

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHARKNINJA, INC.,
SHARKNINJA OPERATING LLC,
SHARKNINJA MANAGEMENT LLC, AND
SHARKNINJA SALES COMPANY,
Petitioners,

v.

DYSON TECHNOLOGY LIMITED,
Patent Owner.

Case No. IPR2023-01324

U.S. Patent No. 9,414,662

Petition for *Inter Partes* Review of U.S. Patent No. 9,414,662

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PETITIONERS' EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 9,414,662
1002	File History for U.S. Patent No. 9,414,662
1003	Declaration of Dr. Daniel M. Nosenchuck
1004	U.S. Patent Application Pub. No. US 2013/0111777
1005	Japanese Patent Application Pub. No. JP S 60-249907 and Certified Translation Thereof
1006	U.S. Patent No. 5,407,135
1007	U.S. Patent No. 1,564,896
1008	U.S. Patent No. 5,546,674
1009	PCT Pub. No. WO 83/02753
1010	U.S. Patent Application Pub. No. 2010/0065545
1011	Great Britain Patent No. 1,417,052

TABLE OF ABBREVIATIONS

Abbreviation	Term
'662 patent	U.S. Patent No. 9,414,662
AIA	America Invents Act
CFM	cubic feet per minute
Challenged Claims	Claims 26–28 of U.S. Patent No. 9,414,662
Chung	U.S. Patent Application Pub. No. 2010/0065545 (Ex. 1010)
Ex.	Exhibit
Fig.	Figure
IPR	<i>inter partes</i> review
Jeong	U.S. Patent Application Publication No. US 2013/0111777 (Ex. 1004)
Jeffs	U.S. Patent No. 5,407,135 (Ex. 1006)
Lange	U.S. Patent No. 5,546,674 (Ex. 1008)
Nosenchuck Declaration	Declaration of Dr. Daniel M. Nosenchuck (Ex. 1003)
Patent Owner	Dyson Technology Limited
Petitioners	SharkNinja, Inc., SharkNinja Operating LLC, SharkNinja Management LLC, and SharkNinja Sales Company
POSITA	Person[s] of ordinary skill in the art
Rinker	U.S. Patent No. 1,564,896 (Ex. 1007)
Sarocchi	Great Britain Patent No. 1,417,052 (Ex. 1011)
Skarsten	PCT Pub. No. WO 83/02753 (Ex. 1009)
Yoshida	Japanese Patent Application Publication No. JP S 60-249907 (Ex. 1005)

MANDATORY NOTICES

A. Real Parties-in-Interest [37 C.F.R. § 42.8(b)(1)]

The real parties-in-interest are Petitioners SharkNinja, Inc., SharkNinja Operating LLC, SharkNinja Management LLC, and SharkNinja Sales Company (collectively, “Petitioners” or “SharkNinja”). Petitioners further identify SharkNinja Midco LLC, SharkNinja Appliance LLC, SharkNinja Appliance UK Holdco Limited, and SharkNinja Global SPV, Ltd. as real-parties-in-interest out of an abundance of caution. No entity not named above is funding, controlling, or directing this Petition, or otherwise has had an opportunity to control or direct this Petition or Petitioners’ participation in any resulting inter partes review (IPR).

B. Related Matters [37 C.F.R. § 42.8(b)(2)]

There are no other judicial or administrative matters that affect, or be affected by, a decision in this proceeding.

C. Lead and Back-Up Counsel [37 C.F.R. § 42.8(b)(3)]

Pursuant to 37 C.F.R. §§ 42.8(b)(3), 42.8(b)(4), and 42.10(a), Petitioners provide the following designation of counsel:

Lead Counsel for Petitioners	Back-up Counsel for Petitioners
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A Power of Attorney accompanies this Petition in accordance with 37 C.F.R.
§ 42.10(b).

D. Service Information [37 C.F.R. § 42.8(b)(4)]

Service via hand delivery or postal mail may be made at the address of the lead and back-up counsel above. Petitioners hereby consent to electronic service, and service by electronic mail may be made at the following email address:

- GDC-SharkNinjaIPRD@gibsondunn.com

I. INTRODUCTION

Pursuant to 35 U.S.C. § 311, Petitioners hereby petition for *inter partes* review of U.S. Patent No. 9,414,662 (Ex. 1001) and seek cancellation of claims 26–28 as unpatentable under 35 U.S.C. § 103.

The Challenged Claims of the '662 patent are painfully simple. They claim an appliance (such as a hairdryer) with inner and outer walls and a non-linear airflow. Nothing more. And the only feature that was allegedly new about the claims when they were allowed—that the inner wall is inside the outer wall, and the outer wall forms a handle—were not new at all. In fact, those basic elements were exceptionally well-known, including in the three exemplar references that form the basis of this Petition, two of which were not before the Examiner and the third of which was not the subject of a rejection.

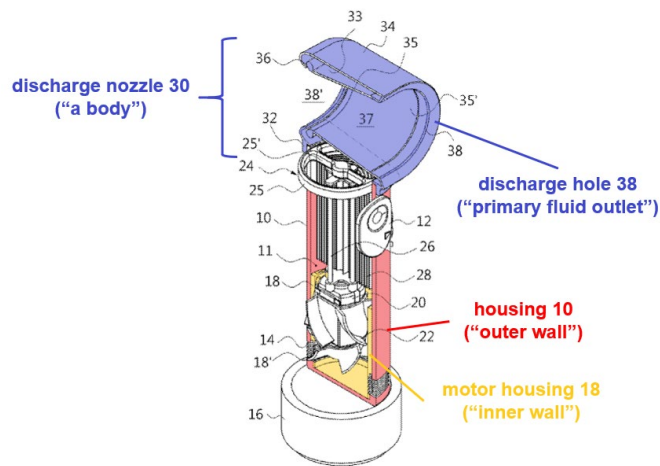
During prosecution, original claim 26—which contained almost all of the limitations found in challenged claim 26—was rejected as anticipated over the prior art. Ex. 1002, 47 (July 3, 2014 Claims). In response, the applicant amended the claims to recite that “the inner wall is disposed radially inwardly from the outer wall and that “the outer wall is an external surface of the handle”:

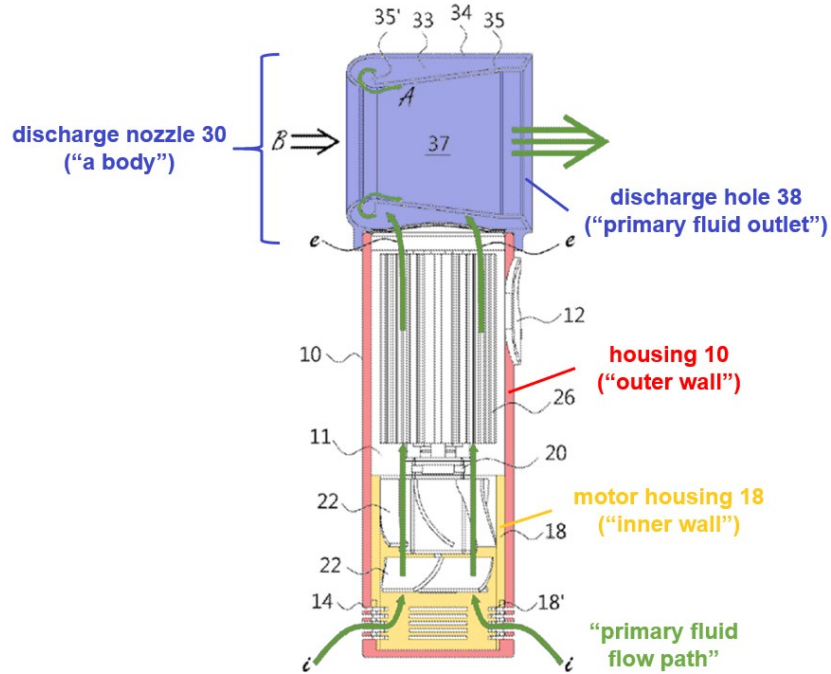
26. (Currently Amended) A hair care appliance comprising a body and
a handle, the handle comprising [[a]] an inner wall and an outer wall,
wherein the inner wall is disposed radially inwardly from the outer wall

and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, wherein [[and]] the outer wall is an external surface of the ~~appliance~~ handle, and wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.

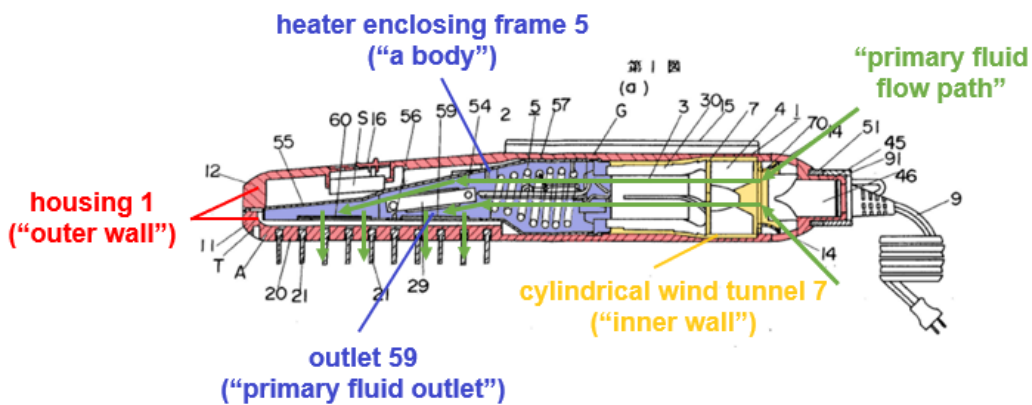
Id., 2252, 2255. These amendments are the only alleged novelty of the claims, as the claims were allowed immediately thereafter. *See id.*, 2272.

But as explained in this Petition, these allegedly novel limitations were disclosed in multiple anticipatory prior art references. For example, Jeong undeniably discloses a hair dryer with a non-linear flow path, and with an outer wall forming a handle, and an inner wall (motor housing) inside the outer wall:

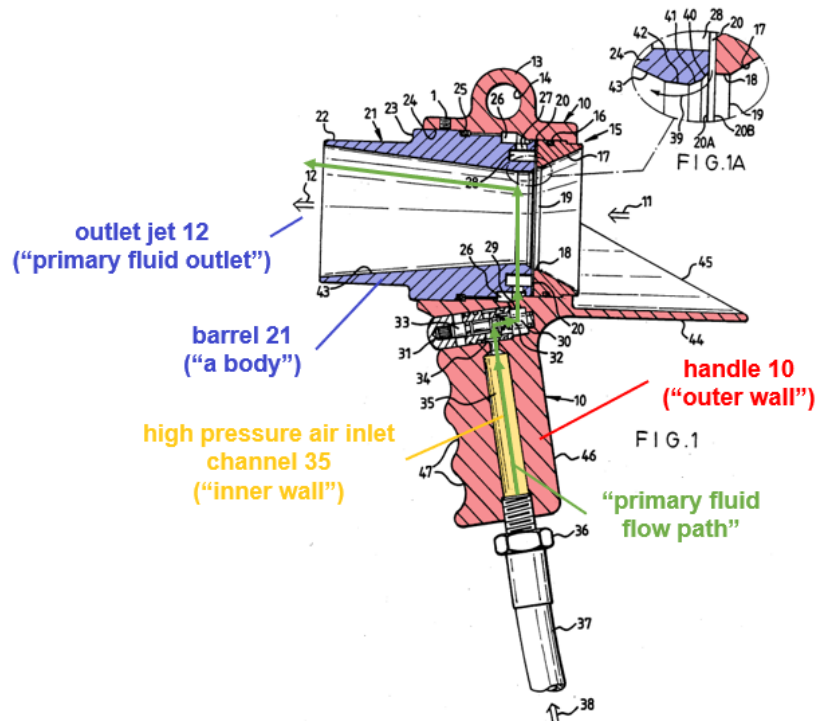




Ex. 1004, Fig. 5 (annotations added). Similarly, Yoshida discloses a hair dryer with a non-linear flow path, and with an outer wall forming a handle and a cylindrical wind tunnel therein that is an “inner wall”:



Ex. 1005, Fig. 1(a) (annotations added). And, Jeffs discloses a hand-held air blower with a non-linear flow path that includes a handle having an outer wall and a high pressure air inlet channel therein comprising an “inner wall”:



Ex. 1006, Fig. 1.

As shown above, each of the references used herein undeniably show an appliance with non-linear airflow, and with inner and outer walls arranged as claimed. Thus, each of the Challenged Claims of the '662 patent is anticipated by any of Jeong, Yoshida, and Jeffs. To the extent the preamble ("A hair care appliance") is limiting, the Challenged Claims are also rendered obvious by the combination of Jeffs with either Jeong or Yoshida (in addition to being anticipated by Jeong or Yoshida alone). Petitioners respectfully request the cancellation of claims 26–28 of the '662 patent.

II. REQUIREMENTS OF *INTER PARTES* REVIEW

A. Standing

Pursuant to 37 C.F.R. § 42.104(a), Petitioners certify that the '662 patent is available for IPR and that Petitioners are not barred or estopped from requesting an IPR on the grounds identified herein.

B. Identification of Challenge and Relief Requested

Pursuant to 37 C.F.R. § 42.104(b), Petitioners request that the Board institute IPR of claims 26–28 of the '662 patent under AIA 35 U.S.C. § 103.

The '662 patent issued from an application filed July 3, 2014, and claims foreign priority to a Great Britain application filed July 5, 2013. For purposes of this Petition only, Petitioners do not dispute that the Challenged Claims are entitled to an effective filing date of July 5, 2013.

The precise relief requested by Petitioners is that claims 26–28 be canceled based on the grounds below:

Ground	Claims	Basis for Rejection¹
1	26–28	Anticipation by Jeong
2	26–28	Anticipation by Yoshida
3	26–28	Anticipation by Jeffs
4	26–28	Obviousness over Jeffs in view of Jeong

¹ All obviousness grounds include the knowledge of POSITA.

Ground	Claims	Basis for Rejection ¹
5	26–28	Obviousness over Jeffs in view of Yoshida

The above challenges are made in view of the following prior art references:

1. U.S. Patent Application Publication No. US 2013/0111777 (“Jeong”) (Ex. 1004)

U.S. Patent Application Publication No. US 2013/0111777 (“Jeong”), titled “Hair Dryer,” was published on May 9, 2013 from an application filed on December 24, 2012. Jeong therefore qualifies as prior art under AIA 35 U.S.C. § 102(a)(2). Jeong is cited on the face of the ’662 patent, but was neither cited nor applied in any substantive action by the Examiner. Jeong² was cited in an Information Disclosure Statement by Applicant during prosecution of the ’662 patent that listed a total of 154 U.S. and foreign patent documents. *See* Ex. 1002, 1084 (Feb. 2, 2015 IDS, Sheet 2). Following the sole rejection of the claims during prosecution, Jeong was included in a list of references cited by applicant and considered by examiner, but not used in the rejection. *See id.*, 2202 (Feb. 2, 2016 List of References cited by applicant and considered by examiner). As explained in more detail below, the

² Jeong’s Korean counterpart, KR-10-1229109 was also disclosed with a note stating that it “Corresponds to US 2013/0111777 cited above.” Ex. 1002, 1088 (Feb. 2, 2015 IDS, Sheet 6).

applicant subsequently amended the claims to recite that “the inner wall is disposed radially inwardly from the outer wall” and that “the outer wall is an external surface of the handle.” *See id.*, 2255 (May 2, 2016 Appl. Arguments/Remarks Made in an Amendment at 7). There is no indication in the prosecution history that the Examiner reconsidered Jeong in light of these amendments prior to allowance of the claims. This Petition presents the Jeong reference in light of these claim limitations, the inclusion of which led to the allowance of the claims of the ’662 patent.

2. Japanese Patent Application Publication No. JP S 60-249907 (“Yoshida”) (Ex. 1005)

Japanese Patent Application Publication No. JP S 60-249907A (“Yoshida”), titled “Hair Dryer,” was published on December 10, 1985. Yoshida therefore qualifies as prior art under AIA 35 U.S.C. § 102(a)(1). Yoshida was not considered during prosecution of the ’662 patent. The original Japanese language version of Yoshida and a certified English translation thereof are attached as Exhibit 1005, pursuant to the requirements of 37 C.F.R. § 42.63(b).

3. U.S. Patent No. 5,407,135 (“Jeffs”) (Ex. 1006)

U.S. Patent No. 5,407,135 (“Jeffs”), titled “Hand-Held Air Blower Device,” issued on April 18, 1995 from an application filed on November 16, 1993. Jeffs therefore qualifies as prior art under AIA 35 U.S.C. § 102(a)(1). Jeffs was not considered during prosecution of the ’662 patent.

C. How the Challenged Claims Are To Be Construed Under 37 C.F.R. § 42.104(b)(3)

A claim subject to IPR shall be construed using the same standard as in a civil action. 37 C.F.R. § 42.100(b). The Board need only construe terms “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). Petitioners submit that no construction of any claims term is necessary for the Board to resolve. Petitioners maintain that the Challenged Claims would have been anticipated or obvious under any reasonable construction. As discussed in the detailed grounds below, the claims are anticipated by Jeong and Yoshida regardless of whether the preamble is limiting. If the preamble is not limiting, the claims are also anticipated by Jeffs, and if not they are obvious over Jeffs in view of either Jeong or Yoshida.

D. How the Challenged Claims Are Unpatentable Under 37 C.F.R. § 42.104(b)(4)

An explanation of how the Challenged Claims are unpatentable under the statutory grounds identified above, including the identification of where each element of the claim is found in the prior art patents or printed publications, is provided below.

E. Supporting Evidence Under 37 C.F.R. §42.104(b)(5)

The exhibit numbers of the supporting evidence relied upon and the relevance of the evidence to the challenged claims, including an identification of specific

portions of the evidence that support the challenge, are provided below. A list of exhibits is also included in this petition pursuant to 37 C.F.R. § 42.63(e). The technical information and grounds for rejection explained in the Petition are further supported by the Declaration of Dr. Daniel M. Nosenchuck (Ex. 1003).

F. Payment of Fees

Pursuant to 37 C.F.R. §§ 42.103 and 42.15(a), the required fee is being submitted herewith. The Office is authorized to charge any fee deficiency, or credit overpayment, to Deposit Account 50-1408, including additional fees due in connection with this Petition.

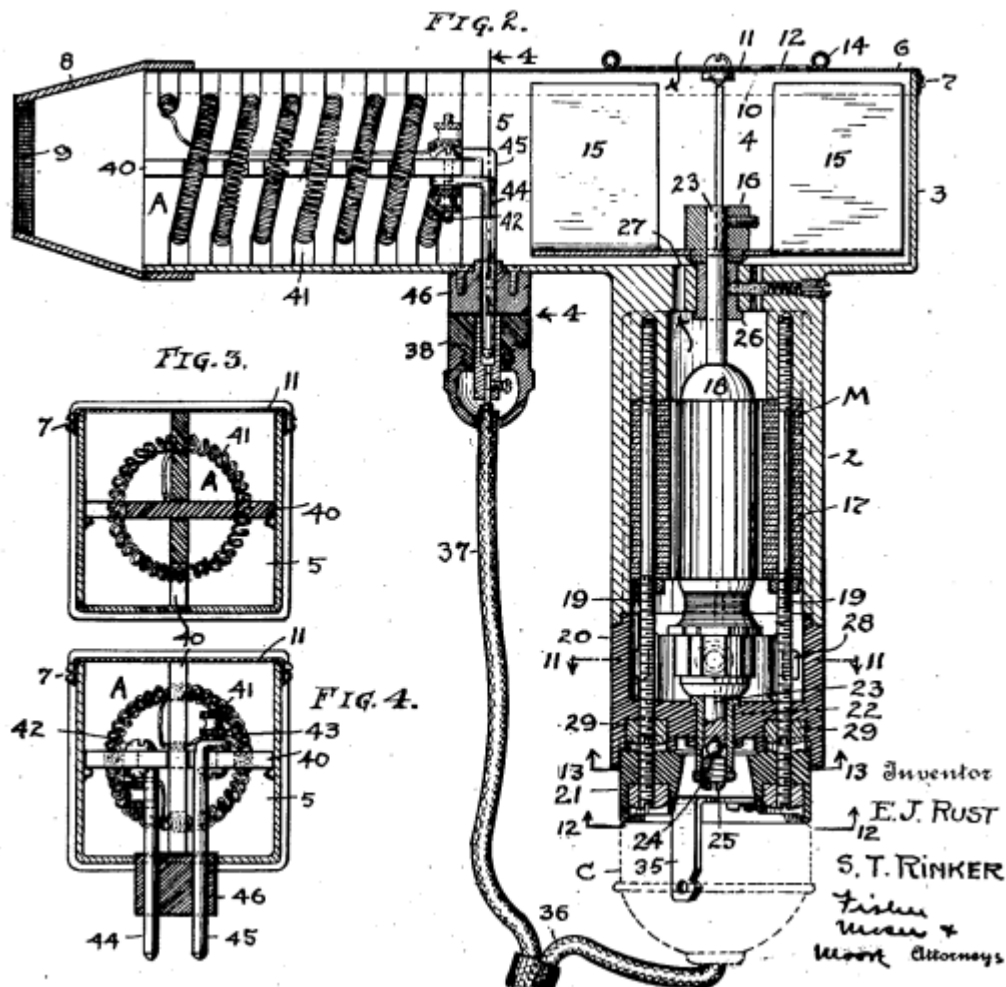
III. TECHNICAL BACKGROUND

A. State of the Art

By the time of the effective filing of the '662 patent, hand-held blower technology was extremely well developed. Ex. 1003, ¶41. Electric hair dryers that included features claimed in the '662 patent existed as early as 1923. For example, U.S. Patent No. 1,564,896 ("Rinker")³ describes a hand-held electric hair dryer

³ Rinker was cited by the Examiner during prosecution of the '662 patent as anticipatory of original independent claim 1, but was not cited against any of the Challenged Claims. See Ex. 1002, 2089–91.

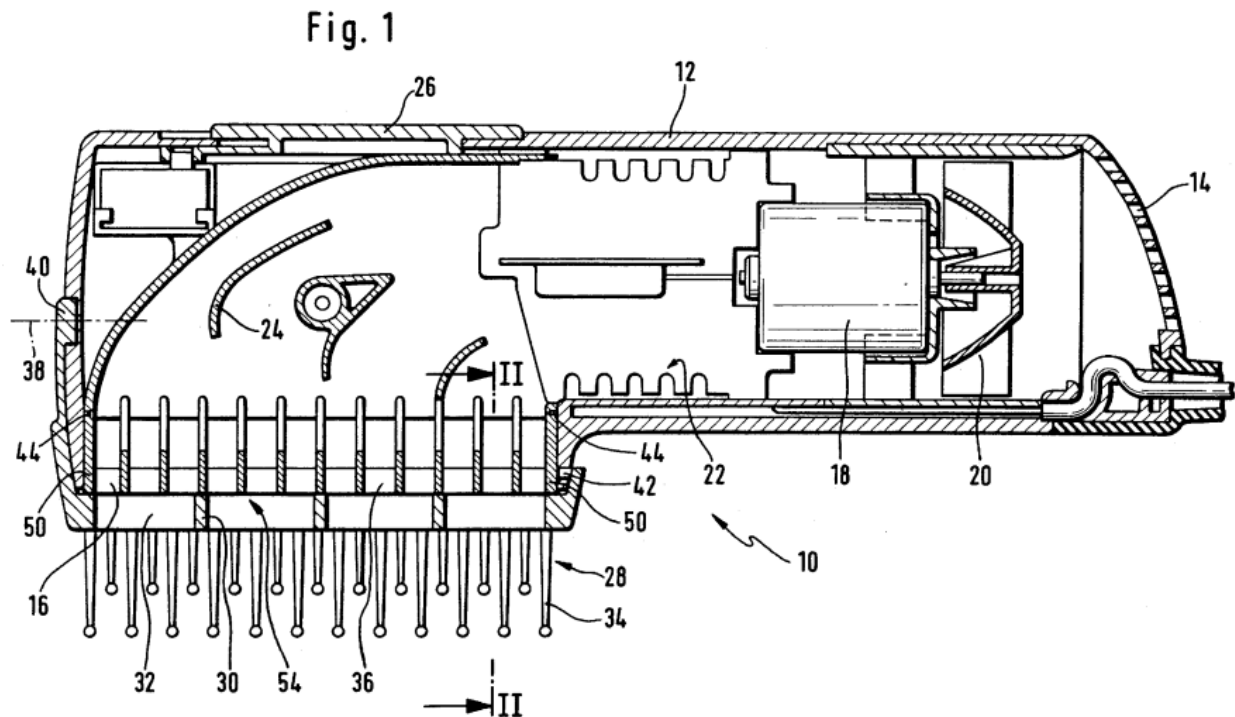
having “a fan or blower and a small electric motor,” a handle, a “cylindrical body,” and a discharge spout:



Ex. 1007, 1:10–61, Fig. 2. This handle/body pistol-type design would remain commonplace throughout the rest of the 20th century. *See, e.g.*, Ex. 1003, ¶¶39–40.

