

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TRE MILANO, LLC,  
Petitioner,

v.

TF3 LIMITED,  
Patent Owner.

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Case IPR2015-00649  
Patent 8,651,118 B2

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Before JAMES P. CALVE, SCOTT A. DANIELS, and  
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

GOODSON, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

Tre Milano, LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–5 and 11 of U.S. Patent No. 8,651,118 B2 (“the ’118 patent”). TF3 Limited (“Patent Owner”) timely filed a Preliminary Response (Paper 6, “Prelim. Resp.”) to the Petition. We instituted trial as to claims 1–5 and 11 of the ’118 patent on the following proposed grounds of unpatentability:

A. Anticipation of claims 1–5 and 11 by Gnaga;<sup>1</sup> and

B. Anticipation of claims 1–5 and 11 by Hoshino.<sup>2</sup>

Paper 7, 24 (“Dec. to Inst.”).

After institution, Patent Owner filed a Patent Owner’s Response (Paper 18, “PO Resp.”), and Petitioner filed a Reply (Paper 24, “Reply”). After receiving our authorization to do so (Paper 27), Patent Owner filed a Sur-Reply (Paper 28).<sup>3</sup> An oral hearing was conducted on March 17, 2016. A transcript of the oral hearing is included in the record. Paper 36 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the

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<sup>1</sup> U.S. Patent No. 4,148,330, issued Apr. 10, 1979 (Ex. 1004, “Gnaga”).

<sup>2</sup> Japanese Patent Application No. 61-10102, published Jan. 21, 1986 (Ex. 1005, “Hoshino”). Petitioner submitted an English translation of Hoshino as Exhibit 1006.

<sup>3</sup> Patent Owner filed objections to evidence that Petitioner submitted with its Reply. *See* Paper 26. However, neither party filed a motion to exclude in this proceeding. *See* 37 C.F.R. § 42.64(c) (“A motion to exclude evidence must be filed to preserve any objection.”); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,767 (Aug. 14, 2012) (“A party wishing to challenge the admissibility of evidence must object timely to the evidence at the point it is offered and then preserve the objection by filing a motion to exclude the evidence.”). Accordingly, we do not address Patent Owner’s evidentiary objections.

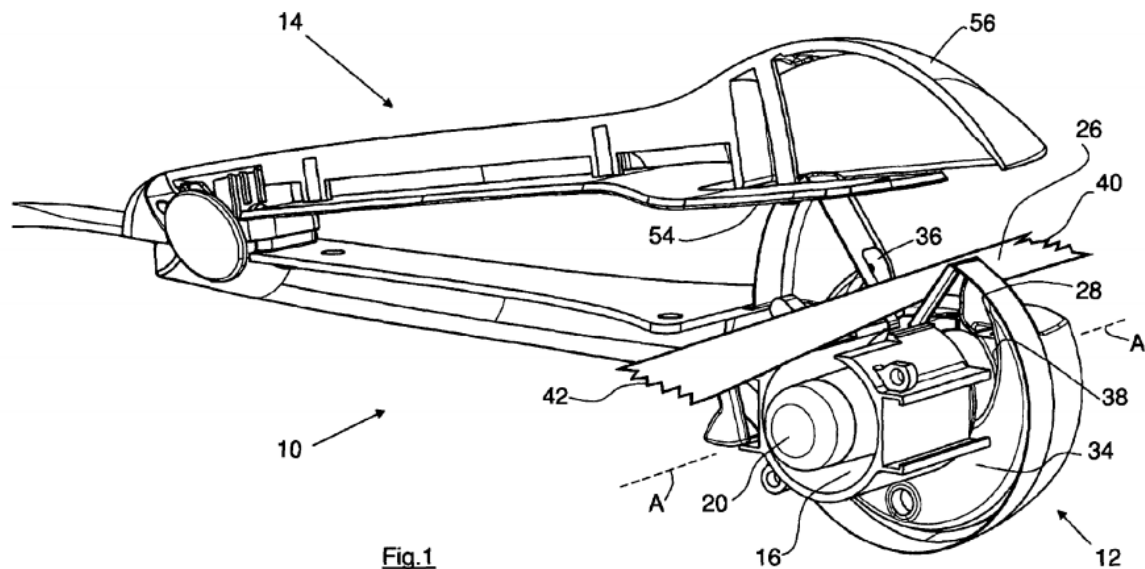
patentability of claims 1–5 and 11. For the reasons discussed below, Petitioner has demonstrated by a preponderance of the evidence that these claims are unpatentable.

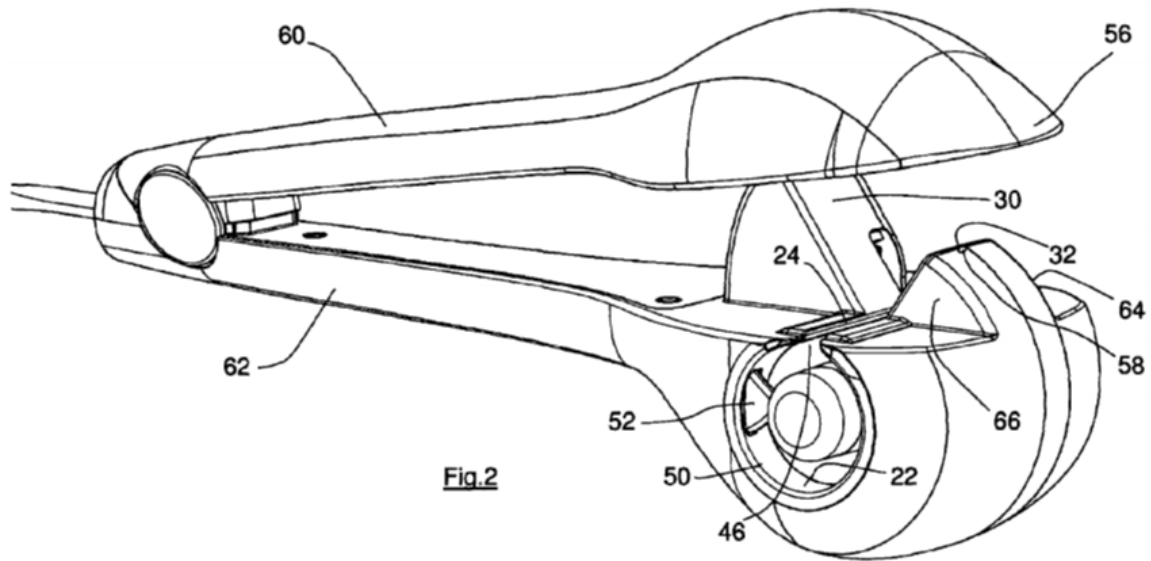
*A. Related Proceedings*

The parties inform us that the '118 patent is the subject of a lawsuit in the U.S. District Court for the District of Connecticut, *Conair Corp. v. Tre Milano*, Case No. 3:14-cv-01554-AWT. See Pet. 1; Paper 5, 2.

