UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VALVE CORPORATION, Petitioner,

v.

IRONBURG INVENTIONS LTD., Patent Owner.

> IPR2017-01928 Patent 9,352,229 B2

Before PHILLIP J. KAUFFMAN, MEREDITH C. PETRAVICK, and MITCHELL G. WEATHERLY, *Administrative Patent Judges*.

WEATHERLY, Administrative Patent Judge.

JUDGMENT Final Written Decision on Remand Determining Some Challenged Claims Unpatentable 35 U.S.C. §§ 144, 318

I. INTRODUCTION

A. Trial Background

Valve Corporation ("Valve") filed a petition (Paper 1, "Pet.") to institute an *inter partes* review of claims 1–24 (the "challenged claims") of U.S. Patent No. 9,352,229 B2 (Ex. 1001, "the '229 patent"). 35 U.S.C.

§ 311. Petitioner supported the Petition with a Declaration from David Rempel, M.D. (Ex. 1008). Ironburg Inventions Ltd. ("Ironburg") timely filed a Preliminary Response. Paper 7 ("Prelim. Resp."). On February 8, 2018, based on the record before us at the time, we instituted an *inter partes* review of claims 1, 2, 9–17, and 21–24. Paper 11 ("Institution Decision" or "Dec."). On May 24, 2018, pursuant to *SAS Institute, Inc. v. Iancu,* 138 S.Ct. 1348 (2018), we modified our Institution Decision and reintroduced into this proceeding all challenges to the patentability of claims 1–24 alleged in the Petition. Paper 15 ("*SAS* Order"). Accordingly, we conducted a trial on all challenges to the claims as summarized below:

Claims	35 U.S.C. §	References	
1, 2, 9–15, 18, 20–24	102(a)(2)	Uy ¹	
1, 2, 9, 10, 14–17, 21–24	103	Burns, ² Uy	
1, 2, 9–17, 21, 22	103	Burns, AlphaGrip ³	
3-8, 19	103	Uy, Tosaki ⁴	

After we instituted this review, Ironburg filed a Patent Owner Response in opposition to the Petition (Paper 14, "PO Resp.") that was supported by a Declaration from Glen Stevick, Ph.D. (Ex. 2003). Ironburg also filed a Supplemental Patent Owner Response (Paper 17) to address the challenges to claims based on Uy as the primary reference that were

¹ U.S. Patent App. Pub. 2015/0238855 A1 (Ex. 1002, "Uy").

² Burns, David, Review: Scuf Xbox 360 Controller, https://www.xboxer360/ features/reviewscuf-xbox-360-controller/ (Ex. 1003, "Burns").

³ Paul, Ryan: "AlphaGrip AG-5 handheld keyboard and mouse," published March 15, 2006, at http://arstechnica.com/gadgets/2006/03/alphagrip/ (Ex. 1004 ("AlphaGrip")).

⁴ U.S. Patent 5,989,123 (Ex. 1007, "Tosaki").

reintroduced pursuant to the *SAS* Order. Valve filed a Reply in support of the Petition and responding to both the Patent Owner Response and the Supplemental Patent Owner Response (Paper 20, "Reply"), which was supported by another Declaration by Dr. Rempel (Ex. 1019). With our authorization, Valve also filed a supplemental brief addressing the Deposition of Simon Burgess (Paper 24, the "Burgess Brief"). With our authorization, Ironburg filed a Surreply in response to Valve's Reply (Paper 26, "Surreply"). Ironburg did not move to amend any claim of the '229 patent.

Ironburg filed a Motion to Exclude Evidence (Paper 30, "Mot." or "Motion"). Valve opposed the Motion (Paper 31, "Opp." or "Opposition"). Ironburg filed a Reply in support of the Motion (Paper 32, "Mot. Reply").

We heard oral argument on November 15, 2018. Paper 35.

We entered a Final Written Decision (Paper 36, "Decision" or "Dec.") in which we concluded that Valve had failed to prove by a preponderance of evidence that any challenged claim was unpatentable. Dec. 30. Valve filed a Request for Rehearing under 37 C.F.R. § 42.71. Paper 37. We denied Valve's request. Paper 38.

B. The Appeal to the Federal Circuit

On August 17, 2021, the Federal Circuit affirmed-in-part, vacated-inpart, and remanded-in-part our Decision. *Valve Corp. v. Ironburg Inventions Ltd.*, 8 F.4th 1364, 1381 (Fed. Cir. 2021). Paper 43.⁵ The Federal Circuit affirmed our determination that Valve had failed to prove that its challenges based at least in part upon Uy as a primary reference

⁵ The Federal Circuit issued its mandate on October 8, 2021. Paper 75.

rendered claims 3–8 and 18–20 unpatentable. *Valve*, 8 F.4th at 1381. The Federal Circuit reversed our determination that Burns was not prior art. *Id.* at 1381. The Federal Circuit also vacated our determination that Valve had failed to prove that collectively claims 1, 2, 9–17, and 21–24 were unpatentable as obvious in view of Burns in combination with either Uy or AlphaGrip. *Id.* Accordingly, the Federal Circuit remanded the case to us to consider Valve's challenges to the patentability of claims 1, 2, 9–17, and 21–24 of the '229 patent as obvious based on the combinations of prior art listed in the table below.

Claims ⁶	35 U.S.C. §	References	
1, 2, 9, 10, 14–17, 21–24	103	Burns, Uy	
1, 2, 9–17, 21, 22	103	Burns, AlphaGrip	

Id.

C. Remand Background

On remand, we authorized the parties to concurrently file an opening brief and then concurrently file responsive reply briefs. Paper 44, 4. The parties agreed, and we concurred, that no new evidence would be submitted during the remand proceeding. *Id.* at 3. Accordingly, we decide the issues on remand based on the record that was submitted during the original trial.

Valve filed an opening brief (Paper 46, "Valve Remand Br."). Ironburg filed an opening brief (Paper 45, "Ironburg Remand Br."). Valve

⁶ Because all the claims to be addressed on remand depend directly from claim 1, we instructed the parties to address on remand the manner in which the combinations of Burns with the references above teach or suggest the limitations recited in claim 1. Paper 77, 3, n.3.

filed a Reply responding to Ironburg's opening brief (Paper 47). Ironburg filed a corrected Reply responding to Valve's opening brief (Paper 50).

During the original trial, the panel dismissed-in-part Ironburg's Motion without prejudice as moot. Dec. 29–30. With our prior authorization, Paper 44, 4, Ironburg renewed the Motion to the extent that it addresses issues that remain on remand, Ironburg Remand Br. 15.

This Final Written Decision is issued pursuant to 35 U.S.C. §§ 144, 318(a) and 37 C.F.R. § 42.73. For the reasons expressed below, we conclude that Valve has proven by a preponderance of evidence that claims 1, 2, 9, 11–17, and 21–24 are unpatentable as obvious but has failed to do so for claim 10.

