

**United States Court of Appeals
for the Federal Circuit**

GAME AND TECHNOLOGY CO., LTD.,
Appellant

v.

ACTIVISION BLIZZARD INC., RIOT GAMES, INC.,
Appellees

2018-1981

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2016-01885.

Decided: June 21, 2019

RICHARD ARTHUR CASTELLANO, DNL ZITO, Washington, DC, argued for appellant. Also represented by JOSEPH J. ZITO.

SHARON A. ISRAEL, Shook, Hardy & Bacon, LLP, Houston, TX, argued for appellees. Also represented by TANYA L. CHANEY, DAVID MOREHAN; JOHN D. GARRETSON, Kansas City, MO.

Before PROST, *Chief Judge*, LOURIE and WALLACH, *Circuit Judges*.

WALLACH, *Circuit Judge*.

Appellees Activision Blizzard Inc. and Riot Games, Inc. (collectively, “Activision”) sought inter partes review (“IPR”) of claims 1–11 (“the Challenged Claims”) of Appellant Game and Technology Co.’s (“GAT”) U.S. Patent No. 8,253,743 (“the ’743 patent”). The U.S. Patent and Trademark Office’s (“USPTO”) Patent Trial and Appeal Board (“PTAB”) issued a final written decision determining, inter alia, that the Challenged Claims were “obvious based on the combined teachings” of the prior art references. *Activision Blizzard, Inc. v. Game & Tech. Co.*, No. IPR2016-01885, 2018 WL 1358661, at *28 (P.T.A.B. Mar. 14, 2018).

GAT appeals. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A) (2012). We affirm.

BACKGROUND

I. The ’743 Patent

Entitled “Method and System for Providing Character Having Game Item Functions,” the ’743 patent relates to the field of customizing Internet game characters in online games by combining game items with layers of an avatar in the game. ’743 patent col. 1 ll. 19–21.¹ Specifically, the ’743 patent discloses a method and system for providing “game item[s]” to Internet game characters and generating a type of avatar the patent refers to as a “gamvatar” that is equipped with particular game items. *Id.* col. 1 ll. 20–23 (explaining that the patent discloses “a method and system

¹ According to the ’743 patent, “[t]he character may represent an animation character for performing the user’s role in cyber[]space, includes an avatar, and supports the user’s desire[d] identity in cyber[]space.” ’743 patent col. 2 ll. 20–22.

for servicing characters and having game item functions of a specific game in the case of characters provided by an online [website]). A “gamvatar” is described by the patent as both “an avatar for exclusive use in a game,” *id.* col. 3 ll. 10–11, and “an avatar that is capable of performing game item functions,” *id.* col. 5 ll. 39–40. A “game item” can include “a game tool, such as a money recovery item,” *id.* col. 2 ll. 45–47, where “the user generally uses the game item in a game after buying it at the game item shop 270 to receive merits according to the specific characteristics of the item,” *id.* col. 2 ll. 50–52. According to the specification, “[t]he game item function of the gamvatar includes the function of charging and restoring cyber money, a function of reinforcing power of the gamvatar, and a function of attacking or defending other gamers.” *Id.* col. 6 ll. 18–21. The ’743 patent also describes “combining” items with layers of an avatar, *id.*, Abstract, and describes the layers of an avatar in the context of “conventional avatar service system[s],” where the user customizes the avatar’s appearance using purchased avatar items, *id.* col. 2 ll. 33–37. After “access[ing] the [website] . . . through the user computer[,] . . . [the user] acquires or buys an avatar from the avatar shop or the avatar server . . . and accesses the game server . . . to play a game.” *Id.* col. 2 ll. 38–41.

Independent claim 1 is representative and recites:

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.

Id. col. 11 l. 60–col. 12 l. 11 (emphases added).