*B. The '118 Patent*

The '118 patent relates to a hair styling device. Ex. 1001, Title, Abstract. The Specification describes that the device permits the removal of a formed curl without being unwound, which better preserves the curvature of a wound curl compared to devices in which the wound curl is forced to unwind as it is removed. *Id.* at col. 2, ll. 9–21. The device is shown in Figures 1 and 2, reproduced below:





**Fig.2**

Figure 1 is a perspective of part of the hair styling device with some of the body removed. *Id.* at col. 4, ll. 29–32. Figure 2 shows the complete hair styling device. *Id.* at col. 4, ll. 33–35. As shown in Figures 1 and 2, device 10 has chamber 16 within body 12. *Id.* at col. 4, ll. 50–51. Length of hair 26 is introduced into chamber 16 through primary opening 24. *Id.* at col. 4, ll. 58–60. The rotation of rotatable element 34 causes leading edge 38 to capture length of hair 26 and pull it through primary opening 24 into chamber 16. *Id.* at col. 5, ll. 11–17. Continued rotation of rotatable element 34 causes the proximal portion of length of hair 26 to rotate around elongate member 20 until it engages abutment 52, and the distal portion of length of hair 26 is gradually wound around elongate member 20 between rotatable element 34 and abutment 52. *Id.* at col. 5, ll. 47–50, 54–60.

Chamber 16 can be heated, such that length of hair 26 is styled by remaining within chamber 16, curled around the cylindrical elongate member 20, for a predetermined length of time. *Id.* at col. 5, l. 65–col. 6, l. 4, col. 6, ll. 23–25. At the end of a styling operation, abutment 52 moves to its open position, which allows hair 26, now curled, to pass out of secondary

opening 50 by sliding along elongate member 20 and off its free end. *Id.* at col. 6, ll. 30–37.

### *C. Illustrative Claim*

Claim 1, the sole independent claim challenged, is an apparatus claim from which each of claims 2–5 and 11 depends. Claim 1 is illustrative of the subject matter at issue, and is reproduced below:

1. A hair styling device having:

a body defining a chamber adapted to accommodate a length of hair, the chamber having a primary opening through which the length of hair may pass into the chamber;

a rotatable element adapted to engage the length of hair adjacent to the primary opening;

an elongate member around which, in use, the length of hair is wound by the rotatable element, the elongate member having a free end;

the chamber having a secondary opening through which the length of hair may pass out of the chamber, the secondary opening being located adjacent to the free end; and

a movable abutment which can engage the length of hair in use, the movable abutment having an open position in which the length of hair can pass through the secondary opening, and a closed position in which the length of hair is retained within the chamber, wherein the movable abutment is located within one of (i) the secondary opening, (ii) the primary opening, and (iii) a passageway connecting the secondary opening to the primary opening.

## II. ANALYSIS

### *A. Claim Construction*

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. *In re Cuozzo Speed Techs., LLC*, 793 F.3d

1268, 1278–1279 (Fed. Cir. 2015) (“Congress implicitly approved the broadest reasonable interpretation standard in enacting the AIA,” and “the standard was properly adopted by PTO regulation”), *cert. granted sub nom. Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 890 (mem.) (2016); 37 C.F.R. § 42.100(b). Under that standard, we give claim terms their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. “Chamber”

In the Decision to Institute, we construed “chamber” in claim 1 to mean “a partially enclosed space.” Dec. to Inst. 6–7. Neither party disputes this construction. *See* PO Resp. 9–12; Reply 14–15. Therefore, for the reasons set forth in the Decision to Institute, we maintain our construction of that term.

2. “Free End”

Claim 1 recites that the elongate member has a “free end.” Patent Owner’s Response does not affirmatively argue for any construction for this term,<sup>4</sup> but contends that the construction adopted in our Decision to Institute

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<sup>4</sup> Patent Owner’s Response does refer to the construction it proposed earlier in this proceeding, PO Resp. 12, suggesting that Patent Owner still maintains that its proposal from the Preliminary Response should be adopted. But the Patent Owner Response does not cite any evidence or provide any argument in support of its earlier proposed construction. In the “Claim Construction” section of the Declaration of Dr. Daniel Nosenchuck, Patent Owner’s declarant, Dr. Nosenchuck simply notes the construction from our previous decisions, and does not opine that a different construction should be adopted

is erroneous and inconsistent with statements in our subsequent Decision on Patent Owner's Request for Rehearing. *See* PO Resp. 9–12. To understand Patent Owner's arguments, we briefly revisit the discussions of this term's meaning in these earlier decisions.

In its Preliminary Response, Patent Owner proposed that “free end” should be construed to mean “an end of an elongate member that is devoid of any structure that would impede the translational release of the hair at the end of the elongate member.” Prelim. Resp. 15. In the Decision to Institute, we found that Patent Owner's proposed construction conflicted with the preferred embodiment of the '118 patent, as Figure 2 shows that when abutment 52 is in the closed position, abutment 52 prevents hair wound around elongate member from sliding off the free end. Dec. to Inst. 8 (“A claim construction that excludes the preferred embodiment ‘is rarely, if ever, correct and would require highly persuasive evidentiary support.’”) (quoting *Adams Respiratory Therapeutics, Inc. v. Perrigo Co.*, 616 F.3d 1283, 1290 (Fed. Cir. 2010)).

For the purposes of the Decision to Institute, we construed “free end” to mean “an end of the elongate member that is unsupported when the movable abutment is in the open position.” *Id.* at 9. The Decision noted that this construction was consistent with the figures of the '118 patent as well as the dictionary definition of “free” that Patent Owner quoted in the Preliminary Response. *Id.* at 8–9; Prelim. Resp. 15 (quoting a definition of “free” as “[n]ot physically restrained, obstructed, or fixed; unimpeded”). In particular, the Decision found that

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or otherwise state any disagreement with our earlier construction. *See* Ex. 2001 ¶ 13.

based on the Figures in the '118 patent, abutment 52 may provide some structural support to the free end 20 when abutment 52 is in the closed position. *See* Ex. 1001, Figs. 1–4. When abutment 52 is in the open position, however, the free end of elongate member 20 is not structurally supported.

*Id.* at 9.

Patent Owner filed a Request for Rehearing, arguing that the Decision to Institute incorrectly construed this term. *See* Paper 9 (“Req. Reh’g”). Patent Owner argued, among other things, that the construction was flawed because it “presumes, contrary to the Board’s initial speculation that it *may* provide a structural support function, that the abutment in fact *does* definitively provide support in a closed position.” *Id.* at 9. On this basis, Patent Owner argued that the construction contradicts the Specification’s disclosure of alternative embodiments in which the abutment is located within the primary opening or between the primary and secondary openings. *Id.* at 10, 12–13 (quoting Ex. 1001, col. 2, ll. 22–39, col. 7, l. 65–col. 8, l. 5).

In denying Patent Owner’s Request for Rehearing, we explained that this argument misinterpreted the construction in the Decision to Institute:

The Decision’s construction of “free end” — “an end of the elongate member that is unsupported when the movable abutment is in the open position” (Dec. 9) — does not require that the free end is supported when the movable abutment is in the closed position. Accordingly, we see no reason why the Decision’s construction would exclude the alternative embodiments in which the abutment is located within the primary opening or between the primary and secondary openings. In either of those alternative embodiments, it would remain the case that the free end is unsupported [when] the abutment is in the open position.

Paper 15, 5.