D. Related Proceedings

The parties have identified as a related proceeding the co-pending district court litigation of *Ironburg Inventions Ltd. v. Valve Corporation*, Case No. 1:15-cv-04219-MHC (N.D. Ga.). Paper 4, 1; Pet. 1. Valve also identifies *Ironburg Inventions Ltd. v. Collective Minds Gaming Co. Ltd.*, Case No. 1:16-cv-04110-MHC (N.D. Ga.). Pet. 2. Valve also identifies *inter partes* review proceedings IPR2016-00948, IPR2016-00949, IPR2017-00858, IPR2017-00136, and IPR2017-00137 as related because they collectively address related U.S. Patent No. 9,089,770 B2 (collectively, the "Related IPRs").⁷ *Id.* We have issued final written decisions in IPR2016-00948 and IPR2016-00949. We terminated IPR2017-00136 and IPR2017-00137 without issuing final written decisions in response to the joint motions of the parties after they settled their disputes.

 $^{^7}$ Valve mistakenly refers to IPR2016-00136 and IPR2016-00137 rather than IPR2017-00136 and IPR2017-00137. Pet. 1–2.

E. The '229 Patent

The '229 patent relates to "hand held controllers for game consoles." Ex. 1001, 1:14–15. The Specification describes conventional controllers as having controls such as buttons, analog control sticks, bumpers, and triggers mounted to the top and front surfaces of the controller that are intended to be actuated by the user's thumbs or index fingers. *Id.* at 1:19–50.

The Specification identifies and depicts twenty embodiments of game controllers in dozens of figures, *id*. at 6:36–9:12, including a first embodiment of controller 10 illustrated in Figure 2, reproduced below.



FIG. 2

Figure 2 is "a plan view from below of the rear of a games controller according to the first embodiment." *Id.* at 6:38–39.

Controller 10 includes paddle levers 11A–D that a user may actuate with the middle, ring, and/or little fingers on the "rear" or underside of controller body 14. *Id.* at 9:24–35. Paddles 11A–D are "formed from a thin,

flexible material such as . . . polyethylene . . . [and] are less than 10 mm thick, but may be less than 5 mm thick and more preferably are 3 mm thick or less." *Id.* at 9:36–40. Paddles 11A–D include apertures on one end for receiving screws 15, which affix that end to the rear of controller 10. The other unsecured end of paddles 11A–D "is movable" and the paddles "can be bent or deformed temporarily" such that the "inherent resilience of the paddles . . . returns the paddles . . . substantially to their starting positions when released." *Id.* at 9:57–62.

Claims 1 and 24, the only independent claims among those challenged, recite:

1. A hand held controller for a games console comprising:

an outer case;

- a plurality of controls located on a front and a top of the outer case,
 - wherein the outer case is shaped to be held in both hands of a user such that the user's thumbs are positioned to operate controls located on the front of the outer case and the user's index fingers are positioned to operate controls located on the top of the outer case; and
- at least one additional control located on a back of the outer case in a position operable by the user's middle finger,
 - the additional control comprising an elongate member which is inherently resilient and flexible such that it can be displaced by the user to activate a control function,
 - wherein the elongate member is at least partially disposed in a respective channel located on the back of the outer case, the channel being elongated along a longitudinal dimension of the elongate member.

Id. at 24:4–20 (with line breaks added for clarity).

24. A hand held controller for a games console comprising:

an outer case;

- a plurality of controls located on a front and a top of the outer case,
 - wherein the outer case is shaped to be held in both hands of a user such that the user's thumbs are positioned to operate controls located on the front of the outer case and the user's index fingers are positioned to operate controls located on the top of the outer case;
- at least one additional control located on a back of the outer case in a position operable by the user's middle finger,
 - the additional control comprising an elongate member which is inherently resilient and flexible such that it can be displaced by the user to activate a control function; and
 - a mounting plate secured to the back of the outer case;

the mounting plate comprising a channel; and

wherein the elongate member is at least partially disposed in the channel.

Id. at 26:15–32 (with line breaks added for clarity).

II. ANALYSIS

A. Claim Interpretation

"A claim in an unexpired patent that will not expire before a final written decision is issued shall be given its broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. § 42.100(b) $(2016)^8$; see also Cuozzo Speed Techs., LLC v. Lee, 136 S. Ct.

⁸ Our recently changed version of this Rule, which requires that we interpret claims in the same manner used in a civil action under 35 U.S.C. § 282(b), does not apply here because the Petition was filed before the effective date of the new Rule, November 13, 2018. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before

2131, 2144–46 (2016) (affirming that USPTO has statutory authority to construe claims according to Rule 42.100(b)). When applying that standard, we interpret the claim language as it would be understood by one of ordinary skill in the art in light of the specification. *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010). Thus, we give claim terms their ordinary and customary meaning as they would be understood by an ordinarily skilled artisan. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) ("The ordinary and customary meaning 'is the meaning that the term would have to a person of ordinary skill in the art in question."" (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005)). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

In our prior Decision, we concluded that "elongate member which is inherently resilient and flexible" referred to "inherent characteristics of the elongate member itself" and the "resilient" and "flexible" both "describe inherent properties of the elongate member." Dec. 12. When analyzing our prior determination that Uy did not anticipate any claim, we understand the Federal Circuit to have adopted at least our interpretation of "elongate member which is inherently resilient and flexible" as referring to "a characteristic of the 'elongate member' itself." *Valve*, 8 F.4th at 1378. Based on that interpretation, the Federal Circuit agreed with us that Valve's identification of Uy's biasing springs in its lever assembly as providing the inherent resilience and flexibility was faulty. *Id.* at 1376–78. Valve does

the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,344 (Oct. 11, 2018).

not argue that any aspect of our prior interpretation is incorrect on remand. *See generally*, Valve Remand Br. Accordingly, we do not alter our prior interpretation of "elongate member which is inherently resilient and flexible," and we apply the same interpretation on remand.

B. Legal Standards

The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), reaffirmed the framework for determining obviousness as set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The *KSR* Court summarized the four factual inquiries set forth in *Graham* that we apply in determining whether a claim is unpatentable as obvious under 35 U.S.C. § 103(a) as follows: (1) determining the scope and content of the prior art, (2) ascertaining the differences between the prior art and the claims at issue, (3) resolving the level of ordinary skill in the pertinent art, and (4) when in evidence, considering objective evidence indicating obviousness or nonobviousness. *KSR*, 550 U.S. at 406 (citing *Graham*, 383 U.S. at 17–18).

Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. An obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). However, Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements," but "must instead articulate specific reasoning, based on evidence of record" to support an obviousness determination. *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380–81 (Fed. Cir. 2016). Petitioner also must articulate a reason

why a person of ordinary skill in the art would have combined the prior art references. *NuVasive*, 842 F.3d at 1382.