II. The Relevant Prior Art

A. Diablo II Manual

A video game called Diablo II was sold with a user manual (“Diablo II Manual”). J.A. 4354–415. Diablo II is an action, role-playing game, and the Diablo II Manual describes the operation of Diablo II. J.A. 4354–56. The Diablo II Manual includes pictures of a screen, or screenshots, as they would appear during gameplay. J.A. 4354. The Diablo II Manual describes a player customizing a character by equipping it with game items such as armor and weapons. J.A. 4365–66. For example, javelins are among the items described by the manual that “can inflict great damage when thrown.” J.A. 4413. Similarly, the Diablo II Manual discloses that potions are “effective weapons when placed in glass bottles and lobbed from a distance into groups of enemies.” J.A. 4413; *see* J.A. 4367 (explaining that “[s]ome potions can be used as weapons”). Additionally, players can protect their avatars by “[w]earing stronger armor [that] will make an opponent less likely to land a damaging blow on [their] character.” J.A. 4413; *see*

4413–14. As such, the Diablo II Manual discloses that the player can “equip weapons, armor, or other wearable items” by “pick[ing] up the item from [their] inventory and drop[ping] it onto the appropriate location on their character.” J.A. 4366. These game items are all displayed virtually during gameplay in the top of an “[i]nventory screen,” J.A. 4365, which includes a rectangular grid “near the bottom of the screen,” that is the “character’s backpack.” J.A. 4366.

There are multiple ways of playing Diablo II: (1) as a “single player”; (2) on the website “Battle.net”; or (3) in “other multi-player” mode. J.A. 4358 (capitalization modified). Battle.net and other multi-player networks are the “two multi-player options on the main menu.” J.A. 4374 (capitalization modified). The Diablo II manual discloses that “Battle.net is Blizzard Entertainment’s free, on[]line gaming network [which] . . . offers a place where gamers can meet, chat, and adventure together.” J.A. 4374.² It states that “Battle.net is the easiest and fastest way to play Blizzard games on[]line” and, once a user is on Battle.net, she “can find literally thousands of other gamers to team up with (or compete against)” for gameplay. J.A. 4374. Finally, the Diablo II Manual defines “[a] Realm [a]s a Diablo II game server that is hosted and maintained by Blizzard” and it states that “[t]here are several Realms on Battle.net.” J.A. 4374. The Diablo II Manual discloses that “[r]ealm [c]haracters are played exclusively on Diablo II Realms over Battle.net and cannot play in Single Player, Open, or TCP/IP^[3] games.” J.A. 4374. According to the

² The PTAB found that “in a game” is different than playing “on . . . Battle.net.” J.A. 2035–36. GAT does not dispute this distinction. *See generally* Appellant’s Br.

³ “TCP/IP provides a network-independent transport layer while web clients . . . and servers . . . eliminate operating system dependencies.” J.A. 4595.

Diablo II Manual, if it “is [a player’s] first time logging onto Battle.net with Diablo II, [she] will be asked to create a character,” but “[i]f [the player] ha[s] previously created multiple Realm characters, [she] can choose which character [she] wish[es] to play from the Character Selection screen.” J.A. 4375. The Diablo II Manual explains that “[o]nce you have logged in to Battle.net and selected a character, you are placed into one of Battle.net’s Diablo II Realm Chat Channels” where “character portraits, representing other players, appear at the bottom of the screen.” J.A. 4375.

B. Rogers

Entitled “Systems and Methods for a Role-Playing Game Having a Customizable Avatar and Differentiated Instant Messaging Environment,” U.S. Patent Application Publication No. 2005/0137015 A1 (“Rogers”) (J.A. 4570–605) relates to online, interactive games or instant messaging environments where the player is represented by a customizable avatar. J.A. 4570. Rogers discloses that players in a game can use virtual resources to customize their avatars and to change the avatars’ appearance by adding “facial expressions, bodily movements, animations performed by the avatars, or clothing or accessories worn by the avatars.” J.A. 4589. Rogers explains that avatar customization uses graphical layering techniques using a “graphics sub-system 340.” J.A. 4596. This sub-system “comprises a [three-dimensional (‘3D’)] avatar component 342” that “addresses several significant problems associated with displaying 3D objects using current high-end graphics cards.” J.A. 4596. Importantly, Rogers teaches layering techniques to customize the avatar “since the system . . . uniquely allows users to place clothing on the avatar and further allows 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.” J.A. 4596–97.