Later designs included other features found in the Challenged Claims, such as a non-linear fluid flow path between the handle and body of the appliance. Ex. 1003, ¶41. For example, in 1996—nearly two decades prior to the effective filing date of the '662 patent—U.S. Patent No. 5,546,674 (“Lange”) disclosed “an air-moving

appliance for drying or styling hair” that included “air directing means 24 which aid in deflecting the air stream at approximately right angles to the longitudinal axis of the housing”:



Ex. 1008, 4:45–65, Fig. 1.

As detailed herein, the anticipatory Jeong, Yoshida, and Jeffs references likewise disclosed all of the features of the Challenged Claims prior to the effective filing date of the '662 patent.

B. Hand-Held Blower Technology Explained in the '662 Patent

In its “Background of the Invention” section, the ’662 patent explains that “[b]lowers and in particular hot air blowers are used for a variety of applications such as drying substances such as paint or hair and cleaning or stripping surface

layers. In addition, hot air blowers such as hot styling brushes are used to style hair from a wet or dry condition.” Ex. 1001, 1:17–21. The ’662 patent further explains that in blowers generally, “a motor and fan are provided which draw fluid into a body; the fluid may be heated prior to exiting the body.” *Id.*, 1:22–23. Because “[t]he motor is susceptible to damage from foreign objects such as dirt or hair[. . .] conventionally a filter is provided at the fluid intake end of the blower.” *Id.*, 1:24–25.

The ’662 patent indicates that conventional blower appliances “are provided with a nozzle which can be attached and detached from the appliance and changes the shape and velocity of fluid flow that exits the appliance,” and that “[s]uch nozzles can be used to focus the outflow of the appliance or to diffuse the outflow depending on the requirements of the user at that time.” *Id.*, 1:26–31.

C. Summary of the Alleged Invention of the ’662 Patent

The purported invention of the ’662 patent relates to an improved hand held appliance and in one example, that appliance is “a hair care appliance such as a hairdryer or hot styling brush,” as shown in Figure 1:

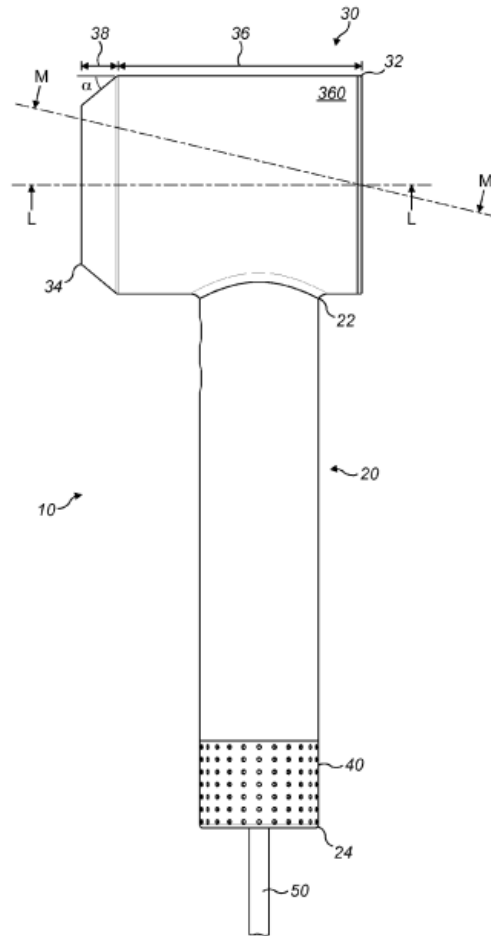


FIG. 1

Ex. 1001, 1:11–13, Fig. 1. The hairdryer 10 depicted in Figure 1 has “a handle 20 and a body 30,” the handle having “a first end 22 which is connected to the body 30 and which includes a primary inlet 40.” *Id.*, 9:52–56. Further, “[u]pstream of the primary inlet 40, a fan unit 70 is provided” that “includes a fan and a motor,” and “draws fluid through the primary inlet 30 towards the body 30 through a fluid flow path 400 that extends from the primary inlet 40 and into the body 30 where the handle 20 and the body 30 are joined 90,” as shown in Figure 3:

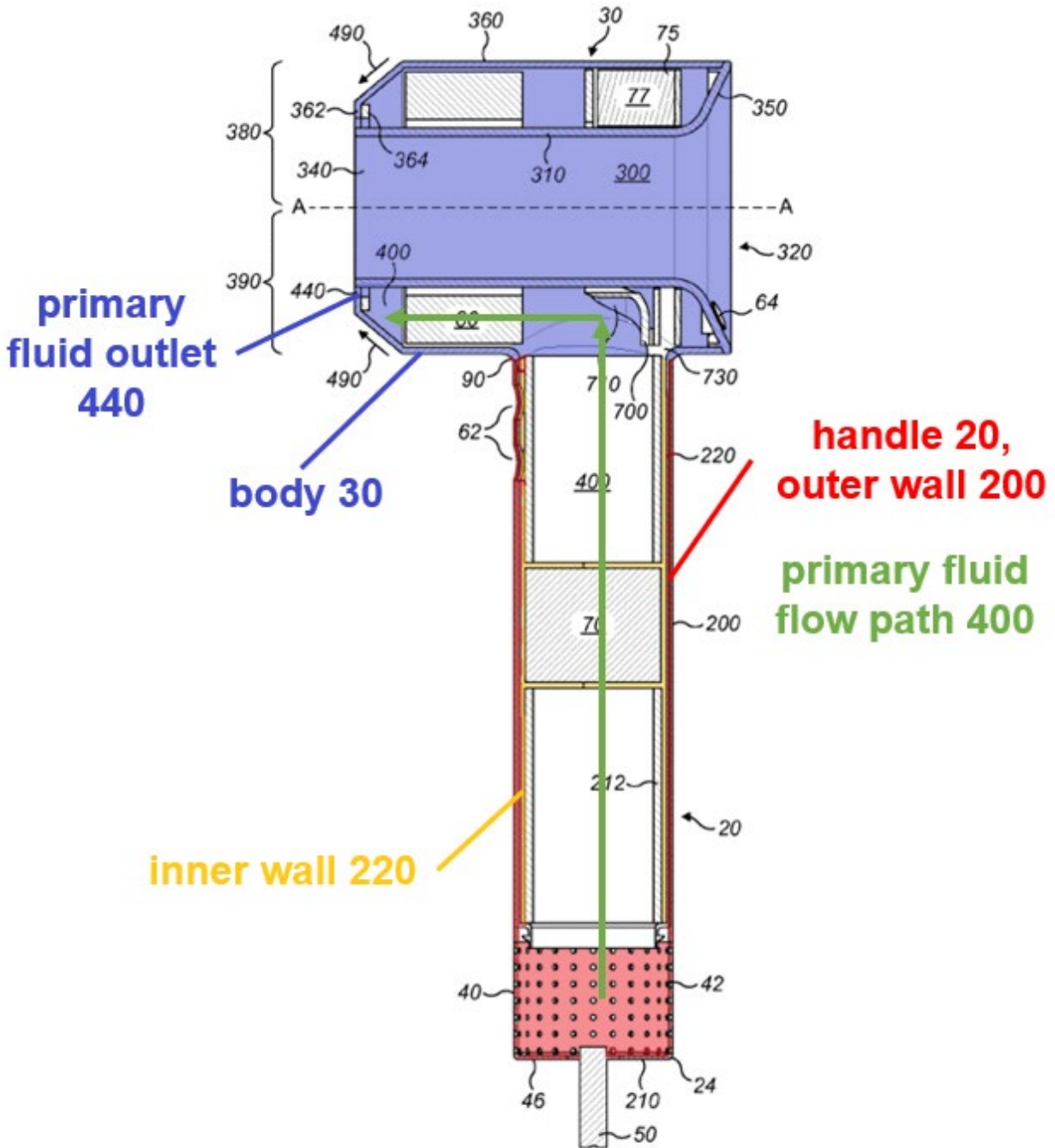


FIG. 3

Id., 10:22–27, Fig. 3. The “fluid flow path 400 continues through the body 30 towards the second end 32 of the body, around a heater 80 and to a primary fluid outlet 330 where fluid that is drawn in by the fan unit exits the primary fluid flow

path 400.” *Id.*, 10:27–30. The ’662 patent notes that “[t]he primary fluid flow path 400 is non linear and flows through the handle 20 in a first direction and through the body 30 in a second direction which is orthogonal to the first direction.” *Id.*, 10:31–34.

As explained in detail below, during prosecution, the applicant amended each of the pending independent claims of the ’662 patent to recite that “the inner wall is disposed radially inwardly from the outer wall” and that “the outer wall is an external surface of the handle.” *See id.*, 2255 (May 2, 2016 Appl. Arguments/Remarks Made in an Amendment at 7). According to the Examiner, the addition of these limitations would place the claims in condition for allowance. *See Ex. 1002*, 2261 (May 5, 2016 Applicant-Initiated Interview Summary) (“[D]istinguishing the recited claim[ed] wall and outer wall such that it more clearly defines over the rejecting prior art of record both structurally and functionally will place the application in condition for allowance.”); *id.*, 2254 (May 2, 2016 Appl. Arguments/Remarks Made in an Amendment) (“The Examiner agreed that the clarifying amendments presented herein would overcome the rejections.”).

The specification of the ’662 patent explains that “[t]he handle 20 has an outer wall 200 and an inner wall 220,” as shown in Figure 3, reproduced above. *Ex. 1001*, 12:29–31, Fig. 3. The “inner wall 220 is a duct which surrounds and defines a primary fluid flow path 400 through the hairdryer,” and the “outer wall 200 includes

a grippable portion and in this example, includes the primary inlet 40 into the primary fluid flow path 400.” *Id.*, 12:31–35. The ’662 patent also notes that “[w]ithin the inner 220 wall, an insulating layer of material 212 is provided,” or alternatively or additionally, “insulating layer of material 212 is provided between the outer wall 210 and inner wall 220.” *Id.*, 12:35–44. However, this “insulating layer” is not required by the Challenged Claims. *Compare id.*, cl. 1 (“an insulating layer is provided between the inner wall and the outer wall”), *with* cl. 26 (no “insulating layer” recited).

D. Summary of the Prosecution History of the ’662 Patent

The application that issued as the ’662 patent, U.S. application no. 14/323,937 (“the ’937 application”) was filed on July 3, 2014, and claims priority to GB application no. 1312068.8, filed July 5, 2013. Ex. 1001, Cover.

As filed, the ’937 application contained 39 claims, of which claims 1, 13, and 26 were independent. Ex. 1002, 45–48. Original claim 26—which issued as the challenged independent claim 26—recited nearly all of the limitations recited in issued claim 26:

26. A hair care appliance comprising a handle, the handle comprising a wall and an outer wall wherein the wall defines a primary fluid flow path that extends from a primary fluid inlet into the appliance and the outer wall is an external surface of the appliance wherein the primary

fluid flow path from the primary fluid inlet to a primary fluid outlet is non linear.

Id., 47. Original dependent claims 27 and 28—which likewise issued as the two challenged dependent claims—issued without amendment:

27. The appliance of claim 26, wherein the primary fluid flows within the handle in a first direction and within the body in a second direction.

28. The appliance of claim 26, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.

Id., 47–48.

On February 2, 2016, the Examiner issued a non-final rejection, finding claims 26–28 invalid as anticipated by GB 1,417,052 to Sarocchi. *Id.*, 2091–92. In response, the Applicant amended each of the independent claims (including challenged claim 26) to clarify that “the inner wall is disposed radially inwardly from the outer wall” and that “the outer wall is an external surface of the handle,” which the Applicant contended were not disclosed nor suggested by Sarocchi. *Id.*, 2255.

26. (Currently Amended) A hair care appliance comprising a body and a handle, the handle comprising [[a]] an inner wall and an outer wall, wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, wherein [[and]] the outer wall is an external

surface of the ~~appliance~~ handle, and wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.

Id., 2252. As noted in an Applicant-Initiated Interview Summary, the Examiner agreed that the addition of these limitations would place the claims in condition for allowance. *See* Ex. 1002, 2261 (May 5, 2016 Applicant-Initiated Interview Summary) (“[D]istinguishing the recited claim[ed] wall and outer wall such that it more clearly defines over the rejecting prior art of record both structurally and functionally will place the application in condition for allowance.”); *id.*, 2254 (May 2, 2016 Appl. Arguments/Remarks Made in an Amendment) (“The Examiner agreed that the clarifying amendments presented herein would overcome the rejections.”). Accordingly, a Notice of Allowance issued on May 26, 2016, and the ’662 patent issued on August 16, 2016. *Id.*, 2268, 2286.

E. Person of Ordinary Skill in the Art

The ’662 patent relates to the field of hand held appliances for blowing air, such as a hair care appliance like a hair dryer. Ex. 1001, Abstract, 1:11–13, 9:52–56. POSITA in the field on or around July 5, 2013, would have had a Bachelor’s degree or comparable technical degree in Mechanical and/or Aerospace Engineering (or an equivalent engineering or design-related field that involved exposure to introductory fluid mechanics and heat transfer at a level roughly equivalent to that

of a second-year engineering student) or equivalent work experience, and at least one year's worth of experience in research, design and/or development related to appliances for blowing air such as hair dryers (or other comparable industrial design). Additional education could substitute for experience, and vice versa. Ex. 1003, ¶19.

IV. GROUNDS OF UNPATENTABILITY

A. Ground 1: Anticipation by Jeong

1. Summary of Jeong

As shown below in Figure 1, Jeong discloses a “hair dryer in which an amount of air current generated by a fan rotated by an operation of a motor is increased by a coanda effect to transfer a relatively large amount of air current into user's hair”:

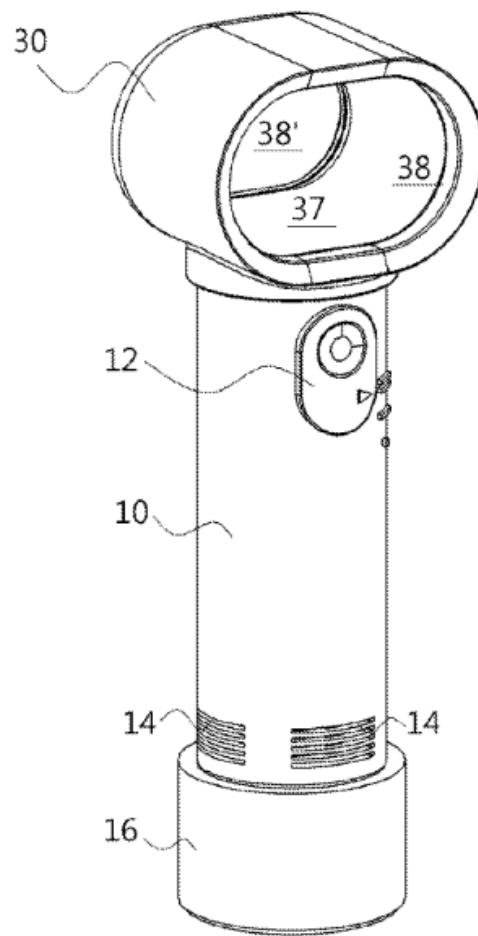


FIG. 1

Ex. 1004, [0009], Fig. 1.

The Jeong hair dryer comprises “a housing 10” that “defines a portion of an outer appearance of a hair dryer” and has a cylindrical shape. *Id.*, [0030]. The housing provides “an inner space 11” within which a “motor housing 18” is disposed. *Id.*, [0030], [0032]–[0035]. The “motor housing 18” is radially inward of the “housing 10,” as shown in Figure 2:

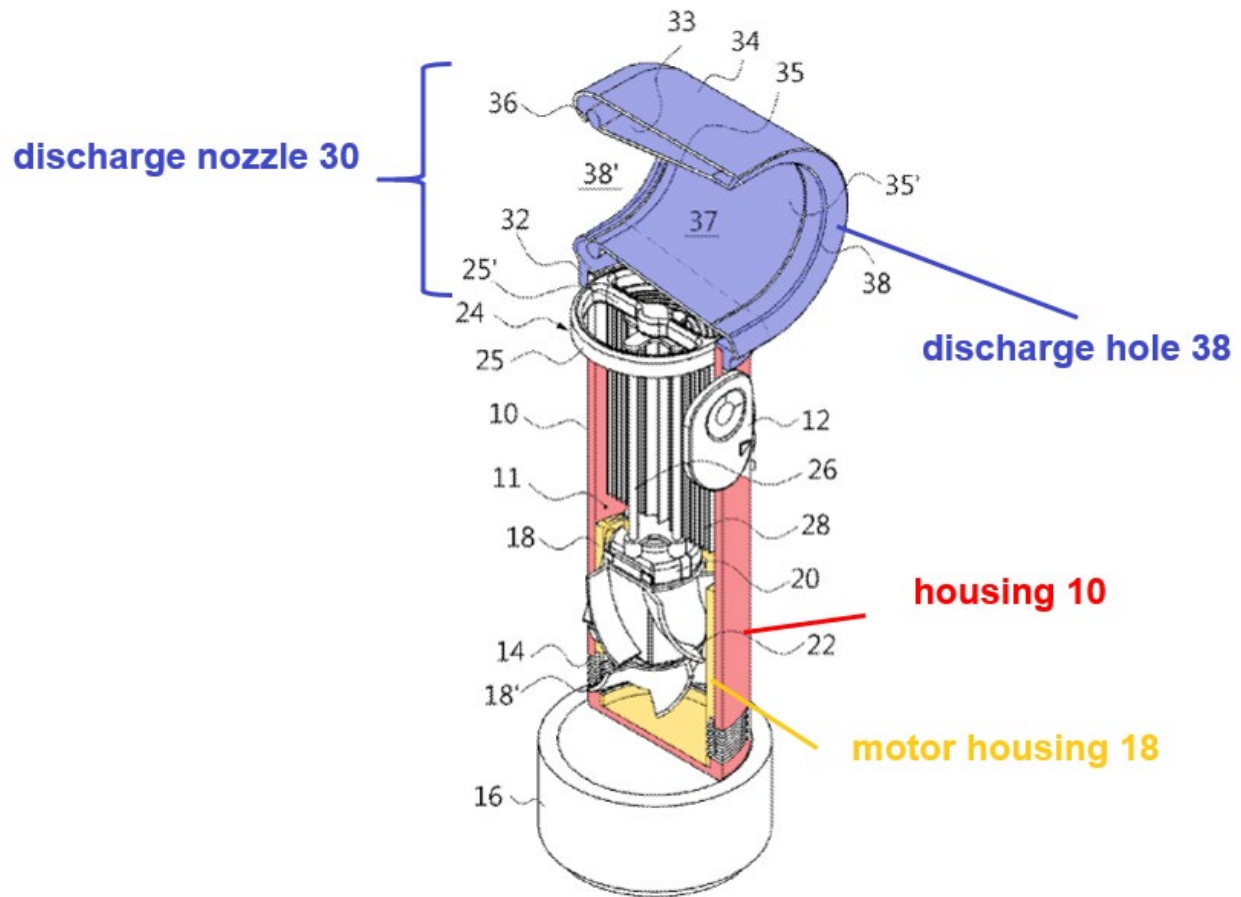


FIG. 2

Id., Fig. 2. As shown in Figures 1 and 2 above, a “discharge nozzle 30 is disposed on an upper end of the housing 10.” *Id.*, [0039]. The “discharge nozzle 30” includes “a portion through which air is finally discharged from the discharge nozzle 30 [that] may be referred to as a discharge hole 38.” *Id.*, [0046]. Jeong’s “air current generation process” is depicted in Figure 5, which shows the direction of airflow through the hair dryer:

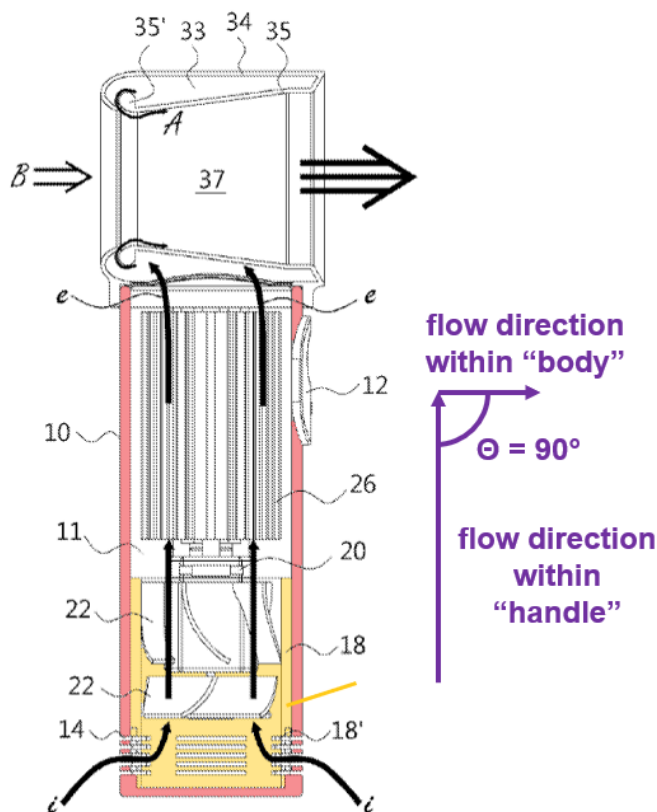


FIG. 5

Id., Fig. 5 (colored annotations added).

2. Detailed Analysis of Ground 1

As supported by the Nosenchuck Declaration, Jeong anticipates claims 26–28 of the '662 patent, and therefore invalidates those claims.

a. Claim 26

1) Element [26pre]

“A hair care appliance comprising”

To the extent the preamble of claim 26 is limiting, Jeong discloses it. Ex. 1003, ¶66. Jeong discloses a “hair dryer.” Ex. 1004, Abstract. More

specifically, Jeong discloses “a hair dryer in which an amount of air current generated by a fan rotated by an operation of a motor is increased by a coanda effect to transfer a relatively large amount of air current into user's hair.” *Id.*, [0009].

Jeong's Figure 1 depicts an embodiment of the “hair dryer”:

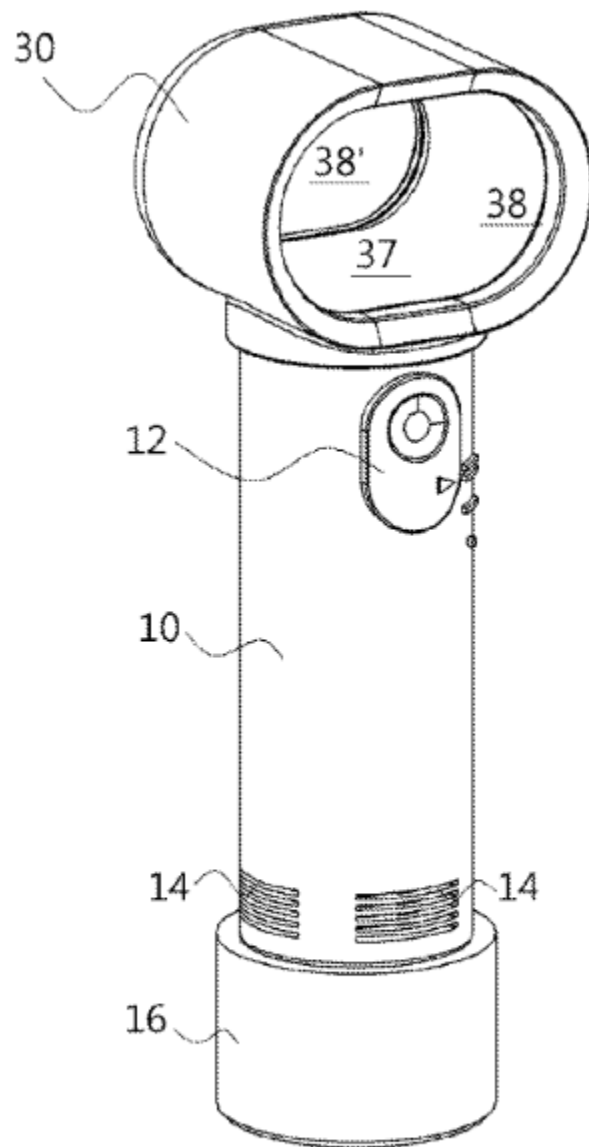


FIG. 1

Id., Fig. 1. Accordingly, Jeong discloses a “hair care appliance” as required by element [26pre]. Ex. 1003, ¶¶67–68.