C. Level of Ordinary Skill

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Graham*, 383 U.S. at 17. Valve contends that the ordinarily skilled artisan would have:

a bachelor's degree in an industrial design or engineering field, and approximately two years of relevant experience, for example. Alternatively, the same or an equivalent level of skill in the art could be obtained by end users or hobbyists who have substantial experience modifying or creating customized game controllers that include features to better suit their needs, even without any college education.

Pet. 10 (citing Ex. 1009 ¶ 11). Ironburg, without expressly defining the level of ordinary skill, contends that a college degree of the type identified by Valve is not required. *See* Supp. PO Resp. 4–6. Ironburg notes that the level of ordinary skill is "relatively low" and the technology involved "is simple and straightforward." *Id.* at 4 (citing Ex. 2016 ¶ 21). Ironburg's contentions regarding the level of ordinary skill are consistent with Valve's position, *id.* at 6, which we apply in our analysis.

D. Whether AlphaGrip Is a Prior Art Printed Publication

AlphaGrip, like Burns, is an article disseminated on the internet reviewing a game controller. *See* Ex. 1004 (header information indicating availability on the internet at http://arstechnica.com/gadgets/2006/03/ alphagrip/). Valve supports its argument that AlphaGrip is a prior art printed publication with the Declaration of Michael A. Willner, in which he recounts his personal knowledge of the public availability of AlphaGrip (i.e.,

Exhibit 1004). See Ex. 1009 ¶¶ 3-8 (describing personal awareness of publication of Exhibit 1004).

Ironburg argues that Valve has failed to prove that AlphaGrip qualifies as a prior art printed publication. PO Resp. 16–18. Ironburg contends that Valve fails to prove that AlphaGrip was disseminated in a manner that an interested ordinarily skilled artisan could have located it on the internet. *Id.* at 17. Ironburg contends that Mr. Willner has no personal knowledge of the operations of the website on which AlphaGrip appeared, arstechnica.com, or the degree to which AlphaGrip was accessed by interested persons or how such a person could have located it. *Id.* at 18. Ironburg also criticizes Mr. Willner's testimony as failing to demonstrate when AlphaGrip was first published or to provide details of the publisher's distribution policies. *Id.*

We find Ironburg's critique of Mr. Willner's testimony unavailing. Valve persuasively responds that Mr. Willner testifies that he personally recalls reviewing AlphaGrip on the internet during 2006, which significantly predates the filing of the oldest application in the priority chain of the '229 patent, May 22, 2013, by at least six years. *Compare* Ex. 1009 ¶ 3 (testifying that online publication of AlphaGrip happened in 2006), *with* Ex. 1001, code (60) (identifying provisional application filed May 22, 2013, as earliest-filed priority application). Mr. Willner testifies that he is the inventor and designer of the controller that is reviewed in AlphaGrip, which we find to qualify him as an ordinarily skilled artisan. Ex. 1009 ¶¶ 1–3. Besides expressly testifying that he viewed AlphaGrip online during 2006, Mr. Willner also testifies in some detail about his recollection of his interactions with the author of AlphaGrip, Ryan Paul, and the events

surrounding the publication of Mr. Paul's review on Arstechnica's website. *Id.* ¶¶ 4–5. Mr. Willner also reviews the version of AlphaGrip that Valve submitted as prior art and testifies that it is a true and correct copy of the review that he remembers seeing online during 2006. *Id.* ¶¶ 6–7. We find Mr. Willner's testimony to be reliable in part because he recalls being "delighted" by the praise Mr. Paul lavished on the AlphaGrip controller. *Id.* ¶ 8. The publication of AlphaGrip marked an important event for Mr. Willner's company. Mr. Willner states that he immediately posted a link on his own company's website to Arstechnica's AlphaGrip review in 2006, and his company maintains the link to Arstechnica's review of AlphaGrip "to this day." *Id.* We find that all these facts increase the probative value of Mr. Willner's testimony on the issue of whether AlphaGrip was published and could easily have been found by interested persons during 2006.

Although Mr. Willner may not have been a webpage manager for Arstechnica or be able to testify about precisely how many people accessed AlphaGrip in 2006, we find his testimony, as one of skill in the art himself to be compelling. Not only has Ironburg failed to refute any of Mr. Willner's testimony with countervailing evidence, Ironburg did not cross-examine Mr. Willner to test his memory of the specific events set forth in his testimony. *See* PO Resp. 16–18 (failing to provide countervailing evidence or cite cross examination testimony).

We have reviewed the alleged deficiencies of proof in Mr. Willner's testimony set forth in Ironburg's Motion as it relates to AlphaGrip and find those alleged deficiencies to be no more than argument by Ironburg's attorneys that is unsupported by evidence. *See* Mot. 6. We find that Valve's

response to Ironburg's Motion as it relates to AlphaGrip is persuasive for all the reasons Valve identifies. Opp. 4–5. We also find that Ironburg's choice to forego cross-examining Mr. Willner reveals that Ironburg recognizes the fatal weaknesses in its arguments that AlphaGrip is unauthenicated, irrelevant hearsay that should be excluded. More importantly, based on our review of Mr. Willner's uncontroverted testimony, we find it to be compelling evidence that AlphaGrip was published in 2006 that was readily available to an ordinarily skilled artisan in that timeframe and thus a prior art printed publication. We deny-in-part Ironburg's Motion as it relates to AlphaGrip and find that Valve has proven by a preponderance of evidence that AlphaGrip is a prior art printed publication.

E. Claims 1, 2, 9, 10, 14–17, and 21–24: Obviousness over Burns and Uy

Valve argues that claims 1, 2, 9, 10, 14–17, and 21–24 are unpatentable as obvious over Burns and Uy. *See* Pet. 27–41. For the reasons expressed below, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and Uy render claims 1, 2, 9, 14–17, and 21–24 unpatentable as obvious but has failed to do so for claim 10.

1. Independent Claims 1 and 24

a. Overview of Valve's Argument and Evidence

Valve relies upon Burns as describing almost all elements of independent claims 1 and 24. *Id.* at 38–32 (claim 1), 37–41 (claim 24). Valve relies upon Uy as describing an elongated member disposed in a channel on the back of the controller because Uy's levers 500, 502 are disposed within recesses 508, 510. Pet. 31–32, (citing Ex. 1002 ¶ 96, Figure 5B; Ex. 1008 ¶¶ 16, 25), 40–41 (citing Ex. 1002 ¶ 73; Ex. 1008 ¶¶ 24–25).

