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Paper No. 8
Entered: October 17, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHARKNINJA OPERATING LLC,
Petitioner,

v.

FLEXIBLE TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2018-00903
Patent 7,156,127 B2

Before LINDA E. HORNER, JOHN P. PINKERTON, and JAMES A. WORTH, *Administrative Patent Judges.*

WORTH, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a)

I. INTRODUCTION

On April 10, 2018, SharkNinja Operating LLC ("SharkNinja" or "Petitioner") filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claims 1 and 6–10 (the "challenged claims") of U.S. Patent No. 7,156,127 B2 (Ex. 1001, "the '127 patent"). On July 19, 2018, Flexible

Technologies, Inc. ("Flexible Technologies" or "Patent Owner") filed a Preliminary Response (Paper 7, "Prelim. Resp.").

Institution of an *inter partes* review is authorized by statute when "the information presented in the petition filed under [35 U.S.C. §] 311 and any response filed under [35 U.S.C. §] 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a). For the reasons set forth below, we determine that Petitioner has not met its burden for instituting review.

A. Related Matters

The parties note as related the following district court litigation: *Flexible Technologies, Inc. v. SharkNinja Operating, LLC,* Case No. 18-348 GMS (D. Del.), which was transferred from the District of South Carolina, Case No. 8:17-cv-00117-TMC (D.S.C.). Pet. 64; Paper 5, 1.

B. The '127 Patent (Ex. 1001)

The '127 patent is titled "Current Carrying Stretch Hose" and relates to "improvements in flexible hose and relates in particular to a current carrying stretch hose." Ex. 1001, 1:5–7. The '127 patent describes a problem with prior art current carrying hoses, i.e., they were "rather rigid" and were incapable of stretching to extend their length a significant distance. *Id.* at 2:40–42. On the other hand, a stretch hose could stretch a distance 2 to 6 times its length at rest. *See id.* at 2:44–46. The benefit of using a stretch hose with a vacuum cleaner is that the user can carry a manageable length of hose as the user is working because the hose can stretch to cover a greater area without the user having to move the canister. *Id.* at 2:46–51. Once an

extra length of hose is no longer needed, the stretched hose retracts to its normal, more compact configuration. *Id.* at 2:55–57.

According to the Specification, the claimed invention is directed to improved flexible hoses or ducts that have the attributes of a stretch hose, namely being able to expand when a pulling force is placed on an end of the hose and that retracts to the original at rest configuration when the pulling force is released. *Id.* at 2:61–65. The flexible hoses or ducts are also current carrying hoses that permit the hose to be used in applications where a power source is needed at an end of the hose or duct. *See id.* at 2:65–3:2. The intended applications can utilize low voltage, high voltages or low/high voltage. *Id.* at 3:2–5. The current carrying stretch hoses include an embodiment wherein the prior art helix of the hose is replaced by a combination of a conductor and a helix. *Id.* at 3:6–9.

Figure 3 of the ’127 patent is reproduced below:

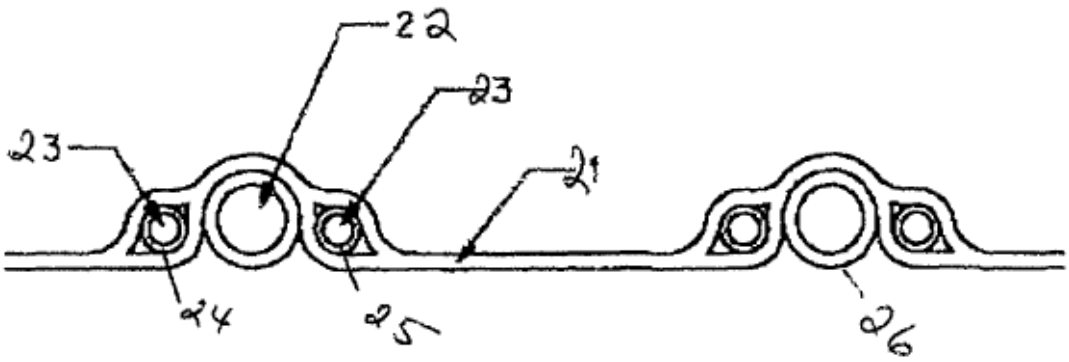

Figure 3 depicts a cut-away view of one embodiment of the hose of the ’127 patent. *Id.* at 3:29–30. In this embodiment, there are insulated conductor wires 24 and 25 on opposite sides of structural helix 22. *Id.* at 4:43–47.