In its Patent Owner Response, Patent Owner contends that the construction of “free end” in the Decision to Institute is inconsistent with the explanation quoted above from our Decision on Patent Owner’s Request for Rehearing. *See* PO Resp. 10. We disagree. As Petitioner succinctly and correctly observes, the construction “merely states that the free end is unsupported in the open position, but may or may not be supported in the closed position. There is nothing inconsistent.” Reply 14.

Patent Owner also argues that the construction we adopted in the Decision to Institute is erroneous because “it has been tied to the notion, nowhere contained in the claims or disclosure of the ’118 patent, that the movable abutment ‘may provide some support to the free end 20 when abutment 52 is in the closed position.’” PO Resp. 12. We addressed this same argument in the Decision on Patent Owner’s Request for Rehearing:

Figures 2–4 depict movable abutment 52 as being in contact with the free end of elongate member 20 when abutment 52 is in the closed position. Ex. 1001, Figs. 2–4. In addition, the Specification describes that “rotation of the rotatable element 34 drives the proximal portion of the length of hair 26 to rotate around the elongate member 20 until it engages the abutment 52 (FIGS. 2, 3).” *Id.* at col. 5, ll. 48–50. Absent contact between abutment 52 and the free end, abutment 52 would not engage the length of hair 26 as described in the Specification because the hair would simply pass between abutment 52 and the free end of the elongate member 20 and continue to rotate around the elongate member 20, driven by rotatable element 34. Accordingly, when abutment 52 is in the closed position, abutment 52 may provide some structural support to the free end due to the contact between abutment 52 and the free end of the elongate member 20.

Paper 15, 4.

Patent Owner does not address these points in its Patent Owner Response. At the hearing, however, Patent Owner explained that in Figure 4, it appears that abutment 52 fits into a cavity in elongate member 20 when abutment 52 is in the closed position. *See* Tr. 38:23–39:11, 41:14–42:3; *see also* Ex. 2001 ¶ 16 (testimony of Dr. Nosenchuck that “[t]he cavity [in the elongate member] does not necessarily provide any mechanical support to the movable abutment”). Figure 4 is reproduced below:

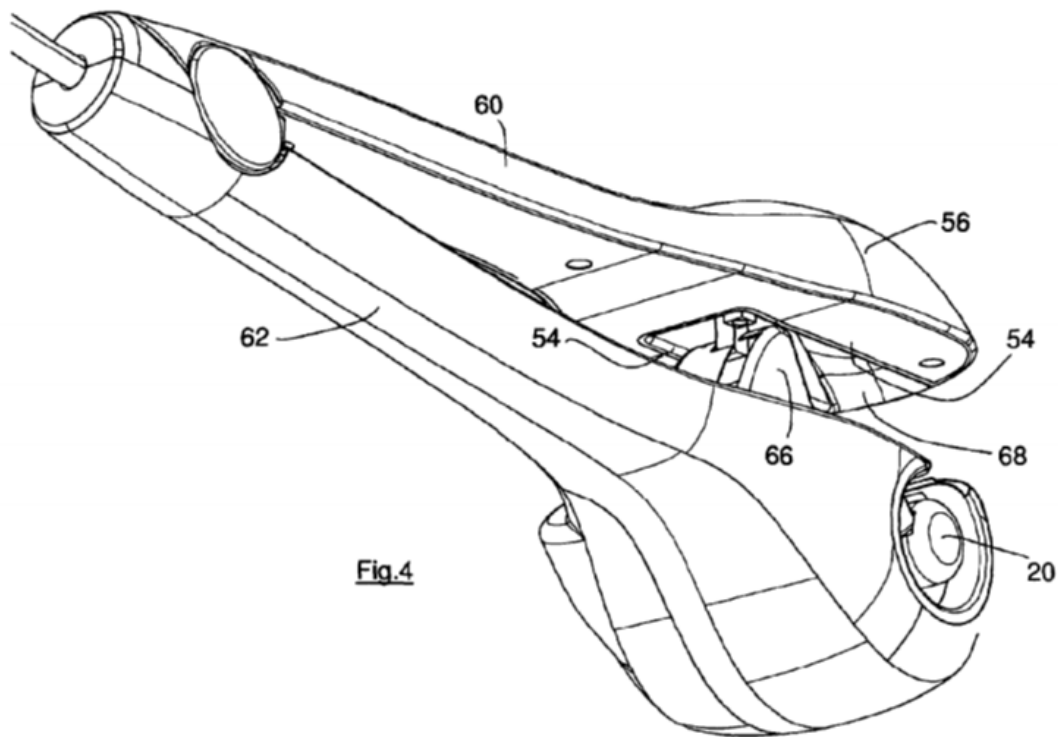


Figure 4 is a perspective view of the hair styling device from below.

Ex. 1001, col. 4, ll. 39–40.

Aside from Figure 4, nothing in the Specification indicates that the end of movable abutment 52 is inserted into a cavity in elongate member 20 when abutment 52 is in the closed position. *See* Tr. 41:17–42:3. Patent Owner also agrees that a skilled artisan would not be able to discern from Figure 4 that there is no contact between abutment 52 and elongate member

20. *See id.* at 42:4–9, 43:12–16. Thus, neither Patent Owner nor Patent Owner’s declarant take the position that a skilled artisan would understand from Figure 4 that when movable abutment 52 is in the closed position, it is not in contact with elongate member 20, only that there might not be contact. *See id.* at 39:14–15, 42:4–9, 43:12–16; Ex. 2001 ¶ 16.

In our view, a skilled artisan would understand from Figure 4 that there is likely to be contact between abutment 52 and elongate member 20 because a close fit between abutment 52 and elongate member 20 would tend to promote the ability of abutment 52 to engage hair 26 as it rotates around elongate member 20 and prevent the proximal portion of hair 26 from rotating around the free end of elongate member 20. *See* Ex. 1001, col. 5, ll. 48–50, col. 7, l. 65–col. 8, l. 2. This understanding is further supported by the Specification’s description of an alternative embodiment in which panel 56 carries a projection overlying the secondary opening:

[T]he projection would have to be a very close sliding fit over the free end of the elongate member 20 in order to prevent any length of hair passing therebetween; any hair which did pass around the free end of the elongate member 20 would become twisted rather than curled, and would be liable to entanglement.

*Id.* at col. 8, ll. 62–67.

Patent Owner further argues that our construction improperly reads limitations into the claim from a preferred embodiment in the specification. PO Resp. 11. We disagree with this characterization of our construction because it does not narrow the claim’s scope by inserting features from a preferred embodiment into the claim language. Rather, we declined to adopt Patent Owner’s overly narrow construction that would exclude the preferred embodiment, and instead adopted a construction that is at least broad enough to include the preferred embodiment.