Valve relies upon Dr. Rempel's testimony as establishing that an ordinarily skilled artisan would have been motivated to modify Burns to dispose its elongate paddles within recesses like those taught by Uy "to reduce undesired lateral movement or yawing of the Burns paddle members." *Id.* at 32 (citing Ex. 1008 ¶¶ 16, 25), 41 (citing Ex. 1002 ¶ 73; Ex. 1008 ¶¶ 24–25). Valve further bolstered its arguments and evidence in response to Ironburg's arguments as discussed below.

b. Analysis of Ironburg's Responsive Arguments and Evidence

Ironburg argues that Valve's showing for independent claims 1 and 24 fails for two reasons that remain relevant during this remand proceeding. First, Burns does not describe an elongated member which is "inherently resilient and flexible" as recited in claims 1 and 24. PO Resp. 11–16. Second, Ironburg argues that Valve's alleged motivations to incorporate Uy's channels into the underside of the Burns controller are insufficient to support a conclusion of obviousness. *Id.* at 19–27. On both counts, for the reasons expressed below, Ironburg's arguments do not persuade us that Valve's showing is deficient.

i. Whether Burns' Paddles Are Inherently Resilient and Flexible

In the Petition, Valve relied upon testimony from Dr. Rempel on what an ordinarily skilled artisan understands about Burns' paddles from the annotated photo from



back of the outer case

additional controls on the back of the outer case, operable by a user's middle fingers

Burns reproduced at right and the accompanying textual description of the paddles in Burns. Pet. 30–31 (citing Ex. 1008 ¶¶ 27–28). Burns describes these paddles as follows:

The controller has introduced 2 paddles to the back of the control pad with are made from *polycarbonate*, which is the strongest plastic known to man, which are *screwed and bonded* into the chassis on the controller to make sure they can take as much punishment as possible. These paddles are hard wired into the A and B buttons make use of your unused middle fingers that rest on the rear of the pad.

Ex. 1004, 2 (emphasis added). Dr. Rempel testifies that an ordinarily skilled artisan would recognize that:

the back paddles disclosed by Burns are inherently resilient and flexible such that they can be displaced by the user to activate a control function (e.g. those functions previously associated with the A and B buttons). For a chosen material (e.g. polycarbonate) one of ordinary skill in the art could readily determine by a routine beam calculation (or routine experimentation) that the elongate members shown in Burns may have a thickness in the range 1 mm to 3 mm, so as to be flexible enough for operation by a user's finger.

Ex. 1008 ¶ 28. Dr. Rempel cites no objective evidence to support this testimony. We understand his testimony to reflect his qualified opinion based upon his observations of the paddle characteristics as revealed in the photo to an ordinarily skilled artisan. His opinion strikes us as being reasonable and consistent with common experience of thin plastic structures like Burns' paddles.

However, Ironburg contends that Valve's showing that Burns' paddle is inherently resilient and flexible is deficient. PO Resp. 11–16. First, Ironburg contends that Burns simply fails to expressly describe that its paddle has any degree of flexibility or that, if the paddle were pressed, it would return to its original position after being bent (i.e., resilience). *Id.* at 11. We find Ironburg's argument to be inconsistent with the disclosure of Burns itself, which describes the paddles as controls operated by a user's

middle fingers to actuate the circuits common with buttons A and B on the top of the controller. Ex. 1004, 2. We find that the paddles being configured to "take as much punishment as possible" and being depicted in the photograph as they are with gaps under the unsecured distal ends implies that the paddles are flexible enough to be displaced when pressed and resilient enough to return to their original position while being repeatedly flexed by the user. *Id*.

Citing testimony by Dr. Stevick, Ironburg further argues that an ordinarily skilled artisan would definitively conclude that the paddles do not bend or flex because Burns' paddles are formed from "polycarbonate, which is the strongest plastic known to man." *Id.* at 11–12 (citing Ex. 2003 ¶¶ 36–37). More specifically, Dr. Stevick testifies:

based on Burns' disclosure and my knowledge and experience, a POSITA would conclude that Burns' paddles made from the "strongest plastic known to man" would not itself bend or flex. This is true because the selection of such strong material as a design parameter meant that it was not intended to itself bend or flex, and therefore would not be inherently flexible.

Ex. 2003 ¶ 37. Dr. Stevick cites no objective evidence to support this testimony, and we find the testimony to be unpersuasive. We consider Dr. Rempel's testimony on the resilience and flexibility of Burns' paddles to be more credible because Dr. Rempel's testimony comports with our general understanding that plastic materials exhibit at least some degree of flexibility depending upon the shape into which they are formed. Dr. Stevick refers only to the ultimate strength of the plastic without any analysis of the shape or size of the paddles. We initially found Dr. Stevick's testimony that Burns' paddles do not flex to be strained at best. Immediately after the filing of Patent Owner Response, the record contained mutually exclusive

statements from competing experts on an issue for which we find further evidence is warranted, namely whether an ordinarily skilled artisan would have viewed Burns' paddles as being inherently resilient and flexible.

We find that Valve properly provided additional argument supported by further testimony in the form of Dr. Rempel's second declaration, Exhibit 1019. We consider Dr. Rempel's second declaration and Valve's argument relying on that testimony in the Reply to be well within the scope of a proper Reply under 37 C.F.R. § 42.23(b) and reject Ironburg's argument otherwise. Surreply 18–26. Ironburg's unusual and largely unsupported argument that Burns' paddles were completely inflexible warranted a response, which Valve provided with its Reply.

We also disagree with Ironburg that we should exclude as hearsay or irrelevant Dr. Rempel's testimony on how flexible the Burns' paddles were or the extensive body of objective evidence cited and relied upon by him to support his testimony.⁹ Mot. 12–13. To the contrary, we agree with Valve that Dr. Rempel may properly rely upon the cited exhibits even if they would otherwise be inadmissible hearsay because they constitute the types of information upon which an expert would reasonably rely under Fed. R. Evid. 703. Opp. 10. Accordingly, we deny-in-part the Motion to the extent that it seeks to strike or exclude testimony in Dr. Rempel's second declaration or Exhibits 1020, 1025, 1026, 1031, 1036, 1042 cited by Dr. Rempel in support of his analysis.

⁹ Exhibits 1020, 1025, 1026, 1031, 1036, 1042 are cited by Dr. Rempel to support opinions proffered in Exhibit 1019 on the issue of whether an ordinarily skilled artisan would have understood Burns' paddles to be inherently resilient and flexible. *See generally* Ex. 1019.

On balance, we find that Valve persuasively responds that Dr. Stevick, by focusing on the "strength" of polycarbonate, provides unreliable testimony regarding whether Burns paddles would flex and exhibit resilience upon flexing. Reply 13 (citing Ex. 1019 ¶ 23–24). Valve contends, and we agree, that an ordinarily skilled artisan understands that the stiffness of polycarbonate, not its strength, is the relevant parameter for understanding whether the paddles as shown in the photo would flex and be resilient (i.e., return to their original shape) after being flexed. Id. (citing Ex. 1019 ¶ 23–24). Dr. Rempel also convincingly testifies that the photographs, which we consider to depict Burns' controller to scale (i.e., to accurately portray the sizes of different parts of the controller relative to each other) as any apparently unaltered photograph would, establish that the Burns paddles are about 41 mm long, 7 mm wide, 1.8 mm thick, and require about 1 N force¹⁰ to deflect 3 mm. Ex. 1019 ¶¶ 19–22. Because the overall size of handheld controllers such as the one shown in the Burns photos is relatively well known, we credit Dr. Rempel's conclusions about the size of various parts of the Burns controller. Id. ¶¶ 18–20. Based on the entire record, Valve persuades us that the Burns paddle is inherently resilient and flexible as required by claims 1 and 24.