C. Illustrative Claim

Claim 1, reproduced below, is the sole challenged independent claim and is illustrative of the subject matter contested in the Petition:

> 1. A flexible hose for carrying fluids said hose being in a retracted condition when no tensile force is placed on said hose and in an extended condition when a tensile force of a pulling nature is placed on a section of said hose, said hose consisting essentially of:
>
> a first end;
>
> a second end;
>
> a thermoplastic cover consisting essentially of a single layer of thermoplastic material having a thickness of between about 10 mil to 50 about mil wherein said thermoplastic cover further comprises an interior surface and an exterior surface;
>
> a single helical member, capable of retaining its shape in said hose adhered to said interior surface of said thermoplastic cover, said helical member being comprised of a material capable of carrying a current of electricity said helical member being capable of extending when a tensile force of a pulling nature is applied and then retracting to roughly the original shape when a force is not applied said helical member having a gauge between 12 and 21;
>
> a plurality of peaks and valleys in said thermoplastic cover caused by said helical member, said peaks having a distance between them, said helical member being interconnected by sidewalls that extend at an angle to the peaks and valleys wherein when said hose is in a retracted condition, the valleys generally U-shaped and when a pulling force is applied to a section of said hose, the valleys become wider and the angle of the sidewalls stay generally the same;
>
> the distance from one peak to an adjacent peak in the hose is about 1/4” to 3/4” when there is no pulling force on a section of said hose and the distance from one peak to an adjacent peak is about 1/2” to 2” when a pulling force is placed on a section of said hose;
>
> wherein the length of said hose in said extended condition is about two to about six times greater than the length in said retracted position; and

> a conductor wire, capable of carrying a current of electricity with a gauge in the range of about 10 to about 30 said conductive wire being disposed on at least one side of said helical member said thermoplastic cover having been extruded around said conductive wire.

Ex. 1001, 5:49–6:30.

D. The Prior Art

Petitioner relies on the following prior art:

U.S. Patent No. 2,961,007, iss. Nov. 22, 1960 (Ex. 1007, "Martin");

JP H3-93676, pub. Sept. 25, 1991 (Ex. 1003, "Nagayoshi");[1]

U.S. Patent No. 5,109,568, iss. May 5, 1992 (Ex. 1004, "Rohn");

U.S. Patent No. 5,555,915, iss. Sept. 17, 1996 (Ex. 1002, "Kanao").

E. The Alleged Grounds of Unpatentability

Petitioner challenges claims 1 and 6–10 of the '127 patent as unpatentable under 35 U.S.C. § 103(a):

References	Basis	Claims challenged
Rohn, Martin, Nagayoshi	§ 103(a)	1, 6, 8–10
Rohn, Kanao, Nagayoshi	§ 103(a)	1, 6–9
Rohn, Martin, Nagayoshi, and Kanao[2]	§ 103(a)	7, 10

[1] We rely on the English translation which has been submitted as part of the same exhibit. Ex. 1003.

[2] Petitioner relies on this combination of references in varying order for claims 7 and 10. For purposes of this decision, the order in which the references are listed does not change the analysis set forth herein.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142–46 (2016). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner requests construction of the following limitations: "a single layer of thermoplastic material" (claim 1) and "said thermoplastic cover having been extruded around said conductive wire" (claim 1). Pet. 8–10. Patent Owner does not dispute the Petitioner's proposed constructions of these two limitations for purposes of this proceeding. Prelim. Resp. 9–10.

Notably, however, neither party offers a construction for the sidewall angle recited in claim 1, i.e., "said helical member being interconnected by *sidewalls that extend at an angle to the peaks and valleys wherein* when said hose is in a retracted condition, the valleys generally U-shaped and when a pulling force is applied to a section of said hose, the valleys become wider

and the angle of the sidewalls stay generally the same." Ex. 1001, 6:10–16 (emphasis added).[3]

As part of its application of the prior art to the claim, Petitioner argues as follows:

> When the specification fails to provide guidance on the meaning of a limitation, the limitation should be interpreted broadly under the broadest reasonable interpretation (BRI) standard. *See, e.g., Kamada, Ltd. v. Grifols Therapeutics Inc.*, IPR2014-00899, Paper No. 43 at 14 (PTAB Dec. 15, 2015); *see also Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996). Here, because the meaning of "the angle of the sidewalls stay generally the same" is not clear from the specification, the limitation should be interpreted broadly, as the Office did during original prosecution. Martin meets the limitation, as interpreted by the Office, for at least the above reasons. Further, the disclosure of the references applied by the Office to meet this limitation (*see, e.g.*, Ex. 1009 at 76–78) is very similar to that of Martin, further evidencing that Martin meets it. (*See, e.g.*, Ex. 1002 (Kanao) at Figs. 2 and 3, as applied by the Office.)