Patent Owner has not presented any persuasive reason why we should depart from the construction of “free end” that we adopted in the Decision to Institute. For its part, Petitioner states that it is “willing to accept the Board’s construction” and is “not challenging the construction for the purposes of this hearing.” Tr. 18:24–25, 27:7–12. This rather tepid endorsement suggests that Petitioner does not embrace our construction with open arms, but Petitioner’s qualms do not convince us of any error in the construction. Specifically, Petitioner asserts that even in the open position, as shown in Figure 2, the abutment appears to remain in contact with the free end of the elongate member. *Id.* at 18:10–18. Petitioner refers to column 6, lines 9–10 as showing that this figure depicts the device in the open position. *Id.* at 19:7–19. However, this portion of the Specification is discussing the open and closed positions of the handle, not the movable abutment. Ex. 1001, col. 6, ll. 5–15; Tr. 19:20–20:7. The Specification later indicates that Figures 2 and 3 both show abutment 52 in the closed position. Ex. 1001, col. 6, ll. 32–33. Further, we are not convinced that the open position of the handle necessarily signifies that the abutment is also in an open position. We note that dependent claim 8 requires that “the movable abutment is driven to its closed position as the second handle part is moved towards the first handle part.” The recitation of this feature in a dependent claim suggests that this feature is not necessarily present in all contemplated embodiments. *See* 35 U.S.C. § 112, ¶ 4 (requiring that a dependent claim shall “specify a further limitation of the subject matter claimed”). Because Petitioner does not convince us that the Specification indicates that the abutment may remain in contact with the elongate member when the abutment is in the open position, Petitioner’s comments do not apprise us of

error in our construction.

For the foregoing reasons, in addition to the reasons stated in our Decision to Institute, we maintain our construction of “free end” to mean “an end of the elongate member that is unsupported when the movable abutment is in the open position.”

3. *“the length of hair can pass through the secondary opening”*

Claim 1 recites that “the chamber [has] a secondary opening through which the length of hair may pass out of the chamber” and further recites that “the movable abutment [has] an open position in which the length of hair can pass through the secondary opening.” In the claim construction section of its Response, Patent Owner does not propose a construction for these phrases. *See* PO Resp. 9–12. However, in the course of its arguments that Gnaga and Hoshino do not anticipate claim 1, Patent Owner argues that these phrases should be understood to mean that when the abutment is in its open position, the styled length of hair is allowed to slide along the elongate member towards and subsequently off its free end. PO Resp. 29, 45–46 (citing Ex. 1001, 6:33–37; Ex. 2001 ¶¶ 27, 37).

Patent Owner’s claim construction argument is based on the following disclosure in the Specification: “It is arranged that the abutment 52 in its open position allows the styled length of hair to pass out of the secondary opening 50, i.e. to slide along the elongate member 20 towards and subsequently off its free end.” Ex. 1001, 6:33–37. Patent Owner and its declarant, Dr. Nosenchuck, emphasize that “i.e.” means “that is” or “that is to say.” PO Resp. 28–29 (citing Ex. 2004); Ex. 2001 ¶ 27.

Petitioner counters that hair sliding off the end of the elongate member is not required by claim 1. Reply 22. Petitioner argues that a

publication that is incorporated by reference into the '118 patent depicts an embodiment in which hair does not slide off the end of the elongate member. *Id.* (citing Ex. 1028, Fig. 12).

We do not find the disclosure of the incorporated reference informative as to the meaning of these limitations, because Petitioner does not explain how the Figure 12 embodiment in that reference includes a secondary opening through which hair passes. We note that the '118 patent distinguishes its invention from that of the incorporated reference on the basis that it “differs in having a secondary opening adjacent to a free end of the elongate member.” Ex. 1001, 2:1–7. An embodiment that lacks a secondary opening through which hair passes out of the chamber is irrelevant to the question of whether the phrase “the movable abutment having an open position in which the length of hair can pass through the secondary opening” requires that hair slides along and off the elongate member in passing through the secondary opening.

Nevertheless, we agree with Petitioner that the claim phrases quoted above do not require that hair must slide along and off the elongate member. The Federal Circuit has repeatedly warned against confining the claims to embodiments in the specification.<sup>5</sup> *See, e.g., In re Am. Acad. of Sci. Tech*

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<sup>5</sup> This issue arises, in part, due to the recitation in claim 1 of a device with steps of using that device, i.e., “the length of hair is wound by the rotatable element,” “opening through which the length of hair may pass out of the chamber,” “an open position in which the length of hair can pass through the secondary opening,” and “closed position in which the length of hair is retained within the chamber.” Ex. 1001, col. 9, ll. 35–46. Combining steps of using an apparatus in an apparatus claim may raise issues of indefiniteness, which are beyond the scope of our review. *See IPXL Holdings, L.L.C. v. Amazon.com*, 430 F.3d 1377, 1384 (Fed. Cir. 2005) (claims that combine different statutory classes—apparatus and method of

*Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004) (“We have cautioned against reading limitations into a claim from the preferred embodiment described in the specification, even if it is the only embodiment described, absent a clear disclaimer in the specification.”); *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (“Absent claim language carrying a narrow meaning, the PTO should only limit the claim based on the specification or prosecution history when those sources expressly disclaim the broader definition.”).<sup>6</sup>

In our view, the portion of the Specification on which Patent Owner relies is a description of the operation of a specific embodiment, rather than an attempt to narrowly define what it means for a length of hair to pass out of the secondary opening. Indeed, the sentence two sentences above the quoted statement in the same paragraph begins, “[i]n this embodiment.” Ex. 1001, 6:27. We do not understand the use of “i.e.” in the quoted statement to signify that passing out of the secondary opening always must be accomplished by sliding along and off the elongate member. Rather, it

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using the apparatus—are not sufficiently precise); *see also In re Otto*, 312 F.2d 937, 940 (CCPA 1963) (claims directed to a particular device are not distinguished over the prior art by a certain procedure for curling hair using the device and steps in this process including “the recitation involving the hair being wound around the core” are irrelevant to distinguish a structural claim over the prior art).

<sup>6</sup> Although we apply the broadest reasonable interpretation in this proceeding, we note that the prohibition against importing limitations from the specification applies with equal force under a *Phillips* claim construction. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc); *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (“Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’”) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)).

simply indicates that this is how the length of hair passes out of the secondary opening in the embodiment being described.

Accordingly, we conclude that claim 1 does not require that the length of hair is allowed to slide along the elongate member towards and subsequently off its free end.

*4. Whether the Claimed Device Must Be a “Unitary” Device*

In the course of its arguments that Gnaga and Hoshino do not anticipate claim 1, Patent Owner contends that a skilled artisan would understand that the claimed device must be a “unitary” device. PO Resp. 20–22, 36–39. Although the Patent Owner Response does not tie this purported requirement to any particular term or phrase in claim 1, Patent Owner argued at the hearing that the term “device” in the preamble should be construed to mean “unitary device.” Tr. 50:4–22.

Patent Owner’s argument is based on description in the Specification that the device is particularly suited for use by a person styling her own hair and that hair styling is completed while the hair is within the chamber. *See* PO Resp. 20–21 (citing Ex. 1001, col. 6, ll. 16–37, col. 2, ll. 12–15, 25–28, 31–33, col. 8, ll. 16–19). In view of such description, Dr. Nosenchuck testifies that “I interpret this as being a device—a single device that is interconnected with parts that are not meant to be disassembled, and that’s what I particularly referred to as being unitary.” Ex. 1036, 11:11–15; *see also* Ex. 2001 ¶¶ 18, 19 (testifying that “a unitary device does not require assembly/disassembly of components for its operation by a user”). Patent Owner contrasts the unitary device of the ’118 patent with the “sequential curler assembly/insertion/removal/disassembly device” that is described in Gnaga and Hoshino. PO Resp. 22, 39.



