avatar” means “a representation of a user in a game.” Pet. 13 (citing Ex. 1001, 2:27–28; Ex. 1002 ¶¶ 48–49); PO Resp. 9 (citing Ex. 1001, 1:37–48;[4] Ex. 2003, 15:11–25). Although an avatar may represent a user in a game, the ’743 patent indicates that an avatar may represent a user more broadly, such as “in cyber space.” Ex. 1001, 2:27–28 (“In internet gaming, however, avatar has come to indicate a 2D or 3D character that represents a user in cyber space.”). We see no reason to import the qualification “in a game” into the definition of an avatar.

We determine that the term “avatar” does not require further construction.

[4] Although Patent Owner cites col. 1, lines 37–28, based on the context, we understand Patent Owner’s citation to be to lines 37–48 of column 1.

2. "Gamvatar"

The term "gamvatar" appears in all claims of the '743 patent. In the Decision on Institution, the Board addressed the parties' pre-institution arguments regarding the broadest reasonable interpretation of "gamvatar." Dec. on Inst. 7–9. In particular, the Board

> determine[d] that the claims themselves sufficiently define "gamvatar." For example, claim 1 recites "combining each of a plurality of game item functions with the avatar by adding the respective layers to the avatar to create a gamvatar associated with the plurality of the game item functions." The "gamvatar" of claim 1, therefore, results from the "combining" step. The other independent claims recite similar combining operations. *See* claims 3, 6, 7, and 9.

Dec. on Inst. 8.

Patent Owner argues that this preliminary determination leaves out allegedly required features of the claimed "gamvatar." PO Resp. 5–7, 24–25. According to Patent Owner, a "conventional gamvatar" "represents the user both 'in the game' and 'on the web site.'" PO Resp. 5 (citing Ex. 1001, 3:13–22). Patent Owner maintains that these features must be present in the claimed "gamvatar" but that the claimed "gamvatar" requires more, namely the combination of game item functions with a layer of the avatar. PO Resp. 5–7, 24–25. In particular, Patent Owner argues that

> the gamvatar of the '743 Patent is distinguishable from both the conventional avatar due to its association outside the game (*i.e.*, "on the web site," '743 Patent, 2:15-18), and the gamvatar of the '743 Patent is distinguishable from the conventional gamvatar due to its combination of a game item function of a game item for use "in the game" ('743 Patent, 2:15-18) with a corresponding layer of the avatar.

PO Resp. 7. Patent Owner argues, therefore, that the preliminary determination leaves out the allegedly required feature that the claimed

"gamvatar" represent the user both in a game and on a web site. PO Resp. 5–7, 24–25.

As an initial matter, the claims of the '743 patent do not recite any requirement for the "gamvatar" to represent the user on a web site. *See* Tr. 25:11–13 (Patent Owner: "The claims do not themselves describe the distinction of occurring within a game and outside of a game."). The specification of the '743 patent describes gamvatars in various places. In the "Background of the Invention" section, the '743 patent states:

> Recently, a gamvatar, which is an avatar for exclusive use in a game and has features and personalities particularly associated with that game, has been introduced.
>
> The gamvatar concurrently functions as a game character in a network game being played over the Internet, and as an avatar on the web site. That is, the gamvatar purchased or configured on the web site is applicable to the game, and the gamvatar purchased or configured in the game is applicable to the web site. In this instance, the gamvatar—the combination of the game and the avatar—indicates a game character having the format of an avatar or an avatar having the format of a game character, and is personalized by the same member ID accessible to a predetermined game and the web site 200.

Ex. 1001, 3:10–22.

In describing the invention, the '743 patent states:

> The avatar having a game item function according to an embodiment of the present invention does not represent a gamvatar that is a conventional avatar for exclusive use of a game but represents a gamvatar that is an avatar for performing a game item function. That is, the conventional gamvatar indicates an avatar used for a specific game, and *the gamvatar according to the embodiments of the present invention combines the conventional avatar with the game item function*. Hence, the gamvatar described in the embodiments of the present invention

> is substantially an avatar that is capable of performing game item functions.

Ex. 1001, 5:30–40 (emphasis added). This passage explains that the "gamvatar" of the '743 patent is a combination of "the conventional avatar with the game item function" rather than a combination of a "conventional gamvatar" with a game item function, as suggested by Patent Owner's arguments. *See* PO Resp. 5–7.

Based on the intrinsic record, we are not persuaded that the broadest reasonable interpretation of "gamvatar" requires that it represent the user both in a game and on a web site. Rather, we maintain the Board's initial determination that the claims themselves define the term "gamvatar." Dec. on Inst. 8. We also note that, as explained below, the prior art teaches a gamvatar that represents a user both in a game and on a web site, and, therefore, our determinations of unpatentability would be the same if we adopted Patent Owner's construction that a "gamvatar" must "represent the user both in a game and on a web site."

3. "Layers"

In the Decision on Institution, the Board determined that the phrase "layers for . . . performing game item functions" did not require an express construction. Dec. on Inst. 10–11. In its Response, Patent Owner argues the term "layers" means "graphics regions for displaying graphical objects." PO Resp. 9–10 (citing Ex. 1001, 2:65–3:4; Ex. 1002 ¶¶ 72–73; Ex. 2003, 16:20–17:3, 19:14–24, 21:21–24; Ex. 2004, 289). During oral argument, Patent Owner offered a slightly different interpretation, arguing that "[l]ayers are constructs for holding graphics objects." Tr. 40:12; *see also* Tr. 41:9–10 ("Layer itself must have a meaning. It is a construct. And patent owner's position is a construct for holding graphics.").

We agree with Patent Owner that the broadest reasonable interpretation of "layers" *encompasses* "graphics regions for displaying graphical objects" and "constructs for holding graphics" because the '743 patent describes the display of items in layers, as in Figure 5. Ex. 1001, 6:33–43, Fig. 5. Based on the plain language of the claims, however, the meaning of "layers" is not so limited. For example, claim 1 recites "the avatar comprising multiple layers for displaying avatar functions *or* performing game item functions by using the respective layers" (emphasis added). The other independent claims recite similar limitations. The claims, therefore, recite "displaying" as one of two alternatives for layers, the other being "performing game item functions."

Thus, although Patent Owner's proposed constructions are within the broadest reasonable interpretation of "layers," the term is not so limited. We determine that the term "layers" does not require further construction. We also note that, as explained below, the prior art teaches displaying information, and, therefore, our determinations of unpatentability would be the same if we adopted Patent Owner's construction that "layers" are "constructs for holding graphics."

4. "Game Item Functions"

In the Decision on Institution, the Board determined that the phrase "game item functions" did not require an express construction. Dec. on Inst. 10–11. In its Response, Patent Owner argues the phrase "game item functions" means "game functions of game items used in a game." PO Resp. 10–11 (citing Ex. 1001, 2:44–54, 3:6–9, 6:14–21, 7:40–46; Ex. 2003, 77:4–6). As stated in the Decision on Institution, this "proposed construction[] do[es] little more than restate the language of the claims."

Dec. on Inst. 10. We maintain that the phrase "game item functions" does not require an express construction.

5. "Exhausted"

The term "exhausted" appears in the independent claims of the '743 patent. Claims 1, 3, 6, and 7 recite "*each of the plurality of game item functions* being combined with the respective layers *is exhausted* in response to detection of each time of using the each of the plurality of game item functions." (Emphasis added).[5] In the Decision on Institution, the Board determined that exhaustion in the claims refers to game item functions rather than disappearance of layers and further determined that the term "exhausted" did not require an express construction. Dec. on Inst. 9–10. In its Response, Patent Owner argues that, in view of the claims, the specification, and the prosecution history of the '743 patent, "the skilled artisan would have understood the term 'exhausted' to mean, 'disappear' regarding the game item displayed on the layer and 'consumed' regarding the associated function of the game item." PO Resp. 11–14.

With respect to the claim language, Patent Owner argues that the phrase "the plurality of game item functions being combined with the respective layers" is a compound subject preceded by "each of" and, therefore, that the verb "is exhausted" applies to the entire phrase, including

[5] Independent claim 9 recites "a gamvatar controller to control whether the gamvatar is to be used to perform the game item functions *or each of the game item functions being combined with the respective layers is exhausted*." (Emphasis added). Therefore, the exhaustion in claim 9 is recited as one of two alternative functions of the "gamvatar controller."

"functions" and "layers." PO Resp. 12 (citing Ex. 2002,[6] 10). Patent Owner cites Strunk and White's *The Elements of Style* (hereinafter "Strunk and White") as supporting its assertion regarding a compound subject. *See* Ex. 2002, 10. The excerpt from Strunk and White advises that "compound subjects qualified by *each* or *every*" "take a singular verb," but it does not support the proposition that the phrase "being combined with" between two nouns forms a compound subject. Ex. 2002, 10. It states that "[a] compound subject formed of two or more nouns joined by *and* almost always requires a plural verb." Ex. 2002, 10. The claim language, however, does not recite "each of the plurality of game item functions *and* the respective layers is exhausted in response to detection of each time of using the each of the plurality of game item functions." Patent Owner does not direct us to evidence showing that "being combined with" is a phrase that forms a compound subject.

According to Patent Owner, "[t]o construe otherwise would impermissibly read out the limitation 'being combined with the respective layers' from the claim." PO Resp. 12. We disagree. The phrase "being combined with the respective layers" still has meaning within the claims because it particularly identifies which game item functions are exhausted, namely those that have been combined with respective layers.

Patent Owner also cites the following excerpt from the prosecution history of the '743 patent that describes disappearing game characters and game items in a prior art reference:

[6] Although Patent Owner cites Exhibit 2004, based on the context, we understand Patent Owner's citation to be to Exhibit 2002.

> Applicant respectfully submits that "combining each of a plurality of game item functions with the avatar by adding the respective layers to the avatar to create a gamvatar associated with a game item functions" and "each of the plurality of game item functions being combined with the respective layers is exhausted in response to detection of each time of using the each of the plurality of game item functions" viz., creating "gamvatar" and disappearing "gamvatar" cannot be read on mere appearing or disappearing game character as the Office Action suggests on page 16 by citing Blizzard Items ("The Arreat Summit - Items: Basic Item Information", 2003) i.e., "Don't leave items and Gold lying on the ground any longer than necessary. Regular items and Gold disappear in about 15 minutes." This is simply because that Blizzard Items are not created by "combining each of a plurality of game item functions with the avatar by adding the respective layers to the avatar to create a gamvatar associated with a game item functions" nor disappearing viz., "the plurality of game item functions being combined with the respective layers is exhausted in response to detection of each time of using the each of the plurality of game item functions."