Pet. 29. In other words, Petitioner states that the meaning of the sidewall angle limitation is not clear from the Specification, but argues that prior art can be applied to the limitation based on a theory that the limitation should be interpreted broadly and based on the fact that the Examiner applied prior art similar to Martin, thus suggesting that the Examiner interpreted the limitation broadly during prosecution.

Patent Owner responds that Petitioner has failed to satisfy its burden of explaining how the challenged claims are to be construed:

[3] This limitation is part of a claim paragraph that the parties refer to as Element 6. *See* Pet. 24; Prelim. Resp. 36.

> "It is Petitioner's burden to explain how the challenged claims are to be construed and how they read on the prior art." *Jiawei Technology v. Richmond*, IPR2014-00937, Paper 22 at 8 (PTAB Dec. 16, 2014) (citing 37 C.F.R. § 42.104(b)(3)-(5)). The Petitioner does neither. It does not explain how the sixth element of claim 1 should be construed, and it does not explain how Martin discloses the limitation under that proposed construction. This failure dooms all of Petitioner's grounds of obviousness that rely on Martin (i.e., grounds a, c-g).

Prelim. Resp. 36.

Section 42.104 of the PTAB's Rules of Practice and Procedure provide as follows:

> **Content of petition.**
>
> In addition to the requirements of §§42.6, 42.8, 42.22, and 42.24, the petition must set forth:
>
> . . . .
>
> (b) *Identification of challenge.* Provide a statement of the precise relief requested for each claim challenged. The statement must identify the following:
>
> . . .
>
> (3) How the challenged claim is to be construed. Where the claim to be construed contains a means-plus-function or step-plus-function limitation as permitted under 35 U.S.C. 112(f), the construction of the claim must identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function;
>
> (4) How the construed claim is unpatentable under the statutory grounds identified in paragraph (b)(2) of this section. The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon;
>
> . . . .

37 C.F.R. § 42.104.

This rule requires Petitioner to explain how the claim is to be construed and may require Petitioner to proffer construction of any special terms. As stated in the Office Trial Practice Guide,

> Regarding the need for a claim construction, where appropriate, it may be sufficient for a party to provide a simple statement that the claim terms are to be given their broadest reasonable interpretation, as understood by one of ordinary skill in the art and consistent with the disclosure. Alternatively, *where a party believes that a specific term has meaning other than its plain meaning*, the party should provide a statement identifying a proposed construction of the particular term and where the disclosure supports that meaning.

Office Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012) (emphasis added). Petitioner must explain how to apply the art to the construed claim in a meaningful way for purposes of 37 C.F.R. § 42.104(b)(4).

We are persuaded by Patent Owner that Petitioner has failed to satisfy its burden under 37 C.F.R. § 42.104(b) to explain "[h]ow the challenged claim is to be construed" and how to apply the prior art to the claim. *Id.* Indeed, Petitioner acknowledges difficulty in construing the limitation when Petitioner observes that "the meaning of 'the angle of the sidewalls stay generally the same' is not clear from the specification." Pet. 29.

As a technical matter, the specification includes the written description and the claims. *See* 35 U.S.C. § 112; MPEP § 601; *WesternGeco LLC v. ION Geophysical Corporation*, 889 F.3d 1308, 1323 (Fed. Cir. 2018) (citing *In re Packard*, 751 F.3d 1307, 1320 n.11 (Fed. Cir. 2014)). "A patent's specification, together with its prosecution history, constitutes intrinsic evidence to which the Board gives priority when it construes claims." *WesternGeco*, 889 F.3d at 1323.

The Petition indicates Petitioner's own understanding that the meaning of the claim was unclear from the specification, and it was therefore incumbent on Petitioner to engage in further analysis or to propose

a construction in order to satisfy the rules under 37 C.F.R. § 42.104(b)(3). Petitioner did not do so.

We do not reach the other claim limitations for purposes of this decision on institution. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy").

B. Obviousness of Claims 1, 6, and 8–10 over Rohn (Ex. 1004), Martin (Ex. 1007), and Nagayoshi (Ex. 1003)

Petitioner contends that claims 1, 6, and 8–10 are unpatentable as obvious over Rohn, Martin, and Nagayoshi. Pet. 11–37, 54–57, 59–63. Patent Owner opposes. Prelim. Resp. 26–36, 44–46.