Ironburg further argues that, absent an express disclosure by Burns that its paddles are resilient and flexible, Valve falls short of proving that Burns' paddles are necessarily resilient and flexible as required under the

¹⁰ We find that Valve has persuasively proven that this amount of force is well within the range of force that an average woman can apply with her middle finger. Ex. 1019 ¶ 22 (citing Ex. 1036, Table 4, p. 151; Ex. 1020, 24).

doctrine of inherent disclosure. *Id.* (citing *Bettcher Indus., Inc. v. Bunzl USA, Inc.*, 661 F.3d 629, 639 (Fed. Cir. 2011); *In re Oelrich*, 666 F.2d 578, 581-82 (C.C.P.A. 1981)). In the context of an obviousness analysis, the *Oelrich* decision explains that: "If, however, the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient." *Oelrich*, 666 at 581 (quoting *Hansgirg v. Kemmer*, 102 F.2d 212, 214 (C.C.P.A. 1939)). Based on our review of the evidence adduced by Valve discussed above, we find Valve's showing to be persuasive to demonstrate that resilience and flexibility naturally flow from the information conveyed to an ordinarily skilled artisan by the Burns photos.

ii. Alleged Deficiencies of the Proposed Combination of Burns and Uy

Ironburg also argues that Valve's proposed combination of Burns and Uy is inappropriate. PO Resp. 19–27.

Ironburg argues that an ordinarily skilled artisan would not have been motivated to incorporate Uy's channels on the underside of the Burns controller. First, Ironburg contends that Burns expressly identifies no problem with its underside paddles moving laterally and an ordinarily skilled artisan would not have identified any such problem either. *Id.* at 20–22. Second, Ironburg contends that the Burns paddles do not move laterally because the paddles "are screwed and *bonded* into the chassis to make sure they can take as much punishment as possible." *Id.* at 21.

We find Valve's argument to be persuasive. On the second issue raised by Ironburg, we find that Burns' "bonded" paddles, being secured at only one end, would not render those paddles to be immune from bending

laterally. Ex. 1008 ¶¶ 16, 25; Ex. 1019 ¶ 40. Ironburg's contention otherwise, for which it cites unsupported testimony by Dr. Stevick, is not persuasive in our view because, as explained above, we find that the Burns paddles are inherently flexible. Therefore, we consider Valve's proposed motive for adding channels to prevent undesirable yawing of the paddles to be reasonable and supported by the evidence.

On the first issue raised by Ironburg, we also agree with Valve, based on the cases it cites in its Reply, that no legal requirement exists for Valve to prove that Burns itself expressly discloses or suggests that yawing of its paddles was undesirable to demonstrate a motive to incorporate Uy's channels into Burns' controller to prevent such yawing. Reply 18–20. We are further persuaded by the evidence Valve cites in its Reply, namely that, by Burns explaining that its paddles can "take as much punishment as possible," it suggests that reinforcement of the paddles would have been a desirable goal. *Id.* at 19 (citing Ex. 1019 ¶ 40). Valve also proffers testimony from the inventor, Mr. Burgess, in which he corroborates this suggestion by explaining that later versions of his controller used two screws at the mounting point "giving it a sturdier build." *Id.* at 20 (citing Ex. 1044, 1; Ex. 1045).

Ironburg argues that Valve has presented a "new motivation to combine Burns with Uy or AlphaGrip" by relying on Burns' express indication that the paddles can withstand punishment. Surreply 23. We find Valve's use of Burns' express statements and additional testimony from Dr. Rempel to be within the proper scope of a Reply. Valve, by offering this new evidence, was merely responding to Ironburg's arguments and amplifying Valve's original argument that an ordinarily skilled artisan would

have been motivated to reinforce Burns' paddles by placing them in a channel like those described by Uy and AlphaGrip. Regardless, we reach the same conclusion with or without the new evidence that Valve submitted with its Reply on this issue. We also deny-in-part Ironburg's Motion to the extent that it seeks to exclude the evidence adduced by Valve on this point as being unauthenticated, irrelevant hearsay.

Ironburg also argues that Valve fails to show "how and why" an ordinarily skilled artisan would incorporate Uy's teachings into the Burns controller. PO Resp. 22–24. Ironburg characterizes Valve's explanation for why an ordinarily skilled artisan would have incorporated Uy's channels into the underside of the Burns controller to more robustly support Burns' paddles as "conclusory" and as failing to explain how doing so would have improved Burns or would have reasonably been expected to work. *Id*. Ironburg cites no evidence to support its arguments. *Id*. For the reasons expressed above, we find that the evidence proffered by Valve persuasively demonstrates how and why an ordinarily skilled artisan would have modified Burns in view of Uy to include the claimed channels.

c. Conclusion

For the reasons set forth above, we conclude that Valve has demonstrated by a preponderance of evidence that the combined teachings of Burns and Uy render claims 1 and 24 unpatentable as obvious.

2. Dependent Claim 2

Claim 2 depends from claim 1 and further recites: "wherein the channel forms a close fit to the elongate member so as to provide lateral support thereto." Ex. 1001, 24:21–23. Neither party expressly interprets "close fit" or "provide lateral support." The Specification illustrates the channels and manner in which the elongate

Figures 5 and 7, which are reproduced in pertinent part at right. The accompanying text describes this type of "fit" as follows:

members fit within those channels in

The channels 13A, 13B, 13C, 13D reduce the likelihood of the paddles 11A, 11B, 11 C, 11D rotating about the fixing end when engaging with the moveable end. The channels serve to restrict movement of the paddles 11A, 11B, 11C, 11D in a direction substantially perpendicular





to the back of the controller, as indicated by direction arrow D1 in FIG. 5.

Id. at 10:22–27. Thus, the Specification illustrates and describes a fit that is close enough to restrict lateral movement of the unsecured ends of the elongate members. The degree to which the channels "restrict movement" is not stated. Thus, we conclude that any restriction of lateral movement is sufficient to "provide lateral support" to the elongate members within the broadest reasonable interpretation of the phrase.

Valve identifies Uy's recesses 508, 510 as fitting closely enough

surrounding levers 500, 502 to prevent them from rotating about their mounting screws 512, 514. Pet. 32–33 (citing Ex. 1002 ¶ 96 ("recesses 508, 510 . . . receive the levers 500, 502"), Fig. 5B; Ex. 1008 ¶ 16). Valve relies on Dr. Rempel's annotated version of Uy's Figure 5B reproduced at right. *Id.* at 33 (citing Ex. 1008 ¶ 16).