Ex. 1010, 12–13 (quoted at PO Resp. 13–14 (emphases removed)).

According to Patent Owner, this excerpt "identified game items in the prior art—namely 'Blizzard Items'—that are not exhausted" and "also identified a deficiency of such game items, which when combined with a layer do not disappear upon use thereof." PO Resp. 14 (citing Ex. 1010, 12–13). We disagree that this passage supports Patent Owner's construction. Rather, the applicant's argument in this portion of the prosecution history refers to a "disappearing 'gamvatar,'" and Patent Owner is not arguing, in this proceeding, that a gamvatar disappears. Rather, Patent Owner is arguing that a *game item* disappears per the "exhausted" limitation. PO Resp. 14.

Patent Owner also cites the following passage of the '743 patent that it alleges is consistent with the arguments made during prosecution: "The black night gamvatar has an avatar function, and the purchased gamvatar can be put on in the My Wardrobe of the avatar, and the avatar of the gamvatar disappears from the My Wardrobe after twenty four hours during which the game item function is used or passed." Ex. 1001, 10:61–65 (cited at PO Resp. 14). This passage, however, does not refer to disappearance of a game item upon use, as Patent Owner suggests. PO Resp. 14. Rather, this passage refers to disappearance of "the avatar of the gamvatar" after 24 hours, i.e., based on the passage of time, "during which the game item function is used or passed." Ex. 1001, 10:61–65.

The specification of the '743 patent uses both the term "exhaust" and the term "disappear." For example, the '743 patent states: "[A] plurality of different game item functions can be combined with the avatar, and the corresponding game item function can be exhausted each time the game item function is used. In this instance, the avatar may disappear when the final game item function is used." Ex. 1001, 7:41–46. This passage refers to exhaustion of a game item function, as the independent claims recite, but it does not state that the game items disappear. The '743 patent uses the term "disappear" throughout to describe disappearing avatars, gamvatars, and game items. Ex. 1001, 6:29–32 (gamvatar's "disappearance"), 6:62 ("game item disappears"), 7:20 ("the gamvatar avatar may disappear"), 9:34 ("disappearance of the gamvatar"), 10:28 ("the avatar of the gamvatar disappears"). But the term "disappear" is noticeably absent from the claims of the '743 patent. Rather, the claims use the term "exhausted," which is

separately used in the '743 patent. Ex. 1001, 4:48–50, 6:1–5, 7:40–46, 9:23–27, 9:55–58, 10:44–47.

Patent Owner's construction, therefore, seeks to rewrite the claim to include a requirement that a game item displayed on a layer must disappear from the display. We determine that the broadest reasonable interpretation of the term "exhausted," in light of the specification of the '743 patent, does not require disappearance of game items on layers. Rather, having considered the record developed during trial, we maintain that the initial determination of the Board in the Decision on Institution is correct that exhaustion in the claims refers to game item functions rather than disappearance of layers. Dec. on Inst. 9–10. We further determine that the term "exhausted" does not require an express construction. We also note that, as explained below, the prior art teaches game items that disappear upon use and exhaustion of their corresponding game item functions, and, therefore, our determinations on unpatentability would be the same if we adopted Patent Owner's construction that the "exhausted" limitation requires disappearance of the game item.

6. "Using"

Patent Owner contends that "the skilled artisan would have understood 'using' recited in the claims to mean activation of the game item function associated with a game item." PO Resp. 15–16 (citing Ex. 1001, 7:9–13, 11:6–11; Ex. 2003, 77:4–6, 100:5–11, 100:24–101:10, 102:9–16). The '743 patent does not use the term "activate" or its derivatives, and we see no reason to redefine a well-understood word such as "using" absent compelling intrinsic evidence, such as, for example, an express definition in

the specification of the '743 patent. We determine that the term "using" does not require an express construction.

7. "Avatar Shop"

In the Decision on Institution, the Board rejected both parties' proposed constructions of the phrase "avatar shop." In particular, the Board determined that an avatar shop need not be "an area of a video game," as asserted by Petitioner. Dec. on Inst. 5–6. The Board also did not agree with Patent Owner's arguments that an avatar shop must be "Internet-accessible" and must require the purchase of an avatar, rather than just the acquisition of one. Dec. on Inst. 6–7 (citing Ex. 1001, 2:38–40 (emphasis added) ("[A] user having accessed the Web site 200 through the user computer 100 *acquires or buys* an avatar from the avatar shop or the avatar server 260.")). During trial, the parties did not address the Decision on Institution's discussion of "avatar shop" nor provide express constructions for the term. Having considered the full record developed during trial, we adopt the discussion of the broadest reasonable interpretation of "avatar shop" from the Decision on Institution (Dec. on Inst. 5–7), and we determine that the term does not require an express construction.

8. Remaining Terms

Based on the record developed during trial, we determine that the remaining terms of the challenged claims do not require express constructions.

C. Principles of Law

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

D. Obviousness over Diablo II Manual

Petitioner contends claims 1–11 of the '743 patent are unpatentable under 35 U.S.C. § 103(a) as having been obvious over the Diablo II Manual. Pet. 4, 15–38.

1. Overview of the Diablo II Manual

The Diablo II Manual is a user manual for the video game "Diablo II," and it describes game functionality that allows a user to choose a character, which then can be equipped with various items. Ex. 1013, 10, 21, 30. A screenshot from the Diablo II Manual is reproduced below.

The screenshot reproduced above shows the game play area on the left and the inventory screen on the right. Ex. 1013, 21. The Diablo II Manual explains: "The top part of the Inventory screen contains several boxes representing the different areas of your character that can hold equipment. The rectangular grid at the bottom of the Inventory represents your backpack." Ex. 1013, 21. The Diablo II Manual discloses that the character equipment areas include head, body, right arm, left arm, hands, waist, feet, neck, fingers, and backpack, and it gives examples of the use of each of these. Ex. 1013, 21–22. For instance, the right arm "is where you equip a weapon such as a sword or a bow," and the head is for a helmet. Ex. 1013, 21. At the bottom of the screenshot is a belt, which "is designed to allow

quick and easy access to the potions your character finds or buys."

Ex. 1013, 22.

2. Independent Claim 1

The independent claims recite similar subject matter of providing an avatar having layers and combining game item functions with the avatar to create a gamvatar and further recite limitations regarding use and exhaustion of game item functions. We address Petitioner's contentions and Patent Owner's arguments with respect to independent claim 1 first before turning to the other independent claims and the dependent claims.

a. Petitioner's contentions

Independent claim 1 is directed to "[a] method for generating a character associated with a character generating system comprising a gamvatar provider, a gamvatar controller, and a game server" and recites "providing an avatar to a user accessing an avatar shop via a network, the avatar comprising multiple layers for displaying avatar functions or performing game item functions by using the respective layers."

Petitioner contends that the Diablo II Manual's disclosure of choosing and customizing a character through a character selection screen and the "Inventory screen" teaches a method for generating a character associated with a character generating system having a gamvatar provider and a gamvatar controller and further that the disclosure of Battle.net servers and on-line gaming teaches a game server. Pet. 18–19 (citing Ex. 1013, 12, 18, 21–22, 27, 30–31, 67–71; Ex. 1002 ¶¶ 109–111, 114–129, 138–144, 156–167). Petitioner also contends the Diablo II Manual's disclosure of allowing a user to select a character on a Battle.net Realm server teaches "providing

an avatar to a user accessing an avatar shop via a network." Pet. 19 (citing Ex. 1013, 30–31; Ex. 1002 ¶¶ 111, 161–162).

With respect to the recitation that the avatar comprises "multiple layers for displaying avatar functions or performing game item functions by using the respective layers," Petitioner argues:

> Although the [Diablo II] Manual does not explicitly describe the use of layering, the depiction of the "slots" and "boxes" in the "Inventory screen," in conjunction with the adding of weapons and armor to various locations on a player's character (represented by the "slots" and "boxes"), necessarily teaches the use of layering.

Pet. 21 (citing Ex. 1002 ¶ 128). Petitioner argues the Diablo II Manual teaches several game items that have functions in the game, including "weapons like daggers, bows, arrows, spears, javelins, and potions; and armor like light armor, medium armor, and heavy armor." Pet. 20 (citing Ex. 1013, 68–71; Ex. 1002 ¶¶ 117–118).

Claim 1 further recites "combining each of a plurality of game item functions with the avatar by adding the respective layers to the avatar to create a gamvatar associated with the plurality of the game item functions." Petitioner contends that, through the use of the "Inventory screen," the Diablo II Manual teaches combining game item functions, such as armor and weapons, with a character (avatar). Pet. 22–23 (citing Ex. 1002 ¶¶ 113–135, 138–145). According to Petitioner, the Diablo II Manual "illustrates and describes, for example, a gamvatar with a bow and arrow . . . and a gamvatar with a spear/javelin." Pet. 23 (citing Ex. 1013, 18, 27; Ex. 1002 ¶¶ 142–143).

Claim 1 still further recites:

> wherein the gamvatar is configured to be used to perform the plurality of the game item functions and each of the plurality of game item functions being combined with the respective layers is exhausted in response to detection of each time of using the each of the plurality of game item functions associated with playing a game provided by the game server.

With respect to the recited exhaustion, Petitioner contends:

> The [Diablo II] Manual also describes certain items categorized as "Stackable." (Ex. 1013 at 67 ("Stackable items have as part of their property description a quantity (even if the quantity is 1) when highlighted. As you use the item, this number decreases until you have exhausted the stack."); Ex. 1002 at ¶ 151.) The "exhaust[able]" items described above include, e.g., arrows, bolts, spears, javelins, and potions. (Ex. 1013 at 67; Ex. 1002 at ¶ 151.) These weapons are consumable such that they are completely depleted after a single use. (Ex. 1013 at 12, 25, 66-69; Ex. 1002 at ¶¶ 149-52.)

Pet. 23–24 (second alteration in original). With respect to "playing a game provided by the game server," Petitioner contends:

> The [Diablo II] Manual also teaches a "Multi-Player" option through the use of "Battle.net." . . . "Battle.net" offers a method for, not only playing the Diablo II game using customized characters (or gamvatars) stored "exclusively on the Battle.net servers," but also a way of playing the Diablo II game in an online "Realm," a "Diablo II ***game server*** that is hosted and maintained by Blizzard." (Ex. 1013 at 30; Ex. 1002 at ¶¶ 158-65 (emphasis added).) The [Diablo II] Manual further describes an "Open Games" mode accessible via Battle.net, where a user "can play with your friends over Battle.net . . . ." (Ex. 1013 at 32-33; Ex. 1002 at ¶ 166.).