Even assuming that the preamble constitutes a limitation on claim 1, a point that Petitioner disputes (*see* Tr. 62:5–7), we disagree with Patent Owner’s contention that the claim requires a device that is “unitary.” Rather, we agree with Petitioner that this is another instance in which Patent Owner attempts to import limitations from the preferred embodiment into the claim. *See* Reply 19–20. Patent Owner does not identify any aspect of the language of claim 1 that precludes removal of parts during operation. With respect to the portions of the Specification on which Patent Owner relies, we are not persuaded that these or any other portions of the Specification serve to disclaim non-unitary devices or limit the scope of a device to only unitary devices. *Cf. Bigio*, 381 F.3d at 1325 (holding that, despite discussion in the “Objects of the Invention” of a hairbrush for brushing scalp hair, “in examining the term ‘hair brush,’ the Board correctly declined to import from the specification a limitation that would apply the term only to hairbrushes for the scalp”).

While these points are sufficient by themselves, in our view, to establish that the claim does not require the device to be “unitary,” further support for that conclusion is provided by a publication that is incorporated by reference into the ’118 patent. Exhibit 1028 is an international patent publication titled “A Hair Styling Aid” that lists as its inventor one of the named inventors of the ’118 patent. *See* Ex. 1028, (54), (72); Ex. 1001, (75). Regarding the publication in Exhibit 1028, the ’118 patent states that “[t]he present invention shares many of the features of the preferred embodiments of the hair styling device described [therein], and so the disclosure of that document is incorporated herein in order to avoid unnecessary repetition.” Ex. 1001, col. 1, ll. 36–39.

Petitioner argues, and we agree, that Exhibit 1028 describes that parts of the device, such as the motor, handle, and rotatable element, can be separate or removable from the rest of the device. *See* Reply 21 (citing Ex. 1028, 4, 16, claim 45). This disclosure of detachable parts undermines Patent Owner’s argument that a skilled artisan would understand the claimed device as one in which parts are not removed in use.

Patent Owner challenges the relevance of Exhibit 1028 to the issue of whether the claimed device is unitary. Sur-Reply 3–4. Patent Owner argues that “incorporation by reference does not convert the invention of the incorporated patent into the invention of the host patent.” Sur-Reply 4 (citing *X2Y Attenuators, LLC v. U.S. Int’l Trade Comm’n*, 757 F.3d 1358, 1363 (Fed. Cir. 2014); *Modine Mfg. Co. v. U.S. Int’l Trade Comm’n*, 75 F.3d 1545, 1553 (Fed. Cir. 1996)). But this argument does not persuasively rebut Petitioner’s point, which is amply supported by the authorities it cites, that documents incorporated by reference are highly relevant to claim construction. *See* Reply 3 (citing *AquaTex Indus. v. Techniche Sols.*, 419 F.3d 1374, 1381 (Fed. Cir. 2005); *Vederi, LLC v. Google, Inc.*, 744 F.3d 1376, 1383 (Fed. Cir. 2014)). Patent Owner also argues that “the ’118 patent distinguishes the invention of Ex. 1028 from that of the ’118 patent.” Sur-Reply 3 (citing Ex. 1001, col. 1, ll. 18–20, 36–39, 46–49, col. 2, ll. 1–7). Patent Owner is correct that the ’118 patent states that the invention differs from the device described in Exhibit 1028 “in having a secondary opening adjacent to a free end of the elongate member.” Ex. 1001, col. 2, ll. 1–5. But the fact that the ’118 patent describes a distinction from the device of Exhibit 1028 does not make the incorporated disclosure of Exhibit 1028 irrelevant for all purposes. Specifically, Patent Owner does not explain why

the absence of a secondary opening in Exhibit 1028 makes the description in the incorporated Exhibit 1028 of devices with separable parts—that is, non-unitary devices—irrelevant to whether a “device” must be unitary.

For the foregoing reasons, we determine that claim 1 does not require a “unitary” device, as Patent Owner proposes.

### *B. Principles of Law*

To prevail in its challenges to the patentability of the claims, a petitioner must establish facts supporting its challenges by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. Inc., v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). The elements must be arranged as required by the claim, but identity of terminology is not required. *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

[U]nless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.

*Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

We analyze the instituted grounds of unpatentability in accordance with the above-stated principles.

### *C. Weight Given to Experts’ Testimony*

We note that each party argues that the testimony of the other party’s expert should be given little or no weight. *See* PO Resp. 7–8; Reply 7–10. As is reflected in our discussion below, this is not a case where the analysis hinges on the credibility or persuasiveness of one expert’s testimony over

the other's. The technology of the '118 patent and the cited references is relatively simple and easy to understand. *Cf. Wyers v. Master Lock Co.*, 616 F.3d 1231, 1242 (Fed. Cir. 2010) (“[E]xpert testimony is not required when the references and the invention are easily understandable.”); *see also Belden v. Berk-Tek LLC*, 805 F.3d 1064, 1079 (Fed. Cir. 2015) (“No rule requires a Petition to be accompanied by any declaration, let alone one from an expert guiding the Board as to how it should read prior art.”).

Moreover, much of the content in the experts' declarations appears to be repetition of arguments presented in the parties' briefing. *Compare* Pet. 7–13, *with* Ex. 1002 ¶¶ 30(a)–(s); *compare* Pet. 17–24, *with* Ex. 1002 ¶ 31(a)–(r); *compare* PO Resp. 17–19, *with* Ex. 2001 ¶¶ 21–22; *compare* PO Resp. 24–27, *with* Ex. 2001 ¶¶ 24–26; *compare* PO Resp. 30, *with* Ex. 2001 ¶ 28. Expert declarations that merely repeat what has already been presented in a brief add little to the Board's analysis.

Nevertheless, we have considered the parties' criticisms of the arguments and given the testimony of Dr. Nosenchuck and Mr. Prehodka the appropriate weight in making our determination in this case.

#### *D. Anticipation by Gnaga*

Petitioner argues that claims 1–5 and 11 of the '118 patent are anticipated by Gnaga. *See* Pet. 7–16. Patent Owner contests Petitioner's position. *See* PO Resp. 16–33. We have considered the arguments and evidence presented by both parties, and we determine that Petitioner has shown by a preponderance of the evidence that claims 1–5 and 11 are anticipated by Gnaga.