Ironburg responds that Uy's recesses "are supported by the bracket 808, which is configured to 'hold the securing means 804 to the lever 802' and 'act as a fulcrum (or pivot) support means for the lever 802."" PO Resp. 27 (citing Ex. 1002 ¶ 108). Because bracket 808 supports lever 802 (akin to lever 502), Ironburg reasons that Uy's recesses do not provide any support to Uy's lever (i.e., elongate member). *Id*.

Valve persuasively points out that even though Uy's bracket supports its levers, the recesses, by their observable close fit to the lever provide a degree of support by acting to prevent lateral movement of the lever. Reply 23 (citing Ex. 1002, Fig. 5B; Ex. 1008 ¶ 16).

Based on our review of all the evidence, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and Uy render claim 2 unpatentable as obvious.

3. Dependent Claim 10

Claim 10 depends from claim 1 and further recites: "a plurality of additional controls located on the back of the outer case, and wherein each of the plurality of additional controls is activateable by a respective elongate member, each of the elongate members being detachable from the outer

case." Ex. 1001, 24:50–54. Valve relies upon Burns as describing "elongate members being detachable from the outer case" as shown in the annotated version of a photo from Burns reproduced at right. Pet. 33–34 (citing Ex. 1008 ¶ 29). With its annotations, Valve implies that the "fastener attachments" render the elongate



members detachable from the case. Dr. Rempel clarifies in the cited testimony that an ordinarily skilled artisan would understand that: "the Burns paddle members are detachable per the fasteners shown at their supported ends." Ex. 1008 \P 29.

Citing testimony by Dr. Stevick, Ironburg responds that Burns expressly states that its paddles are "bonded, i.e., joined securely into the chassis on the controller by an adhesive, a heat process or pressure, and therefore, could not possibly be detachable." PO Resp. 28 (citing Ex. 2003 ¶¶ 45–46). Dr. Stevick clarifies that: "the paddles are 'screwed and <u>bonded</u> into the chassis on the controller to make sure they can take as much punishment as possible." Ex. 2003 ¶ 45 (quoting with emphasis Ex. 1003, 2). Relying upon a definition from the Oxford Dictionary, he testifies that

"bonded" means "joined securely together, especially by an adhesive, heat process or pressure." *Id.* (citing Ex. 2007, 157).

In its Reply, Valve argues that the screws holding Burns' paddles to its chassis can be removed and "bonds can be unbonded and re-bonded" so that hobbyists can perform routine maintenance or customization. Reply 24–25 (citing Ex. 1019 ¶ 12). Valve relies upon testimony by Dr. Rempel that parrots its argument without citing objective evidence to support the testimony. Ex. 1019 ¶ 12.

The parties' arguments relating to whether Burns' paddles that are "screwed and bonded" to the chassis meet the requirement in claim 10 that the paddles be "detachable" turns on their implied interpretation of "detachable." Valve implies that if the bond holding the paddles to the case can be broken, then they are detachable. Reply 24–25. Valve cites no evidence of precisely how Burns' paddles are bonded to the case or how easily they could be "unbonded." *Id.* The express disclosure of Burns does not help Valve's case. Burns explains that the paddles are "bonded into the chassis on the controller to make sure they can take as much punishment as possible." Ex. 1003, 2. This statement implies that detaching the paddles would require extensive effort beyond the "punishment" encountered during use. Ironburg via Dr. Stevick's testimony implicitly relies upon the resistance to "punishment" as evidence that the bonded paddles are not detachable. Purely on the evidence adduced by the parties, Ironburg has the more persuasive argument, but only just so.

The Specification, which neither party cited or analyzed, sheds some light on what "detachable" means in claim 10 in the following statement:

It is envisaged that the paddles 11A, 11B, 11C, 11D could be fitted to an existing controller 10. In such embodiments, the

paddles would be mounted onto an outer surface of the controller body by means of a mechanical fixing such as a screw or bolt or, *alternatively*, *bonded* or welded to the controller body by adhesive or other suitable means.

Ex. 1001, 10:57–62 (emphasis added). The Specification thus contrasts the paddles being mounted by "mechanical fixing" (which suggests detachability) with the paddles "alternatively" being "bonded," which suggests a more permanent mounting to the chassis of the controller. We find that the distinction drawn in the Specification between mechanical fixing with fasteners and bonding further bolsters Ironburg's argument that Burns' paddles as expressly described in Burns are not "detachable" as recited in claim 10. Accordingly, we conclude that Valve has failed to prove by a preponderance of evidence that the combined teachings of Burns and Uy render claim 10 unpatentable as obvious.

4. Dependent Claims 16 and 17

Claim 16 depends from claim 1 and further recites: "wherein the elongate member is formed from material having a thickness less than 5 mm thick." Ex. 1001, 25:19–21. Claim 17 also depends from claim 1 but further recites: "wherein the elongate member is formed from material having a thickness between 1 mm and 3 mm." *Id.* at 25:22–24. Thus, both claims limit the elongate members to specified thicknesses, with claim 16 reciting a broader range of thicknesses than claim 17.

Valve identifies Burns as meeting the limitations of both claims because an ordinarily skilled artisan would understand that Burns' paddles "may have a thickness in the range 1 mm to 3 mm, so as to be flexible enough for operation by a user's finger." Pet. 35 (citing Ex. 1008 ¶ 28). Dr. Rempel's supporting testimony essentially parrots Valve's argument

without citing objective evidence to support his conclusions. However, Dr. Rempel also testifies that an ordinarily skilled artisan would derive the thickness of the paddles using "a routine beam calculation (or routine experimentation)." Ex. 1008 ¶ 28. As with his initial testimony regarding the inherent resilience and flexibility of Burns' paddles, we understand his testimony to reflect his qualified opinion based upon his observations of the paddle features shown in Burns' photos. His opinion strikes us as being reasonable and consistent with common experience of thin plastic structures like Burns' paddle.

Ironburg argues, however, that "Burns does not disclose dimensions of the paddles." PO Resp. 31. We agree that Burns does not expressly specify the thickness of its paddles. However, Burns does include photographs, which convey information about the thickness of the paddles. Furthermore, Dr. Stevick does not offer testimony that the thickness of Burns' paddles is not within the claimed ranges or that an ordinarily skilled artisan would not have been able to derive that thickness using "routine beam calculations" as explained by Dr. Rempel. *See id.* at 31–32 (citing no testimony by Dr. Stevick to support its arguments). Based solely upon the evidence of record when Ironburg filed its Patent Owner Response, Dr. Rempel's testimony on what an ordinarily skilled artisan would understand about the thickness of Burns' paddles is uncontroverted and persuasive on the issue of whether Burns describes an elongate member of the thicknesses recited in claims 16 and 17.