DISCUSSION

GAT challenges the PTAB’s construction of two terms, “gamvatar” and “layers,” *see* Appellant’s Br. 18–22, as well as its determination that the Challenged Claims would have been obvious, *see id.* at 23–31. After stating the applicable standard of review, we address each argument in turn.

I. Standard of Review

“We review the PTAB’s factual findings for substantial evidence and its legal conclusions *de novo*.” *Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir. 2015) (citation omitted). “Substantial evidence is something less than the weight of the evidence but more than a mere scintilla of evidence,” meaning that “[i]t is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *In re NuVasive, Inc.*, 842 F.3d 1376, 1379–80 (Fed. Cir. 2016) (internal quotation marks and citations omitted). “If two inconsistent conclusions may reasonably be drawn from the evidence in record, the PTAB’s decision to favor one conclusion over the other is the epitome of a decision that must be sustained upon review for substantial evidence.” *Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1356 (Fed. Cir. 2018) (internal quotation marks, brackets, and citation omitted).

II. Claim Construction

A. Legal Standard

At the time it issued the Final Written Decision, the PTAB gave “[a] claim . . . its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b) (2016). A specification “includes both the written description and the claims” of the patent. *In re Packard*, 751 F.3d 1307, 1320 n.11 (Fed. Cir. 2014). “A patent’s specification, together with its

prosecution history,^[4] constitutes intrinsic evidence to which the PTAB gives priority when it construes claims.” *Knowles Elecs. LLC v. Cirrus Logic, Inc.*, 883 F.3d 1358, 1361–62 (Fed. Cir. 2018) (citation omitted). We review the PTAB’s assessment of the intrinsic evidence de novo. *See id.* at 1362.

B. The PTAB Properly Construed the “Gamvatar” and “Layers” Terms

1. “Gamvatar”

The PTAB determined “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” GAT. *Activision*, 2018 WL 1358661, at *5. GAT asserts that “the [PTAB] erred in construing ‘gamvatar’ to mean avatar.” Appellant’s Br. 17 (capitalization modified). GAT asserts that under the broadest reasonable interpretation (“BRI”), the “gamvatar” “is concurrently usable on[]line and in-game” and that the “claims do not need to recite the additional language of ‘representing a user on a website’” because that “requirement is inherent in the plain and ordinary meaning of gamvatar as evidenced by . . . the claims and specification.” *Id.* at 19. GAT asserts that the BRI of the claims is, therefore, narrower than the PTAB’s construction. We disagree with GAT.

The ’743 patent’s claims and specification teach that “gamvatar” is not limited to meaning *concurrently usable online and in the game*. We begin our analysis with the claim language. *In re Power Integrations, Inc.*, 884 F.3d

⁴ A patent’s prosecution history “consists of the complete record of the proceedings before the [US]PTO,” which provides “evidence of how the [US]PTO and the inventor understood the patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc) (citations omitted).