2) Element [26a]

“a body and a handle”

Jeong discloses this limitation. Ex. 1003, ¶69.

Specifically, Jeong discloses a “discharge nozzle 30” (*i.e.*, “a body”) that “is disposed on an upper end of [a] housing 10,” which defines a portion of an outer appearance of a hair dryer (*i.e.*, a portion of an outer appearance of a “handle”). Ex. 1004, [0030], [0039].

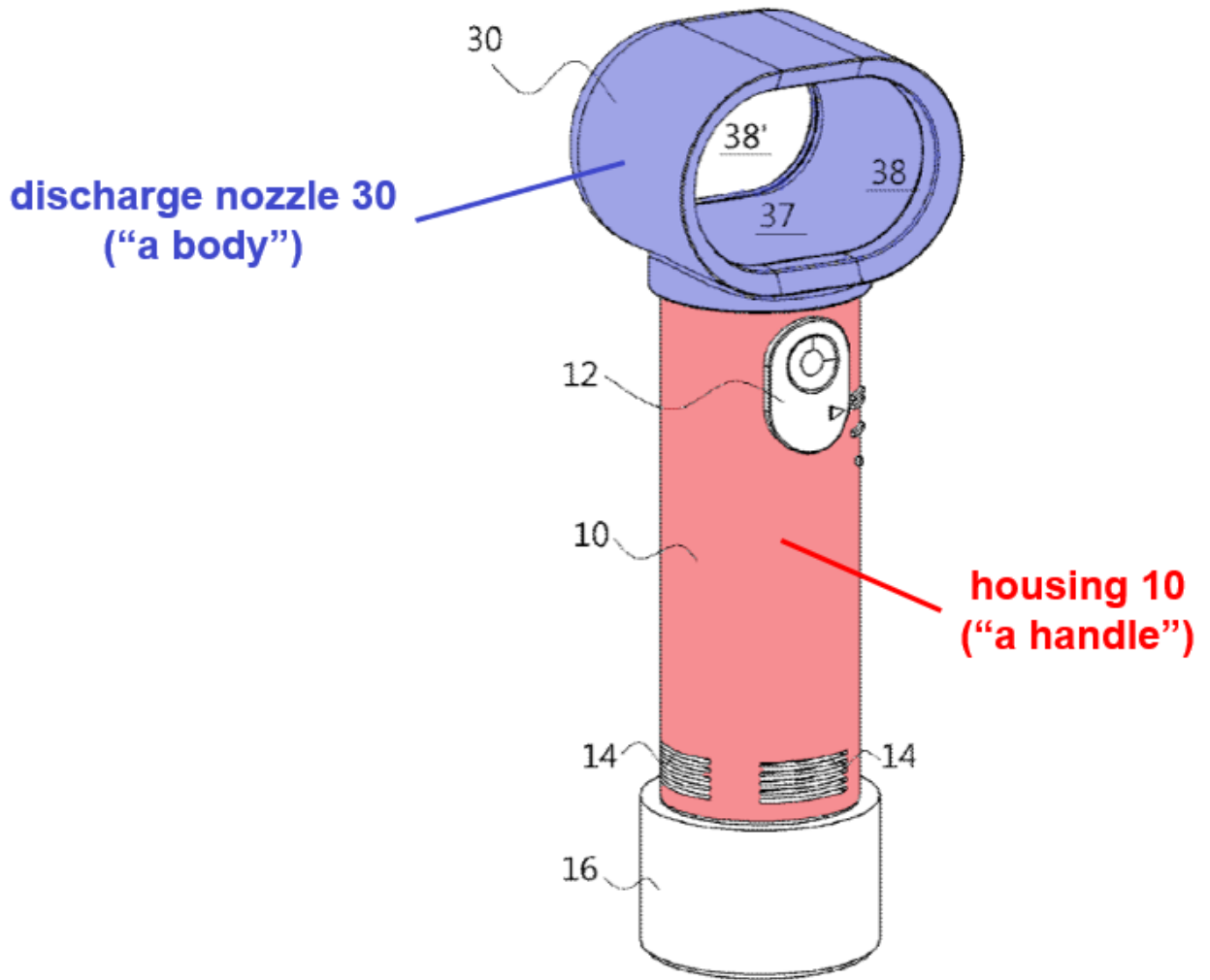


FIG. 1

Id., Fig. 1 (annotations added).

Jeong's "discharge nozzle 30" includes "a portion through which air is finally discharged from the discharge nozzle 30 [that] may be referred to as a discharge hole 38," as well as "a portion through which air is introduced into the central passage part 37 [that] may be referred to as a secondary inflow hole 38'." *Id.*, [0046]. The discharge nozzle "is configured to mix the air passing through the housing 10 with

the external air, thereby discharging the mixed air,” which corresponds to the structure and function as the “body” described in the ’662 patent. *Id.*, [0039]; see Ex. 1001, 10:59–61 (“The primary fluid outlet 440 may be internal so the primary fluid flow path 400 merges with the fluid flow path 300 within the body.”); Ex. 1003, ¶¶70–72. In particular, the ’662 patent describes the “body 30” as having “a first end 32 and a second end 34,” where the “first end 32 of the body includes a fluid inlet 320 and the second end 34 of the body includes a fluid outlet 340.” Ex. 1001, 1:57–58, 2:46–47. This “body 30” is connected to the first end of the “handle 20,” whereas the “second end 24 [is] distal from the body” and includes a primary inlet. *Id.*, 1:52–55. Accordingly, Jeong discloses “a body” as required by limitation [26a]. Ex. 1003, ¶72.

As shown in Figure 1 above, Jeong’s housing 10 “has a cylindrical shape” and “defines a portion of an outer appearance of a hair dryer.” *Id.*, [0030]. The “housing 10 provides an inner space 11 in which parts [such as a motor and a fan] are installed.” *Id.*, [0030]; see also *id.*, [0033]–[0034]. Further a “manipulation button 12 is disposed on a side of an outer surface of the housing 10,” which “manipulates an operation of the hair dryer.” *Id.*, [0031]. Jeong explains that “the manipulate button 12 should be manipulated by the user” in order to “operate the hair dryer,” such as be “select[ing] one of a hot wind mode and a room-temperature wind mode.” *Id.*, [0051]. Accordingly, Jeong’s housing 10 (and the components contained within

the inner space 11, including the motor housing 18) is “a handle” as required by limitation [26a]. Ex. 1003, ¶¶73–75.

3) Element [26b]

“the handle comprising an inner wall and an outer wall”

Jeong discloses this limitation. Ex. 1003, ¶76. As explained above with respect to element [26a], Jeong’s housing 10 (*i.e.*, “the handle”) “defines a portion of an outer appearance of a hair dryer,” *i.e.*, a handle. Ex. 1004, [0030]. And, the “housing 10 provides an inner space 11,” within which a “motor housing 18 disposed.” *Id.*, [0033].

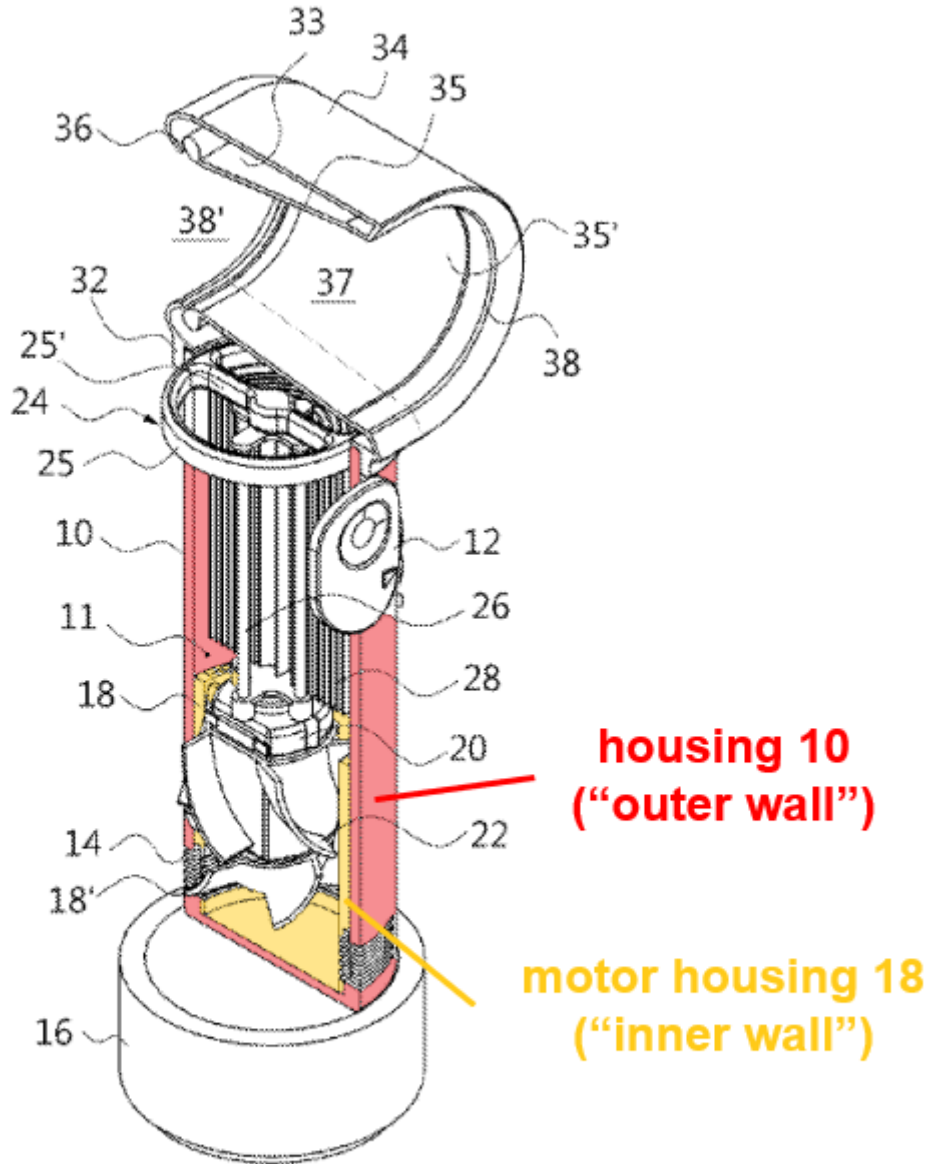


FIG. 2

Id., Fig. 2 (annotations added). As shown in Figure 2 above, Jeong’s housing 10 comprises an “outer wall” of the hair dryer. Ex. 1003, ¶77. Likewise, motor housing 18, which is within inner space 11 of the handle, comprises an “inner wall.” *Id.* The structure of motor housing 18 (*i.e.*, the “inner wall”) is depicted in Jeong’s Figure 3:

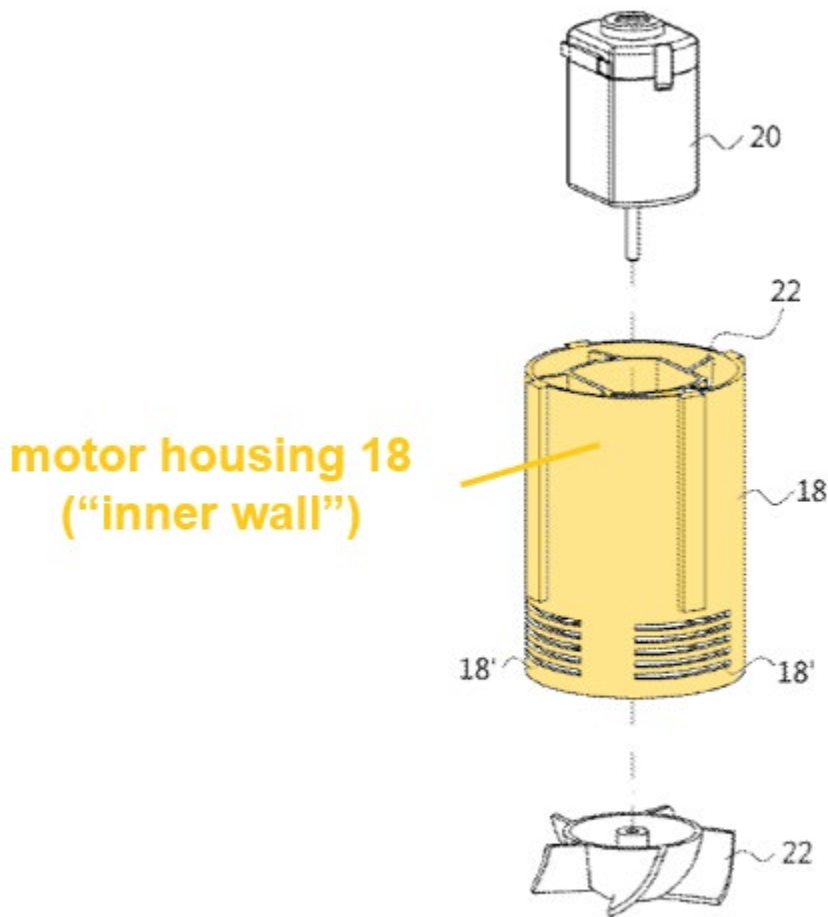


FIG. 3

Ex. 1004, Fig. 3 (annotations added). Jeong explains that “[a]n outer surface of the motor housing 18 may be closely attached to an inner surface of the housing 10.” *Id.*, [0033]. Further, the motor housing 18 may be “firmly fixed to the inside of the housing 10.” *Id.*, [0037]. Accordingly, Jeong discloses “the handle comprising an inner wall and an outer wall” as required by element [26b]. Ex. 1003, ¶77.

4) Element [26c]

“wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance”

Jeong discloses this limitation. Ex. 1003, ¶78. As explained above with respect to element [26b], Jeong’s motor housing 18 (*i.e.*, “the inner wall”) is “disposed within the housing 10,” (*i.e.*, “the outer wall”) and may be “firmly fixed to the inside of the housing 10.” Ex. 1004, [0033], [0037]. As shown in Figure 2, the motor housing 18 is disposed radially inwardly from the housing 10:

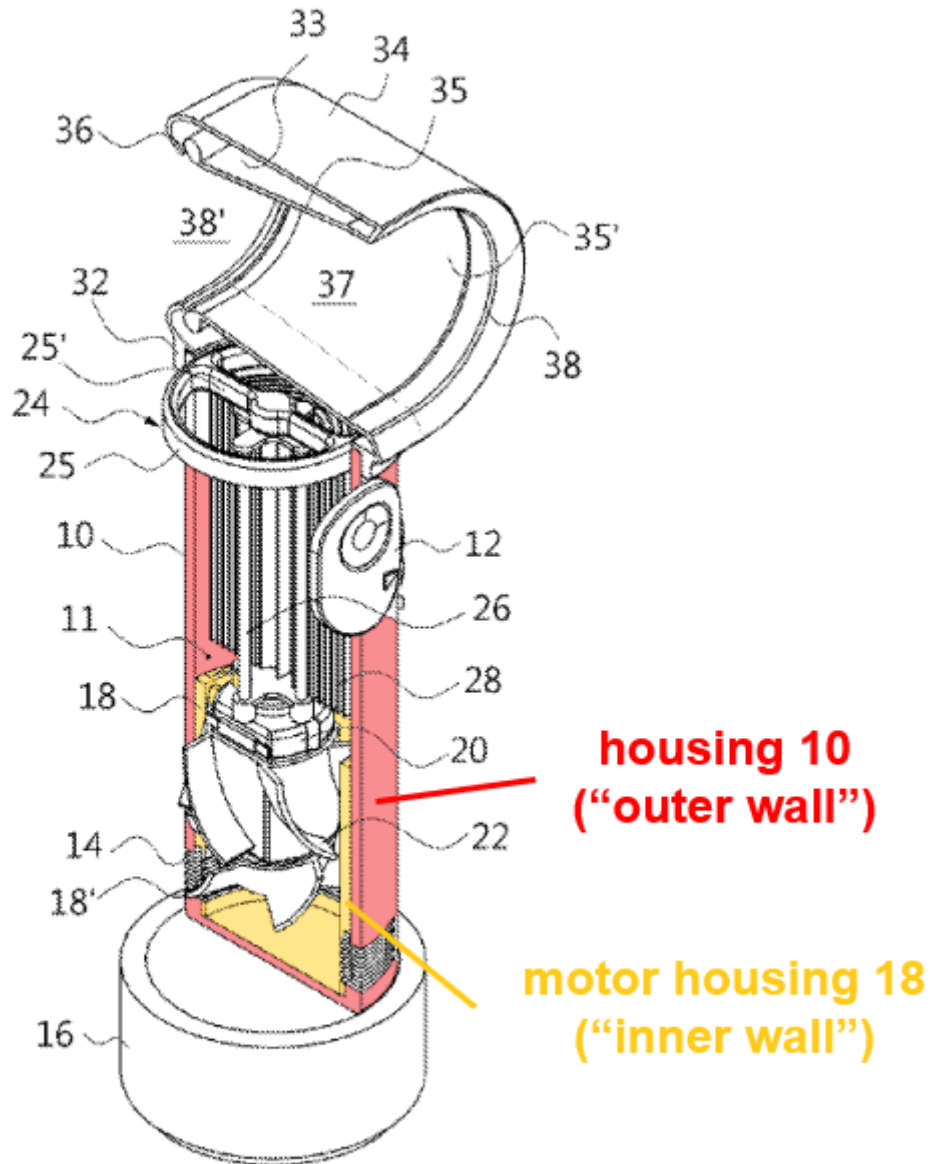


FIG. 2

Id., Fig. 2 (annotations added); *see* Ex. 1003, ¶79.

Jeong's motor housing 18 (*i.e.*, "the inner wall") defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, as required by element [26c]. *See* Ex. 1003, ¶80. Jeong explains that "[a] plurality of inflow slots 14" (*i.e.*,

“a primary fluid inlet into the appliance”) are “defined in a lower portion of the housing 10.” Ex. 1004, [0031]. The “inflow slots 14 may serve as passage through which air is introduced inward from the outside of the housing 10.” *Id.* Moreover, “[i]n the motor housing 18, inner inflow slots 18’ are defined in positions corresponding to those of the inflow slots 14 to introduce external air into the motor housing 18.” *Id.*, [0033].

Jeong’s Figure 5 depicts “an air current generation process” wherein the “motor 20 may be driven to rotate the fan 22, thereby suctioning air into the housing 10”:

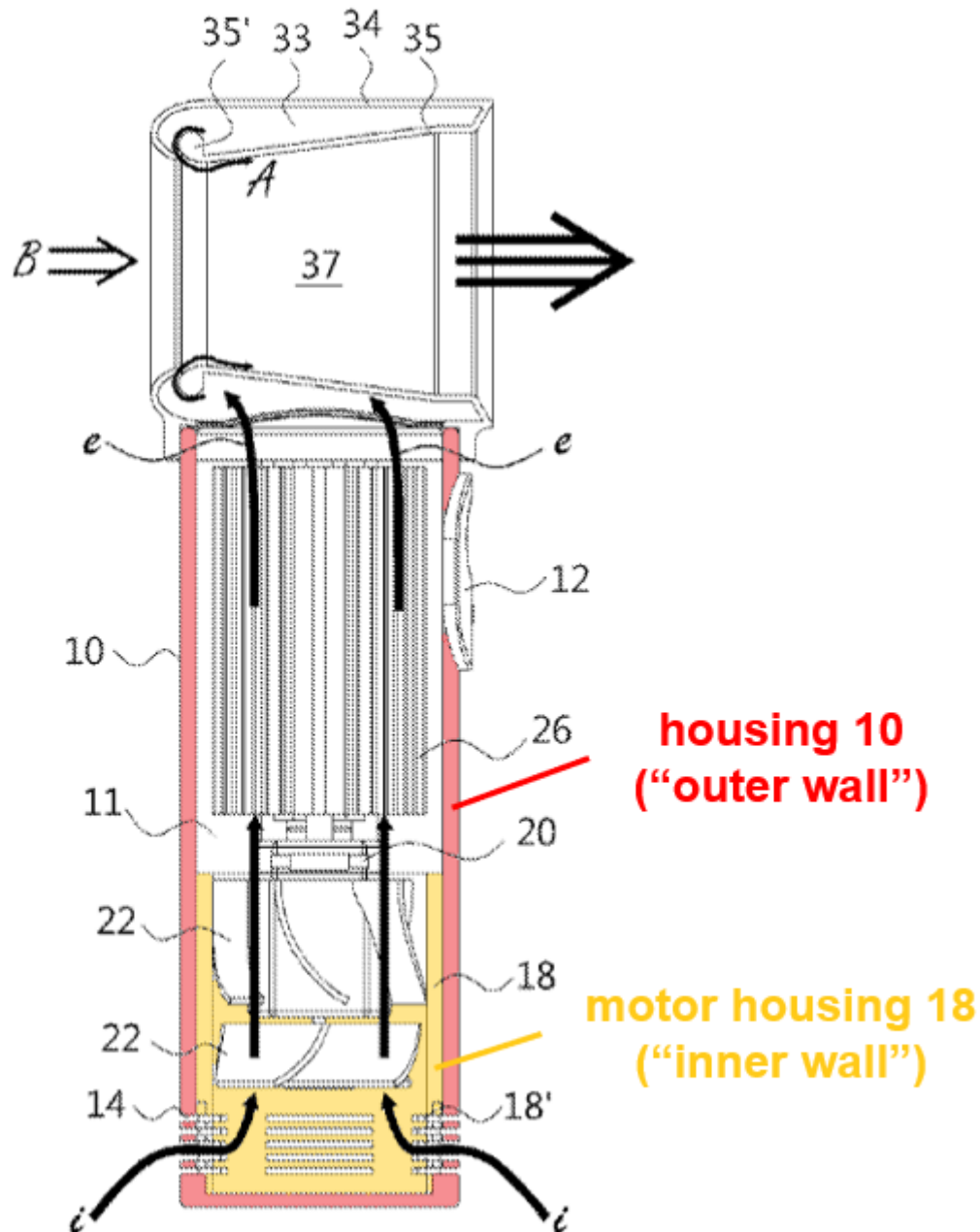


FIG. 5

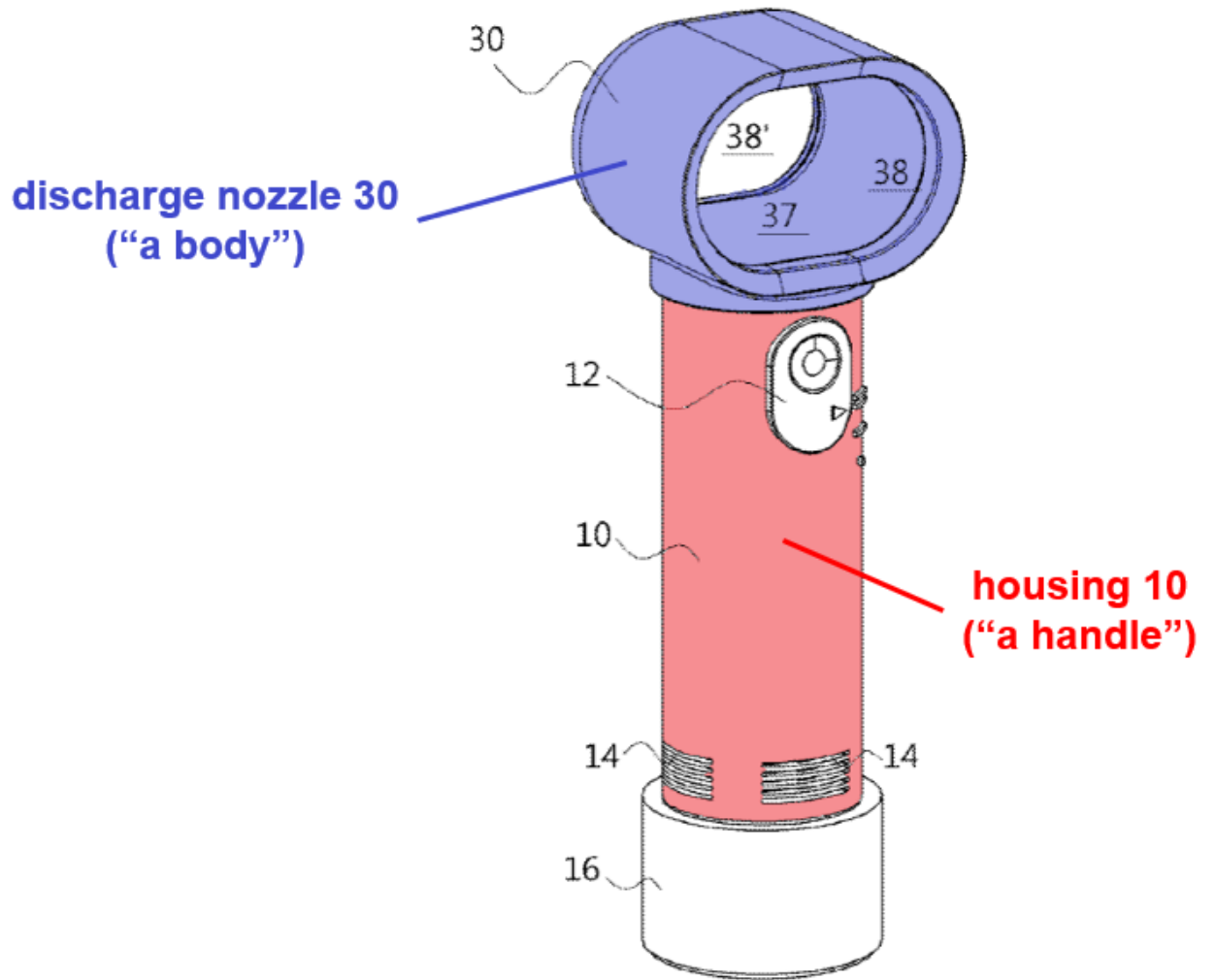
Id., [0028], [0052], Fig. 5 (coloration added). Jeong explains that “[t]he inner space 11 corresponding to the inside of the inflow slot 14 of the housing 10 may have a relatively low pressure by the air current,” thus “air may be introduced as shown by

an arrow i of FIG. 5 through the inflow slot 14 and the inner inflow slot 18' from the outside of the housing 10.” *Id.*, [0052]. Accordingly, Jeong discloses “wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance” as required by element [26c]. Ex. 1003, ¶81.