Pet. 24–25 (second ellipsis in original).

b. Patent Owner's arguments

Patent Owner makes several arguments in response to Petitioner's assertions regarding the teachings of the Diablo II Manual. *See* PO Resp. 19–43. With respect to the "providing" limitation, Patent Owner argues the Diablo II Manual does not teach an avatar having multiple layers. PO Resp. 19–22. Patent Owner further argues the Diablo II Manual does not teach combining game item functions with the avatar. PO Resp. 25–31. Patent Owner still further argues the Diablo II Manual does not teach the use of game item functions or layers. PO Resp. 32–35. Patent Owner also argues the Diablo II Manual does not teach the recited exhaustion. PO Resp. 36–42. Patent Owner also argues that the Diablo II Manual does not teach a "gamvatar" as claimed. PO Resp. 22–23.

Claim 1 recites "a plurality of game item functions" and, therefore, requires at least two game item functions. We will address Patent Owner's arguments with reference to two equipment items of the Diablo II Manual that Petitioner contends teach game items having functions—javelins and potions. *See* Pet. 20 (citing Ex. 1013, 68–71; Ex. 1002 ¶¶ 117–118) ("Exemplary items include weapons like daggers, bows, arrows, spears, javelins, and potions; and armor like light armor, medium armor, and heavy armor.").

1) Avatar having multiple layers

With respect to the claimed recitation of an avatar having multiple layers, Patent Owner argues that "[t]he disclosures of 'slots' and 'boxes' in the [Diablo II] Manual do not inherently (*i.e.*, necessarily) require 'the avatar comprising multiple layers,' as recited in the claims of the '743 Patent." PO

Resp. 20. According to Patent Owner, the character of the Diablo II Manual "might include only a single layer." PO Resp. 20.

This argument fails under Patent Owner's own interpretation of "layers." As discussed above in the claim construction section, we agree with Patent Owner that the broadest reasonable interpretation of "layers" *encompasses* "graphics regions for displaying graphical objects" and "constructs for holding graphics." At the very least, the Diablo II Manual discloses multiple graphics regions for displaying graphics objects in the screenshot from the Diablo II Manual, which is reproduced below.

The screenshot reproduced above shows the game play area on the left and the inventory screen on the right. Ex. 1013, 21. As discussed above, the Diablo II Manual discloses that the character equipment areas include head,

body, right arm, left arm, hands, waist, feet, neck, fingers, and backpack, and it gives examples of the use of each of these. Ex. 1013, 21–22.

Furthermore, the claims do not require that the layers be displayed on the avatar, as noted in the Decision on Institution with reference to Figure 5 of the '743 patent, which is reproduced below. *See* Dec. on Inst. 14–16.

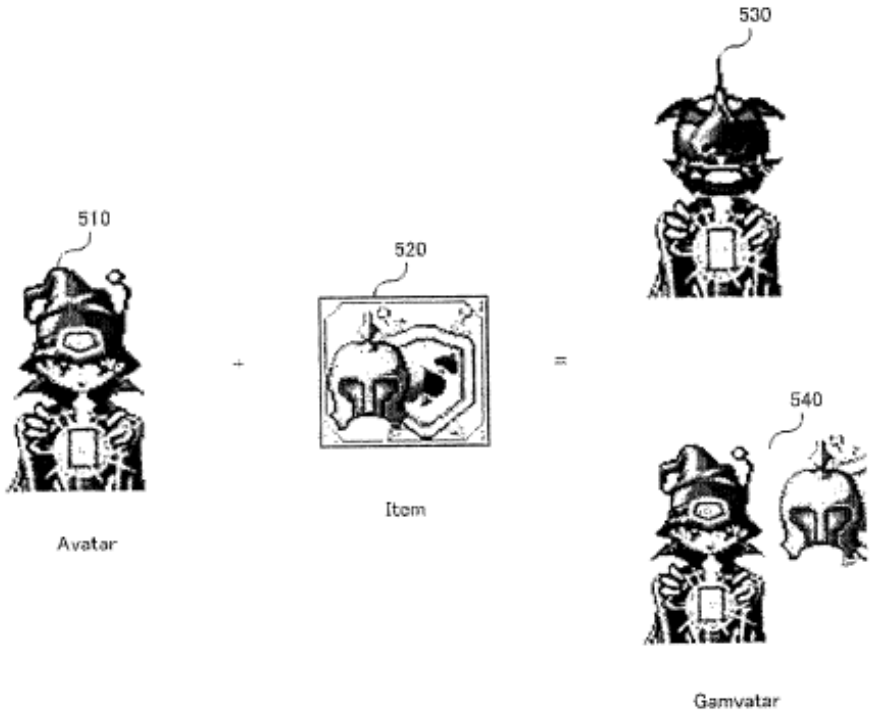

Figure 5 depicts "characters having a game item function according to an embodiment of the present invention." Ex. 1001, 4:66–67. The '743 Patent states:

> FIG. 5 shows avatars (gamvatars) having a game item function according to an embodiment of the present invention, and it exemplifies *gamvatars 530 and 540 generated by combining an avatar 510* which wears clothes purchased at the avatar shop 430 *and a game item 520* purchased at the item shop 440. The gamvatar 530 shows the avatar 510 wearing the item 520, and *the gamvatar 540 shows that the item 520 is not attached to the avatar 510 but is arranged in the background layer*. As described above, it is possible for the avatar 510 to

> wear the item 520 or *not to wear the item 520* depending on the user's setting.

Ex. 1001, 6:33–43 (emphases added). According to this description, gamvatar 540 shows an item that is in a "background layer" and therefore "layered" but not "attached to the avatar." Thus, according to the disclosure of the '743 patent, an item does not need to be "on the avatar" to be displayed in a "layer" of the avatar. Whether the avatar "wear[s] the item . . . depend[s] on the user's setting." Ex. 1001, 6:42–43. During oral argument, counsel for Patent Owner confirmed that "the claim does not limit the layers to be necessarily either positioned directly on the avatar or in the background. The claim encompasses either embodiment . . . ." Tr. 42:21–23.

We find that the slots and boxes in the inventory screen of the Diablo II Manual are "graphics regions for displaying graphical objects" and, therefore, teach "multiple layers" under Patent Owner's definition, which we agree is within the broadest reasonable interpretation of "layers." In particular, the slots and boxes on the inventory screen are regions for displaying equipment and other items that pertain to the character (i.e., layers of the avatar). Ex. 1013, 21.

Patent Owner also argues that, in the Diablo II Manual, "no layers in fact perform game item functions" or that, "at most, only one weapon slot (e.g., Ex. 1013, p. 21, 'Right Arm') is tangentially associated with a game item function." PO Resp. 21. We disagree.

First, with respect to "game item functions," the '743 patent provides as examples "the function of charging and restoring cyber money, a function of reinforcing power of the gamvatar, and a *function of attacking or defending other ga*[*m*]*ers*." Ex. 1001, 6:18–21 (emphasis added). The

Diablo II Manual discloses many examples of weapons, including javelins and throwing potions. Ex. 1013, 67–69. We find javelins and potions in the Diablo II Manual teach "game items" because they are items used in the game. Ex. 1013, 67–71 (describing weapons in the Diablo II game); *see also* PO Resp. 32 ("The 'equipment areas' can hold various types of equipment (*i.e.*, game items), generally characterized into two classes: armor and weapons . . . for respectively attacking an enemy and defending a player against an enemy."). We also find javelins and potions have functions in the game. For example, javelins and "throwing potions" are used in attacking opponents to damage them. Ex. 1013, 69 (describing that "[j]avelins can inflict great damage when thrown" and that some throwing potions are "effective weapons when placed in glass bottles and lobbed from a distance into groups of enemies"); *see also* PO Resp. 33 ("A weapon is associated with a function, namely a 'skill' or 'spell,' such as to perform a type of attack."). The attacking functions of javelins and throwing potions are consistent with the exemplary game item functions of "attacking . . . other ga[m]ers" in the '743 patent. Ex. 1001, 6:18–21. Therefore, we find that the Diablo II Manual's disclosure of javelins and potions teaches "game item functions" as claimed.

Second, the Diablo II Manual teaches that multiple "graphics regions for displaying graphical objects" (Patent Owner's proposed construction of "layers") are used and associated with the performance of game item functions. The Diablo II Manual discloses that the "Right Arm . . . is where you equip a weapon such as a sword or a bow." Ex. 1013, 21. Thus, one graphics region, the right arm equipment slot, is used for a weapon. The Diablo II Manual further discloses that "[t]he Barbarian character may also

equip a secondary weapon in the Left Arm slot." Ex. 1013, 21. Thus, the Diablo II Manual teaches that a second graphics region, the left arm equipment slot, is used for a second weapon. The Diablo II Manual discloses that, "[t]o equip weapons, armor, or other wearable items, simply pick up the item from your inventory and drop it onto the appropriate location on your character." Ex. 1013, 22. To throw a javelin, the user "must first equip it in one of [the] character's hands," and, to use a "Rancid Gas potion," the user must "equip the potion in an Arm slot in [the] character's inventory." Ex. 1013, 69, 23. Thus, the Diablo II Manual teaches using at least two equipment slots (i.e., "layers") for weapons—left and right arms/hands.

2) Combining game item functions with the avatar

Patent Owner further argues the Diablo II Manual does not teach combining game item functions with the avatar. PO Resp. 25–31. According to Patent Owner,

> [i]n the [Diablo II] Manual, no "game item functions" are combined into the "respective layers" of the avatar to create the gamvatar because the game items displayed on the alleged layers of the avatar in the [Diablo II] Manual are not indicative of "game item functions" available to the player.

PO Resp. 25. We disagree because the Diablo II Manual discloses the Inventory screen as having boxes and slots "representing the different areas of your character that can hold equipment." Ex. 1013, 21. These areas of the character are "layers" of the avatar as discussed above. The Diablo II Manual discloses that, "[t]o equip weapons, armor, or other wearable items, simply pick up the item from your inventory and drop it onto the appropriate location on your character." Ex. 1013, 22. Thus, the equipment areas of the

character in the Inventory screen indicate what game item functions are available to the game player.