1370, 1376 (Fed. Cir. 2018) (“Claim construction must begin with the words of the claims themselves.” (internal quotations, brackets, and citation omitted)). Representative claim 1 discloses that the “gamvatar” is created by “*providing* an avatar” and “*combining* each of a plurality of game item functions with the avatar.” ’743 patent col. 11 l. 64–col. 12 l. 11 (emphases added). As such, the “gamvatar” is created by combining an avatar with game item functions having additional characteristics. Claim 1, therefore, does not require the gamvatar to represent a user both in a game and on a website, but rather recites a “gamvatar” configured to have certain features. The rest of the Challenged Claims provide various descriptions of how the gamvatar is configured. *See id.* col. 12 l. 12–col. 14 l. 26; *see Blackbird Tech LLC v. ELB Elecs., Inc.*, 895 F.3d 1374, 1381 (Fed. Cir. 2018) (“Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.” (internal quotation marks and citation omitted)). For instance, claim 2 recites that “the gamvatar is selectively editable,” *id.* col. 12 ll. 12–13, “and claim 5 describes” the “gamvatar [as] 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,” *id.* col. 12 ll. 38–41. The Challenged Claims, therefore, explain that the “gamvatar” is an avatar combined with game item functions having characteristics as provided by the claims and thus supports the PTAB’s construction. *See Id.* col. 12 ll. 5–11.

The broader specification similarly demonstrates that “gamvatar” is not limited to concurrent use online and in-game and is actually broader in scope.⁵ For example, the

⁵ “[T]he specification is *always* highly relevant to the claim construction analysis and is, in fact, the single best

specification explains that “the gamvatar according to the embodiments of the present invention combines the conventional avatar with the game item function” and, therefore, “the gamvatar described in the embodiments of the present invention is substantially an avatar that is capable of performing game item functions.” *Id.* col. 5 ll. 35–40. The specification additionally explains that “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,” *id.* col. 3 ll. 10–12 (emphasis added), and it “concurrently functions as a game character in a network game being played over the Internet, and as an avatar on the [website],” *id.* col. 3 ll. 13–15. As such, the specification confirms that the “gamvatar” is properly construed as a combination of “the conventional avatar with the game item function” because the claims and specification both show that the “gamvatar” is not equivalent to an “avatar” because the “gamvatar” requires the combination of game item functions, while the “avatar” does not. *See Pickholtz v. Rainbow Techs., Inc.*, 284 F.3d 1365, 1373 (Fed. Cir. 2002) (explaining that “computer” and “computer system” are used as synonyms when “they are used interchangeably in the . . . patent”).⁶

guide to the meaning of a disputed term.” *See Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) (internal quotation marks and citation omitted).

⁶ GAT also asserts that a “gamvatar” must represent a user on a website outside a game because “an avatar represent[s] a user in cyberspace.” Appellant’s Br. 19. This is a new argument on appeal. *See* J.A. 6166–207 (Patent Owner Response). Therefore, this argument is waived. *Singleton v. Wulff*, 428 U.S. 106, 120 (1976) (“It is the general rule, of course, that a federal appellate court does not consider an issue not passed upon below.”).

2. “Layers”

The PTAB construed the term “layers” to mean that “‘layers’ *encompasses* ‘graphics regions for displaying graphical objects’ and ‘constructs for holding graphics,’” as proposed by GAT. *Activision*, 2018 WL 1358661, at *5. The PTAB, however, explained that “the term ‘layers’ does not require further construction.” *Id.* at *6. GAT asserts that the PTAB erred by construing “‘layer’ to mean display region.” Appellant’s Br. 17 (capitalization modified). Instead, GAT argues the PTAB should have construed “layers” to mean “graphics regions for displaying graphical objects” because “‘layers’ means ‘constructs’ for displaying graphical objects.” *Id.* at 22. We disagree with GAT.

We begin our analysis with the claim language. *In re Power Integrations*, 884 F.3d at 1376. Claim 1 recites an “avatar *comprising* multiple layers for displaying avatar functions *or* performing game item functions.” ’743 patent col. 11 ll. 65–67 (emphases added); *see CIAS, Inc. v. All. Gaming Corp.*, 504 F.3d 1356, 1360 (Fed. Cir. 2007) (“In the patent claim context[,] the term ‘comprising’ is well understood to mean ‘including but not limited to.’”). The claim’s use of the term “comprising,” combined with the use of the disjunctive conjunction “or” supports the construction that “displaying” and “performing game functions” are two alternatives for layers. *See SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1199 (Fed. Cir. 2013) (“The disjunctive ‘or’ plainly designates that a series describes alternatives.”). Thus, the Challenged Claims require more than one layer.