In response to Ironburg's arguments, however, Dr. Rempel more precisely estimates the thickness of Burns' paddles by analyzing Burns' photos as "roughly 1.8 mm." Ex. 1019 ¶¶ 18–20. We find that

Dr. Rempel's testimony offered in support of Valve's Reply falls within the proper scope of a Reply under Rule 42.23(b) because it responds to Ironburg's argument that Valve's showing on the thickness of the Burns paddles was insufficient and that an ordinarily skilled artisan would have concluded that the paddles would not flex. Dr. Rempel's testimony supplied with Valve's Reply further bolsters Valve's already persuasive showing that Burns teaches paddles within the range of thickness recited in claims 16 and 17. Accordingly, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and Uy render claims 16 and 17 unpatentable as obvious.

5. Dependent Claims 9, 14, 15, 21, and 22

Dependent claims 9, 14, 15, 21, and 22 each directly depend from claim 1. Ex. 1001, 24:46–26:7. For the issues remaining on remand, Ironburg does not proffer arguments or adduce evidence in support of the continued patentability of dependent claims 9, 14, 15, 21, and 22 that is distinct from its arguments and evidence relating to claim 1. PO Resp. 11–33.

We have reviewed Valve's arguments that Burns and Uy render claims 9, 14, 15, 21, and 22 obvious and the evidence cited by Valve in support of those arguments. Pet. 33–35. Based on those arguments, which we adopt as our own, and the evidence cited by Valve in support, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and Uy render claims 9, 14, 15, 21, and 22 unpatentable as obvious.

F. Claims 1, 2, 9–17, 21, and 22: Obviousness over Burns and AlphaGrip

Valve argues that claims 1, 2, 9–17, 21, and 22 are unpatentable as obvious over Burns and AlphaGrip. *See* Pet. 42–54. For the reasons expressed below, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claims 1, 2, 9, 11–17, 21, and 22 unpatentable as obvious but has failed to do so for claim 10.

1. Independent Claim 1

a. Overview of Valve's Argument and Evidence

Valve relies upon Burns as describing almost all elements of independent claim 1. *Id.* at 43–48. Valve relies upon AlphaGrip as describing an elongated member disposed in a channel on the back of the controller because many of AlphaGrip's controls on its back surface are disposed within recesses in that surface. Pet. 47–48 (relying on photographs from Ex. 1004 and citing Ex. 1008 ¶¶ 31, 33). Valve relies upon Dr. Rempel's testimony as establishing that an ordinarily skilled artisan would have modified Burns to dispose its elongate paddles within recesses like those taught by AlphaGrip "to reduce undesired lateral movement or yawing of the Burns paddle members." *Id.* at 48 (citing Ex. 1008 ¶¶ 31, 33).

b. Analysis of Ironburg's Responsive Arguments and Evidence

As an initial matter, Ironburg contends that Valve failed to prove that AlphaGrip was a prior art printed publication, *id.* at 16–18, an issue on which we find in Valve's favor for the reasons discussed in Part II.D above.

On the merits relating to obviousness for Valve's challenge based on the combined teachings of Burns and AlphaGrip, Ironburg argues that Valve's showing for independent claim 1 fails for the same two high-level

reasons proffered regarding the challenge based on Burns and Uy. *See* PO Resp. 11–16, 19–27 (responding to challenges based on Burns and Uy and Burns and AlphaGrip in parallel). First, Ironburg contends that Burns fails to teach an elongate member that is inherently resilient and flexible. We find in Valve's favor on this issue for the reasons expressed in Part II.E.1.b.i above.

Second, Ironburg argues that Valve's alleged motivations to incorporate AlphaGrip's channels into the underside of the Burns controller are insufficient to support a conclusion of obviousness. *Id.* at 19–27. We discern no meaningful differences between Valve's showing that an ordinarily skilled artisan would have been motivated to incorporate AlphaGrip's or Uy's channels into the Burns controller. Nor do we discern any meaningful differences between Ironburg's arguments that Valve's showings on combining Uy or AlphaGrip with Burns were deficient. For the reasons discussed in Part II.E.1.b.ii above, we find that the evidence proffered by Valve persuasively demonstrates how and why an ordinarily skilled artisan would have modified Burns in view of AlphaGrip to include the claimed channels.

c. Conclusion

For the reasons set forth above, we conclude that Valve has demonstrated by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claim 1 unpatentable as obvious.

2. Dependent Claim 2

Valve identifies AlphaGrip's recesses on the underside of its controller as fitting closely enough surrounding the levers on that underside to provide lateral support to its elongated back controls. Pet. 48 (citing Ex. 1008 ¶ 33). Valve relies on the annotated version of AlphaGrip's Figure provided by Dr. Rempel reproduced at right. *Id*.

close fitting respective elongate channels discernable around each elongatę back control



Ironburg responds that AlphaGrip's "actual disclosure does not show or clearly disclose that the channel forms a close fit to the elongate member so as to provide lateral support. The precise configuration of the back controls cannot be seen." PO Resp. 27–28. Ironburg cites no evidence to support its argument. *Id*.

Valve persuasively points out that AlphaGrip provides "*photographic evidence* that each of its elongate members is partially recessed in a respective channel located on the back of the outer case, and [an ordinarily skilled artisan] recognizes that such recession obviously provides lateral support against lateral movement." Reply 23–24 (citing Ex. 1008 ¶ 33).

Based on our review of all the uncontroverted evidence adduced by Valve, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claim 2 unpatentable as obvious.

3. Dependent Claim 10

Valve exclusively identifies Burns as describing the "detachable" elongate member required of claim 10. Pet. 49. For the same reasons expressed in Part II.E.3 above, we find Valve's showing to be insufficient to demonstrate that Burns teaches a detachable elongate member. Accordingly, we conclude that Valve has failed to prove by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claim 10 unpatentable as obvious.

4. Dependent Claims 12 and 13

Claim 12 depends from claim 1 and further recites:

comprising at least two additional controls located on the back of the outer case, and wherein each of the plurality of additional controls is activateable by a respective elongate member, each of the elongate members comprising an outermost surface, and wherein the outermost surface of a first elongate member is disposed in a first plane and the outermost surface of a second adjacent elongate member is disposed in a second plane, the first plane being orientated at an angle to the second plane.

Exhibit 1001, 24:63–25:4.

Valve identifies AlphaGrip as describing the limitations introduced in claim 12. Pet. 49–52 (citing photographs from Ex. 1004; Ex. 1008 ¶¶ 34, 36). Valve identifies the arrangement of controls on the back side of the AlphaGrip controller shown in the annotated photograph shown at right as meeting the geometric limitations on the "additional controls" and "elongate members" recited in claim 12. *Id*. at 51.

outermost surfaces of 1st elongate members



outermost surfaces of adjacent 2^{nd} elongate members are orientated at angles to the outermost surfaces of 1^{st} elongate members *Id.* at 51.

Ironburg does not contest Valve's showing that AlphaGrip meets the limitations introduced in claim 12. *See* Pet. 49–54 (contesting Valve's showing for only claims 1, 2, 10, 13, 16, and 17).