Patent Owner argues that, in the Diablo II Manual, "all functionality of the avatar is conveyed through a conventional user interface that shows the available functionalities of the avatar (i.e., game character) to the player." PO Resp. 26. In particular, Patent Owner argues that the Diablo II Manual discloses left and right action icons for using the game items and argues that these action icons are not layers of the avatar but, rather, are part of the interface. PO Resp. 26–30 (citing Ex. 1013, 18–19). The claims, however, do not preclude the use of a "conventional user interface." Indeed, the '743 patent discloses using a particular game item via a "usage button": "Further, as to the item usage method of the black knight gamvatar, the user can buy a black knight item at an item shop, and also can select usage thereof just after buying it or *clicking a usage button* in the Item Bag." Ex. 1001, 11:17–20 (emphasis added); *see also* claim 11 ("wherein the gamvatar is configured to generate a predetermined facial expression or a motion to perform the game item function in response to detection of an input by the user interface."). The '743 patent also describes that a game item can be used via keyboard inputs: "Also, the gamvatar is an avatar for generating a specific function when the user status reaches a specific condition, and the avatars of the gamvatar perform a function or an operation when the user presses buttons, such as when the user inputs emoticons such as '^^' and 'TT.'" Ex. 1001, 7:9–13. When asked about this passage of the '743 patent, counsel for Patent Owner stated:

> So it's not that the user interfaces are different. It's using [a] keyboard. It's using a mouse. It's conventional computer game functionality.

> What is different is that the functionality being implemented in the patent claims and in the manual is functionality that is not associated in the references with a layer of the gamvatar. It is a portion of the user interface disassociated from the avatar itself.

Tr. 43:19–44:1. We disagree with Patent Owner's argument because the functionality that is invoked via the user interface in the Diablo II Manual is the functionality of the game item with which the character has been equipped. As discussed above, the Diablo II Manual discloses that the user must equip the character with a javelin or throwing potion prior to using it. Ex. 1013, 22, 23, 69. The fact that the action of throwing the equipped game item is invoked via a user interface is completely consistent with the disclosures of the '743 patent discussed above. Ex. 1001, 7:9–13, 11:17–20. Therefore, we disagree with Patent Owner's contention that "no layers of the 'avatar' in the [Diablo II] Manual convey functionality or otherwise suggest 'game item functions' combined into the 'respective layers' of the avatar to create the gamvatar." *See* PO Resp. 27.

3) Use of game item functions or layers

Patent Owner also argues the Diablo II Manual does not teach the use of game item functions or layers. PO Resp. 32–35. Patent Owner argues:

> [A]t most, the [Diablo II] Manual discloses only the use of a weapon, equipped in the weapon slot (*i.e.*, purported layer) of the avatar, to activate a function associated therewith, with no suggestion of multiple activated layers (*i.e.*, equipment slots in which game items are equipped) that are used via activation of the game items associated therewith.

PO Resp. 32–33. We disagree with Patent Owner because, as discussed above, the Diablo II Manual describes that two weapons may be equipped, one in the left arm and the other in the right arm. Ex. 1013, 21 ("The

Barbarian character may also equip a secondary weapon in the Left Arm slot."). As also discussed above, the Diablo II Manual describes invoking the game item function via user interface commands, which teaches "using" according to Patent Owner's own proposed construction—"activation of the game item function associated with a game item." *See* PO Resp. 16.

4) Exhaustion

Claim 1 recites:

> wherein the gamvatar is configured to be used to perform the plurality of the game item functions and each of the plurality of game item functions being combined with the respective layers is exhausted in response to detection of each time of using the each of the plurality of game item functions associated with playing a game provided by the game server.

Patent Owner argues the Diablo II Manual does not teach the recited exhaustion because it does not teach disappearance of the game items. PO Resp. 36–42. Patent Owner's arguments, therefore, rely on its proposed interpretation of "exhausted" as requiring disappearance of the game item. *See* PO Resp. 14 ("[T]he skilled artisan would have understood the term 'exhausted' to mean, 'disappear' regarding the game item displayed on the layer and 'consumed' regarding the associated function of the game item."), 36 ("An exhausted game item, the function of which is consumed, disappears from the avatar upon use of its game item function."). As explained above, we do not agree that Patent Owner's proposed interpretation is the broadest reasonable interpretation. *See supra* § II.B.5. As discussed above, Patent Owner's proposed construction conflates the terms exhausted and disappeared. This is not supported by the '743

specification. As explained below, however, we find that, even under such a construction, the Diablo II Manual teaches this limitation.

Patent Owner acknowledges that "stackable items," such as javelins, "have a limited supply." PO Resp. 37 (citing Ex. 1013, 67). The Diablo II Manual discloses:

> **STACKABLE ITEMS**
> Some items can be stacked to fit, one on top of the other, in the same inventory slot. Examples include: keys, and all items that can be thrown or shot by a bow – arrows, bolts, throwing knives, javelins, exploding potions, poison potions and such. Stackable items have as part of their property description a quantity (even if the quantity is 1) when highlighted. As you use the item, this number decreases *until you have exhausted the stack.*

Ex. 1013, 67 (emphasis added). Thus, the Diablo II Manual describes that javelins and potions are items that are exhausted with use. As discussed above, javelins and potions (i.e., "game items") have functions in the game, namely attacking functions. The function of each is consumed with the use of each. Ex. 1013, 69 (describing that "[j]avelins can inflict great damage when thrown" and that some throwing potions are "effective weapons when placed in glass bottles and lobbed from a distance into groups of enemies"). Therefore, we find that the Diablo II Manual teaches at least two game item functions (functions of javelins and throwing potions) that are exhausted upon use.

Furthermore, even if the claims require disappearance of the game items, a contention with which we do not agree for the reasons explained in the claim construction section, we find that the Diablo II Manual teaches disappearance of game items upon exhaustion. For example, the Diablo II Manual discloses that, "[w]hen you run out of potions, your character

automatically equips the item that had previously been in your hand." Ex. 1013, 69. The potion, therefore, disappears from the character's hand upon exhaustion, being replaced by another item.

In its Response, Patent Owner includes an annotated screenshot from the Diablo II Manual, which is reproduced below.

The annotated screenshot provided by Patent Owner includes a red oval around a javelin held by the character, and Patent Owner provides the following caption for the figure: "Figure 2: Ex. 1013 at 27 (javelin)." PO Resp. 39. This screenshot demonstrates that the javelin is depicted on the character (avatar) itself, rather than only in a background layer. Referring to this figure, Patent Owner argues:

> With respect to the javelin game item in the [Diablo II] Manual, though the javelin is a stackable item that is consumed, there is no suggestion that the javelin disappears from the avatar upon consumption of all javelins in the stack. *See e.g.*, Ex. 2003, 39:24-40:4, "Whether or not {the [Diablo II] Manual} actually says that about each and every item, I'm not sure." Rather, the [Diablo II] Manual expressly discloses "an icon of [']crossed arrows[']" appears on the Play Area whenever your quiver is running low on ammunition." Ex. 1013, p. 67.

PO Resp. 39. The quoted testimony is from the deposition of Petitioner's declarant, Mr. Crane. Ex. 2003. For context, the question and full answer are reproduced below.

> Q To the best of your knowledge, the manual does not, in fact, disclose that each of the boxes representing the different areas of your character, in fact, display on the avatar a corresponding object?
>
> . . . .
>
> THE WITNESS: Again, the manual describes that the objects will be wearing the helmet, for example. There may be other references where it talks about the other individual items. Whether or not it actually says that about each and every item, I'm not sure.

Ex. 2003, 39:11–40:4. The question asked about displaying items on the avatar, not whether items disappear from the avatar. The quoted testimony, therefore, does not support Patent Owner's assertion that "there is no suggestion that the javelin disappears from the avatar upon consumption of all javelins in the stack." PO Resp. 39. As can be seen in the annotated screenshot above, the Diablo II Manual discloses depicting a javelin on the character. A depiction of the character holding a javelin when no javelins are left in the character's inventory (i.e., when the javelins have been

exhausted) does not make sense in the context of the Diablo II Manual. Simply put, if an item is exhausted, such as a javelin or a potion, the character no longer has that item and would not be depicted holding it. Thus, the Diablo II Manual teaches or suggests that at least two game items—potions and javelins—have functions that are exhausted upon use and disappear upon exhaustion.

5) Gamvatar

Patent Owner also argues that the Diablo II Manual teaches a conventional avatar, not a "gamvatar" as claimed. PO Resp. 22–23. We disagree. Although the Diablo II Manual does not use the term "gamvatar," it nonetheless teaches a "gamvatar" because, as discussed above, it teaches combining game item functions with the avatar, as recited in the combining step, thus resulting in the claimed "gamvatar."

Furthermore, even though we do not adopt Patent Owner's proposed construction of "gamvatar" as requiring that it represent the user both in a game and on a web site, we note that the Diablo II Manual teaches this subject matter. In particular, the Diablo II Manual discloses that characters represent a user in a game and on Battle.net, which is "Blizzard Entertainment's free, on-line gaming network." Ex. 1013, 30. The Diablo II Manual discloses that a user connects to the network "Battle.net" to select or create a character ("avatar") to represent the user. Ex. 1013, 30–31; *see* Ex. 1013, 31 ("If this is your first time logging onto Battle.net with Diablo II, you will be asked to create a character. . . . You can create up to eight characters with a single Battle.net account. If you have previously created multiple Realm characters, you can choose which character you wish to play from the Character Selection screen.").

Therefore, we find the Diablo II Manual teaches a gamvatar that represents the user both in a game and on a web site (e.g, Battle.net).

c. Findings and conclusions as to independent claim 1

1) Preamble

We find the Diablo II Manual teaches "[a] method for generating a character associated with a character generating system comprising a gamvatar provider, a gamvatar controller, and a game server," as recited in the preamble of claim 1. This finding is supported by the Diablo II Manual's disclosure of a computer game that allows a user to select a character and equip that character with particular items, including javelins and potions, as well as the disclosure of Battle.net Realm servers. Ex. 1013, 21–22, 27, 30–31, 67–71.

2) "Providing an avatar"

We further find the Diablo II Manual teaches "providing an avatar to a user accessing an avatar shop via a network, the avatar comprising multiple layers for displaying avatar functions or performing game item functions by using the respective layers." In particular, we find the Diablo II Manual's disclosure of allowing a user to select a character on a Battle.net Realm server teaches "providing an avatar to a user accessing an avatar shop via a network." Ex. 1013, 30–31; Ex. 1002 ¶¶ 111, 161–162. The Diablo II Manual describes the process of "selecting or creating a Battle.net Realm character." Ex. 1013, 30–31.

As explained above, we also find the Diablo II Manual teaches "the avatar comprising multiple layers for displaying avatar functions or performing game item functions by using the respective layers." The Inventory screen of the Diablo II Manual depicts multiple equipment areas,

which we find are layers of the avatar, for the reasons explained above. Ex. 1013, 21. In particular, these are graphics regions that, although not always depicted on the character (avatar), are associated with the avatar, consistent with the '743 patent's description of layered items that are not worn by the avatar. Ex. 1001, 6:33–43, Fig. 5.