The specification further supports the PTAB’s construction by explaining that there may be several layers for displaying graphics on an avatar and other layers for displaying “additional items or background” that may be displayed separately from the avatar. ’743 patent col. 2 l. 65–col. 3 l. 4. For example, Figure 5 of the ’743 patent shows two embodiments of the “gamvatar” created by combining

the avatar 510 with one game item function 520. *Id.*, fig. 5. This demonstrates how the background layers of an avatar may depict game item functions separate from the avatar itself. *Id.*; *see id.* col. 4 ll. 66–67 (explaining that Figure 5 “shows characters having a game item function according to an embodiment of the present invention”). The specification explains that “[t]he 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.” *Id.* col. 6 ll. 38–41. As such, the specification suggests that one or more items may be displayed at different regional layers of the background. *See id.* col. 2 l. 65–col. 3 l. 4 (explaining that “the avatar has multiple layers to display the respective avatar items [and] . . . each item may have a single layer or multiple layers” and that “upper layers 1 to 15 are provided for accessories, layers 16 to 45 are provided for the body of the avatar and items . . . given to the body of the avatar, and lower avatars are provided for additional items or background”). This indicates that the ’743 patent discloses at least one embodiment where the layers of the avatar do not display game item functions on the avatar itself. *See id.* Therefore, the layers do not have to be displayed on the gamvatar’s image, but rather in a different graphical region of the screen.

The prosecution history confirms the PTAB’s construction of the claims. During prosecution of the ’743 patent, an examiner rejected all then-pending claims over Rogers either alone or in combination with other prior art, including a webpage describing Diablo II. J.A. 6022. The Examiner allowed the Challenged Claims only after the independent claims were amended to overcome Rogers by adding the limitation reciting a “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.” J.A. 4334; *see* J.A. 4341 (explaining the exhausted limitation). As

such, the prosecution history demonstrates that the claims do not require the layers to be displayed on the avatar because the gamvatar is used to perform the game item functions alone or each of the game item functions in combination with the respective layers based on the “exhausted” limitation. *See Shire Dev., LLC v. Watson Pharm., Inc.*, 787 F.3d 1359, 1362–64 (Fed. Cir. 2015) (affirming the district court’s claim construction and explaining that, although an examiner originally determined the claims were obvious, the prosecution history supported the district court’s construction where the claims were only allowable after they were amended to overcome the examiner’s rejection). Therefore, the term “layers” “encompasses ‘graphics regions for displaying graphical objects’ and constructs for holding graphics,” and the claims do not require that the layers be displayed on the avatar. *See Activision*, 2018 WL 1358661, at *6.

GAT’s primary counterargument is unavailing. GAT asserts “the Diablo II Manual does not disclose a gamvatar having ‘layers for performing game item functions,’” meaning the proper construction requires the “layers” displaying graphical objects on the gamvatar. Appellant’s Br. 26–27 (capitalization modified and ellipsis omitted). However, the PTAB correctly explained that “layers” “encompasses graphics regions for displaying graphical objects” and “constructs for holding graphics” because the ’743 patent describes the display of items in various layers and regions. *Activision*, 2018 WL 1358661, at *5 (emphasis omitted) (citing ’743 patent col. 6 ll. 33–43). The use of “or” in the claims demonstrates the intent of the patentee that “displaying” and “performing game functions” are two alternatives for layers. *See SkinMedica*, 727 F.3d at 1199. Similarly, the ’743 patent discloses “layers” displaying game item functions on the avatar and other layers for displaying “additional items or background” that can be displayed separately from the avatar. ’743 patent col. 2 l. 65–col. 3 l. 4. The background layers of an avatar may depict game

item functions separately from the avatar itself as shown by Figure 5, which depicts two embodiments of the gamvatar. *Id.* col. 6 ll. 33–43. Therefore, the Challenged Claims demonstrate that there may be several layers, or regions, for displaying graphics on the gamvatar and other layers for “additional items or background,” that may be displayed separately from the gamvatar. *See generally* ’743 patent. As such, the PTAB did not err during claim construction.