5) Element [26d]

“wherein the outer wall is an external surface of the handle”

Jeong discloses this limitation. Ex. 1003, ¶82. As explained above with respect to element [26a], Jeong’s housing 10 (and components contained within the inner space 11 therein) (*i.e.*, “the handle”) “defines a portion of an outer appearance of a hair dryer.” Ex. 1004, [0030]. Figures 1, 2, and 5 all depict Jeong’s housing 10 as comprising an outer wall that is an external surface:



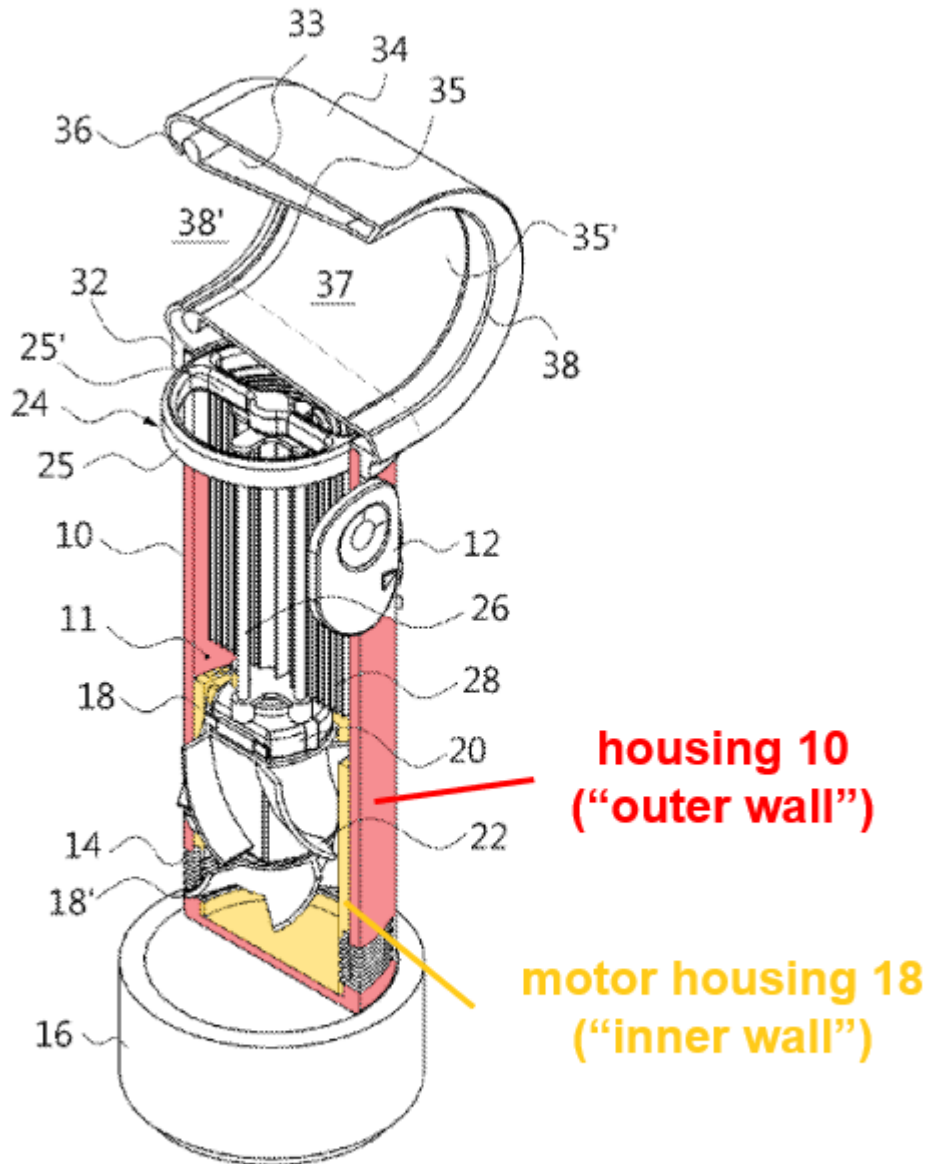


FIG. 2

6) Element [26e]

“wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.”

Jeong discloses this limitation. Ex. 1003, ¶84. As explained above with respect to element [26c], “air may be introduced as shown by an arrow i of FIG. 5 through the inflow slot 14 and the inner inflow slot 18' from the outside of the housing 10.” Ex. 1004, [0052]. Accordingly, the “inflow slot 14” (and the “inner inflow slot 18”) comprises a “primary fluid inlet.” Ex. 1003, ¶85. Likewise, and as explained above with respect to element [26a], Jeong’s “discharge nozzle 30” (*i.e.*, “the body”) includes “a portion through which air is finally discharged from the discharge nozzle 30 [that] may be referred to as a discharge hole 38” (*i.e.*, “a primary fluid outlet from the body”). *Id.*, [0046]. The inflow slot 14 and discharge hole 38 are both depicted in Figure 1:

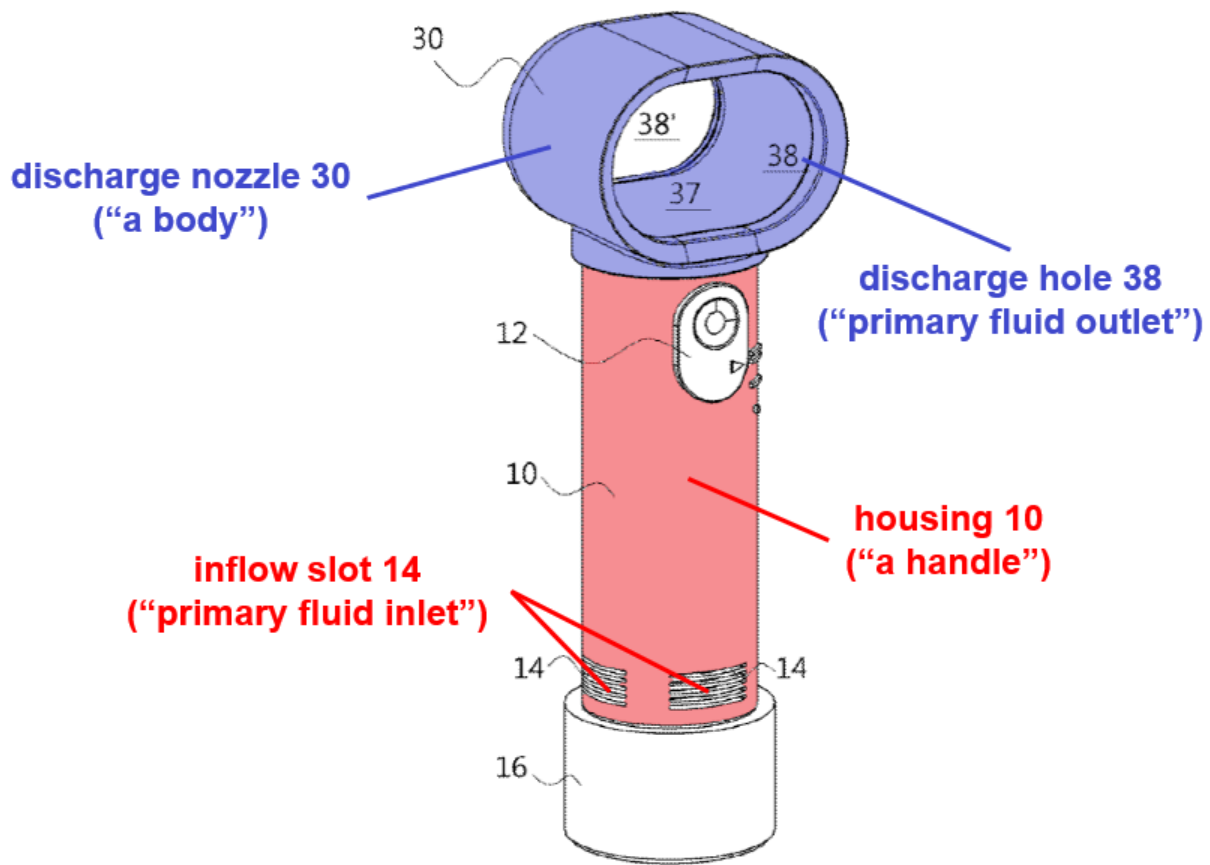


FIG. 1

Ex. 1004, Fig. 1 (annotations added).

As explained above with respect to element [26c], Jeong's Figure 5 depicts "an air current generation process" wherein the "motor 20 may be driven to rotate the fan 22, thereby suctioning air into the housing 10":

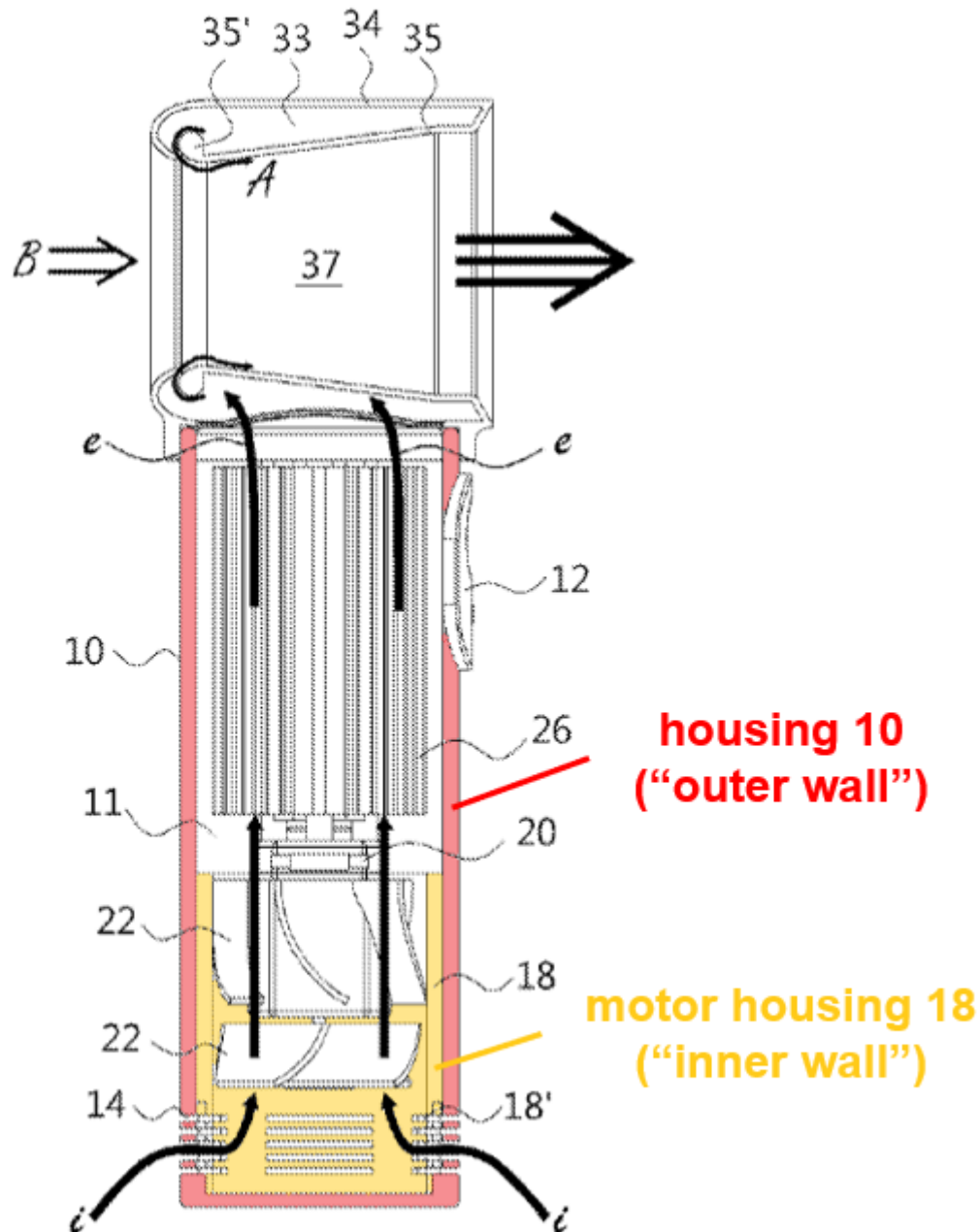


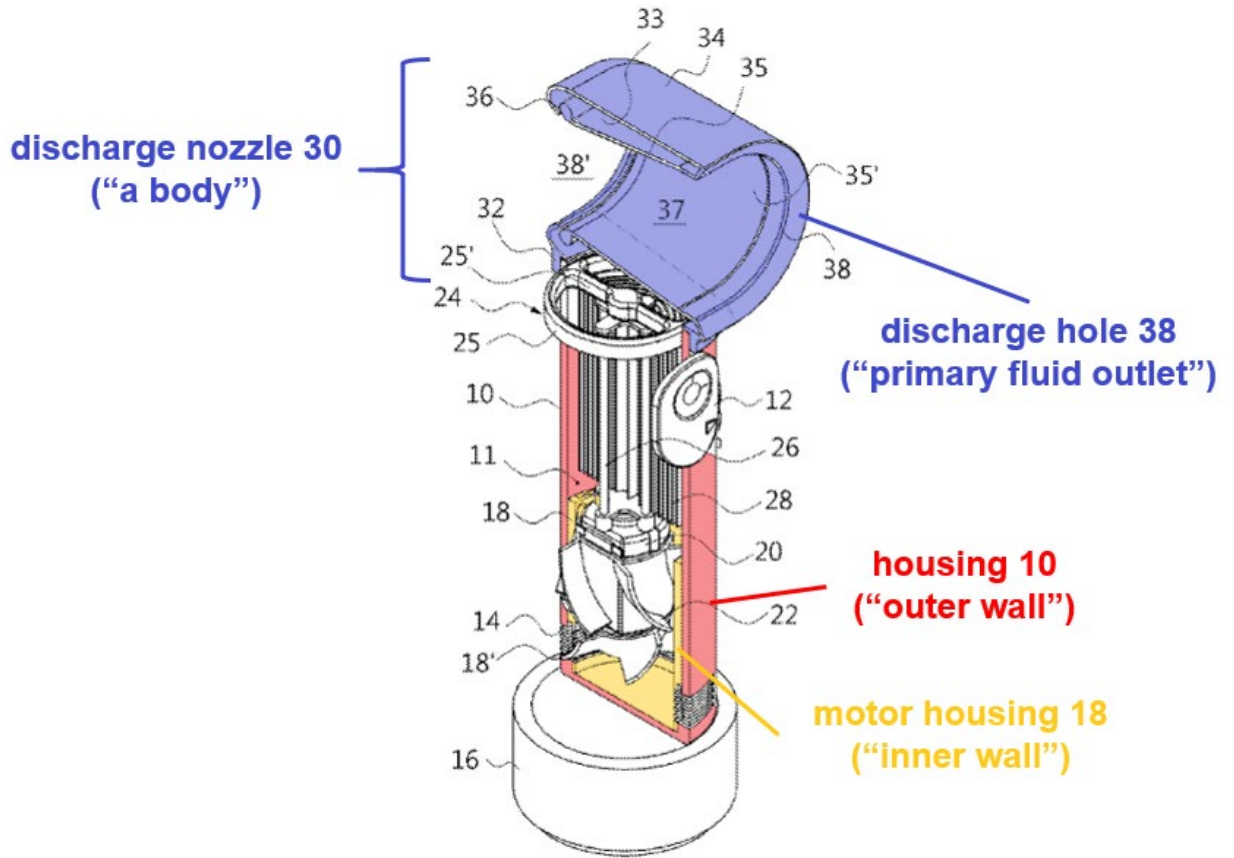
FIG. 5

Id., [0028], [0052], Fig. 5 (annotations added). Jeong explains that “air may be introduced as shown by an arrow *i* of FIG. 5 through the inflow slot 14 and the inner inflow slot 18’ from the outside of the housing 10.” *Id.*, [0052]. As shown by the

black arrows, which indicate the direction of air flow, “[t]he air introduced into the housing 10 passes through the outside of the fan 22 and the motor 20 to pass between the heating plates of the heater 28.” *Id.*, [0053]. Next, “[t]he air passing through the heater 28 passes through the coupling ring part 32 to flow into the inner passage 33 as shown by an arrow e of FIG. 5,” and “[t]he air introduced into the inner passage 33 is transferred into the whole region of the inner passage 33 having the ring shape and then is discharged from the inner passage 33 through the discharge slit 36.” *Id.*, [0054].

Further, “[t]he air discharged through the discharge slit 36 flows along the coanda surface 35’ as shown by an arrow A of FIG. 5.” *Id.*, [0055]. External air that is “introduced into the central passage part 32 through the secondary inflow hole 38[’]⁴ and the air discharged through the discharge slit 36 are mixed with each other while passing through the section of the central passage part 32 corresponding to the diffusion surface 35”.” *Id.*, [0056]. Finally, “the air is discharged through the discharge hole [38] and is transferred into the user’s hair.” *Id.*

⁴ Paragraphs [0055] and [0056] erroneously refer to the secondary inflow hole 38’ as “secondary inflow hole 38” (without the prime symbol), and to discharge hole 38 as “discharge hole 39.”



Id., Fig. 2.

As shown in Figure 5, annotated below, Jeong's primary fluid flow path (*i.e.*, the airflow path through the housing 10 and motor housing 18, the discharge slit 36, and the discharge hole 38) changes by approximately 90 degrees:

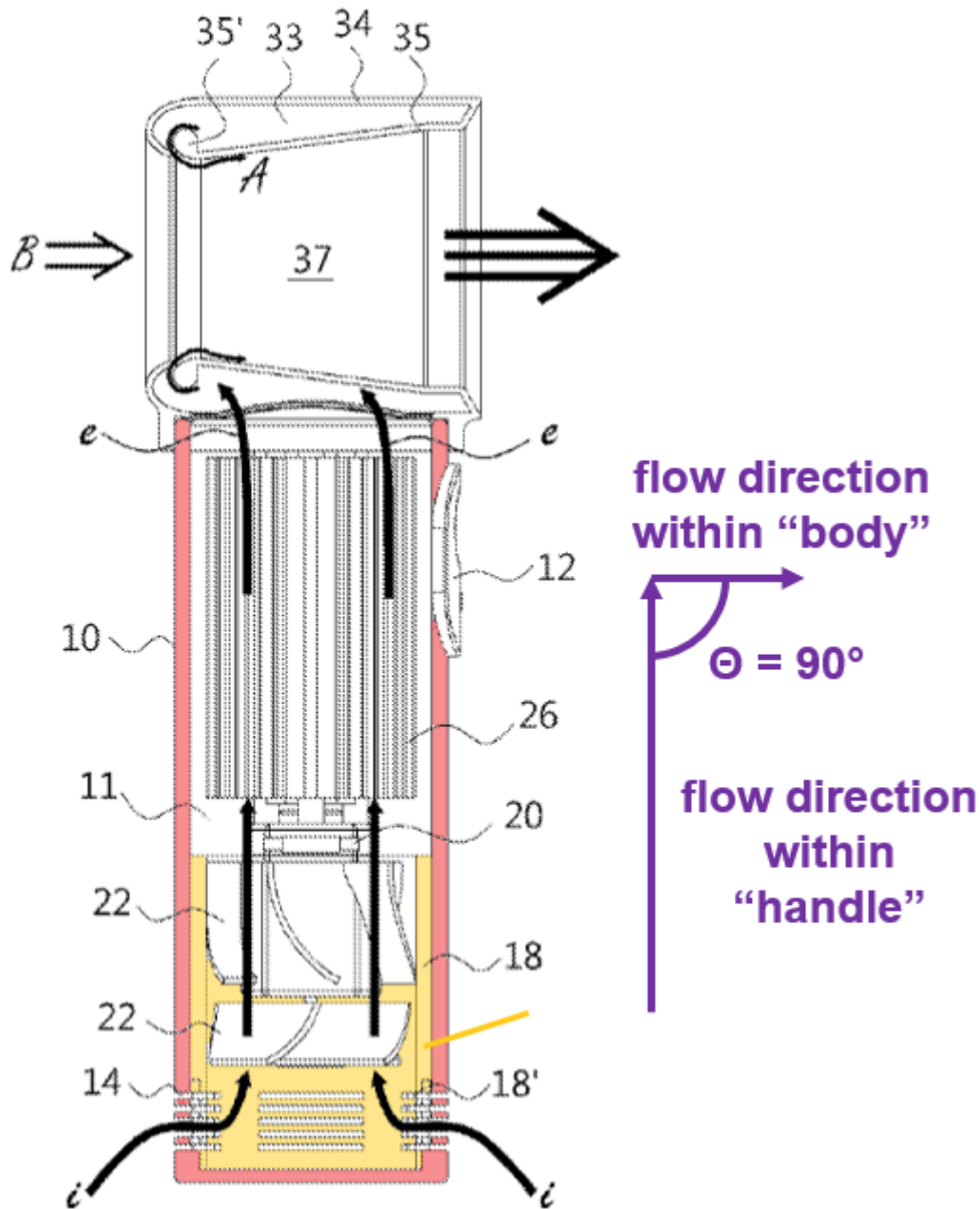


FIG. 5

Ex. 1004, Fig. 5 (annotated). Accordingly, Jeong discloses “wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear” as required by element [26e]. Ex. 1003, ¶¶86–87.

b. Claim 27

“The appliance of claim 26, wherein the primary fluid flows within the handle in a first direction and within the body in a second direction.”