1. Overview of Rohn

Rohn is titled "Handle Assembly for a Vacuum System Cleaning Tool" and relates "to vacuum cleaner systems and, more particularly, to a handle assembly for securing a vacuum hose of a vacuum cleaner system." Ex. 1004, [54], 1:7–9. Rohn discloses that in prior art devices, to help secure the vacuum hose to the handle, a form of locking ring was typically integrally formed with an end of the vacuum hose, where the inner surfaces of the handle assembly typically contained a groove or cut-out portion operable to house a portion of the locking ring. *Id.* at 1:15–20. According to Rohn, there were several drawbacks to such prior art devices, i.e., they required an additional manufacturing step and the vacuum hoses developed cracks adjacent the locking ring that required the user to replace the entire vacuum hose. *Id.* at 1:21–31.

One of the stated objects of Rohn is to provide a coupling mechanism for the handle and hose, e.g., without the use of screws or adhesive fasteners:

> It is a further object of the present invention to provide a handle assembly operable to secure a vacuum hose thereto without the use of screws, adhesives or the like.

Id. at 1:49–52. Rohn also states a further object, *inter alia*, of providing a coupling mechanism that can interrupt the flow of electricity when uncoupled. *See id.* at 1:53–60.

Rohn accomplishes the above objects, *inter alia*, with a handle assembly featuring a plurality of ridges that operate to abuttingly engage ribbed end portions of a vacuum hose. *Id.* at 1:61–2:9. Figure 3 of Rohn depicts the handle assembly, in one view, and is reproduced below (*id.* at 2:37–39):

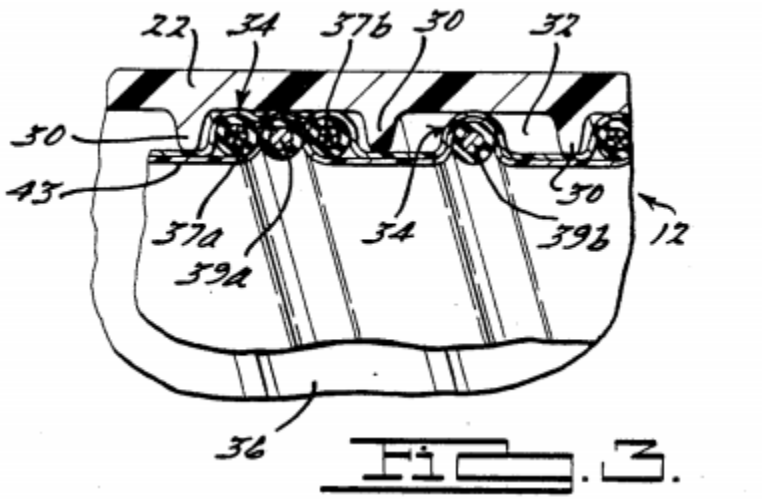

Figure 3 is a cross-sectional end view of the handle assembly of Rohn. *Id.* The inner surface of first handle section 22 includes a number of annular, parallel, ridge portions 30 integrally formed in a longitudinal, annular, groove-like channel section 32 of the first handle section 22. *Id.* at 3:10–14. Channel section 32 generally holds an elbow section (not shown in Figure 3) and a portion of the vacuum hose 12 therein. *Id.* at 3:14–16.

Ridges 30 are operable to lockably engage inbetween rib portions 34 protruding from an end portion of the vacuum hose 12, and formed integrally in a right hand, thread-like arrangement with the vacuum hose 12. *Id.* at 3:16–20. Rib portions 34 are formed generally by the protrusions resulting from independent current carrying conductors 37a and 37b and support wires 39a and 39b housed within vacuum hose 12. *Id.* at 3:20–24. Support wires 39 are preferably each made from a single strand of resilient steel wire and help to maintain the shape of the vacuum hose and to keep hose 12 from collapsing inwardly as it is articulated during use. *Id.* at 3:24–28. Vacuum hose 12 itself is preferably molded from vinyl, although other vinyl-like materials could also be used. *Id.* at 3:28–30.

2. Overview of Martin

Martin is titled "Flexible Hose" and relates to the same, and more particularly "to an extensible hose for use with suction cleaners." *See* Ex. 1007, 1:5, 1:18–20. According to Martin, it was necessary, when using a certain known prior art extensible hose, to attach fittings to the end of the hose so that it could be attached to complementary fittings on a suction cleaner. *Id.* at 2:5–10. Martin described a problem with such a prior art device, i.e., that when the hose was flexed sharply about the end of the fitting, the turns of a reinforcing element were sometimes displaced from one fold or valley to an adjacent one, impairing the usefulness of the hose. *Id.* at 2:11–16. Martin discloses a solution to this problem, e.g., providing deeper closed end loops at the end of the hose where the fittings are attached. *Id.* at 2:25–34.