III. Obviousness

A. Legal Standard

A patent claim is invalid “if the differences between the subject matter sought to be patented 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 (‘PHOSITA’)].” 35 U.S.C. § 103(a) (2006).⁷ Obviousness “is a question of law based on underlying findings of fact.” *See In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). Those underlying findings of fact include (1) “the scope and content of the prior art,” (2) “differences between the prior art and the claims at issue,” (3) “the level of ordinary skill in the pertinent art,” and (4) the presence of objective indicia of nonobviousness such “as commercial success, long felt but unsolved needs, failure of others,” and unexpected results. *Graham v. John*

⁷ Congress amended § 103 when it enacted the Leahy-Smith America Invents Act (“AIA”). Pub. L. No. 112-29, § 3(c), 125 Stat. 284, 287 (2011). However, because the application that led to the ’743 patent never contained (1) a claim having an effective filing date on or after March 16, 2013, or (2) a reference under 35 U.S.C. §§ 120, 121, or 365(c) to any patent or application that ever contained such a claim, the pre-AIA § 103 applies. *See* AIA, § 3(n)(1), 125 Stat. at 293.

Deere Co. of Kan. City, 383 U.S. 1, 17 (1966); see *United States v. Adams*, 383 U.S. 39, 50–52 (1966). In assessing the prior art, the PTAB also “consider[s] whether a PHOSITA would have been motivated to combine the prior art to achieve the claimed invention and whether there would have been a reasonable expectation of success in doing so.” *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (internal quotation marks, brackets, and citation omitted).

B. Substantial Evidence Supports the PTAB’s Findings Regarding Obviousness.

The PTAB held that the Challenged Claims would have been obvious “over the Diablo II Manual alone and also over the Diablo II Manual in combination with Rogers.” *Activision*, 2018 WL 1358661, at *17–22, *28. The PTAB explained that “the Diablo II Manual teaches a gamvatar that represents the user both in a game and on a [website] (e.g., Battle.net).” *Id.* at *16. Moreover, the PTAB found that the Diablo II Manual discloses “graphics regions for displaying graphical objects,” which is within the scope of the claimed “layers.” *Id.* at *5. GAT does not dispute that the Diablo II Manual discloses an avatar, but rather asserts that the Challenged Claims are nonobvious because the use of an avatar in “Battle.net” is the use “in a specific game.” Appellant’s Br. 24. GAT further contends that the PTAB “erred in finding that the Diablo II Manual, alone or in combination with Rogers, discloses a ‘gamvatar’ [having multiple] . . . ‘layers,’” *id.* at 23 (capitalization modified), because “neither Diablo II nor Rogers disclose a gamvatar,” *id.* at 24 (capitalization modified), having “*layers* for performing game item functions,” *id.* at 26 (capitalization modified) (emphasis added). We disagree with GAT.

Substantial evidence supports the PTAB’s conclusion that the Diablo II Manual discloses that the gamvatar can be used on Battle.net, which is distinct from standalone games, and that there are multiple layers representing