Jeong discloses this limitation. Ex. 1003, ¶88. As explained above with respect to element [26e], Jeong’s primary fluid flow path (*i.e.*, the airflow path through the housing 10 and motor housing 18, the discharge slit 36, and the discharge hole 38) changes by approximately 90 degrees:

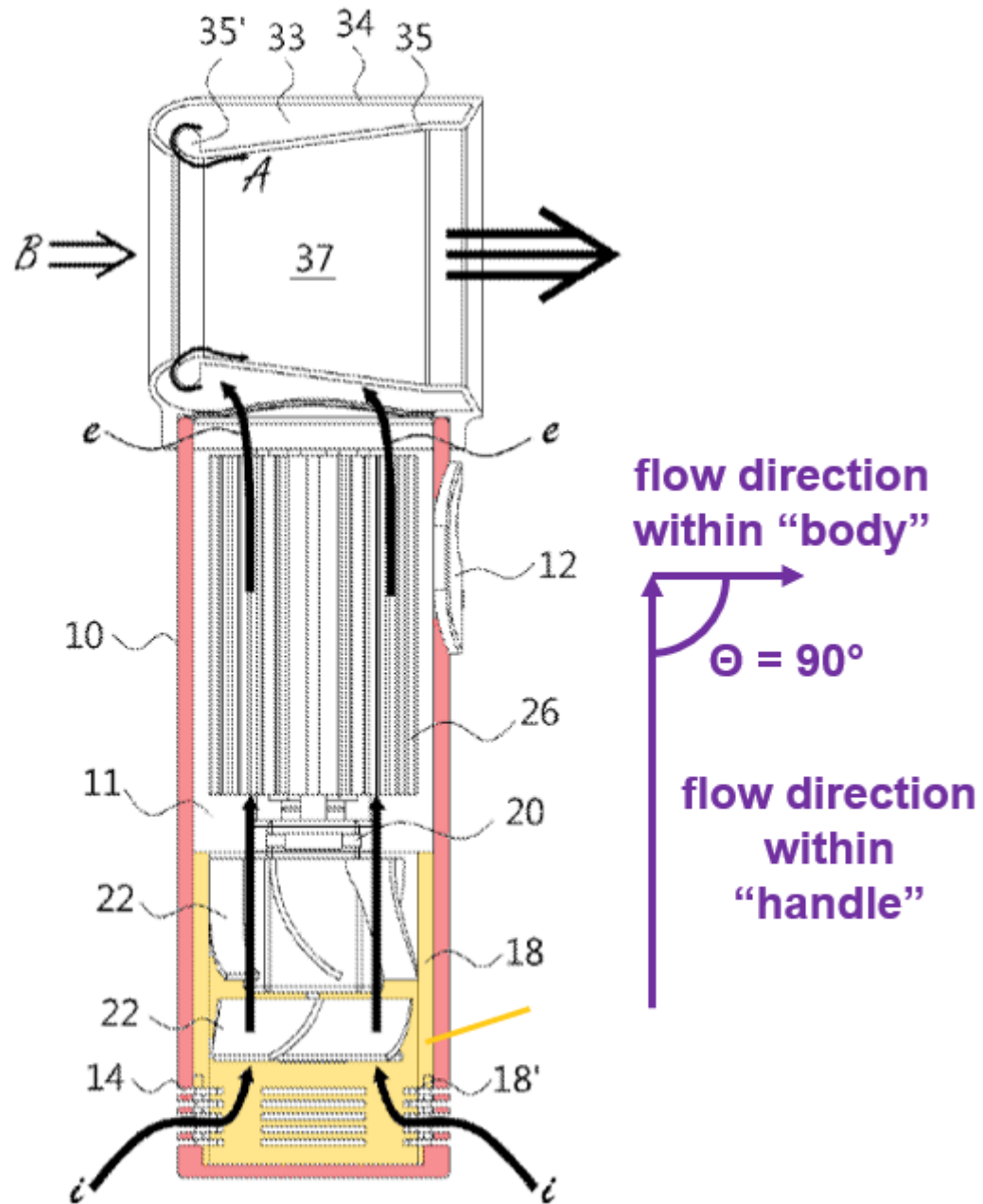


FIG. 5

Ex. 1004, Fig. 5 (annotations added). Accordingly, Jeong discloses the additional limitation of dependent claim 27. Ex. 1003, ¶89.

c. Claim 28

“The appliance of claim 26, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.”

Jeong discloses this limitation. Ex. 1003, ¶90. As explained above with respect to element [26e], Jeong’s primary fluid flow path (*i.e.*, the airflow path through the housing 10 and motor housing 18, the discharge slit 36, and the discharge hole 38) changes by approximately 90 degrees:

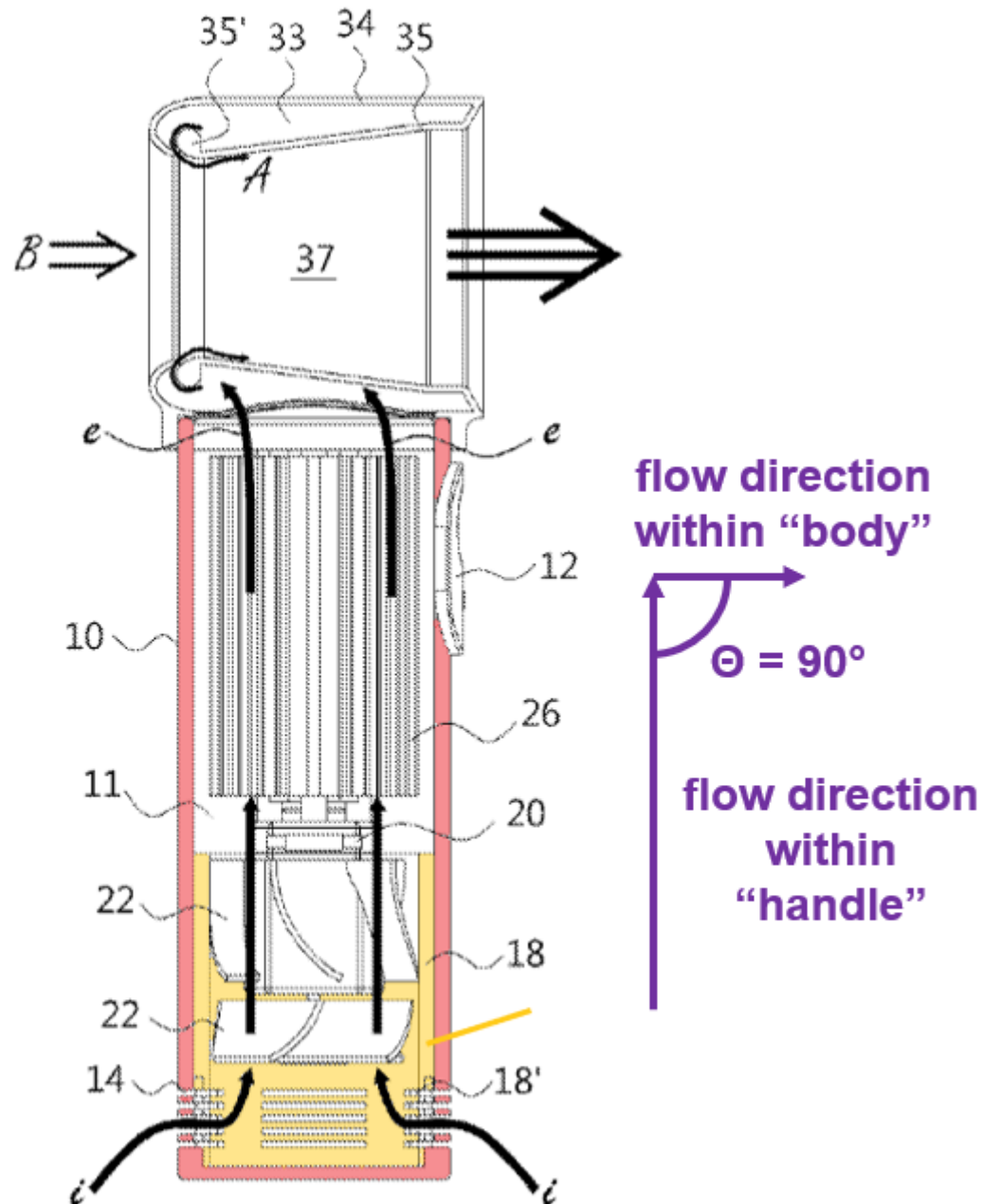


FIG. 5

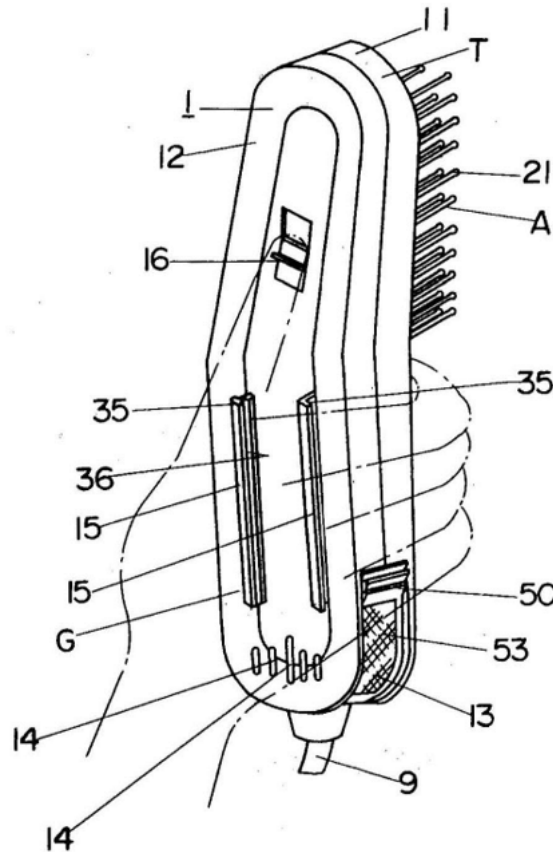
Ex. 1004, Fig. 5 (annotations added). Because the angle between Jeong's airflow path is approximately 90 degrees (*i.e.*, the directions are perpendicular), it is

“substantially orthogonal” as required by this claim. Accordingly, Jeong discloses the additional limitation of dependent claim 28. *Id.*, ¶¶91–92.

B. Ground 2: Anticipation by Yoshida

1. Summary of Yoshida

As depicted below in Figure 5, Yoshida discloses “a hair dryer, and more particularly to a hair dryer having a hair brush-like or cylindrical shape, so that the hair can be easily curled”:



Ex. 1005, 47, Fig. 5.⁵ Specifically, the hair dryer described in Yoshida houses “a motor, a fan and a heater inside,” as well as a “heater enclosing frame 5” that includes “a partition plate 55 inclined toward the front side toward the tip in order to change the direction of the air that has passed through the heater 2 portion from the axial direction to the front” of the hair dryer. *Id.*, 49.

2. Detailed Analysis of Ground 2

As supported by the Nosenchuck Declaration, Yoshida anticipates claims 26–28 of the ’662 patent, and therefore invalidates those claims.

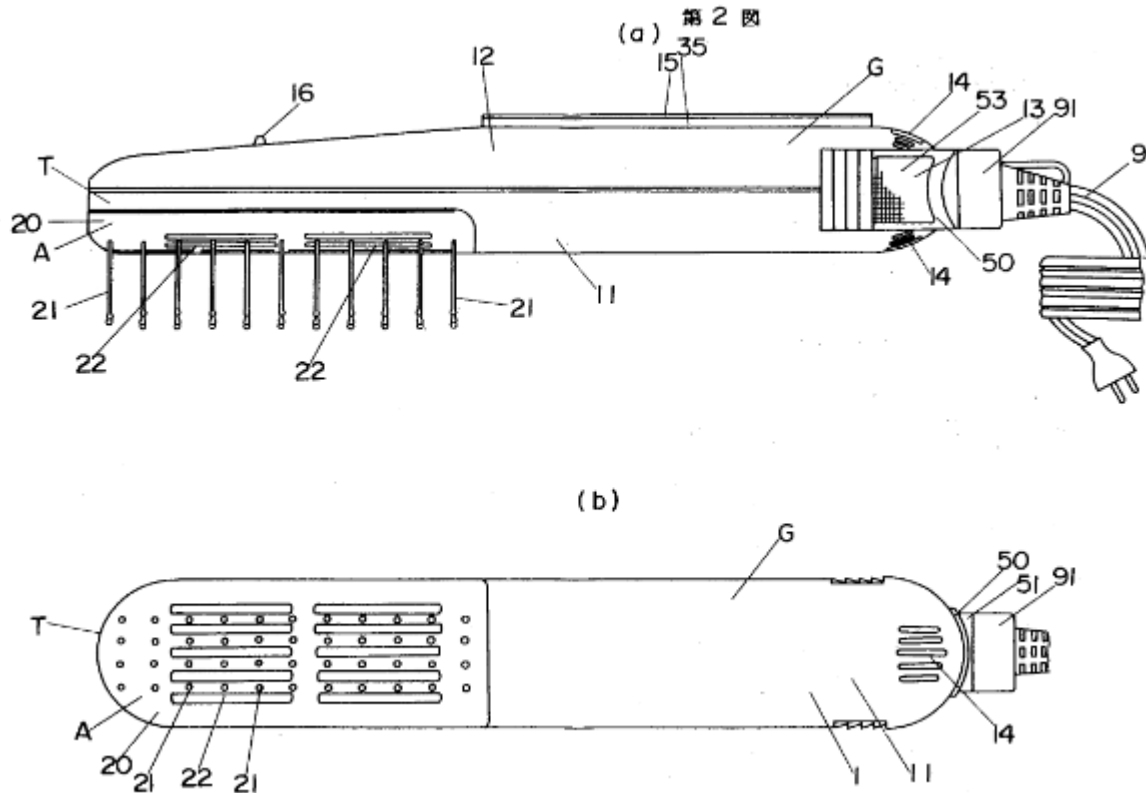
a. Claim 26

1) Element [26pre]

“A hair care appliance comprising”

To the extent the preamble of claim 26 is limiting, Yoshida discloses it. Ex. 1003, ¶95. Yoshida discloses “a hair dryer.” Ex. 1005, 48. More specifically, Yoshida discloses “[a] hair dryer in which a motor, a fan, and a heater are housed in an air passage in a cylindrical housing,” as shown in Figure 2 of Yoshida. *Id.*, 48.

⁵ All citations to individual pages of Yoshida refer to the certified English translation included in Ex. 1005.

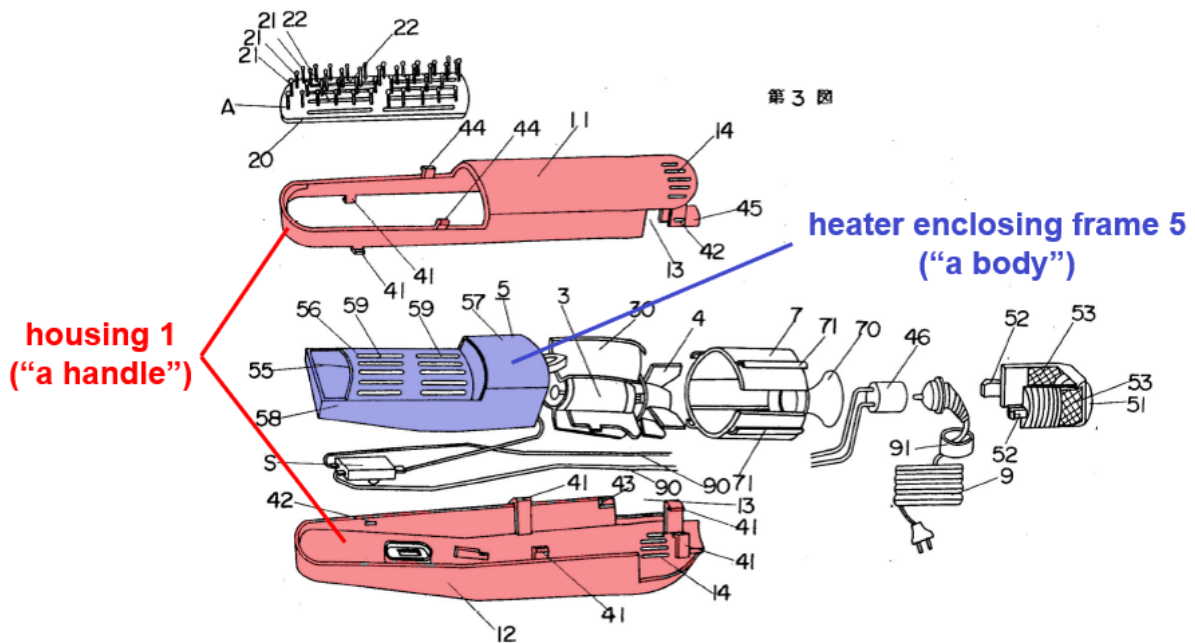


Id., Figs. 2(a) and 2(b).

2) Element [26a]

“a body and a handle”

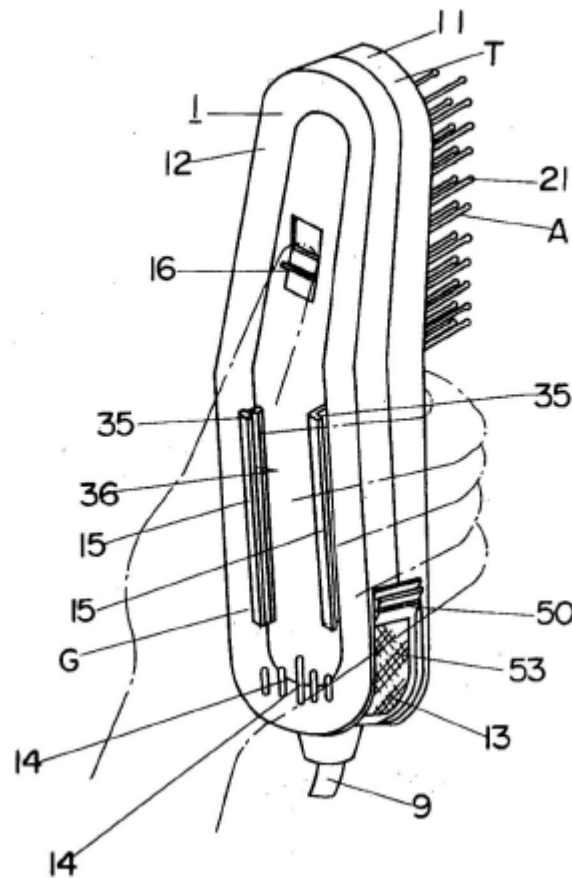
Yoshida discloses this limitation. Ex. 1003, ¶¶96–97. Specifically, Yoshida discloses a “heater enclosing frame 5” (*i.e.*, “a body”) that is incorporated within a “housing 1” that is constituted of a “pair of halves 11 and 12” and includes a cylindrical wind tunnel 7 therein (*i.e.*, together, “a handle”). Ex. 1005, 48–49.



Id., Fig. 3 (annotations added).

Yoshida’s “heater enclosing frame 5” includes a “partition plate 55” that serves as “an air blow guide” and a “front plate 56” that includes “a large number of slit-shaped discharge ports 59” that are “positioned at the opening on the front side of the front end of the housing 1.” *Id.*, 49. The air that flows “into the housing . . . is guided by the partition plate 55 of the heater surrounding without being heated,” and the air is then “blown forward through an air outlet composed of the outlet 59 of the front plate 56 arranged on the front surface of the housing 1 and the slit 22 of the attachment A.” *Id.*, 49. Accordingly, Yoshida discloses “a body” as required by limitation [26a]. Ex. 1003, ¶98.

As shown in Figure 3 above, Yoshida's housing 1 is "composed of a combination of a front side half 11 and a rear side half 12," and the "housing 1 has a rectangular cross-section." Ex. 1005, 48. Further, a "grip section G is formed on the rear end side half portion." *Id.* Moreover, and as shown in Figure 5, which depicts a hand using the grip section G and housing 1 as a handle, an "operation plate 16 is positioned on the rear side of the housing 1," that can be "used by gripping the grip section G, which is one half portion on the rear end side of the housing 1, . . . [and] since it is located at the tip of the grip part G, operating the switch with a thumb is easy." *Id.*, 49; *see also id.* ("This hair dryer is used by gripping grip section G and operating the operation plate 16 located in front of the grip section G and behind the hair styling section T, while switching the switch S.").

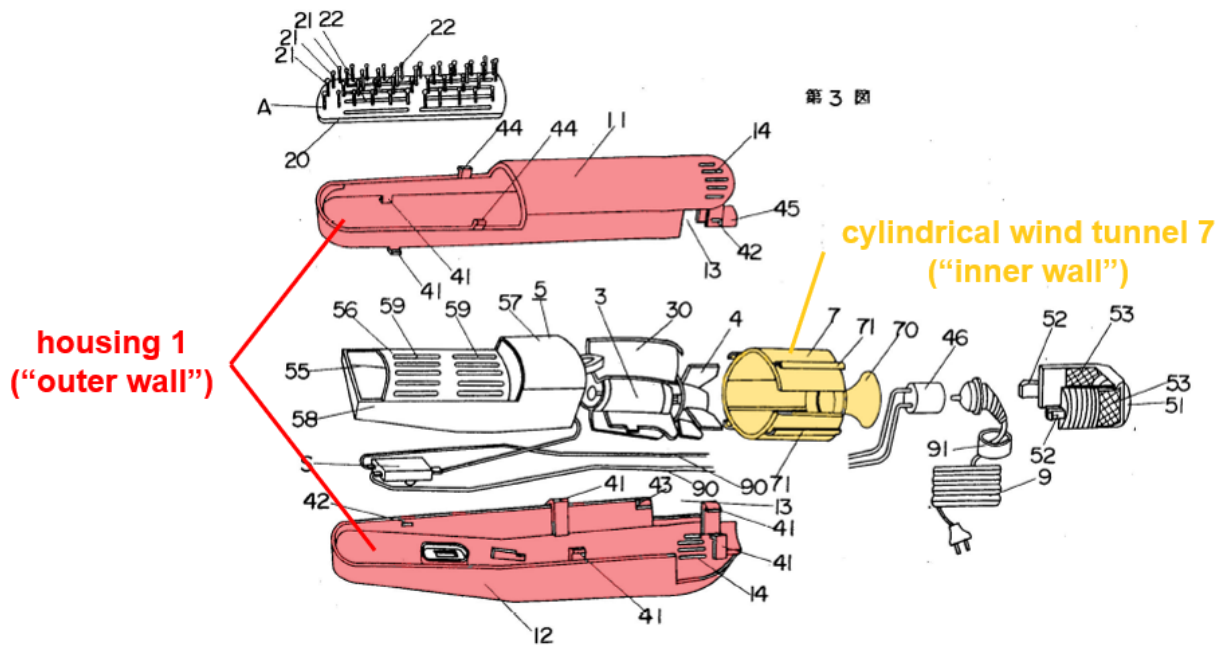


Ex. 1003, ¶¶99–100.

“the handle comprising an inner wall and an outer wall”

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composed of of front side half 11 and rear side half 12, and includes a cylindrical wind tunnel 7 within (*i.e.*, “the handle”). Ex. 1005, 48. As shown in Figure 3, the “pair of halves 11 and 12 constituting the housing 1 are provided with hooks 41 [engaging] locking grooves 42, respectively, provided at the front end, middle, and rear end of the housing 1,” and a heater 2, motor 3, and fan 4 are all provided within the housing 1. *Id.*, 48 (alteration in original).