3. Overview of Nagayoshi

Nagayoshi is titled "Vacuum Cleaner Suction Hose" and "relates to an improvement of a suction hose mounted to a vacuum cleaner." Ex. 1003, [54], 2:15–16. Nagayoshi describes conventional suction hoses structured to include a covered wire integrally adhered along an inner peripheral surface of a tube wall portion. *See id.* at 2:18–23. According to Nagayoshi, prior art hoses with such configurations suffered from a problem where "more dust" adhered to and remained on the inner surface of the tube wall. *See id.* at 3:1–10. Nagayoshi discloses a synthetic-resin-covered steel wire embedded in the tube wall such that the formation of a spiral valley portion can be eliminated to form the inner peripheral surface of the tube wall into a flat surface, and resulting in a smooth suction action. *See id.* at 6:18–7:20. Figure 3 of Nagayoshi, which is reproduced below, illustrates an example of Nagayoshi's hose.

FIG. 3

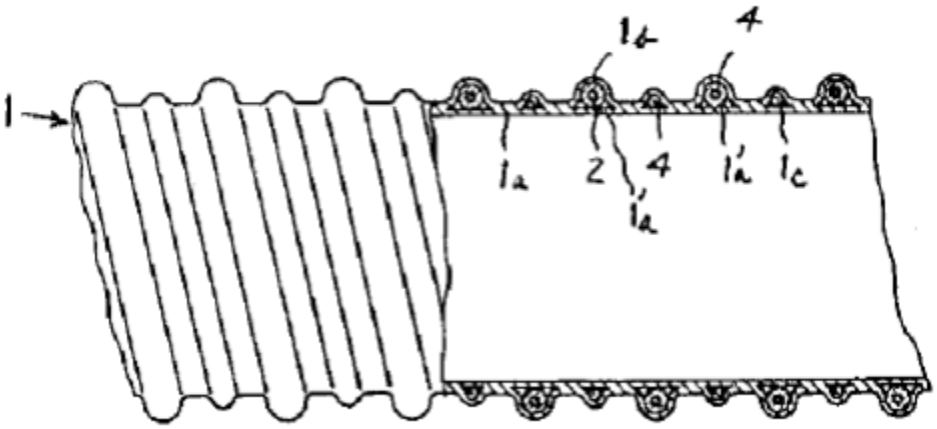

Figure 3 of Nagayoshi depicts resin-covered steel wire 2, which is formed by being covered with a soft-synthetic-resin covering layer 1a' forming an inner periphery wall surface of the tube wall 1a. *Id.* at 4:27–32

4. Analysis

In its Petition, Petitioner sets forth its contentions as to how the limitations of claims 1 and 6–10 are disclosed in, or obvious over, the combination of Rohn, Martin, and Nagayoshi. Pet. 11–37, 54–57, 59–63. Petitioner relies on the declarations of Charles A. Reed Jr. (Ex. 1011) and Robert Bentley (Ex. 1012). Patent Owner opposes. Prelim. Resp. 26–35, 44–45. Patent Owner relies on the declaration of Kimberly K. Cameron. Ex. 2001.

We address Petitioner's assertion that it would have been obvious to a person of ordinary skill to combine Rohn, Martin, and Nagayoshi in the manner proposed in the Petition, and Patent Owner's arguments that it would not have been obvious to do so in the manner asserted.

a. Claim 1

Petitioner asserts that Rohn's hose is flexible, but acknowledges that "there is no disclosure that the hose is able to extend lengthwise when pulled and then return to its fully contracted position when released, as taught by Martin." Pet. 12. Petitioner argues that it would have been obvious to modify Rohn's hose to make it a stretch hose, as taught by Martin and admitted prior art in order to mitigate or prevent the cracking of Rohn's hose, which is described as a problem in Rohn. *Id.* at 12–13 (citing Ex. 1004, 1:28-31; Ex. 1011 ¶ 93). Petitioner further argues that implementing Rohn's hose as a stretch hose would "offer the benefits of longer hose reach and a more convenient storage length" and would be "consistent with the purpose of Rohn's hose and handle assembly." *Id.* (citing Ex. 1001, 2:43–57; Ex. 1011 ¶¶ 94–95).