We find javelins and potions in the Diablo II Manual teach "game items" because they are items used in the game. Ex. 1013, 67–71 (describing weapons in the Diablo II game). We also find javelins and potions have functions in the game. For example, javelins and "throwing potions" are used in attacking opponents to damage them. Ex. 1013, 69 (describing that "[j]avelins can inflict great damage when thrown" and that some throwing potions are "effective weapons when placed in glass bottles and lobbed from a distance into groups of enemies"). Therefore, we find that the Diablo II Manual's disclosure of javelins and potions teaches "game item functions" as claimed.

The Diablo II Manual discloses that the "Right Arm . . . is where you equip a weapon such as a sword or a bow." Ex. 1013, 21. Thus, one graphics region (layer), the right arm equipment slot, is used for a weapon. The Diablo II Manual further discloses that "[t]he Barbarian character may also equip a secondary weapon in the Left Arm slot." Ex. 1013, 21. Thus, the Diablo II Manual teaches that a second graphics region (layer), the left arm equipment slot, is used for a second weapon. The Diablo II Manual discloses that, "[t]o equip weapons, armor, or other wearable items, simply pick up the item from your inventory and drop it onto the appropriate location on your character." Ex. 1013, 22. To throw a javelin, the user "must first equip it in one of [the] character's hands," and, to use a "Rancid

Gas potion," the user must "equip the potion in an Arm slot in [the] character's inventory." Ex. 1013, 69, 23. Thus, the Diablo II Manual teaches using at least two equipment slots (i.e., "multiple layers") for weapons—left and right arms/hands.

3) "Combining"

We further find the Diablo II Manual teaches "combining each of a plurality of game item functions with the avatar by adding the respective layers to the avatar to create a gamvatar associated with the plurality of the game item functions." The Diablo II Manual discloses the Inventory screen as having boxes and slots "representing the different areas of your character that can hold equipment." Ex. 1013, 21. These areas of the character are "layers" of the avatar as discussed above. The Diablo II Manual discloses that, "[t]o equip weapons, armor, or other wearable items, simply pick up the item from your inventory and drop it onto the appropriate location on your character." Ex. 1013, 22. As discussed above, the Diablo II Manual also discloses that, to throw a javelin, the user "must first equip it in one of [the] character's hands," and, to use a "Rancid Gas potion," the user must "equip the potion in an Arm slot in [the] character's inventory." Ex. 1013, 69, 23.

We find that the Diablo II Manual's disclosure of equipping weapons by putting them into particular locations, such as equipping left and right arms with javelins and potions, teaches the recited "combining." By disclosing equipping the character with weapons via this process, the Diablo II Manual teaches the creation of "a gamvatar associated with the plurality of the game item functions." Ex. 1013, 21–23, 69; Ex. 1002 ¶¶ 138–144.

4) Exhausted

We further find the Diablo II Manual teaches

> wherein the gamvatar is configured to be used to perform the plurality of the game item functions and each of the plurality of game item functions being combined with the respective layers is exhausted in response to detection of each time of using the each of the plurality of game item functions associated with playing a game provided by the game server,

as recited in claim 1. In particular, as explained above, the Diablo II Manual describes that javelins and potions are "stackable items" that are exhausted with use:

> **STACKABLE ITEMS**
> Some items can be stacked to fit, one on top of the other, in the same inventory slot. Examples include: keys, and all items that can be thrown or shot by a bow – arrows, bolts, throwing knives, javelins, exploding potions, poison potions and such. Stackable items have as part of their property description a quantity (even if the quantity is 1) when highlighted. As you use the item, this number decreases *until you have exhausted the stack.*

Ex. 1013, 67 (emphasis added). As discussed above, javelins and potions (i.e., "game items") have functions in the game, namely attacking functions. The function of each is consumed with the use of each. Ex. 1013, 69 (describing that "[j]avelins can inflict great damage when thrown" and that some throwing potions are "effective weapons when placed in glass bottles and lobbed from a distance into groups of enemies"). Therefore, we find that the Diablo II Manual teaches at least two game item functions (functions of javelins and throwing potions) that are "exhausted in response to detection of each time of using the each of the plurality of game item functions." Furthermore, we find the Diablo II Manual's disclosure of

playing games over Battle.net using "Battle.net Realm servers" teaches a gamvatar and game item functions "associated with playing a game provided by the game server." Ex. 1013, 30; Ex. 1002 ¶¶ 156–166.

Furthermore, for the reasons discussed above, we find the Diablo II Manual teaches disappearance of javelins and potions (game items) upon exhaustion of the functions of javelins and potions. Ex. 1013, 27, 67, 69. Thus, we find the Diablo II Manual teaches the "exhausted" limitation under Patent Owner's interpretation requiring disappearance of the game items upon exhaustion.

5) Conclusion as to claim 1

For the reasons explained above, we find the Diablo II Manual teaches all of the limitations of claim 1. Patent Owner does not present any objective evidence of nonobviousness as to any of the challenged claims. Based on these findings, we conclude, therefore, that the subject matter of claim 1 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

3. Claims 2–11

Petitioner further contends the subject matter of independent claims 3, 6, 7, and 9 and dependent claims 2, 4, 5, 8, 10, and 11 would have been obvious based on the teachings of the Diablo II Manual. Pet. 25–38. Although Patent Owner does not provides specific arguments with respect to these claims other than those presented with respect to independent claim 1 and discussed above, the burden remains on Petitioner to demonstrate unpatentability of all challenged claims. 35 U.S.C. § 316(e); *see also Dynamic Drinkware LLC, v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). We have analyzed Petitioner's contentions and supporting

evidence in light of the limitations recited in claims 2–11. As explained more fully below with respect to the particular subject matter recited in these claims, we are persuaded Petitioner has met its burden of demonstrating unpatentability of claims 2–11 by a preponderance of the evidence. *See* Pet. 25–38.

a. Independent claim 3

Independent claim 3 is directed to "[a] method, using a processor, for providing a character service" reciting subject matter similar to claim 1. Petitioner contends the Diablo II Manual teaches the use of a processor. Pet. 26 (citing Ex. 1013, 5, 7 ("Diablo II requires [a] . . . computer, with a . . . processor."). Petitioner contends the Diablo II Manual teaches a method "for providing a character service" reciting the limitations of claim 3 for the same reasons it contends as to claim 1. Pet. 25–27.

We are persuaded by Petitioner's contentions. We find the Diablo II Manual teaches a method "for providing a character service" using a processor because it discloses that the Diablo II game requires a computer with a processor (Ex. 1013, 5, 7), and we find the Diablo II Manual teaches the limitations of claim 3 for the same reasons we find the Diablo II Manual teaches the limitations of claim 1. Based on these findings, we conclude that the subject matter of claim 3 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

b. Independent claim 6

Independent claim 6 is directed to "[a] non-transitory computer-readable medium comprising an executable program which, when executed, performs" steps similar to those recited in claim 1. Petitioner contends that the Diablo II Manual discloses that the Diablo II game "is delivered to a user

via a single CD-ROM" and installed on a computer and that "the CD-ROM and the user's computer describe non-transitory computer-readable media comprising an executable program." Pet. 28 (citing Ex. 1013, 5, 7; Ex. 1002 ¶¶ 170–171). Petitioner contends the Diablo II Manual teaches the limitations of claim 6 for the same reasons it contends as to claim 1. Pet. 28–29.

We are persuaded by Petitioner's contentions. We find the Diablo II Manual teaches "[a] non-transitory computer-readable medium comprising an executable program" because it discloses that the Diablo II game is contained on a CD-ROM and is installed into a computer from the CD-ROM (Ex. 1013, 5, 7), and we find the Diablo II Manual teaches the limitations of claim 6 for the same reasons we find the Diablo II Manual teaches the limitations of claim 1. Based on these findings, we conclude that the subject matter of claim 6 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

c. Independent claim 7

Independent claim 7 is directed to "[a] system for generating a character via a network" and recites several limitations in apparatus form that are similar to limitations recited in claim 1, including "an avatar provider" that performs functionality similar to the "providing" step of claim 1 and "a gamvatar provider" that performs functionality similar to the "combining" step of claim 1. Claim 7 also recites an "exhaustion" limitation similar to claim 1. Claim 7 further recites "a gamvatar controller to edit the gamvatar corresponding to the respective layers of the avatar associated with the selected game item function" and also "wherein a database is configured to store information of the gamvatar."

Petitioner contends the Diablo II Manual's disclosures of selecting and creating a character and playing network games teach "[a] system for generating a character via a network." Pet. 29–30. Petitioner contends that the Diablo II Manual teaches the claimed "avatar provider" and "gamvatar provider" for the reasons discussed with respect to the "providing" and "combining" limitations of claim 1. Pet. 30–31. With respect to the claimed "gamvatar controller," Petitioner contends that "the 'Vendor Screen' in conjunction with the user's 'Inventory screen,' discloses a system for editing a gamvatar." Pet. 32 (citing Ex. 1013, 21–22, 25; Ex. 1002 ¶¶ 115, 122–124). With respect to the claimed recitation that "a database is configured to store information of the gamvatar," Petitioner contends that, "[i]n order for the customized avatar (or gamvatar) to persist between game play sessions, the customization settings must be saved on a system, necessarily requiring the use of a database." Pet. 32–33 (citing Ex. 1002 ¶¶ 189–191).

We are persuaded by Petitioner's contentions. We find the Diablo II Manual teaches "[a] system for generating a character via a network" because it describes computers facilitating the selection and creation of characters as discussed with respect to claim 1. We find the Diablo II Manual teaches the claimed "avatar provider" and "gamvatar provider" because it discloses the use of software on computers to perform the "providing" and "combining" steps, as discussed with respect to claim 1. *See*, *e.g.*, Ex. 1013, 5, 7 (describing installation of software to play Diablo II), 30–31 (describing Battle.net Realm servers). We also find the Diablo II Manual teaches the "exhaustion" recited in claim 7 for the same reasons we find with respect to claim 1.

We also find the Diablo II Manual's disclosure of equipping characters with items such as weapons using the Inventory screen teaches "a gamvatar controller to edit the gamvatar corresponding to the respective layers of the avatar associated with the selected game item function." Ex. 1013, 21–22. For example, the Diablo II Manual discloses that, "[t]o equip weapons, armor, or other wearable items, simply pick up the item from your inventory and drop it onto the appropriate location on your character." Ex. 1013, 22. Furthermore, to throw a javelin, the user "must first equip it in one of [the] character's hands," and, to use a "Rancid Gas potion," the user must "equip the potion in an Arm slot in [the] character's inventory." Ex. 1013, 69, 23. Therefore, the Diablo II Manual teaches that the player uses software to edit the gamvatar and, as such, teaches the claimed "gamvatar controller."