different graphical regions in the specific game. First, the Diablo II Manual discloses that characters represent a user in a game and on Battle.net, which is “[GAT]’s free, on[]line gaming network.” J.A. 4374. The Challenged Claims “provid[e] an avatar to a user accessing an avatar shop via a network” where the avatar has “multiple layers for displaying avatar functions or performing game item functions by using the respective layers.” ’743 patent col. 11 l. 60–col. 12 l. 11. The Diablo II Manual explains that a user “can play [m]ulti-player games on the Internet over Battle.net.” J.A. 4358. When a user logs onto Battle.net, she must create a character or choose a previously created character to play the game. J.A. 4374–75; *see* J.A. 2035. The character then represents the user on Battle.net, which is separate from the games themselves. *See* J.A. 4375 (“Once you have logged in to Battle.net and selected a character, you are placed into one of Battle.net’s Diablo II Realm Chat Channels . . . [where] character portraits, representing other players, appear at the bottom of the screen.”). The Diablo II Manual also explains that when in the Battle.net chat channels a user “can meet and talk to other players and join *or* create multi-player games.” J.A. 4375 (emphasis added). Because players can “join or create” games from Battle.net, the PTAB properly determined that the Diablo II Manual renders the Challenged Claims obvious because Battle.net is distinct from the games and not in a specific game.

Second, the Diablo II Manual teaches “layers” that display graphical items and “perform the plurality of game item functions.” The disclosed layers in the Diablo II Manual display game items and perform the game item functions. *See* J.A. 4411–15. For example, the Diablo II Manual discloses “layers” for both displaying and using game item functions and states that the “[i]nventory screen contains several boxes representing the different areas of your character that can hold equipment [and] . . . [t]he rectangular grid at the bottom of the [i]nventory represents

your backpack.” J.A. 4365. These boxes disclose multiple layers of the game because they disclose multiple graphics regions for displaying graphical objects. *See* J.A. 4071–74 (explaining, by Activision’s expert, that “[t]he[] functionalities [of the avatar with multiple layers] are implemented through the ‘Inventory screen’”). Additionally, the Diablo II Manual also lists “javelins” and “throwing potions” among the “weapons” list in the game. J.A. 4413. The Diablo II Manual teaches using various “equipment areas” on a character such as the body “where [a user] equip[s] body armor to better protect [her] character” and a left arm “where [a user] normally equip[s] a shield.” J.A. 4365. According to Activision’s expert “the ‘slots’ or ‘boxes’ [of the inventory screen] would necessarily teach a [PHOSITA] an exemplary method of achieving said avatar [by] . . . creating ‘slots’ or ‘boxes’ and layering onto those areas game item functions like weapons and armor items using the respective layers.” J.A. 4081. Thus, the Diablo II Manual describes multiple layers used within the game. Similarly, the Diablo II Manual provides that there are “numerous weapons available to those who wish to keep their limbs intact, some better than others for dealing with threats.” J.A. 4411. The Diablo II Manual describes one way of “attack[ing]” as when a user “position[s] the cursor over the monster [she] wish[es] to *attack* . . . [t]he monster glows slightly [so the user] . . . can always tell which monster [she] ha[s] targeted for [her] *attack*.” J.A. 4356 (emphases added); *see* ’743 patent col. 6 ll. 18–21 (identifying “attack[ing]” as an example of a “game item function of the gamavatar”). Therefore, the weapons disclosed in the Diablo II Manual are used to “perform the plurality of game item functions” and the layers of multiple graphical regions in the Challenged Claims are taught by the Diablo II Manual.

GAT’s counterargument lacks merit. GAT’s assertion that “a single reference . . . cannot support obviousness,” Appellant’s Br. 23, is wrong as a matter of law. “[A] patent can be obvious in light of a single prior art reference if it

would have been obvious to modify that reference to arrive at the patented invention.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016); *see Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1336–37 (Fed. Cir. 2010) (affirming an invalidity judgment where claims were held obvious over a single reference). As such, the PTAB did not err in concluding that the Diablo II Manual, alone or in combination with Rogers, renders the Challenged Claims obvious.

CONCLUSION

We have considered GAT’s remaining arguments and find them unpersuasive. Accordingly, the Final Written Decision of the U.S. Patent and Trademark Office’s Patent Trial and Appeal Board is

AFFIRMED