##### *1. Summary of Gnaga*

Gnaga describes a motor-curler unit for automatic application of

curlers to hair. Ex. 1004, Abstract. Figures 1 and 2 of Gnaga are reproduced below:

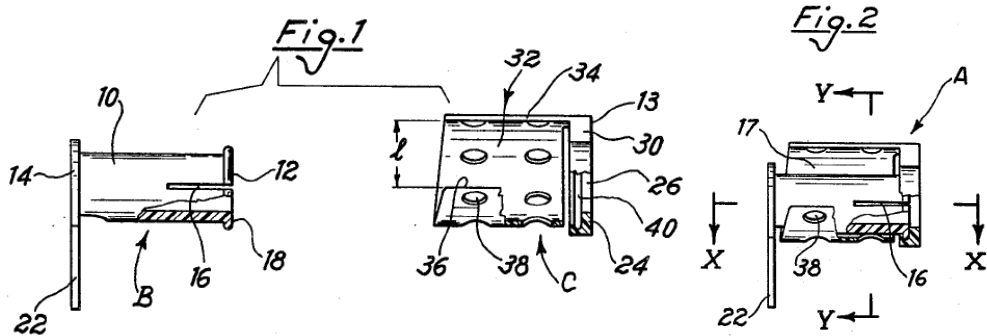
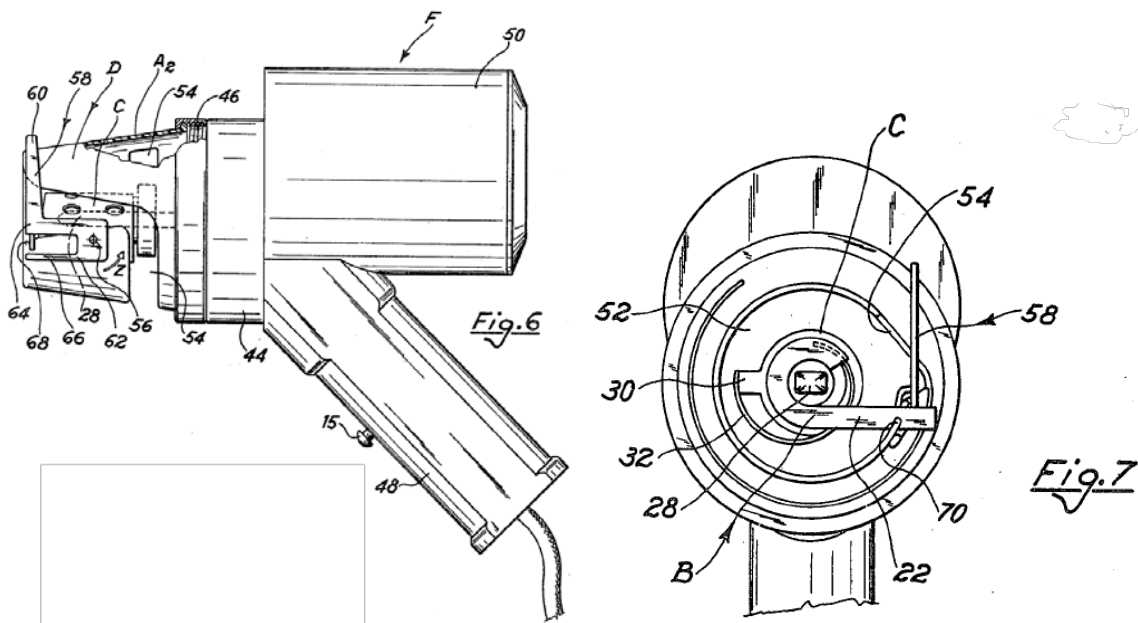


Figure 1 is a side view of internal element B and external element C, which together form Gnaga's curler A. *Id.* at col. 2, ll. 31–33, 44–48. Figure 2 is a side view of curler A with elements B, C in engagement with one another. *Id.* at col. 2, ll. 34–36. Figures 6 and 7 of Gnaga are reproduced below:



Figures 6 and 7 show side and front views, respectively, of the unit with curler A inserted inside housing D. *Id.* at col. 2, ll. 42–43, col. 3, ll. 34–37. Internal element B is locked in position via rod 22 and hook 58, and external element C is engaged with shaft 28. *Id.* at col. 3, l. 56–col. 4, l. 8.

With this arrangement, rotation of shaft 28 drives the rotation of external element C, while internal element B is held stationary due to the engagement of rod 22 and hook 58. *Id.* at col. 4, ll. 13–26.

Thus, when a hair lock is brought into housing D via slot 54, rotation of element C causes the hair lock to be inserted into hollow space 17 between elements B and C, and wound around element B. *Id.* at col. 4, ll. 9–22. When the motor is stopped, the operator releases the connection of hook 58 and rod 22. *Id.* at col. 4, ll. 23–28. The hair lock can then be removed from casing D with “curler A, around which the hair lock is still wound, rest[ing] in position when coming out from the dome-shaped casing D.” *Id.* at col. 4, ll. 28–32. After the hair is dried, curler A is disassembled to its two pieces B, C, and the curled hair lock is released. *Id.* at col. 4, ll. 32–35.

## 2. Claim 1

Petitioner has explained how each element of claim 1 is disclosed in Gnaga. Specifically, Petitioner contends that Gnaga’s rotating element C and housing D form a body defining a chamber, as recited in claim 1, and that slot 54 is a primary opening through which a length of hair passes into the chamber. *See* Pet. 10, 14. Petitioner further asserts that the opening at the front of Gnaga’s housing D constitutes the claimed secondary opening. *Id.* at 10. Petitioner points to Gnaga’s external element C as the “rotatable element” and Gnaga’s internal element B as the “elongate member.” *Id.* at 11. Petitioner contends that the end of internal element B nearest the front of the device constitutes a “free end.” *See id.* at 10. Petitioner relies on Gnaga’s rod 22 as the “movable abutment.” *Id.* at 12. Petitioner asserts that rod 22 has an open position in which curler A can pass through the opening at the front of outside housing D, as well as a closed position in which rod

22 and hook 58 lock curler A inside the housing D. *Id.* at 7, 8, 12.

Petitioner points out that rod 22 is located at the opening of housing D, which corresponds to the claimed secondary opening. *Id.* at 10, 12. The evidence supports Petitioner's contentions, and we agree with Petitioner that Gnaga teaches every element of claim 1.

We have considered Patent Owner's arguments to the contrary, but we do not find them persuasive. First, Patent Owner argues that "it is implicit that the claimed hair styling device is a unitary device," whereas Gnaga's device is disassembled during its ordinary operation. PO Resp. 20–22. As discussed in Section II.A.4. above, we do not agree with Patent Owner that claim 1 requires a "unitary" device. Therefore, this argument is not persuasive.

Next, Patent Owner argues that "Gnaga lacks (1) an elongate member having a free end, (2) a secondary opening adjacent to the free end, and (3) a movable abutment having an open position in which the length of hair can pass through the secondary opening, all present at the same time in a hair styling device." PO Resp. 23–27. According to Patent Owner, when rod 22 is in the open position and hair curler A is removed from housing D, the "secondary opening" is no longer adjacent to the "free end" of internal element B. PO Resp. 24–25. Conversely, when rod 22 is in the closed position, Gnaga lacks a movable abutment with a free end. PO Resp. 26.

We disagree with Patent Owner's argument that the device described in Gnaga lacks the three identified features. Looking at Gnaga's device when rod 22 is in its open position, Patent Owner only considers the condition when rod 22 is open and curler A has been entirely removed from housing D. *See* PO Resp. 24–25. But when rod 22 is released to its open

position and before curler A is removed from housing D, all three identified features are present. *See* Ex. 1004, col. 4, ll. 25–31. Specifically, internal element B is an elongate member. *See id.* at Fig. 1. When the operator turns lever 58 clockwise around pin 56, thereby releasing rod 22, rod 22 is no longer in contact with housing D. *See id.* at col. 4, ll. 25–28. Hence, the end of elongate member B near the front of the device is a “free end” under our construction of that term because it is unsupported when rod 22 is in this open position. *See supra* Section II.A.2. The free end is also adjacent the opening at the front of housing D, which Petitioner has identified as the “secondary opening.” *See* Pet. 10; Ex. 1004, Fig. 6. And when rod 22 is in this position, the length of hair can pass through the opening at the front of housing D, because Gnaga describes that curler A comes out from housing D with the hair lock still wound around it. *See* Ex. 1004, col. 4, ll. 28–32.