We also find that the Diablo II Manual teaches that "a database is configured to store information of the gamvatar." As Petitioner's declarant, Mr. Crane, points out, the Diablo II Manual describes that a user can select from previously-created characters. Ex. 1002 ¶¶ 189–191 (citing Ex. 1013, 10, 30). For example, the Diablo II Manual discloses that, "[a]fter Diablo II has loaded, select the 'Single Player' option. This takes you to the Character Selection screen where you select a character from a list of those that you have previously created." Ex. 1013, 10. The Diablo II Manual also discloses that, "[i]n a Realm game, characters are stored on the Realm and you can access them from any computer when you log into Battle.net." Ex. 1013, 30. Mr. Crane testifies that, "[i]n order for an in-game avatar (or gamvatar) to persist between game play sessions (i.e. 'previously created'), the avatar customization settings must be saved on a computer, necessarily

requiring the use of a database under the ordinary meaning of that term." Ex. 1002 ¶ 190. Based on the Diablo II Manual's disclosure of retrieving previously-created characters, we credit Mr. Crane's testimony that a computer for storing the gamvatar information, i.e., a database, would have been required and, therefore, is taught by the disclosure of the Diablo II Manual. As such, we find that the Diablo II Manual teaches that "a database is configured to store information of the gamvatar."

Based on these findings, we conclude that the subject matter of claim 7 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

d. Independent claim 9

Independent claim 9 is directed to "[a] system comprising a non-transitory storage medium for servicing a character via a network." As explained above with respect to independent claim 6, we find the Diablo II Manual teaches "[a] non-transitory computer-readable medium" because it discloses that the Diablo II game is contained on a CD-ROM and is installed into a computer from the CD-ROM. Ex. 1013, 5, 7. The CD-ROM and the memory on the computer on which the Diablo II game is installed teach non-transitory computer-readable media, and, as Petitioner also asserts, the Battle.net servers also teach non-transitory computer-readable media. Pet. 35 (citing Ex. 1013, 31; Ex. 1002 ¶¶ 172–173, 175–176). We also find the Diablo II Manual teaches "[a] system . . . for servicing a character via a network" because it describes computers facilitating the selection and creation of characters, as discussed with respect to claim 1.

We also find the Diablo II Manual teaches "a gamvatar provider to generate a gamvatar, the gamvatar comprising an avatar being combined

with a game character associated with a game item function, the avatar comprising a plurality of layers for displaying avatar functions or performing game item functions by using the respective layers," as recited in claim 9, for the reasons discussed with respect to the "providing" and "combining" limitations of claim 1 and the "avatar provider" and "gamvatar provider" limitations of claim 7. Petitioner asserts the Diablo II Manual's disclosure of online gaming via various servers teaches that "the non-transitory storage medium is configured to store information relating to the gamvatar," as recited in claim 9. Pet. 35. We are persuaded because, as discussed above with respect to claim 7, the Diablo II Manual discloses retrieving previously-created characters. Ex. 1013, 10, 30; Ex. 1002 ¶¶ 175–176.

Petitioner also contends that the Diablo II Manual teaches "a game server to progress a game according to a game logic associated with a game, and to combine one or more of the game item functions selected with the avatar by adding the respective layers to the avatar, the selection is performed by using a user interface." Pet. 36. We are persuaded by these contentions, and we find the Diablo II Manual's disclosure of gaming via game servers such as Battle.net servers teaches the claimed "game server." Ex. 1013, 30–33. As explained with respect to the "providing" and "combining" limitations of claim 1, we find the Diablo II Manual's disclosure of equipping characters with items such as weapons using the Inventory screen teaches using a user interface to select game item functions and combine those functions with the avatar/gamvatar. Ex. 1013, 21–23, 69.

Petitioner also contends that the Diablo II Manual teaches

> a gamvatar controller to control whether the gamvatar is to be used to perform the game item functions or each of the game item functions being combined with the respective layers is exhausted, the exhaustion is controlled in response to detection of each time of using the each of the game item functions,

as recited in claim 9. Pet. 36–37. We find the Diablo II Manual teaches the exhaustion of game item functions for the same reasons we find with respect to the "exhausted" limitation of claim 1.

Claim 9 further recites that "the gamvatar is configured to be used to play a plurality of games provided by the game server via a network." Petitioner contends the Diablo II Manual teaches this subject matter, referring to its discussion of multi-player options with respect to claim 1. Pet. 37 (citing, *inter alia*, Pet. 23–25 (§ VII.A.4)). With respect to claim 1, Petitioner argues the Diablo II Manual teaches multi-player games in various Battle.net Realms as well as "Open Games" played over Battle.net. Pet. 24–25 (citing Ex. 1013, 30, 32–33). The Diablo II Manual discloses a game character can be used in single player games as well as in multi-player games, i.e., "a plurality of games." For example, the Diablo II Manual discloses: "The big advantage of Open Games, however, is that you can bring your Single Player characters onto Battle.net. You can play with your friends over Battle.net, and then continue playing that character in Single Player as you wish." Ex. 1013, 33. The Diablo II Manual also discloses that, "[i]n Diablo II, your character adventures through the same quests, characters, items, monsters and Act progression in both Multi-Player and Single Player." Ex. 1013, 33. Therefore, we find the Diablo II Manual teaches "the gamvatar is configured to be used to play a plurality of games provided by the game server via a network."

Based on these findings, we conclude that the subject matter of claim 9 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

e. Dependent claims 2 and 8

Dependent claim 2 recites: "The method of claim 1, wherein the gamvatar is selectively editable by using a user interface in response to determination of the selected game character[7] being combined with the avatar associated with the plurality of the game item functions." Claim 8 depends from claim 7 and recites that "the gamvatar controller is configured to selectively edit the gamvatar using a user interface, the selective edition corresponding to each of the multiple layers of the avatar." Petitioner contends the Diablo II Manual's disclosure of equipping a game character with various items such as weapons teaches this subject matter. Pet. 25. Petitioner's contentions with respect to claim 8 also rely on the Diablo II Manual's disclosure of using an Inventory screen to equip characters with various items. Pet. 34.

We are persuaded by Petitioner's contentions. We find the Diablo II Manual's disclosure of equipping characters with items such as weapons using the Inventory screen teaches that the gamvatar is selectively editable by using a user interface. Ex. 1013, 21–22. For example, the Diablo II Manual discloses that, "[t]o equip weapons, armor, or other wearable items, simply pick up the item from your inventory and drop it onto the appropriate location on your character." Ex. 1013, 22. Furthermore, to throw a javelin,

[7] Claim 1, from which claim 2 depends, recites combining game item functions with the avatar, rather than combining a "game character" with the avatar. We understand claim 2 to be referring to the combining step recited in claim 1.

the user "must first equip it in one of [the] character's hands," and, to use a "Rancid Gas potion," the user must "equip the potion in an Arm slot in [the] character's inventory." Ex. 1013, 69, 23. Therefore, the Diablo II Manual teaches that the player uses software to edit the gamvatar, and, because the user can further edit the gamvatar once created via the combining step, the Diablo II Manual teaches that the gamvatar is editable "in response to" determining that the "combining" step occurred. The Diablo II Manual also discloses that the user can edit any equipment slot on the character, i.e., "corresponding to each of the multiple layers of the avatar," as recited in claim 8. Ex. 1013, 22 ("To equip weapons, armor, or other wearable items, simply pick up the item from your inventory and drop it onto the appropriate location on your character.").

Based on these findings, we conclude that the subject matter of claims 2 and 8 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

f. Dependent claims 4 and 10

Claims 4 and 10 depend, respectively, from claims 3 and 9 and recite that "the game item functions comprise at least one of a function for charging or restoring cyber money, a function for reinforcing power of the gamvatar, or a function for attacking or defending other gamers." Petitioner contends the Diablo II Manual teaches game item functions of attacking or defending other gamers. Pet. 27, 37. We agree. As discussed above with respect to claim 1, the Diablo II Manual discloses that weapons, such as javelins and throwing potions, are used for attacking other characters in the game. Ex. 1013, 67–71.

Based on these findings, we conclude that the subject matter of claims 4 and 10 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

g. Dependent claims 5 and 11

Claim 5 depends from claim 4 and recites that "the gamvatar is configured to generate a predetermined facial expression or a motion to perform the game item function in response to detection of an input of a button or an emoticon provided by the user interface." Claim 11 depends from claim 10 and recites that "the gamvatar is configured to generate a predetermined facial expression or a motion to perform the game item function in response to detection of an input by the user interface." Petitioner contends the Diablo II Manual's disclosure of throwing a "Rancid Gas potion" in response to clicking on the user interface teaches this subject matter. Pet. 27–28 (citing Ex. 1013, 11, 23; Ex. 1002 ¶¶ 218–220). We agree. The Diablo II Manual discloses:

> A good example of Action Icons is to use your Throw skill to lob a Rancid Gas potion. Some potions can be used as weapons, exploding upon impact or releasing a cloud of poison. To prepare your character, change the Right Action Icon by left-clicking on it, then left-clink on the "Throw" icon in the menu that appears. Next, equip the potion in an Arm slot in your character's inventory. Now, when you right-click, your character throws the potion at your intended target. You can keep throwing as long as you have potions.

Ex. 1013, 23; *see also* Ex. 1013, 10 ("The phrases 'click' or 'left-click' refer to quickly pressing and releasing the button on the top, left side of your mouse."). We find this disclosure of left-clicking a button to throw a potion teaches the limitations of claims 5 and 11.

Based on these findings, we conclude that the subject matter of claims 5 and 11 would have been obvious to a person of ordinary skill in the art over the teachings of the Diablo II Manual.

E. Obviousness over Diablo II Manual in Combination with Rogers

Petitioner further contends that claims 1–11 of the '743 patent are unpatentable under 35 U.S.C. § 103(a) as having been obvious over the Diablo II Manual in combination with Rogers. Pet. 4, 15–38.

1. Whether Rogers Is Available As Prior Art

Rogers is a June 23, 2005 publication of a U.S. patent application filed on August 19, 2004. Ex. 1017, (43), (22). Rogers claims priority to provisional application 60/496,704 (Ex. 1024, "the Rogers provisional"), which was filed on August 19, 2003. Ex. 1017, (60). Petitioner asserts that Rogers qualifies "as prior art under at least pre-AIA 35 U.S.C. §102(e)(1)." Pet. 6.