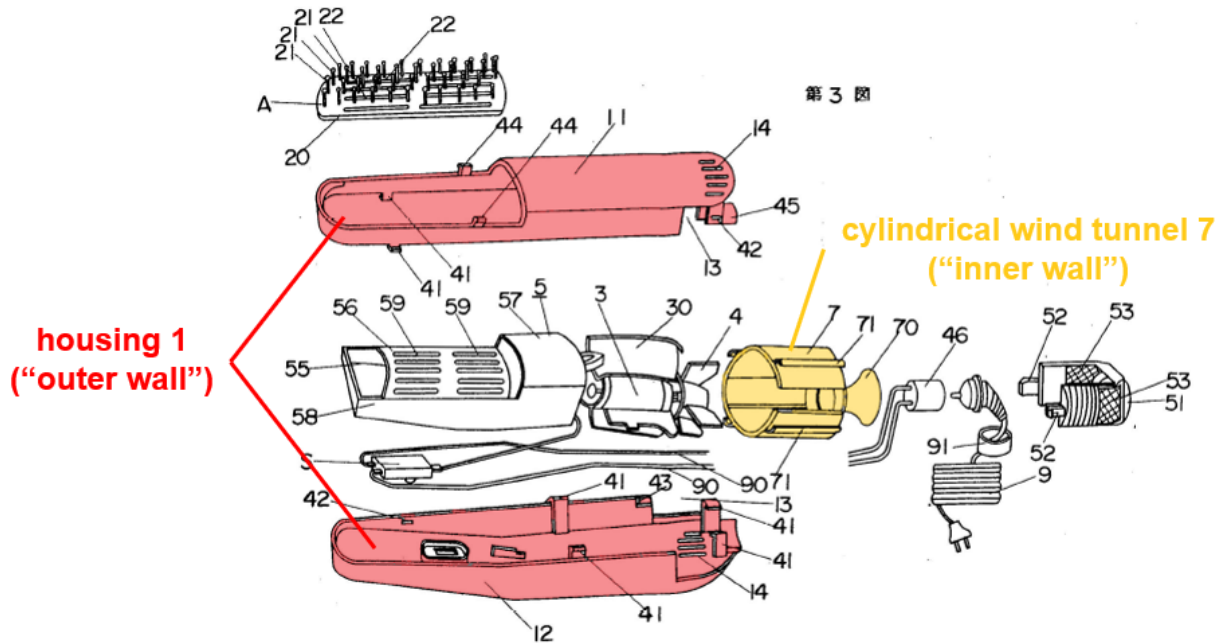
Id., Fig. 3 (annotations added). As shown in Figure 3 above, Yoshida’s housing 1 comprises an “outer wall” of the hair dryer. Ex. 1003, ¶102. Likewise, cylindrical wind tunnel 7, which is disposed within housing 1, comprises an “inner wall” as required by element [26b]. *Id.*, ¶103. Yoshida explains that the “cylindrical wind tunnel 7 surrounding the fan 4 is provided because the cross-section shape of the housing 1 is rectangular and the air blowing efficiency is low if left as it is.” Ex.

1005, 48. The cylindrical wind tunnel 7 includes an integrally formed “suction ring 70 . . . for directing the air flowing in from the suction ports 13 and 14 in the axial direction,” as well as “supporting ribs 71” which contact the inner surface of the housing 1. *Id.*, 48–49. Accordingly, Yoshida discloses “the handle comprising an inner wall and an outer wall” as required by element [26b]. Ex. 1003, ¶¶102–03.

4) Element [26c]

“wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance”

Yoshida discloses this limitation. Ex. 1003, ¶104. As explained above with respect to element [26b], Yoshida’s cylindrical wind tunnel 7 (*i.e.*, “the inner wall”) is provided within the housing 1 and includes “supporting ribs 71” that contact the inner surface of the housing 1. Ex. 1005, 48–49. As shown in Figure 3, the cylindrical wind tunnel 7 is disposed radially inwardly from the pair of halves 11 and 12 that comprise the housing 1:

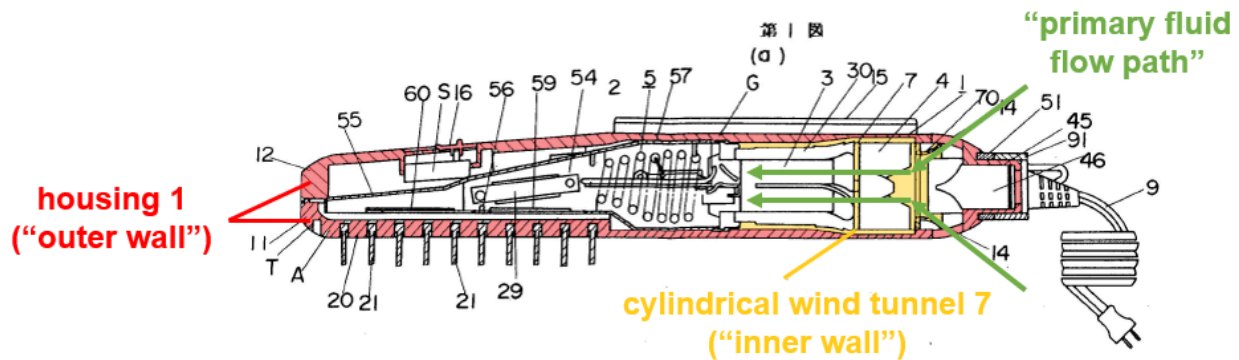


Id., Fig. 3 (annotations added); *see* Ex. 1003, ¶105.

Yoshida’s cylindrical wind tunnel 7, including the integrally formed suction ring 70 (*i.e.*, “the inner wall”) defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, as required by element [26c]. *See* Ex. 1003, ¶106. Yoshida explains that air flows “into the housing 1 from the suction ports 13 and 14 located at the rear end of the housing 1” (*i.e.*, “a primary fluid inlet into the appliance”). Ex. 1005, 49. Yoshida notes that the “cylindrical wind tunnel 7 surrounding the fan 4 is provided because the cross-sectional shape of the housing 1 is rectangular and the air blowing efficiency is low if left as it is,” and that the “suction ring 70 is integrally formed at one end in the axial direction for directing the air flowing in from the suction ports 13 and 14 in the axial direction.” *Id.*, 48. Further, because “the suction port 14 is likely to be covered by the palm of the hand

gripping the grip section G,” the suction ports 14 “are slit-shaped and formed as a supplementary one with a small opening area,” whereas the “[t]he opening areas of the suction ports 13, which are located on both sides of the housing 1 and are difficult to cover with a hand, are much larger than that of the suction ports 14.” *Id.*, 49.

Yoshida further explains that the air “flowing into the housing 1 from the suction ports 13 and 14” is “guided by the partition plate 55 of the heater enclosing frame 5,” and then, the air “is blown forward through an air outlet composed of the outlet 59 of the front plate 56 arranged on the front surface of the housing 1 and the slit 22 of the attachment A.” *Id.*, 49. This primary fluid flow path is shown in the annotated Figure 1(a):



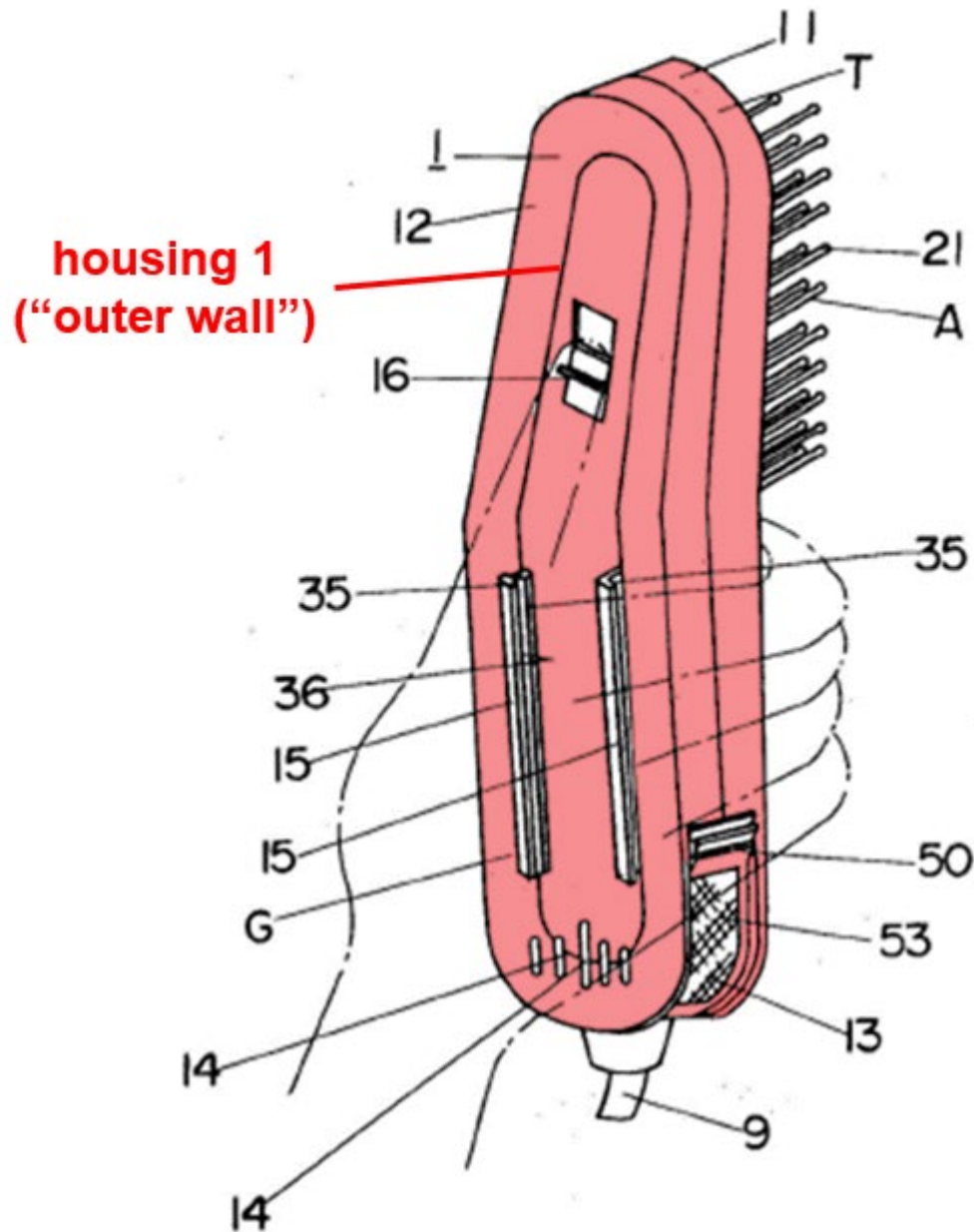
Id., Fig. 1(a). Accordingly, Yoshida discloses “wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance” as required by element [26c]. Ex. 1003, ¶107.

5) Element [26d]

“wherein the outer wall is an external surface of the handle”

Yoshida discloses this limitation. Ex. 1003, ¶108. As explained above with respect to element [26a], Yoshida’s housing 1 (*i.e.*, “the handle”) is “composed of a combination of a front side half 11 and a rear side half 12,” and “[a] grip section G is formed on the rear end side half portion.” Ex. 1005, 48. As shown in Figure 5, the housing 1 is gripped when the hair dryer is in operation:

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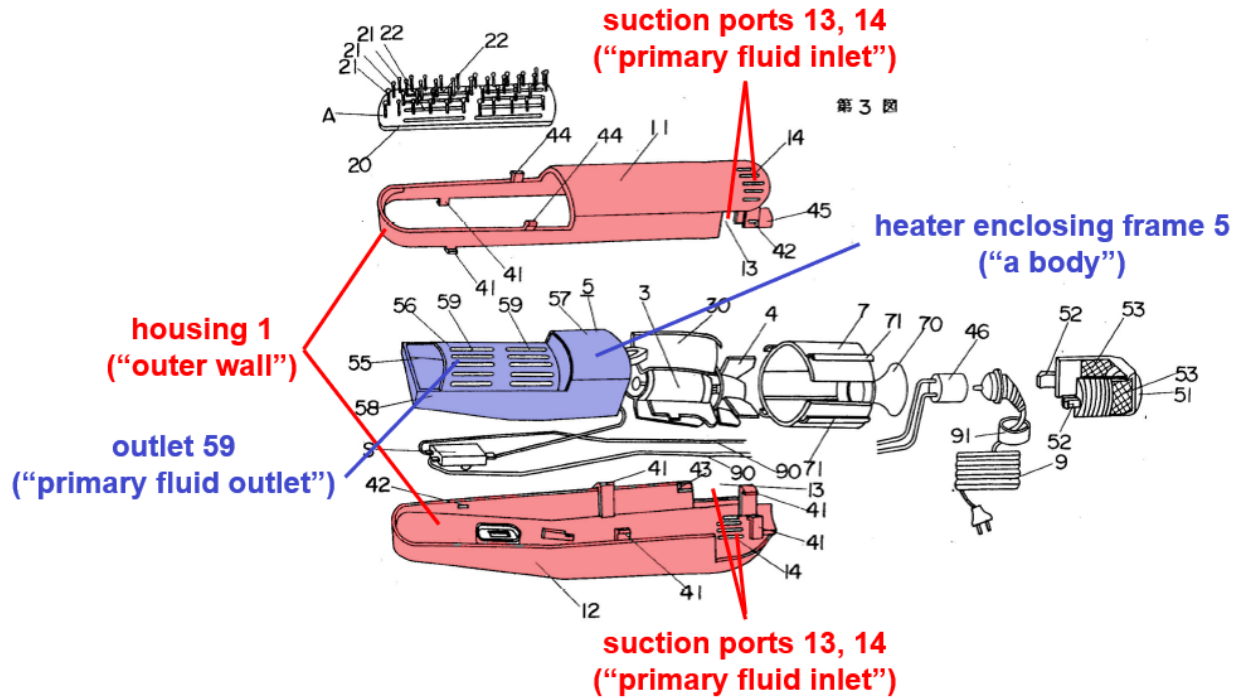


Id., Fig. 5 (annotations added). Accordingly, Yoshida discloses “wherein the outer wall is an external surface of the handle” as required by element [26d]. Ex. 1003, ¶¶109.

6) Element [26e]

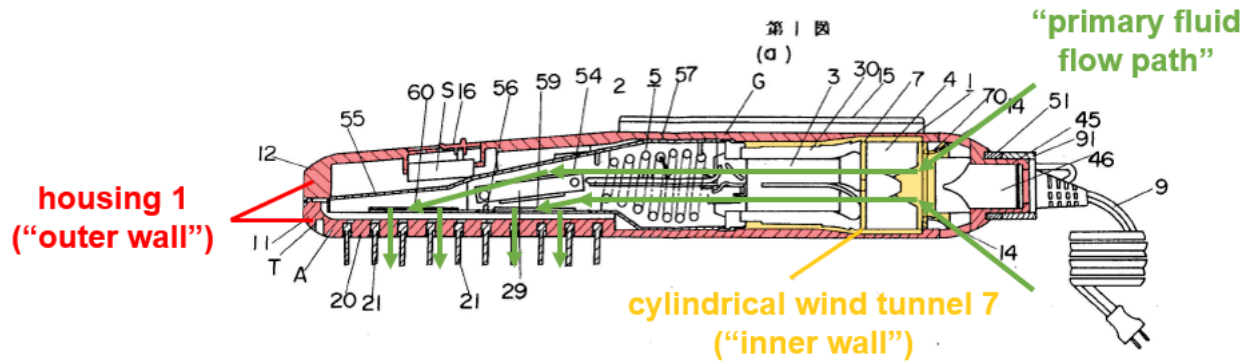
“wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.”

Yoshida discloses this limitation. Ex. 1003, ¶110. As explained above with respect to element [26c], air flows “into the housing 1 from the suction ports 13 and 14 located at the rear end of the housing 1.” Ex. 1005, 49. Accordingly, the “suction ports 13 and 14” comprise “a primary fluid inlet.” Ex. 1003, ¶111. Likewise, and as explained above with respect to element [26a], the air that flows into the housing “is guided by the partition plate 55 of the heater enclosing frame 5,” and the air is then “blown forward through an air outlet composed of the outlet 59 of the front plate 56 arranged on the front surface of the housing 1 and the slit 22 of attachment A” (*i.e.*, “a primary fluid outlet from the body”). *Id.*, 49. The suction ports 13 and 14, partition plate 55, and outlet 59 are all depicted in Figure 3:

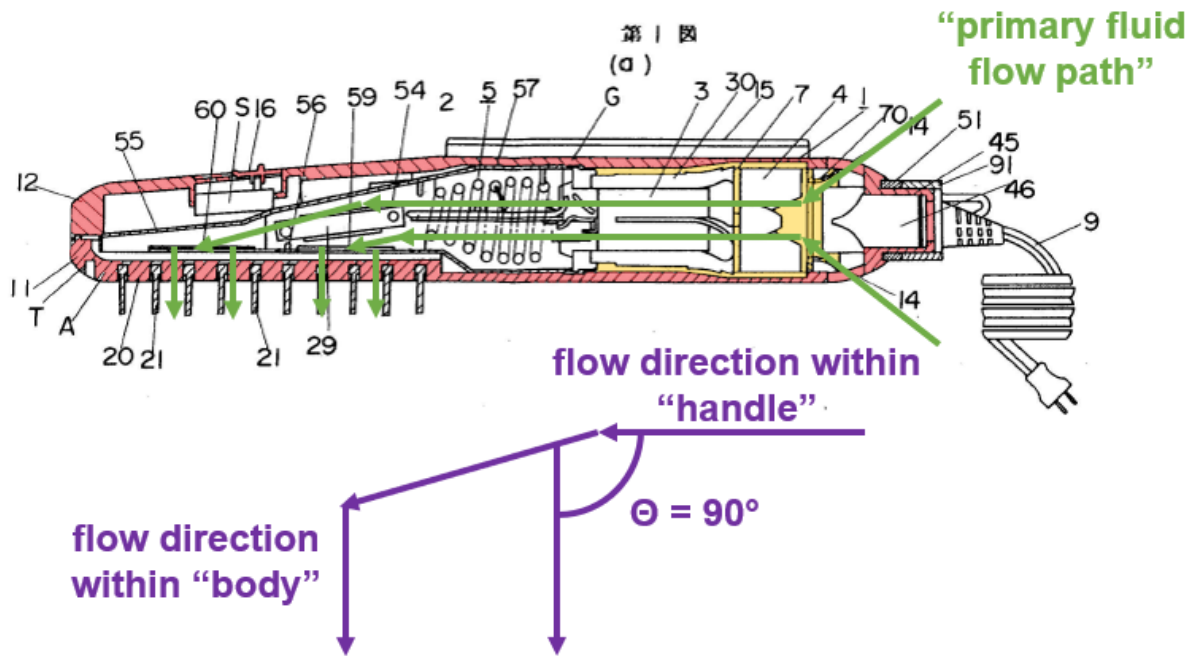


Ex. 1005, Fig. 3 (annotations added).

As explained above with respect to element [26c], "the air flowing into the housing 1 from the suction ports 13 and 14" is "guided by the partition plate 55 of the heater enclosing frame 5," and then, the air "is blown forward through an air outlet composed of the outlet 59 of the front plate 56 arranged on the front surface of the housing 1 and the slit 22 of the attachment A," which is a "primary fluid flow path" as required by element [26e]:



Id., 49; Fig. 1(a) (annotations added). As shown in the annotated Figure 1(a) above, Yoshida's primary fluid flow path (*i.e.*, the airflow path through the suction ports 13 and 14 into the housing 1 and cylindrical wind tunnel 7, into the heater enclosing frame 5, and the outlets 59) is "non linear" as required by element [26e], because the airflow is deflected by the partition plate 55 of the heater enclosing frame 5 (*i.e.*, "the body") by approximately 20 degrees and ultimately discharged from the outlets 59 at a 90 degree angle with respect to the airflow path within the housing 1 and the cylindrical wind tunnel 7 (*i.e.*, "the handle"):

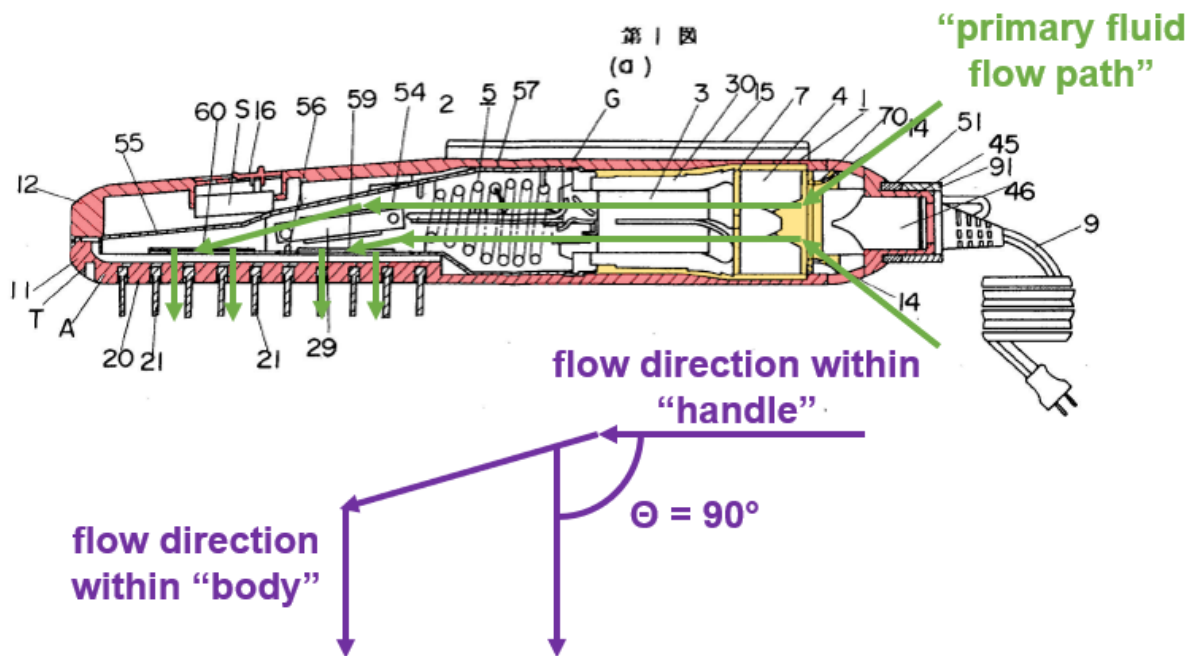


Id., Fig. 1(a) (annotated). Accordingly, Yoshida discloses “wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear” as required by element [26e]. Ex. 1003, ¶112.

b. Claim 27

“The appliance of claim 26, wherein the primary fluid flows within the handle in a first direction and within the body in a second direction.”

Yoshida discloses this limitation. Ex. 1003, ¶113. As explained above with respect to element [26e], Yoshida’s primary fluid flow path (*i.e.*, the airflow path through the suction ports 13 and 14 into the housing 1 and cylindrical wind tunnel 7, into the heater enclosing frame 5, and the outlets 59) changes by approximately 90 degrees:

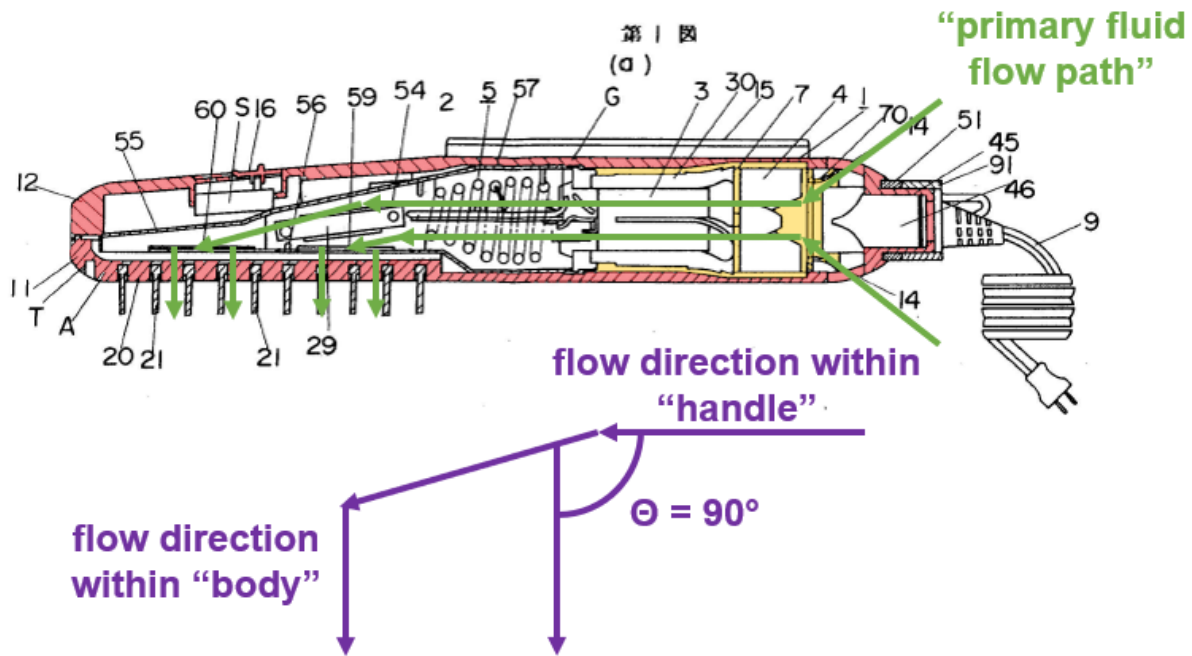


Id., Fig. 1(a) (annotated). Accordingly, Yoshida discloses the additional limitation of dependent claim 27. Ex. 1003, ¶114.

c. Claim 28

“The appliance of claim 26, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.”