Patent Owner argues, *inter alia*, that implementing Rohn's hose as a stretch hose (or extensible hose), as taught by Martin, would render Rohn inoperable for its intended purpose. *See* Prelim. Resp. 30 (citing, e.g., Ex. 2001 ¶ 126; *Plas-Pak Industries, Inc. v. Sulzer Mixpac AG*, 600 Fed. Appx. 755, 759-60 (Fed. Cir. 2015)). Patent Owner asserts that Rohn's purpose is to provide "a handle assembly for securing a vacuum hose of a vacuum cleaner system" without the need for screws, adhesive, or a lock ring or similar fitting on the end of the hose. *Id.* (citing Ex. 1004, 1:7-9, 1:43-59). Patent Owner asserts that Rohn accomplishes this purpose as follows:

> [W]hen the handle assembly 10 is assembled . . . the sliding engagement of the vacuum hose 12 over the elbow section 24 and the clamping action of the ridge portions 30 and 40 inbetween rib portions 34 of the vacuum hose 12 work cooperatively to help prevent the vacuum hose 12 from rotating . . . within the handle assembly 10, and also to prevent the vacuum hose 12 from being pulled out of the handle assembly 10 inadvertently during use.

Id. (omissions in original) (quoting Ex. 1004, 5:8–20). Patent Owner argues that with the Martin stretch hose, there would be no "sliding engagement" over the elbow section and no "clamping action of the ridge portions" between ribs of the stretch hose. *Id.* (citing Ex. 2001 ¶ 126).

We are persuaded by Patent Owner that implementing Rohn's hose as a stretch hose, as taught by Martin, would render Rohn's hose inoperable for its intended purpose.[4] It is a stated "object" of Rohn "to provide a handle assembly operable to secure a vacuum hose thereto without the use of

[4] We note that Petitioner's additional reliance on admitted prior art for the teaching of a stretch hose does not remedy the identified deficiency in modifying Rohn.

screws, adhesives or the like." *Id.* at 1:49–52. As such, it is an intended purpose of Rohn to secure the handle without screws or adhesives, based on the language of the reference itself.

Rohn states that an elbow section of the handle "operates" to grip onto the inner surface of the vacuum hose, that the handle's ridges "operate" to engage the ribbed end portion of the hose, and that "the elbow section and the locking engagement of the ridges and the ribbed end portion of the vacuum hose operate to secure the vacuum hose to the housing without the aid of screws, adhesives or fittings at the end of the vacuum hose itself." Ex. 1004, 2:2–14. Therefore, the reception of the hose over an elbow and the engagement of the handle's ridges with the hose's protrusions are the mechanisms by which Rohn achieves its intended purpose, i.e., is operable for its intended purpose. *See id.* The rib portions 34 protruding from the vacuum hose are formed generally by the protrusions from the current carrying conductors 37a and 37b and support wires 39a and 39b. *Id.* at 3:16–24. We are persuaded by Patent Owner's argument, and by Ms. Cameron's testimony, that stretching apart Rohn's rib portions, as would occur when Rohn's hose is implemented as a stretch hose as taught by Martin, would prevent Rohn's ridges from engaging with the rib protrusions formed by carrying conductors 37a and 37b and support wires 39a and 39b. *See* Ex. 2001 ¶¶ 125–126. Accordingly, we are persuaded by Patent Owner's argument that modifying Rohn with Martin's teaching of a stretch hose would render Rohn inoperable for its intended purpose.

We are mindful that there may be other considerations when analyzing whether it would have been obvious for a person of ordinary skill in the art to have combined the teachings of prior art references. For

example, a person of ordinary skill in the art need not bodily incorporate prior art devices in order to combine the teachings of the prior art. *See In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc). Further, a person of ordinary skill might weigh the disadvantages of a modification against the advantages, looking at the overall reasons to modify the art, e.g., when doing so would not result in an inoperable device. *See In re Urbanski*, 809 F.3d 1237, 1243 (Fed. Cir. 2016) ("On this record, the Board properly found that one of ordinary skill would have been motivated to pursue the desirable properties taught by Wong, even at the expense of foregoing the benefit taught by Gross."). Nevertheless, given the asserted set of prior art references, we determine that it is difficult to distinguish Petitioner's asserted combination, which appears to pick and choose aspects of the art, from a hindsight analysis of the art. In particular, we observe that Petitioner has not provided adequate reasons to rely on Rohn in the first instance, e.g., for combination with other references.

Petitioner further relies on Nagayoshi for its teaching of a thermoplastic covering, in combination with Rohn and Martin. Pet. 14–19 (citing, e.g., Ex. 1003, Title, 4:4–26, Ex. 1011 ¶¶ 101–103; Ex. 1012 ¶¶ 61–62). Petitioner asserts that a person of ordinary skill would have sought to use Nagayoshi's mandrel-wrapping process to form the hose's cover as a single layer of thermoplastic material. Pet. 17 (citing Ex. 1011 ¶ 104; Ex. 1012 ¶¶ 64–68.) Petitioner asserts that Nagayoshi's mandrel-wrapping technique is the most preferable technique for forming a stretch hose, has a lower cost, allows a larger number of hoses to be manufactured in a given time, requires less manual effort, and results in a more flexible hose. *Id.* at 18 (citing Ex. 1012 ¶¶ 19–32, 65–68). Petitioner argues that Nagayoshi

discloses a helical member adhered to the interior surface of a thermoplastic cover, and that a person of ordinary skill would have modified Rohn and Martin with this feature in order to allow a helical member to flex without slipping out of the folds of its cover. *Id.* at 21 (citing Ex. 1003, 4:8–14; Ex. 1011 ¶ 111–112).