In its Response, Patent Owner argues that Rogers is not entitled to claim priority to the filing date of the Rogers provisional application and that, without that date, Patent Owner can antedate Rogers. PO Resp. 16–19. Patent Owner provides documents, the earliest of which purports to be dated July 7, 2004, attempting to show prior conception of the invention of the '743 patent. Exs. 2006–2017.

a. Evidence of prior invention

For the reasons explained below, Patent Owner has not produced evidence sufficient to antedate Rogers's non-provisional filing date. With its Response, Patent Owner submits various exhibits that it asserts "evidenc[e] (1) invention prior to the August 19, 2004, effective filing date of Rogers, and (2) due diligence from prior to the August 19, 2004, effective filing date

of Rogers until August 27, 2004, the constructive reduction to practice . . . established by the filing date of Korean Patent Application No. 10-2[0]04-0067817." PO Resp. 19 (citing Exs. 2005, 2008–2014). Patent Owner subsequently filed two additional declarations and a supplemental declaration. Exs. 2007 (Supplemental), 2016, 2017.

Conception is the "'formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.'" *Dawson v. Dawson*, 710 F.3d 1347, 1352 (Fed. Cir. 2013) (quoting *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)). With the exception of one document that purports to have been authored by the inventor of the '743 patent (Exhibit 2008), the record is bereft of evidence from the inventor. For example, Patent Owner does not introduce testimony from the inventor regarding conception of the invention, nor does the record reflect any attempts by Patent Owner to contact the inventor. Thus, we are left to consider what happened in the mind of an inventor without testimony from the inventor himself. *See Dawson*, 710 F.3d at 1352–53.

With its Response, Patent Owner submits a declaration from Kiho Lee, Patent Owner's president. Ex. 2007. In this declaration, Kiho Lee provides descriptions of Exhibits 2005 and 2008–2014 and testifies that certain of these exhibits "disclose" "most" or "all" "of the claim elements of the '743 patent." Ex. 2007 ¶¶ 5–8. Kiho Lee also testifies that "the inventions claimed in the '743 patent had been conceived by the inventor before August 19, 2004 when Rogers was filed." Ex. 2007 ¶ 9. Kiho Lee also testifies that "[t]he inventions had also been constructively reduced to practice . . . with due diligence from a period of July 8, 2004 ([Ex. 2011]) to

August 27, 2004 (the filing date of the KPA [(Korean Patent Application 10-2004-0067871)]), at least by [Exhibit 2010] dated July 13, 2004 and [Exhibit 2013] dated August 24, 2004." Ex. 2007 ¶ 10. Patent Owner submitted a "supplemental" declaration from Kiho Lee that provides short descriptions of various documents with reference to two other declarations (Exs. 2016 and 2017). Ex. 2007 (Supplemental). This supplemental declaration does not include testimony regarding conception and reduction to practice or disclosure of claim elements by the cited documents.

These declarations from Kiho Lee are not probative of the issue of prior invention. In the first declaration, Kiho Lee provides no explanation supporting the assertions that various documents disclose most or all of the claim elements. Ex. 2007 ¶¶ 5, 7, 8. The assertions regarding conception and diligence are also conclusory and lack probative value. Kiho Lee does not testify regarding personal knowledge of the circumstances regarding the drafting of the Korean patent application to which the '743 patent claims priority. Indeed, Patent Owner Game and Technology Co., Ltd. was a subsequent assignee of the '743 patent (Ex. 2007 ¶ 3; Ex. 2007 (Supplemental) ¶ 3), and Kiho Lee does not testify to any involvement with any of the predecessors-in-interest to the '743 patent during the time of the alleged conception. As noted above, the supplemental declaration does not include testimony regarding conception and reduction to practice or disclosure of claim elements by the documents. Ex. 2007 (Supplemental). This declaration amounts to little more than an identification of various documents and, therefore, is not probative of conception and diligence.

Patent Owner also submits declarations from Hyunsun Kang (Ex. 2016) and Hyung Seok Ko (Ex. 2017) that purport to provide some

authentication for Exhibits 2008–2014. We discuss the testimony in these declarations in conjunction with Exhibits 2008–2014.

According to Hyunsun Kang, Exhibit 2008 ("Evidence A") is "a document file 'GameMoneyAvatar.doc' which would be a basis for drafting the KPA by one or more Korean patent attorneys at You Me" Patent Law Firm, and Exhibit 2009 ("Evidence B") is a July 7, 2004 email to which Exhibit A was attached. Ex. 2016 ¶ 5. Exhibit 2008 is a short document purportedly prepared by Jun-Mahn Lee, the inventor of the '743 patent. Although this document appears to propose the idea for combining an avatar and an item function, it does not provide sufficient detail to show that the inventor had formed "a definite and permanent idea of the complete and operative invention." *Dawson*, 710 F.3d at 1352. Indeed, after providing some high level ideas, the document states: "The above are provided. Please review and let us know how the above descriptions need to be organized and supplemented so I can put together and send to you." Ex. 2008, 2. Rather than reflecting a "complete idea," Exhibit 2008 suggests an incomplete idea that required supplementation.

Hyunsun Kang further testifies that Exhibit 2010 ("Evidence C") is a July 13, 2004 email showing that the "Gamvatar for gamemoney" patent application was assigned for drafting to Jinyoung Jung. Ex. 2016 ¶ 6. This email does not further elaborate on the alleged conception of the invention.

Hyung Seok Ko, an employee of NHN, a previous owner of the '743 patent, testifies:

> NHN Entertainment still maintains a file wrapper of the KPA in a zip file including a draft version of the KPA dated July 8, 2004 (last modified July 13, 2004). This draft version of the KPA and a screen shot of the zip file folder

> are referred to as Evidence D [(Ex. 2011)] and Evidence E [(Ex. 2012)].

Ex. 2017 ¶ 4. Exhibit 2011 is a document entitled "Gamvatar Scheme" and purports to be from the "Department of Game Business / Game Business team." This document does not bear the name of the inventor of the '743 patent, so it is not clear how it shows conception by the inventor of the subject matter claimed in the '743 patent.

Hyunsun Kang testifies that Exhibit 2013 ("Evidence F") is a draft version of the KPA attached to an August 24, 2004 email from Jinyoung Jung of the You Me firm to Geunwoo Choi of NHN (Exhibit 2014 ("Evidence G")). Ex. 2016 ¶ 7. This email is dated five days after the August 19, 2004 non-provisional filing date of Rogers and, therefore, does not establish *prior conception*.

Having considered the evidence submitted by Patent Owner to antedate Rogers, we determine Patent Owner has not met its burden of production to show that the invention of the '743 patent was fully conceived by the inventor prior to August 19, 2004, the non-provisional filing date of Rogers. Patent Owner does not introduce any testimony from the inventor regarding the conception of the claimed subject matter, nor does the record reflect any attempts by Patent Owner to contact the inventor. The only document introduced by Patent Owner that purports to be prepared by the inventor merely reflects some high-level ideas and asks "how the above descriptions need to be organized and supplemented so I can put together and send to you." Ex. 2008, 2. The evidence of record does not show where the inventor himself provided further supplementation or otherwise fully conceived the invention prior to August 19, 2004.

Therefore, the evidence of record does not show conception by the inventor prior to August 19, 2004 coupled with reasonable diligence from a point in time before August 19, 2004 to the filing of the KPA (the constructive reduction to practice).

b. Rogers's effective filing date

With respect to Rogers, Patent Owner argues:

> The aspects of layering in Rogers are nowhere disclosed in [the Rogers provisional]. Therefore, the aspects of layering for which Rogers is cited are not entitled to the filing date of [the Rogers provisional]. . . . As a result, the earliest effective filing date of Rogers is August 19, 2004.

PO Resp. 18–19. Petitioner disputes this and argues "Rogers is prior art as of August 19, 2003" because "the provisional application of Rogers fully discloses layering." Reply 5 (citing Ex. 1024, 1B, 6–7, 13, 74; Ex. 1023 ¶¶ 4–14). Petitioner's declarant, Mr. Crane, testifies that the Rogers provisional discloses layering and also that the Rogers provisional provides support for claim 19 of Rogers. Ex. 1023 ¶¶ 4–14.

Under 35 U.S.C. § 119(e)(1),[8]

> [a]n application for patent filed under section 111(a) or section 363 of this title for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in a provisional application filed under section 111(b) of this title, by an inventor or inventors named in the provisional application, shall have the same effect, as to such invention, as though filed on the date of the provisional application filed under section 111(b) of this title, if the application for patent filed under section 111(a) or section 363 of this title is filed not later than 12 months

[8] Because Rogers was filed prior to the effective date of the Leahy-Smith America Invents Act ("AIA"), we cite the pre-AIA version of this statutory subsection.

> after the date on which the provisional application was filed and if it contains or is amended to contain a specific reference to the provisional application.

In this case, Petitioner provides evidence, in the form of Mr. Crane's testimony, that the Rogers provisional provides written description support for at least one claim of Rogers—claim 19. *See Dynamic Drinkware*, 800 F.3d at 1381 ("A reference patent is only entitled to claim the benefit of the filing date of its provisional application if the disclosure of the provisional application provides support for the claims in the reference patent in compliance with § 112, ¶ 1").

Claim 19 of Rogers recites:

> A method of participating in an on-line, interactive game environment comprising:
>
> a) creating a virtual character that represents a participant;
>
> b) communicating with the game environment and with other participants in the game environment via instant messaging, the other participants selected from a predefined list created by the participant;
>
> c) obtaining virtual resources for the virtual character through experiences provided by the game environment; and
>
> d) trading the obtained virtual resources with the other participants using instant messaging.

Mr. Crane testifies that the Rogers provisional application describes "a method of participating in an on-line interactive game environment." Ex. 1023 ¶ 13 (citing Ex. 1024,[9] 5). For example, the Rogers provisional

[9] Although Mr. Crane cites Exhibit 1025, we understand the citation to be referring to the Rogers provisional application, which is Exhibit 1024.

describes "Game Play Goals," explaining that "[t]he goal of IM Star is to create an engaging system that includes self-expression, trading and socializing and which enhances the overall experience of instant messaging and avatar building." Ex. 1024, 5. Mr. Crane testifies that the Rogers provisional's disclosure that "[u]sers begin by creating an avatar" describes "creating a virtual character that represents a participant." Ex. 1023 ¶ 13 (quoting Ex. 1024, 5).

Mr. Crane further testifies the Rogers provisional's disclosure regarding a "Friends List" for communicating with others describes the subject matter of the "communicating" limitation. Ex. 1023 ¶ 14 (citing Ex. 1024, 28). Mr. Crane also testifies the Rogers provisional's disclosure regarding obtaining and trading "personality points" describes obtaining and trading "virtual resources," as recited in claim 19. Ex. 1023 ¶ 14 (citing Ex. 1024, 8, 12).