Yoshida discloses this limitation. Ex. 1003, ¶115. As explained above with respect to element [26e], Yoshida’s primary fluid flow path (*i.e.*, the airflow path through the suction ports 13 and 14 into the housing 1 and cylindrical wind tunnel 7, into the heater enclosing frame 5, and the outlets 59) changes by approximately 90 degrees:



Id., Fig. 1(a) (annotated). Because the angle between Yoshida’s airflow path is approximately 90 degrees (*i.e.*, the directions are perpendicular), it is “substantially orthogonal” as required by this claim. Accordingly, Yoshida discloses the additional limitation of dependent claim 28. Ex. 1003, ¶116–17.

C. Grounds 3, 4, and 5: Anticipation by Jeffs or Obviousness Over Jeffs in View of Either Jeong or Yoshida

1. Overview of Grounds

Ground 3. As explained in detail below, the Jeffs reference discloses all of the structural limitations of the Challenged Claims, and is an appliance. Further, the preamble of claim 26 is not limiting, because it “merely states the purpose or intended use of [the] invention”: hair care. *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 952 (Fed. Cir. 2006).

“Generally, the preamble does not limit the claims,” and that general principle applies here. *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002). The term “hair care” appears only in the preamble of claim 26 of the ’662 patent, and is entirely absent from its dependent claims. For example, although claim 26 recites a “hair care appliance,” each of its dependent claims recites “[t]he appliance of claim 26.” The consistent, repeated absence of the phrase “hair care” in the dependent claims would have indicated to a person of ordinary skill in the art that the drafter of the Challenged Claims clearly did not intend the preamble phrase “hair care” to be limiting of the structure of the claimed invention. *See* Ex. 1003, ¶¶120–22. Indeed, the Federal Circuit has long held that where the “claim body describes a structurally complete invention such that deletion of the preamble phrase does not affect the structure or steps of the claimed invention,” as is true for the Challenged Claims, the preamble is not limiting. *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 809 (Fed. Cir. 2002).

Without the “hair care” preamble phrase, Element 26[pre] recites “[a]n appliance,” a generic term signaling an apparatus claim. Thus, because Jeffs discloses an appliance, Jeffs anticipates the Challenged Claims. *See* Ex. 1003, ¶123.

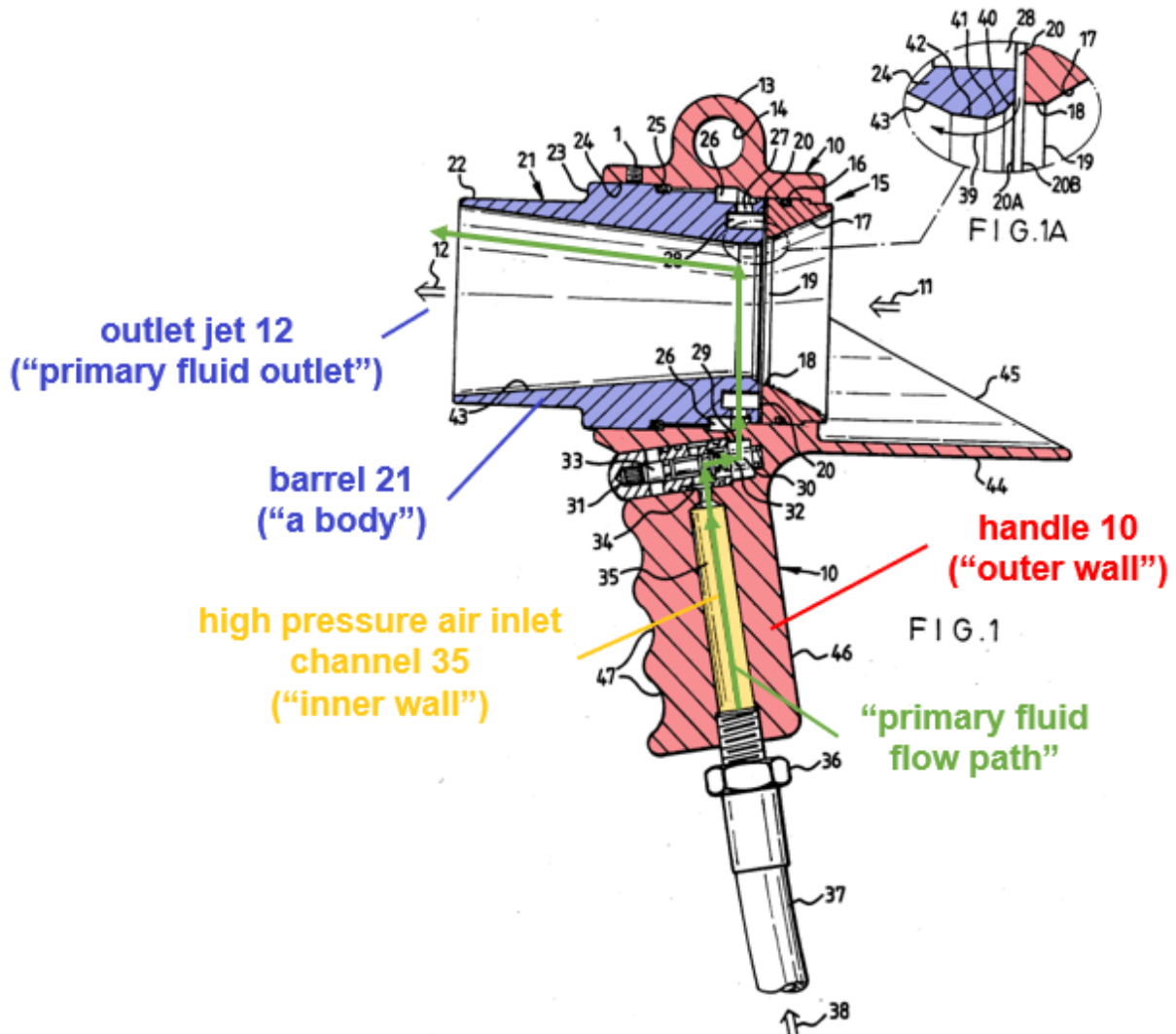
Grounds 4 and 5. Alternatively, to the extent that the Board determines that the preamble of claim 26 is limiting, Ground 4 combines Jeffs with Jeong, and Ground 5 combines Jeffs with Yoshida. As explained above in Grounds 1 and 2,

both Jeong and Yoshida disclose a hair dryers, and demonstrate that it would have been obvious to a POSITA to utilize the Jeffs “hand-held air blower device” as a hair care appliance. *See* Ex. 1003, ¶124.

Like Jeong and Yoshida, Jeffs relates to a “hand-held air blower device.” Ex. 1006, Abstract. Unlike Jeong and Yoshida, which are directed to hair dryers, the Jeffs blower is describe as “particularly useful in accelerating the drying of intermediate and final coats of water-borne coatings for example during the re-painting of road vehicles.” *Id.*, 1:6–10. In particular, Jeffs discloses “a hand-held air blower device for directing a jet of air in a desired direction,” which is “capable of being readily re-directed and re-positioned by the operator.” *Id.*, 2:19–20. The Jeffs blower device comprises:

a barrel having a barrel having a longitudinal axis between an upstream end and a downstream end thereof, the barrel having a low pressure air inlet at the upstream end for admitting air at atmospheric pressure and an outlet at the downstream end for the jet of air, and the barrel having a high pressure air inlet for injecting high pressure air into the barrel at a region intermediate its ends; a handle connected to the barrel for holding the air blower device; and means for connecting a source of high pressure air to the blower device.

Id., 2:20–30. These features are depicted in Figure 1, which is a longitudinal section through a hand-held air blower device embodying the Jeffs invention:



Id., 3:3–4; Fig. 1.

2. Detailed Analysis of Grounds 3, 4, and 5

a. Claim 26

1) Element [26pre]

“A hair care appliance comprising”

Ground 3. Jeffs discloses an appliance in that it discloses “a hand-held air blower device for directing a jet of air in a desired direction,” which is “capable of being readily re-directed and re-positioned by the operator.” Ex. 1006, 2:19–20. As discussed above, the phrase “hair care” in the preamble is not limiting. Preamble language that merely states the purpose or intended use of an invention is generally not treated as limiting the scope of the claim.” *Bicon*, 441 F.3d at 952. The preamble of claim 26 does not “recite[] essential structure,” and the “body of the claim ‘sets out the complete invention,’” and should therefore not be treated as limiting the scope of the claim. *Id.* (quoting *Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1310 (Fed. Cir. 2002)); *see* Ex. 1003, ¶¶120–23.

Grounds 4 and 5. If the Board disagrees and finds that the phrase “hair care” is limiting, it would have been obvious to a POSITA in light of either Jeong or Yoshida that the “hand-held air blower device” disclosed in Jeffs would have been used as a “hair care appliance.” Ex. 1003, ¶124.

As explained above in Grounds 1 and 2, both Jeong and Yoshida disclose hair dryers that are structurally similar to the Jeffs “hand-held air blower device,” and

perform the same function: they blow air. *See* Ex. 1003, ¶125. The difference between the descriptions of the Jeffs blower device and the Jeong and Yoshida hair dryers is merely the respective intended uses. *Id.*, ¶126.

Indeed, the Jeffs air blower device is operated in a similar fashion to a conventional hair dryer:

In use, the operator holds the device as he or she would a pistol, directs the outlet air flow in the desired direction over a surface to be dried, and at an appropriate distance from that surface, and depresses the button 31 to supply a jet of air for one or more periods, until he or she judges that the drying is complete.

Ex. 1006, 5:10–15; *see* Ex. 1003, ¶128. As explained by Dr. Nosenchuck, it would have been obvious to one of skill in the art to have used the Jeffs hand-held air blower as a hair care appliance for drying hair. Ex. 1003, ¶126.

Notably, the '662 patent suggests that blowers generally “are used for a variety of applications *such as drying substances such as paint* or hair and cleaning or stripping surface layers.” Ex. 1001, 1:17–19 (emphasis added). Thus, the '662 patent itself recognizes the use of air blowers (such as the Jeffs device) for diverse applications that are not limited to hair drying. *See* Ex. 1003, ¶129. Indeed, the '662 patent states that “[t]he invention has been described in detail with respect to a hairdryer and a hot styling brush however, it is applicable *to any appliance that*

draws in a fluid and directs the outflow of that fluid from the appliance.” Ex. 1001, 18:19–22.

A person of ordinary skill in the art would have been motivated to use the Jeffs air blower device as a hair care appliance in light of the structural and functional similarities between the Jeffs device and the appliances described in Jeong and Yoshida. *See* Ex. 1003, ¶¶124–26. As explained by Dr. Nosenchuck, because the evaporation rate (*i.e.*, drying rate) of wetted hair is generally increased with a convective flow of ambient, *unheated* air due to the enhanced mass diffusion rate of water into the continuously moving ambient air flow. Accordingly, a common feature of hair dryers is a “cool- or cold-shot button” which turns off the heating elements while maintaining the air flow. *Id.*, ¶130. A person of ordinary skill in the art would

have been motivated to use the Jeffs air blower as a hair dryer specifically in light of its lack of a heating element.⁶ *See id.*, ¶131.

Moreover, a person of ordinary skill in the art would have had a reasonable expectation of success in using the Jeffs air blower device as a hair care appliance, *i.e.*, to dry hair. Ex. 1003, ¶127. As explained by Dr. Nosenchuck, typical flow rates in hair dryers range from less than 20 CFM to over 70 CFM. *See id.* Jeffs provides a table of “flow rate performance” of its device that indicates that the output volume from the device would be within the 20–70 CFM range identified by Dr. Nosenchuck at the first two psig (pounds per square inch gauge) pressures in the table:

⁶ Although the ’662 patent describes the inclusion of a “heater 80” in its hair dryer, it is an *optional* element, and is not required by any of the Challenged Claims. *See* Ex. 1001, 1:22–23 (“[T]he fluid may be heated prior to exiting the body.”); *id.*, 11:31–33 (“In use, fluid is drawn into the primary fluid flow path 400 by the action of the fan unit 70, is optionally heated by the heater 80 and exits from the primary fluid outlet 400.”); 18:23–25 (“The appliance can be used with or without a heater; the action of the outflow of fluid at high velocity has a drying effect.”).

TABLE 1

psig	input volume cu.ft./min.	output volume cu.ft./min.	ratio input/output
25	3.66	62.5	17.0
30	4.25	70.9	16.7
35	4.67	74.1	15.9
40	5.26	86.8	16.4
45	5.94	93.2	15.7

Ex. 1006, 4:60–5:9, Tbl. 1. In any event, to the extent that a person of skill in the art would have desired a lower flow rate for the device, it would have been a “trivial matter” to decrease the supply pressure using a regulator. Ex. 1003, ¶127.

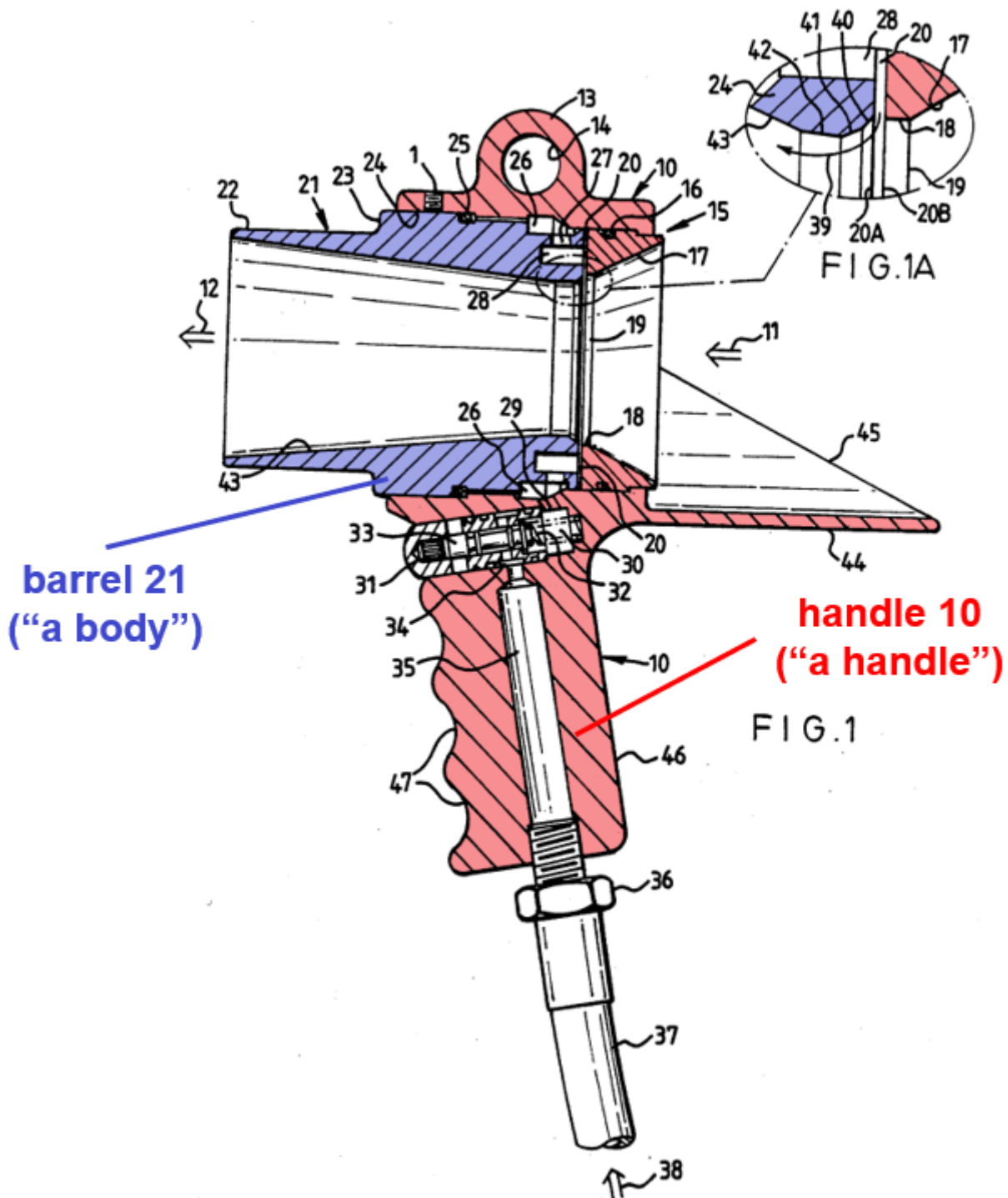
Further, Patent Owner implicitly recognized that prior art relating to non-haircare blower devices were material to the patentability of the claims of the ’662 patent. Specifically, the applicant submitted multiple prior art references describing non-hair care blower devices in its Information Disclosure Statements, including, for example, PCT Publication No. WO 83/02753 (“Skarsten”), which is entitled “Heated Gas Blower Device” and describes a “hot air blower” that “is suitable in one example for *paint stripping*.” Ex. 1009, Cover (emphasis added). The applicant likewise identified U.S. Patent Application No. 2010/0065545 (“Chung”), which is entitled “Heat Gun” and describes a device that “generates a flow of hot air for use in a variety of applications.” Ex. 1010, Cover, [0002].

In sum, it would have been obvious a person of ordinary skill in the art reading Jeffs and either Jeong or Yoshida that the Jeffs air blower device would have been readily utilized as a “hair care appliance,” *i.e.*, as a hair dryer. *See* Ex. 1003, ¶132–33.

2) Element [26a]

“a body and a handle”

Jeffs discloses this limitation. Ex. 1003, ¶134. Specifically, Jeffs discloses that “[t]he hand-held air blower device . . . consists of two interconnected body components: a handle 10 and a barrel 21,” *i.e.*, “a handle” and “a body” as required by element [26a], respectively. Ex. 1006 at 3:13–15. The handle 10 and barrel 21 are depicted, for example, in Jeffs’s Figure 1:



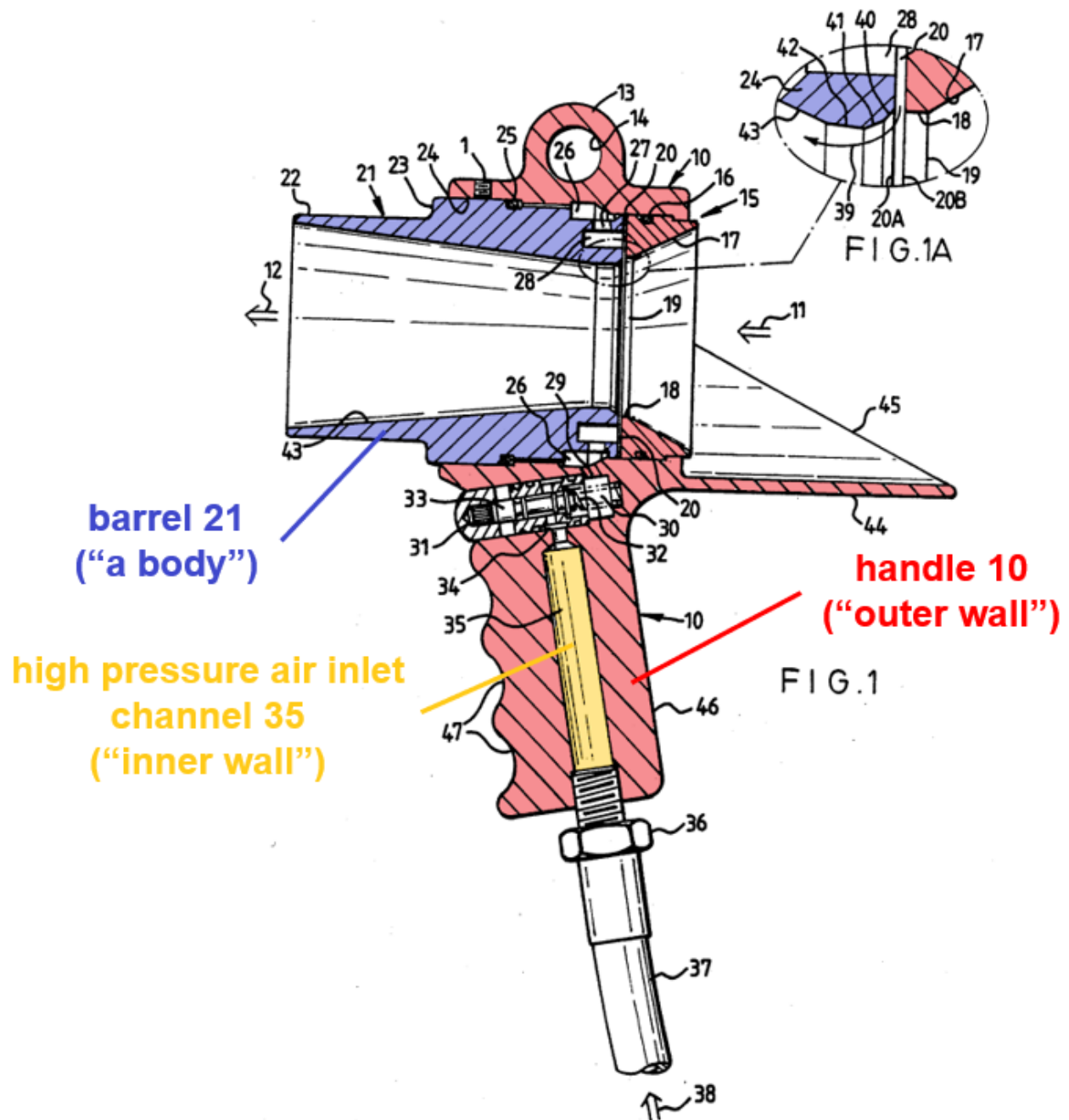
Id., Fig. 1 (annotations added). The Jeffs barrel 21 (*i.e.*, “the body”) “is intended to receive external air 11 at atmospheric pressure, to pass this through a throat portion of the barrel, to accelerate this air flow, and to provide an outlet jet 12 along the

longitudinal axis of the barrel.” *Id.* at 3:38–42. Accordingly, Jeffs discloses “a body and a handle” as required by limitation [26a]. Ex. 1003, ¶¶136–37.

3) Element [26b]

“the handle comprising an inner wall and an outer wall”

Jeffs discloses this limitation. Ex. 1003, ¶138. As explained above with respect to element [26a], the Jeffs “hand-held air blower device” includes a “handle 10. Ex. 1006 at 3:13–15. The “handle 10 has a pistol grip portion 46 with indentations 47 for receiving the fingers of the operator, and a push button 31 for operating a high pressure air inlet valve.” *Id.* at 3:19–22. Further, “[t]he pistol grip portion depends generally at 90° from a longitudinal axis of the barrel 21, so that the entire device resembles a pistol.” *Id.* at 3:23–25.