Patent Owner further argues that in Gnaga, hair does not slide along the elongate member and off its free end. PO Resp. 27–30. This argument is based on Patent Owner’s contention that claim 1 should be understood to require that when the movable abutment is in the open position, the styled length of hair is allowed to slide along the elongate member and subsequently off its free end. *See id.* at 25. As discussed in Section II.A.3. above, we do not agree with Patent Owner’s proposed construction. Therefore, this argument is not persuasive.

Finally, Patent Owner argues that the claimed structure requires the “elongate member” and “movable abutment” to be separate structures, but Petitioner relies on Gnaga’s element B to satisfy both of those limitations. PO Resp. 30–32. To the extent Patent Owner is arguing that Petitioner’s case improperly relies on the same, single structure in Gnaga to satisfy these



two different claim elements, Patent Owner misunderstands Petitioner's case. As summarized above, Petitioner points to rod 22 as the "movable abutment," and internal element B as the "elongate member." *See* Pet. 11–12. Thus, Petitioner does not rely on the same structure to satisfy both limitations of an elongate member and a movable abutment. We recognize that Gnaga indicates that rod 22 is permanently attached to external base 14 of internal element B. *See* Ex. 1004, Fig. 1, col. 2, ll. 57–61 (describing that "a tangential rod 22 is derived" from rim 20 of base 14). To the extent Patent Owner is arguing that the "movable abutment" cannot be permanently joined to the "elongate member," Patent Owner does not identify, and we do not find, any language in the claim that precludes such an arrangement. *See* Tr. 49:7–50:5.

Accordingly, based on the full record before us, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claim 1 is anticipated by Gnaga.

### *3. Claims 2–5 and 11*

Claim 2 depends from claim 1 and adds the limitation that "the secondary opening is annular and surrounds the free end of the elongate member." Petitioner argues, and we agree, that in Gnaga, the opening at the front of housing D is annular and it surrounds the end of internal element B near the front of the device. *See* Pet. 12; Ex. 1004, Figs. 6, 7. Patent Owner argues that annular means in the form of a ring, which is continuous, in contrast to the opening in Gnaga, which "is spanned and made discontinuous by the rod 22 of the curler element B." PO Resp. 32. We are not persuaded that the presence of rod 22 prevents the opening at the front of Gnaga's housing D from being annular. As Petitioner correctly notes, in the

preferred embodiment of the '118 patent, when movable abutment 52 is in its closed position, it also spans and makes discontinuous the secondary opening. Reply 24–25; Ex. 1001, Fig. 3. In this preferred embodiment of the '118 patent, just as in Gnaga, the secondary opening is annular, and the movable abutment occupies one portion of the annular secondary opening when the movable abutment is in its closed position.

Dependent claim 3 recites that “the movable abutment is located within the secondary opening.” Petitioner argues, and we agree, that Gnaga shows rod 22 located within the opening at the front of outside housing D. *See* Pet. 12; Ex. 1004, Figs. 3, 6. Patent Owner argues that “[w]hen the Gnaga device is assembled into the complete motor-curler unit as shown in Fig. 7 of such reference, such hypothesized movable abutment of Gnaga is not in an open position in which the length of hair can pass through the secondary opening.” PO Resp. 33. This argument amounts to a criticism that when Gnaga’s rod 22 is in the closed position, it does not have the characteristics required for when it is in an open position. Figures 6 and 7 show Gnaga when rod 22 is in its closed position. In that position, rod 22 is located within the opening that Petitioner has identified as the secondary opening, as required by claim 3. Gnaga’s device also has the characteristics that are required when rod 22 is in the open position, as discussed more fully above with respect to claim 1.

With respect to dependent claims 4, 5, and 11, Petitioner explains how the subject matter of these claims is disclosed by Gnaga. *See* Pet. 12–16. Patent Owner does not rebut Petitioner’s arguments and evidence against these claims, other than to note that these claims depend from claim 1. *See* PO Resp. 33; *see also* 37 C.F.R. § 42.23(a) (providing, with respect to

oppositions, that “[a]ny material fact not specifically denied may be considered admitted”); 37 C.F.R. § 42.120(a) (“A patent owner response is filed as an opposition.”). Upon reviewing the unchallenged contentions and supporting evidence in the Petition, we are persuaded that Petitioner presents sufficient evidence to support a finding that Gnaga anticipates these dependent claims.

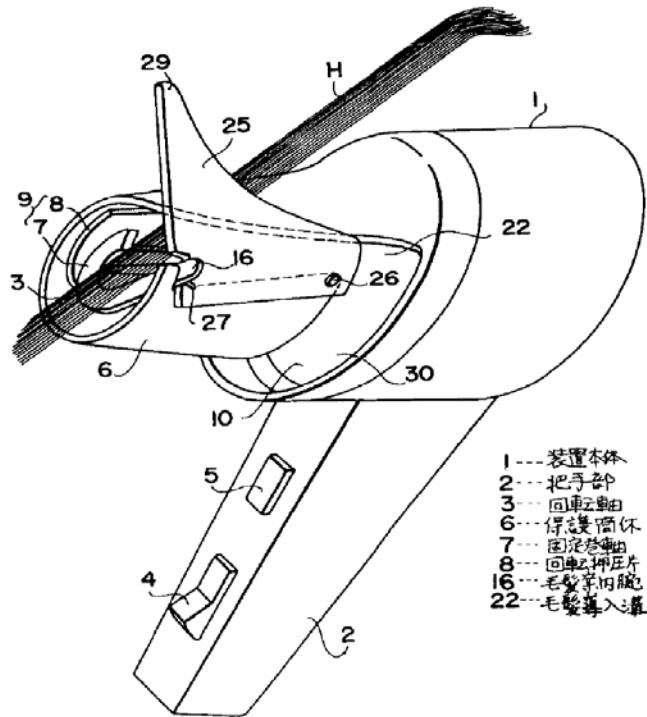
Therefore, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 2–5 and 11 are anticipated by Gnaga.

*E. Anticipation by Hoshino*

Petitioner argues that claims 1–5 and 11 of the ’118 patent are anticipated by Hoshino. *See* Pet. 16–26. Patent Owner contests Petitioner’s position. *See* PO Resp. 16–33. We have considered the arguments and evidence presented by both parties, and we determine that Petitioner has shown by a preponderance of the evidence that claims 1–5 and 11 are anticipated by Hoshino.