Patent Owner argues that Martin is not combinable with Rohn and Nagayoshi for several reasons in addition to the one we have already discussed with respect to Rohn's handle. Prelim. Resp. 30–31, 33. Patent Owner asserts that that Rohn's hose requires a smooth inner surface for sliding engagement of Rohn's hose over the elbow section of Rohn's handle (citing Ex. 1004, 5:8–20; Ex. 2001 ¶ 127), and that Nagayoshi also discloses a hose with a flat inner surface to solve the problems caused by an uneven surface (citing Ex. 1003, 3–4), whereas Martin discloses a hose that intentionally has folds of material protruding inwardly into the hose between the winds of the supporting coil to provide stretch capability (citing Ex. 1007, 3:11–51, 6:3–7, Figs. 1, 2). *Id.* Patent Owner further argues that Nagayoshi's manufacturing procedure could not be used to make Martin's stretch hose because Nagayoshi utilizes a constant width synthetic-resin ribbon to create a constant pitch, whereas Martin's hose requires the turns of its supporting coil to have a different pitch, with wider spacing near the ends of the hose, in order to create greater flexibility at the end regions of the hose. *Id.* at 34–35 (citing Ex. 1003, 5; Ex. 1007, 4:42–44; Ex. 2001 ¶¶ 132–133).

Regardless of whether Martin is capable of being modified according to the teachings of Nagayoshi to adhere a helical member to the inner surface and to be manufactured using a mandrel (*see* Ex. 1007, 4:8–14), we

are persuaded by Patent Owner that Petitioner's asserted combination is difficult to distinguish from a hindsight analysis. We agree with Patent Owner that Martin's hose exhibits differential spacing of its reinforcing element with wider spacing at the end sections (Ex. 1007, 4:42–47) and that Nagayoshi's hose possesses a constant pitch, i.e., a "certain pitch" of a continuous spiral (Ex. 1003, 3:14–16). *See* Ex. 2001 ¶ 132.

Even accepting Petitioner's assertions as true, e.g., that Nagayoshi's method of manufacturing provides certain advantages, we are persuaded by Patent Owner that Petitioner is combining isolated elements from references with different design principles and that Petitioner's proposed combination of references is difficult to distinguish from improper hindsight. *See* Ex. 2001 ¶ 132. When viewed in the context of the prior art as a whole, we determine that Petitioner has not provided adequate explanation for the particular selection of elements from the prior art.

For all of these reasons, we determine that Petitioner has not established a reasonable likelihood of success in prevailing on its assertion as to claim 1.

b. Claims 6 and 8–10

Claims 6 and 8–10 each depend directly or indirectly from independent claim 1, and Petitioner relies for these claims on a similar combination of Rohn, Martin, and Nagayoshi. We determine that Petitioner has not established a reasonable likelihood of success in prevailing on its assertion as to claims 6 and 8–10, for similar reasons as for independent claim 1.

C. Obviousness of Claims 1 and 6–9 over Rohn, Kanao (Ex. 1002), and Nagayoshi

Petitioner contends that claims 1 and 6–9 are unpatentable as obvious over Rohn, Kanao, and Nagayoshi. Pet. 38–67, 59–62. Patent Owner opposes. Prelim. Resp. 36–45.

1. Overview of Kanao

Kanao is titled "Cleaner Hose" and "relates to a cleaner hose for use in an electric vacuum cleaner and for sucking dust and, more particularly, relates to a cleaner hose having a reinforcement wire material wound spirally in the inside of a hose body to maintain the strength of the hose." Ex. 1002, [54], 1:5–9. Kanao describes a problem with prior art methods, i.e., the wall of the cleaner body can be damaged easily and locally broken in portions near the connection cylinders respectively at the opposite ends of the cleaner hose. *Id.* at 1:45–48.

Kanao discloses a coated wire prepared by coating a bare wire with resin (or by coating the reinforcement wire material and a current conduction electric wire with the resin), which is wound spirally and continuously over the whole length of the hose body. *Id.* at 1:60–64, 2:10–13. Kanao further discloses that the reinforcement wire material is shaped like a steeply slanted spiral in a predetermined length portion at the one of or both of the ends of the hose body adjacent to the connection cylinders. *Id.* at 2:13–18. Kanao thus provides for extension/contraction zones (of steeply-slanted wire) at one or both ends of the hose body, with gently slanted wire in the intermediate portion. *See id.* at 2:53–62; 6:44–55.