Mr. Crane's testimony regarding the Rogers provisional's support for claim 19 of Rogers is supported by the evidence discussed above, and, therefore, we find that the Rogers provisional provides support under 35 U.S.C. § 112 first paragraph for claim 19 of Rogers.

Mr. Crane also testifies that the Rogers provisional discloses the use of layering. Ex. 1023 ¶¶ 6–11. Mr. Crane testifies the Rogers provisional "discloses the layering of clothing to create a character's overall appearance." Ex. 1023 ¶ 6. For example, the Rogers provisional discloses using the interface to "drag items of clothing to your character's body" and also discloses that "you can wear any combination of clothes and accessories." Ex. 1024, 74. Mr. Crane testifies:

> A person of ordinary skill in the art would recognize that the nature of the inventory items and the ability to change clothing on the avatar described in the Rogers provisional application discloses "multiple layers" and layering. For instance, a jacket is a clothing item worn ***over*** a shirt. Similarly, coats and blazers are worn ***over*** other clothing. The Rogers provisional application depicts characters equipped with various combinations of items visibly overlapping. As shown above, these pieces of clothing can be changed through the use of "multiple layers" or layering. Thus, the Rogers provisional application discloses the use of "multiple layers" or layering.

Ex. 1023 ¶ 11. We credit Mr. Crane's testimony in view of the disclosure of the Rogers provisional of putting "any combination of clothes and accessories" on the character. Ex. 1024, 74. As Mr. Crane points out, a combination of a jacket and a shirt would require putting the jacket over the shirt. Ex. 1023 ¶ 11. Therefore, we disagree with Patent Owner's assertion that the Rogers provisional does not describe Rogers's layering. *See* PO Resp. 18. Rather, we find the Rogers provisional provides support under 35 U.S.C. § 112 first paragraph for Rogers's disclosure of layering.

Petitioner has met its burden of production to show Rogers is entitled to the filing date of the Rogers provisional application, August 19, 2003. Therefore, even if we were to credit Patent Owner's arguments and evidence concerning conception and diligence in reduction to practice, Rogers would still qualify as prior art because Patent Owner's earliest evidence concerning conception bears a date of July 7, 2004, which is well after the August 19, 2003 filing date of the Rogers provisional. *See* Ex. 2009.

c. Rogers is prior art

Based on the foregoing discussions, we find Rogers is prior art under 35 U.S.C. § 102(e)(1) based on its non-provisional filing date of August 19, 2004, as well as based on its claim of priority to the Rogers provisional's filing date of August 19, 2003.

2. Diablo II Manual Combination with Rogers

Petitioner's obviousness contentions for this ground build upon its contentions of obviousness over the Diablo II Manual, which we have discussed above. Petitioner contends Rogers discloses customizing an avatar, including layering items on an avatar. Pet. 21–22 (citing Ex. 1017 ¶¶ 27,[10] 151, Fig. 3; Ex. 1002 ¶¶ 132–135). Petitioner further contends "Rogers describes the use of networking and game servers, graphical layering techniques, and databases." Pet. 15–16 (citing Ex. 1017, Fig. 3, ¶¶ 27, 66, 151, 179–180; Ex. 1002 ¶¶ 130–135, 191–204).

We are persuaded that Rogers discloses layering and the use of databases and game servers, as asserted by Petitioner. For example, Rogers discloses that exemplary avatar customizations include "facial expressions, bodily movements, animations performed by the avatars, or clothing or accessories worn by the avatars[, which] can be changed by the participants." Ex. 1017 ¶ 27. The Rogers provisional also discloses that "[e]xpressions are gestures that an avatar can make while chatting" and that "[e]ach user starts out with several basic expressions, such as 'smile' or 'frown.'" Ex. 1024, 8. Rogers further discloses that, "since the system 300 uniquely allows users to place clothing on the avatar and further allows

[10] The Petition mistakenly cites paragraph 17 of Rogers for the quoted material.

clothing to be layered, the *3D objects (body and clothing) must be layered* to avoid a first image from visibly bleeding through when a subsequent image is placed over the first image." Ex. 1017 ¶ 151 (emphasis added). As explained above, we find the Rogers provisional also discloses layering. Ex. 1023 ¶¶ 6–11; Ex. 1024, 74. Rogers also discloses:

> When the appearance of the participant's avatar is changed, a signal indicating such change is transmitted from the client system used by the participant who has changed the appearance of such avatar to the client systems of the other participants through instant messaging. The client systems of the other participants then automatically contact the server system to find out what changes have been made and update the databases of these client systems and display the changed appearance of the avatar.

Ex. 1017 ¶ 27. The Rogers provisional also describes the use of a database to keep track of data pertaining to participants. Ex. 1024, 24 ("When you enter an ID it will be submitted to the online system database for approval. The database will reject names that are already taken and names that are on its 'obscene' list.").

Petitioner contends that a person of ordinary skill in the art "would have been motivated to combine the layering, database, and other teachings of Rogers with the disclosure of the [Diablo II] Manual." Pet. 16. Petitioner contends that the use of layering as taught in Rogers

> would have improved the methods and systems taught by the [Diablo II] Manual by providing a technique for displaying avatars and customized in-game avatars having functional items. For example, if a customized avatar of the [Diablo II] Manual was displayed through the use of layering techniques, a [person of ordinary skill in the art] would recognize that the bleeding-through of underlying images could be avoided. . . . The inclusion of these layering techniques would not have involved any undue experimentation by a POSITA, and would have

> yielded a predictable result, namely, a cohesive and visually pleasing video game image.

Pet. 16–17 (citing Ex. 1017 ¶¶ 151, 201, 215; Ex. 1002 ¶¶ 105–106, 135). Petitioner's asserted motivation to combine is supported by the disclosure of Rogers, which provides that "the 3D objects (body and clothing) *must be layered to avoid a first image from visibly bleeding through* when a subsequent image is placed over the first image." Ex. 1017 ¶ 151 (emphasis added).

Petitioner also explains why a person of ordinary skill in the art would have had reason to combine Rogers's database disclosures with the teachings of the Diablo II Manual, including that it would "provid[e] a technique for organizing and storing information regarding user-specific, customized in-game avatars having functional equipment" and that "it would have also provided a more efficient way to implement the networked functionality described in the [Diablo II] Manual." Pet. 17 (citing Ex. 1017, Figs. 3, 10 ¶¶ 27, 51, 66, 146–148, 151, 178–180; Ex. 1002 ¶¶ 107, 191–204).

We are persuaded by Petitioner's contentions, and we find a person of ordinary skill in the art would have had reason to combine the teachings of Rogers with those of the Diablo II Manual in the manner asserted for the reasons outlined above. Ex. 1002 ¶¶ 105–107. Although the claims of the '743 patent do not require an item to be "on the avatar" to be displayed in a "layer" of the avatar, as discussed above, the combination of Rogers and the Diablo II Manual teaches layering items on the avatar.

Petitioner also cites Rogers for various limitations of other claims. For claim 2, Petitioner asserts Rogers discloses a user interface. Pet. 25 (citing Ex. 1017 ¶ 158, Fig. 3). We agree because Rogers discloses "[t]he

user interface 322 acts as an interface between the user and the system components." Ex. 1017 ¶ 158; *see also* Ex. 1024 (describing user interfaces throughout).

For claims 5 and 11, Petitioner asserts Rogers teaches facial expressions and emoticons. Pet. 28. 38 (citing Ex. 1017 ¶¶ 21, 27). We agree because Rogers discloses that "facial expressions . . . can be changed by the participants" and also discloses "customized 'emoticons' (little emotive icons such as a smiley face or a 'thumbs up')." Ex. 1017 ¶¶ 21, 27; *see also* Ex. 1024, 8 (describing avatar expressions such as smiling and frowning), 38 ("The Messaging Screen is where users communicate with friends via chat, gestures, emoticons . . . .").

For claim 7, Petitioner cites Rogers's disclosure of a character module and a player inventory in support of its argument that the claimed "avatar provider," "gamvatar provider," "gamvatar controller," and "database" would have been obvious. Pet. 30–34 (citing, *inter alia*, Ex. 1017 ¶¶ 27, 66, 137, 146–148, 151, 178, 190, Figs. 3, 10; Ex. 1002 ¶¶ 185–187, 193–204). We are persuaded by these contentions. For example, Rogers discloses that "players may customize their avatar, for example, by shaping or deforming their avatar, dressing their avatar or providing their avatar with animations. A character module, and more specifically the graphics sub-system 340, is dedicated to performing these tasks." Ex. 1017 ¶ 151. Rogers also discloses that "[t]he player inventory is a view of data that is stored in the shared database 328 for each player" and explains that such data include "game items used to play experiences." Ex. 1017 ¶ 146.

Based on these findings and those discussed with respect to the ground of obviousness based on the Diablo II Manual, we conclude that the

subject matter of claims 1–11 would have been obvious based on the combined teachings of the Diablo II Manual and Rogers.

Having considered the full record developed during trial, Petitioner has demonstrated by a preponderance of the evidence that claims 1–11 of the '743 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of the Diablo II Manual and Rogers.

F. Obviousness over DAoC Manual in Combination with Rogers

Petitioner also contends claims 1–11 of the '743 patent are unpatentable under 35 U.S.C. § 103(a) as having been obvious over the DAoC Manual alone or in combination with Rogers. Pet. 5, 38–58. Because we conclude that claims 1–11 of the '743 patent are unpatentable under 35 U.S.C. § 103(a) over the Diablo II Manual alone and also over the Diablo II Manual in combination with Rogers, we need not separately assess the patentability of these claims based on the DAoC Manual alone or in combination with Rogers. 35 U.S.C. § 318(a) ("If an inter partes review is instituted and not dismissed under this chapter, the Patent Trial and Appeal Board shall issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 316(d).").

III. MOTION TO EXCLUDE

Petitioner filed a Motion to Exclude Exhibits 2006–2014. Paper 26. In the Motion, Petitioner also requests that we "expunge supplemental Exhibit 2007 and Exhibits 2016, and 2017 as improperly filed and failing to cure the objections to the original exhibits." Paper 26, 1. We address these exhibits above in our discussion of alleged prior invention of the '743 patent.

Because we do not rely on any of these exhibits in a manner adverse to Petitioner, we dismiss the Motion to Exclude as moot.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1–11 of the '743 patent have been shown to be unpatentable;

FURTHERED ORDERED that Petitioner's Motion to Exclude (Paper 26) is *dismissed*; and

FURTHERED 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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