*1. Summary of Hoshino*

Figure 1 of Hoshino is reproduced below:



- 1 --- 装置本体
- 2 --- 把手部
- 3 --- 回車軸
- 6 --- 保護筒体
- 7 --- 固定卷軸
- 8 --- 回車壓片
- 16 --- 毛髮導引部
- 22 --- 毛髮導入溝

Figure 1 is an oblique view of the automatic hair curler. See Ex. 1006, 6. As shown in Figure 1, Hoshino describes an automatic hair curler in which curling member 9, made up of fixed roller 7 and rotating pressing piece 8, is mounted on shaft 3. See Ex. 1005, Figs. 1, 2; Ex. 1006, 3. Fixed roller 7 is held in place by the position of hair guide arm 16 between latching groove 23 on protective tube body 6 and lock groove 24 on lock lever 25, while rotating pressing piece 8 is driven to rotate by shaft 3. Ex. 1006, 4. Hair H is introduced into hair introduction groove 22 and is wound onto fixed roller 7 by rotating pressing piece 8. *Id.* at 5. When curling is completed, lock lever 25 is rotated and curling member 9 is removed from shaft 3. *Id.* at 5. Curling member 9 can be left on the head and, when ready, curling member 9 is removed from the curled hair by detaching fixed roller 7 and rotating pressing piece 8. *Id.* at 5.

2. *Analysis of Claims 1–5 and 11*

We observe that the structure and operation of Hoshino is very similar to that of Gnaga, at least as it pertains to the issues in this case. *Cf.* Tr. 48:24–48:1 (Patent Owner’s counsel noting that “the similitude between those two prior art structures is rather amazing”). It is unsurprising, then, that the parties’ arguments concerning Hoshino are very similar to those presented for Gnaga. *Compare* PO Resp. 19–33 (arguments against Gnaga), *with id.* at 36–50 (arguments against Hoshino); *see also* Reply 19–25 (addressing Patent Owner’s arguments against Gnaga and Hoshino together). Consequently, the explanation below of our analysis of Hoshino is abbreviated to avoid extended repetition.

With respect to claim 1, Petitioner contends that Hoshino’s rotating pressing piece 8 and protective tube body 6 form a body defining a chamber. *See* Pet. 20. Petitioner asserts that hair introduction groove 22 constitutes a primary opening through which a length of hair passes into the chamber, and that the opening at the front of Hoshino’s protective tube body 6 constitutes the claimed secondary opening. *See id.* at 20–21. Petitioner points to Hoshino’s rotating pressing piece 8 as the “rotatable element” and Hoshino’s fixed roller 7 as the “elongate member.” *See id.* at 21. Petitioner contends that the end of fixed roller 7 nearest the front of the device constitutes a “free end.” *Id.* Petitioner relies on Hoshino’s hair guide arm 16 as the “movable abutment.” *Id.* at 22. Petitioner asserts that hair guide arm 16 has an open position in which curler A can pass through the opening at the front of protective tube body 6, and a closed position in which the hair is retained inside protective tube body 6. *Id.* at 20–22.

The evidence supports Petitioner's contentions, and we agree with Petitioner that Hoshino teaches every element of claim 1. Patent Owner's arguments in opposition to Petitioner's case are not persuasive. Patent Owner's argument that Hoshino's device is not a "unitary" device (PO Resp. 36–39) is not persuasive because we do not agree that claim 1 requires a unitary device. *See supra* Section II.A.4. Patent Owner's argument that in Hoshino's device, hair does not slide along and off the elongate member (PO Resp. 41–42, 44–47) is not persuasive because we do not agree that allowing hair to slide along the elongate member and subsequently off its free end is a requirement of claim 1. *See supra* Section II.A.3.

Patent Owner's argument that "Hoshino lacks (1) an elongate member having a free end, (2) a secondary opening adjacent to the free end, and (3) a movable abutment having an open position in which the length of hair can pass through the secondary opening, all present at the same time in a hair styling device" (PO Resp. 40) is unpersuasive for substantially similar reasons as discussed above with respect to Gnaga. Namely, when Hoshino's hair guide arm 16 is moved to its open position and before fixed roller 7 is taken off of shaft 3, all three of the identified features are present. Fixed roller 7 is an elongate member. *See Ex. 1006, Fig. 2.* When "lock lever 25 is rotated and the lock of the hair guide arm 16 released," hair guide arm 16 is no longer in contact with protective tube body 6. *See id.* at 5. Hence, the end of fixed roller 7 near the front of the device is a "free end" under our construction of that term because it is unsupported when hair guide arm 16 is in this open position. *See supra* Section II.A.2. The free end is also adjacent the opening at the front of protective tube body 6, which Petitioner has identified as the "secondary opening." *See Pet. 21–22; Ex. 1006, Fig. 1.*

And when hair guide arm 16 is in this position, the length of hair can pass through the opening at the front of protective tube body 6, because Hoshino explains that curling member 9, which includes fixed roller 7 and rotating pressing piece 8, is removed from housing D with the hair still wound inside it. *See* Ex. 1006, 3, 5.

Finally, Patent Owner's argument that Petitioner improperly relies on a single element in Hoshino to satisfy both the "elongate member" and "movable abutment" limitations (PO Resp. 47–48) is unpersuasive because Petitioner relies on hair guide arm 16 as the "movable abutment" and fixed roller 7 as the "elongate member." Pet. 21–22.

Turning to the dependent claims, Petitioner argues, and we agree, that Hoshino shows a secondary opening at the front of protective tube body 6 that is annular and surrounds the free end of fixed roller 7, as required by claim 2. Pet. 21, 22–23. Patent Owner's argument that the secondary opening in Hoshino is not annular due to the presence of hair guide arm 16 (PO Resp. 49) is unpersuasive because that understanding of what an "annular" opening requires would exclude the preferred embodiment of the '118 patent. *See supra* Section II.C.3. We also agree with Petitioner that Hoshino discloses the subject matter of claim 3, because Hoshino shows hair guide arm 16 located within the opening at the front of protective tube body 6. *See* Pet. 23; Ex. 1006, Fig. 1. With respect to dependent claims 4, 5, and 11, Petitioner explains how the subject matter of these claims is disclosed by Hoshino. *See* Pet. 23–26. Patent Owner does not rebut Petitioner's arguments and evidence against these claims, other than to note that these claims depend from claim 1. *See* PO Resp. 50; 37 C.F.R. §§ 42.23(a), 42.120(a). Upon reviewing the unchallenged contentions and supporting

evidence in the Petition, we are persuaded that Petitioner presents sufficient evidence to support a finding that Hoshino anticipates these dependent claims.

Therefore, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 1–5 and 11 are anticipated by Hoshino.

### III. CONCLUSION

We conclude Petitioner has shown by a preponderance of the evidence that claims 1–5 and 11 are anticipated by Gnaga. We further conclude that Petitioner has shown by a preponderance of the evidence that claims 1–5 and 11 are anticipated by Hoshino.

### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–5 and 11 of the '118 patent are held unpatentable; and

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



IPR2015-00649  
Patent 8,651,118 B2

PETITIONER:

Laura M. Floyd  
Jeffrey G. Sheldon  
LEECH TISHMAN FUSCALDO & LAMPL  
llloyd@leechtishman.com  
jsheldon@leechtishman.com

PATENT OWNER:

Steven Hultquist  
Mary Grant  
HULTQUIST IP  
hultquist@hultquistip.com  
mgrant@hultquistip.com