We have reviewed Valve's arguments that Burns and AlphaGrip render claim 12 obvious and the evidence cited by Valve in support of those arguments. Pet. 49–52. Based on those arguments, which we adopt as our own, and the evidence cited by Valve in support, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claim 12 unpatentable as obvious.

Claim 13 depends from claim 12 and further recites: "wherein the angle is between 5 and 90 degrees." Ex. 1001, 25:5–6. Valve relies upon the same photograph reproduced above along with testimony by Dr. Rempel in which he opines that the angles shown in the photograph measure between 5 and 90 degrees. Pet. 52 (citing Ex. 1008 ¶ 36).

Ironburg responds that Valve's argument based upon photographic evidence fails because the photographs are "not explicitly made to scale." PO Resp. 30 (citing *Nystrom v. Trex Co., Inc.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005) ("[T]he speculative modeling premised on unstated assumptions in prior art patent drawings cannot be the basis for challenging the validity of claims reciting specific dimensions not disclosed directly in such prior art."); *In re Wright*, 569 F.2d 1124, 1127 (CCPA 1977) ("Absent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value."). We find that rationale of the cited cases does not readily apply to photographs, which typically depict their subject matter in a manner to reveal the relative proportions of the items in the photograph. *Advanced Cardiovascular Sys. v. Scimed Life Sys.*, 96 F. Supp. 2d 1006, 1009 (N.D. Cal. 2000).

Ironburg also argues that Dr. Rempel fails to identify specific angles that meet the recited range for the angle between the first and second planes. PO Resp. 30–31. Ironburg cites no evidence to rebut Dr. Rempel's testimony. *Id.* First, we note that the recited range for the claimed angle is quite broad, 5 to 90 degrees. Second, we credit Dr. Rempel's analysis of the photographic evidence, which comports with our own independent review, and are persuaded by his testimony. Accordingly, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claim 13 unpatentable as obvious.

5. Dependent Claims 16 and 17

Just as it does in connection with the challenge based on Burns and Uy, Valve relies upon Burns as describing the limitations introduced in claims 16 and 17 for its challenge based on Burns and AlphaGrip. Pet. 53.

For the reasons discussed in Part II.E.4 above, we find Valve's showing on these limitations to be persuasive, and we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claims 16 and 17 unpatentable as obvious

6. Dependent Claims 9, 11, 14, 15, 21, and 22

Dependent claims 9, 11, 14, 15, 21, and 22 each directly depend from claim 1. Ex. 1001, 24:46–26:7. For the issues remaining on remand, Ironburg does not proffer arguments or adduce evidence in support of the continued patentability of dependent claims 9, 11, 14, 15, 21, and 22 that is distinct from its arguments and evidence relating to claim 1. PO Resp. 11–33.

We have reviewed Valve's arguments that Burns and AlphaGrip render claims 9, 11, 14, 15, 21, and 22 obvious and the evidence cited by Valve in support of those arguments. Pet. 49–54. Based on those arguments, which we adopt as our own, and the evidence cited by Valve in support, we conclude that Valve has proven by a preponderance of evidence that the combined teachings of Burns and AlphaGrip render claims 9, 11, 14, 15, 21, and 22 unpatentable as obvious.

III. IRONBURG'S MOTION TO EXCLUDE

As authorized in our Scheduling Order on Remand (Paper 44), Ironburg renewed its Motion to Exclude Evidence, Ironburg Remand Br. 15, that we previously dismissed-in-part without prejudice as moot in our first Decision, Dec. 29.

Ironburg argues that two prior art references, Exhibit 1003 (Burns), Exhibit 1004 (AlphaGrip), and Exhibit 1048 (another copy of Burns) should

be excluded as: (1) unathenticated (FRE 901), (2) hearsay (FRE 802), and (3) irrelevant (FRE 401, 402). Mot. 2–9.

Regarding Exhibits 1003 and 1048, the Federal Circuit's ruling that Burns is a prior art printed publication moots Ironburg's argument. Accordingly, we dismiss-in-part the Motion as it relates to Exhibits 1003 and 1048 as moot. Regarding Exhibit 1004 (AlphaGrip), we deny-in-part the Motion for the reasons set forth in Part II.D above.

Ironburg also moves to exclude Exhibits 1011–1014 and 1017–1046 as being "untimely" filed. Mot. 10. Ironburg also argues that Dr. Rempel's Reply Declaration (Exhibit 1019) is untimely and irrelevant (FRE 401, 402). *Id.* at 10–12. Ironburg also argues that Exhibits 1020, 1025, 1026, 1031, 1036, 1042, and 1044 are unauthenticated (FRE 901, 902), hearsay (FRE 801–803), and irrelevant (FRE 401, 402). *Id.* at 12–13. Lastly, Ironburg moves to exclude Exhibits 1013, 1018, 1035, 1037, 1039, 1040, 1041, and 1046 as irrelevant (FRE 401, 402) and hearsay (FRE 801–803). *Id.* at 13–15.

Valve relied upon the body of evidence addressed immediately above to: (1) prove that Burns was prior art;¹¹ (2) disprove Ironburg's unexpected and poorly supported contention that Burns' paddles were completely inflexible and not resilient;¹² or respond to arguments relating to challenges based on Uy and Tosaki, which are not at issue in this remand proceeding.¹³ Opp. 7–9.

¹¹ Exhibits 1003, 1011–1014, 1035, 1040, 1041, and 1048. Opp. 2–3, 7–9.

¹² Exhibits 1017, 1018–1033, 1037, 1039, 1042, and 1043. Opp. 7–9.

¹³ Exhibits 1044–1046. Opp. 7–9.

Regarding the first group of exhibits, we dismiss the Motion as mooted by the Federal Circuit's ruling that Burns is prior art. Regarding the second group of exhibits, we deny the Motion for the reasons expressed in Part II.E.1.b.i above. Regarding the third group of exhibits, we dismiss the Motion as moot because the evidence does not relate to an issue remaining in this remand proceeding.

IV. CONCLUSION

Claims	35 U.S.C. §	References	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1, 2, 9, 10, 14–17, 21–24	103	Burns, Uy	1, 2, 9, 14–17, 21–24	10
1, 2, 9–17, 21, 22	103	Burns, AlphaGrip	1, 2, 9, 11–17, 21, 22	10
Overall Outcome		1, 2, 9, 11–17, 21–24	10	

In summary,

V. ORDER

For the reasons given, it is:

ORDERED that claims 1, 2, 9, 11–17, and 21–24 of U.S. Patent

9,352,229 B2 have been shown to be unpatentable;

FURTHER ORDERED that claim 10 of U.S. Patent 9,352,229 B2 has not been shown to be unpatentable;

FURTHER ORDERED that Ironburg's Motion to Exclude Evidence is *denied-in-part* and *dismissed-in-part* as specified above; and

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

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