2. Analysis

a. Claim 1

This ground is similar to Petitioner's previous ground (based upon the combination of Rohn, Martin, and, Nagayoshi) discussed above, except that here Petitioner relies upon Kanao—instead of Martin—for the teaching of a stretch hose. *See* Pet. 38. This asserted ground suffers from similar deficiencies.

As with the previous ground, Petitioner proposes to implement Rohn's hose as a stretch hose, here based on Kanao's teaching of a stretch hose. Pet. 37–38 (citing, e.g., Ex. 1002, 2:53–3:2, 4:5–11, 6:55–7:8, Fig. 4). Kanao's hose possesses extension/contraction zones (of steeply-slanted wire) at one or both ends of the hose body, with gently slanted wire in the intermediate portion. *See* Ex. 1002, 2:53–62; 6:44–55. We are persuaded by Patent Owner's argument that Petitioner's proposed implementation of Rohn's hose as a stretch hose, as taught by Kanao, would render Rohn's handle assembly inoperable for its intended purpose, for similar reasons as for the proposed combination of Rohn and Martin. *See* Prelim. Resp. 40–41. In particular, there would be no engagement of Rohn's ridges with the rib portions. *See, e.g.*, Ex. 2001 ¶ 141.

As with the previous ground, Petitioner further relies on the same rationale for utilizing the mandrel-wrapping process of Nagayoshi to form the hose's cover, as for the asserted ground based on Rohn, Martin, and Nagayoshi. Pet. 39 (referring to Pet. 21). Even accepting Petitioner's assertions as true, e.g., that Nagayoshi's method of manufacturing provides advantages, Petitioner has not adequately explained why a person of ordinary skill would have modified Kanao's hose to have a constant pitch as

taught by Nagayoshi. *See* Ex. 2001 ¶ 132. In particular, Kanao discloses advantages to its extension/contraction zones as follows:

> Because the present invention is configured as described above, the steeply slanted portion (extension/contraction zone) of the reinforcement wire material formed near the operating pipe and the steeply slanted portion (extension/contraction zone) of the reinforcement wire material formed near the cleaner body can be bent freely in all directions with less resistance during the usage of the cleaner, and the angles with respect to the portion can be changed flexibly. Further, these extension/contraction zones can be extended in the direction of the hose axis by pulling the hose.

Ex. 1002, 2:53–62. We are persuaded by Patent Owner that Petitioner's asserted combination is difficult to distinguish from a hindsight analysis. *See* Prelim. Resp. 41–42.

For these reasons, we determine that Petitioner has not established a reasonable likelihood of success in prevailing on its assertion as to claim 1.

b. Claims 6–9

Claims 6–9 each depend directly or indirectly from independent claim 1, and Petitioner relies for these claims on a similar combination of Rohn, Kanao, and Nagayoshi. We determine that Petitioner has not established a reasonable likelihood of success in prevailing on its assertion as to claims 6–9 for similar reasons as for independent claim 1.

D. Obviousness of Claims 7 and 10 over Rohn, Martin, Nagayoshi, and Kanao

Petitioner contends that claims 7 and 10 are unpatentable as obvious over Rohn, Martin, Nagayoshi, and Kanao. Pet. 57–59, 62–63. Patent Owner opposes. Prelim. Resp. 44–46.

Claims 7 and 10 each depend directly or indirectly from independent claim 1. We determine that Petitioner has not established a reasonable likelihood of success in prevailing on the asserted ground of unpatentability of dependent claims 7 and 10 based on Rohn, Martin, Nagayoshi, and Kanao, for similar reasons as for the asserted ground of unpatentability of independent claim 1 based on Rohn, Martin, and Nagayoshi, and the asserted ground of unpatentability of independent claim 1 based on Rohn, Kanao, and Nagayoshi. In particular, the use of both Martin and Kanao in this asserted ground does not remedy the deficiencies in the use of Martin or Kanao individually.

III. CONCLUSION

We conclude that Petitioner has not met its burden to provide a construction of the claims at issue, as required by 37 C.F.R. § 42.104(b)(3) and (4), nor to demonstrate a reasonable likelihood of prevailing on its assertion that claims 1 and 6–10 of the '127 patent are unpatentable on the grounds asserted.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), the petition for *inter partes* review of claims 1 and 6–10 of the '127 patent is *denied.*

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