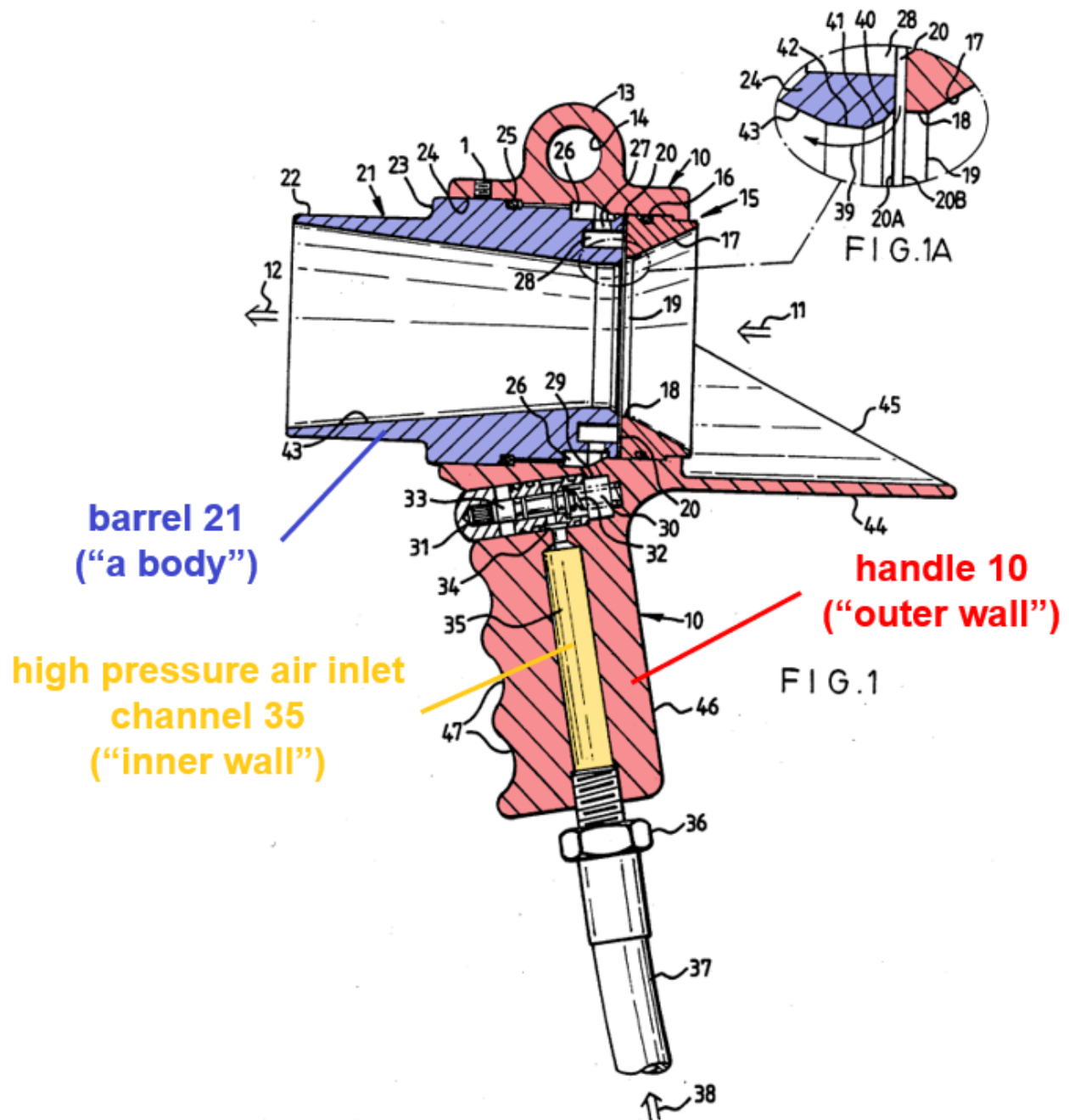
Id., Fig. 1 (annotations added). As shown in Figure 1 above, the Jeffs handle 10 comprises an "outer wall" by which the "hand-held air blower device" is hand-held during use. Ex. 1003, ¶139–40. Likewise, high pressure air inlet channel 35, which is disposed within the handle 10, comprises an "inner wall" as required by element

[26b]. Ex. 1006, 4:25–28. Jeffs explains that when the push button (or knob) 31 is depressed, “high pressure air 38 [is] conveyed along flexible hose 37 and union 36 to the channel 35 within the handle 10.” *Id.*, 4:28–31. Accordingly, Jeffs discloses “the handle comprising an inner wall and an outer wall” as required by element [26b]. Ex. 1003, ¶¶140–41.

4) Element [26c]

“wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance”

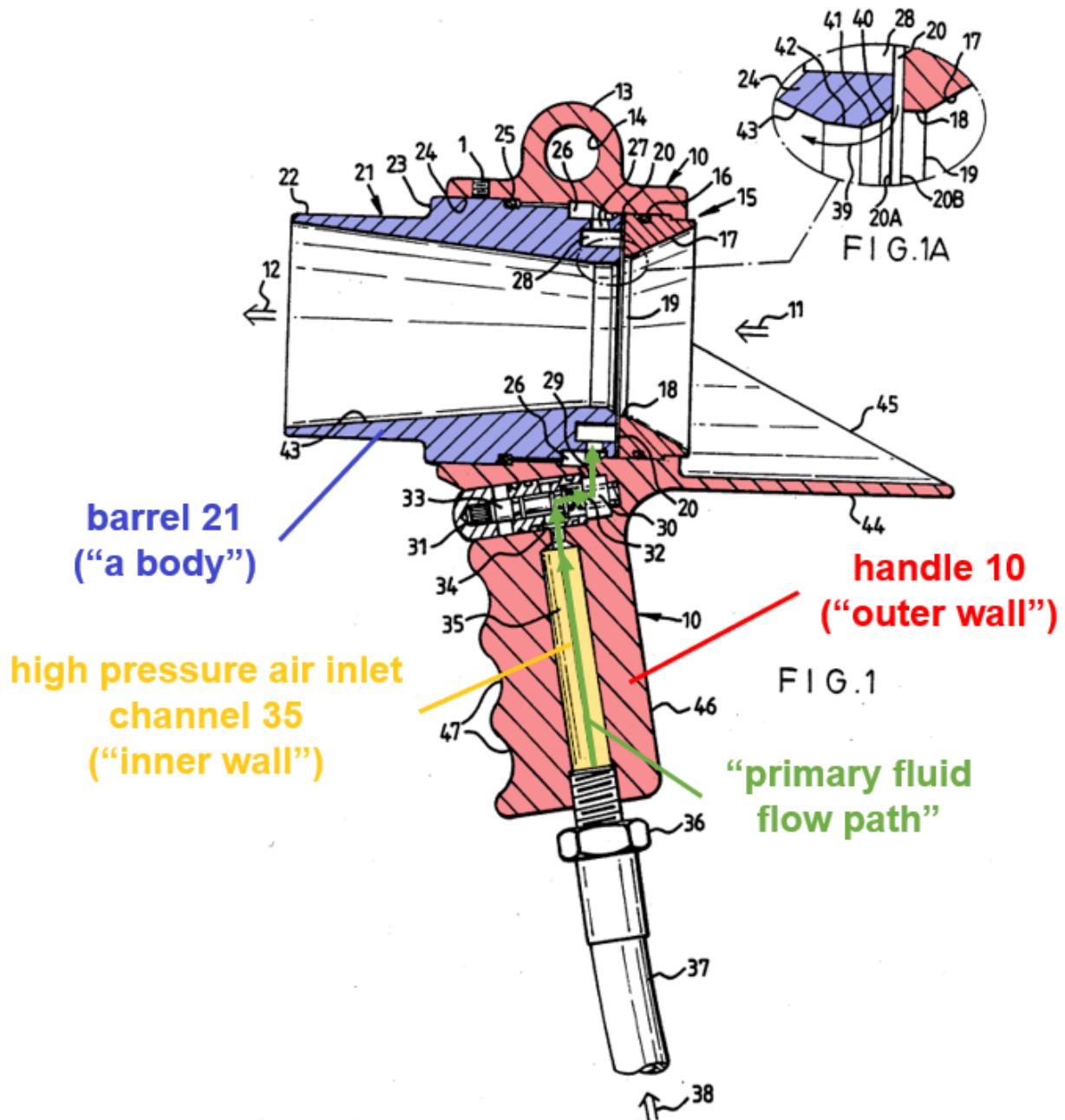
Jeffs discloses this limitation. Ex. 1003, ¶142. As explained above with respect to element [26b], Jeffs’s high pressure air inlet channel 35 (*i.e.*, “the inner wall”) is provided “within the handle.” Ex. 1006, 4:25–31. As shown in Figure 1, the channel 35 is disposed radially inwardly from the pistol grip portion 46 of the handle 10:



Id., Fig. 1 (annotations added).

The high pressure air inlet channel 35 (*i.e.*, “the inner wall”) defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, as required by element [26c]. *See* Ex. 1003, ¶144. Jeffs explains that “high pressure air 38 [is]

conveyed along flexible hose 37 and union 36” (*i.e.*, “a primary fluid inlet into the appliance”). Ex. 1006, 4:28–31. The air flows from the union 36 “to the channel 35 within the handle 10, [and] reaches the inner chamber 30.” *Id.* Then, “[f]rom the inner chamber 30, the high pressure air emerges through channel 29 to the barrel chambers 26 and 28, where it then emerges through the inlet slot 20. *Id.* at 4:31–34. This primary fluid flow path is shown in the annotated Figure 1:

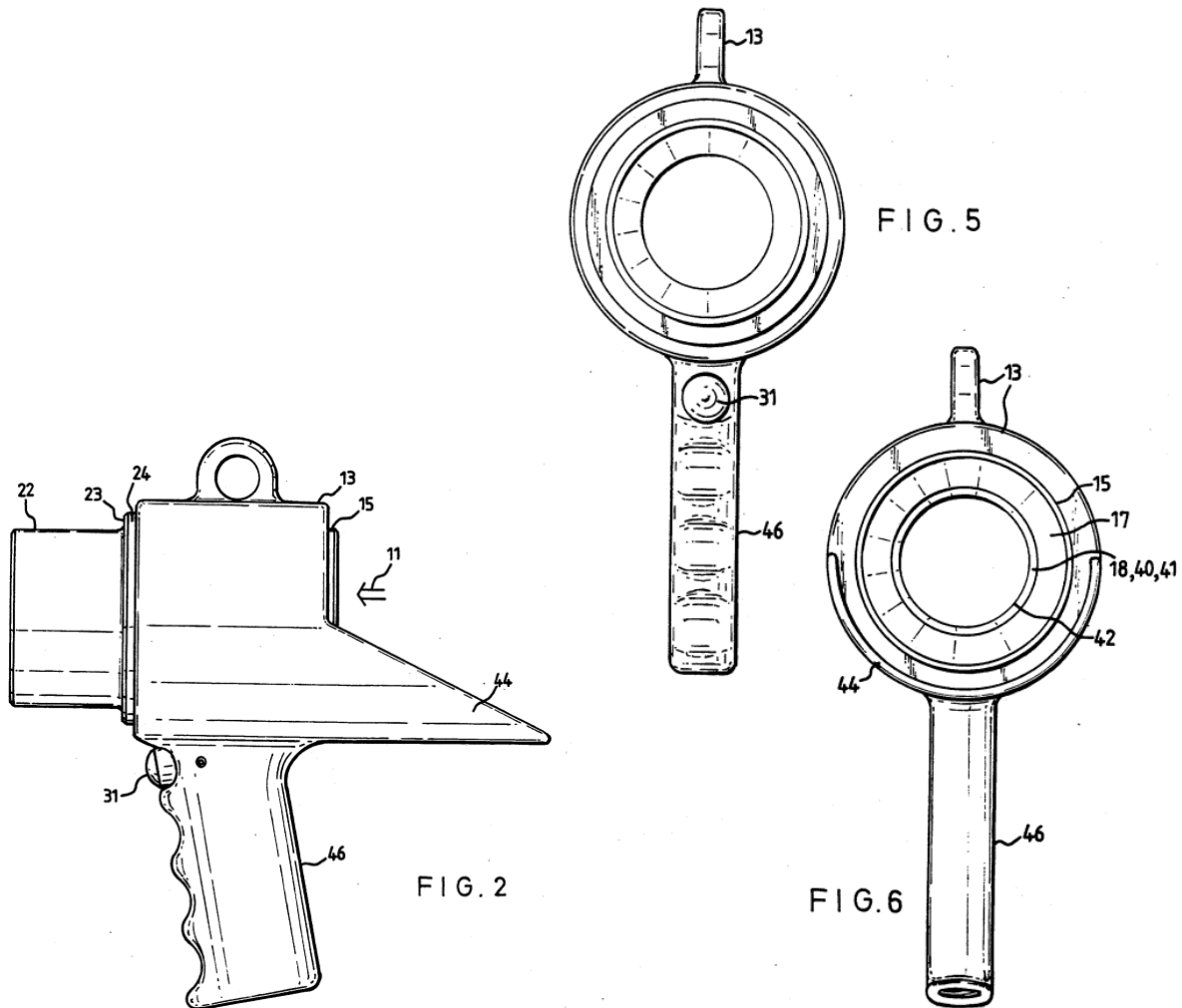


Id., Fig. 1. Accordingly, Jeffs discloses “wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance” as required by element [26c]. Ex. 1003, ¶145.

5) Element [26d]

“wherein the outer wall is an external surface of the handle”

Jeffs discloses this limitation. Ex. 1003, ¶146. As explained above with respect to element [26a], Jeffs’s handle “has a pistol grip portion 46 with indentations 47 for receiving the fingers of the operator, and a push button 31 for operating a high pressure air inlet valve.” *Id.* at 3:19–22. Further, “[t]he pistol grip portion depends generally at 90° from a longitudinal axis of the barrel 21, so that the entire device resembles a pistol.” *Id.* at 3:23–25. Figures 2, 5, and 6 all depict the pistol grip portion of Jeffs’s handle 10 as comprising an outer wall that is an external surface, from side, front, and rear views:



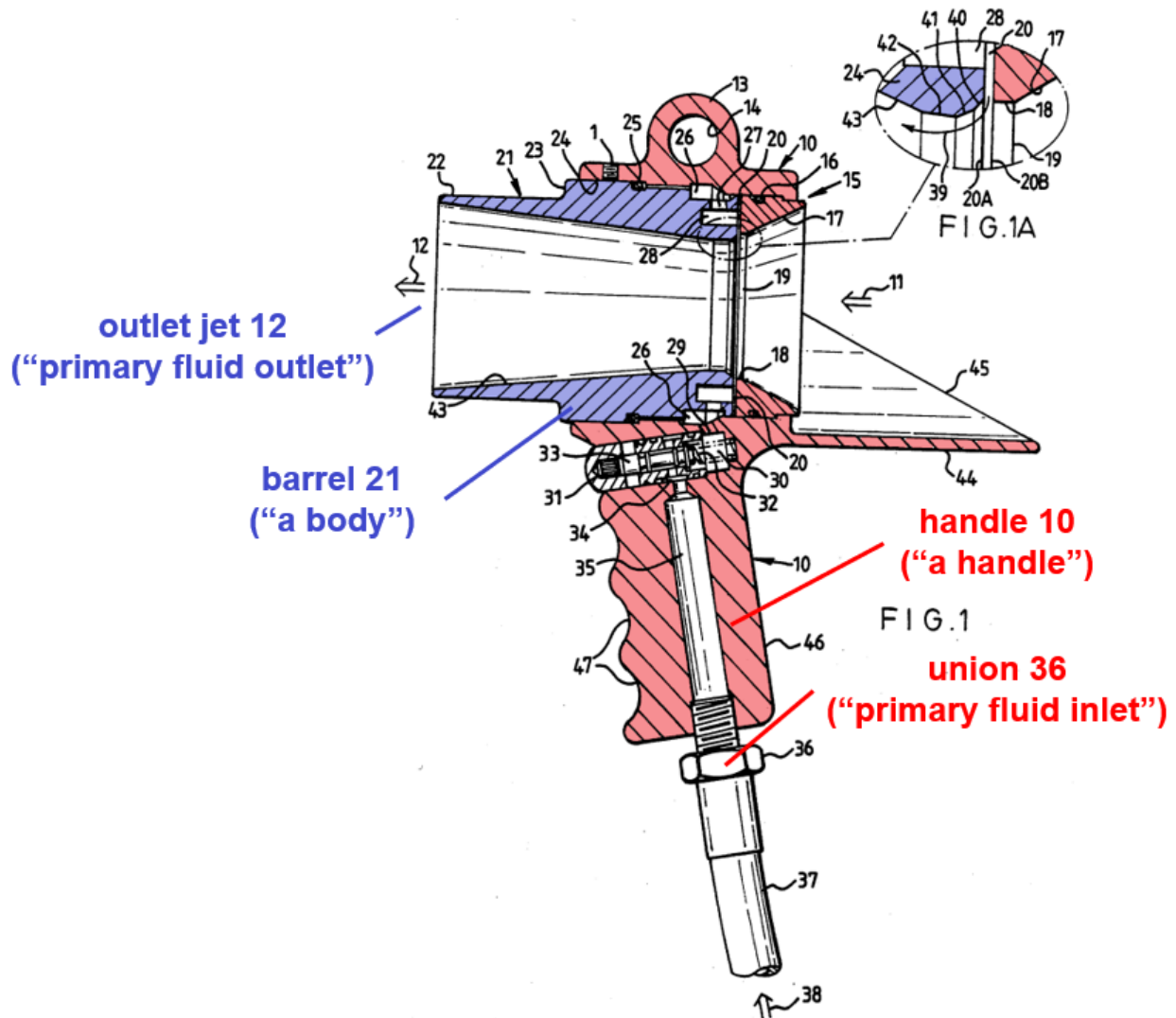
Id., Figs. 2, 5, and 6. Accordingly, Jeffs discloses “wherein the outer wall is an external surface of the handle” as required by element [26d]. Ex. 1003, ¶147.

6) Element [26e]

“wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.”

Jeffs discloses this limitation. Ex. 1003, ¶148. As explained above with respect to element [26c], “high pressure air 38 [is] conveyed along flexible hose 37 and union 36.” Ex. 1006, 4:28–31. The air flows from the union 36 “to the channel

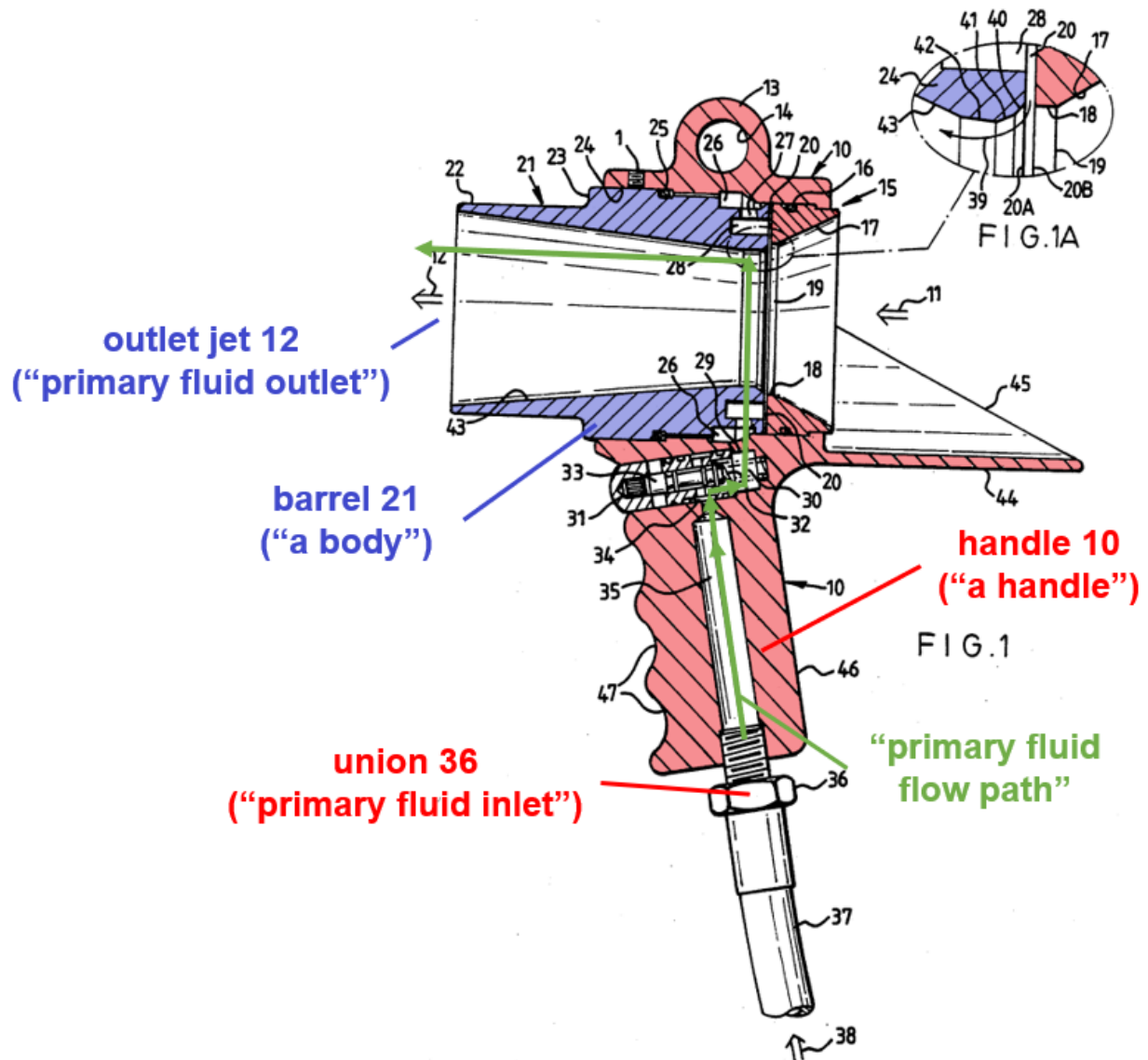
35 within the handle 10, [and] reaches the inner chamber 30.” *Id.* Then, “[f]rom the inner chamber 30, the high pressure air emerges through channel 29 to the barrel chambers 26 and 28, where it then emerges through the inlet slot 20. *Id.* at 4:31–34. Accordingly, the “union 36” comprises a “primary fluid inlet.” Ex. 1003, ¶149. Likewise, and as explained above with respect to element [26a], Jeffs’s barrel 21 (*i.e.*, “the body”) “is intended to receive external air 11 at atmospheric pressure, to pass this through a throat portion of the barrel, to accelerate this air flow, and to provide an outlet jet 12 along the longitudinal axis of the barrel” (*i.e.*, “a primary fluid outlet from the body”). *Id.* at 3:38–42. The union 36 and outlet jet 12 are both depicted in Figure 1:



Id., Fig. 1 (annotations added).

Regarding the airflow from the inlet slot 20 onward through the barrel 21, Jeffs explains that "[a]s the high pressure air emerges from the inlet 20 at right angles to the longitudinal axis of the barrel 21, it is drawn by the Coanda effect progressively in the downstream direction, as shown by arrow 39 in FIG. 1A." *Id.* at 4:42–45. Further, "[t]he high speed flow of this high pressure air 39 creates a region of low pressure which attracts bulk air flow 11 in the longitudinal direction,"

which “combines with the high pressure air flow, within the barrel 21, and the combined air flow is at an intermediate velocity when it emerges at [outlet jet] 12.”
Id. at 4:49–54. This air flow path is a “primary fluid flow path” as required by element [26e]:



Id., Fig. 1 (annotations added). As shown in the annotated Figure 1 above, Jeffs’s primary fluid flow path (*i.e.*, the airflow path through the union 36 into the high

pressure air inlet 35 within the handle 10, the inner chamber 30, through channel 29 to the barrel chambers 26 and 28, out the outlet slot 20, and down the longitudinal axis of the barrel 21 to outlet jet 12) is “non linear” as required by element [26e], because the “high pressure air emerges from the inlet 20 *at right angles* to the longitudinal axis of the barrel 21,” and is drawn in the downstream direction where it emerges at outlet jet 12. *Id.* at 4:42–54 (emphasis added); *see* Ex. 1003, ¶¶150–52. Thus, the airflow path changes by approximately 90 degrees between the direction in the handle 10 and the barrel 21, as depicted in the annotated Figure 1 above. Ex. 1003, ¶153.

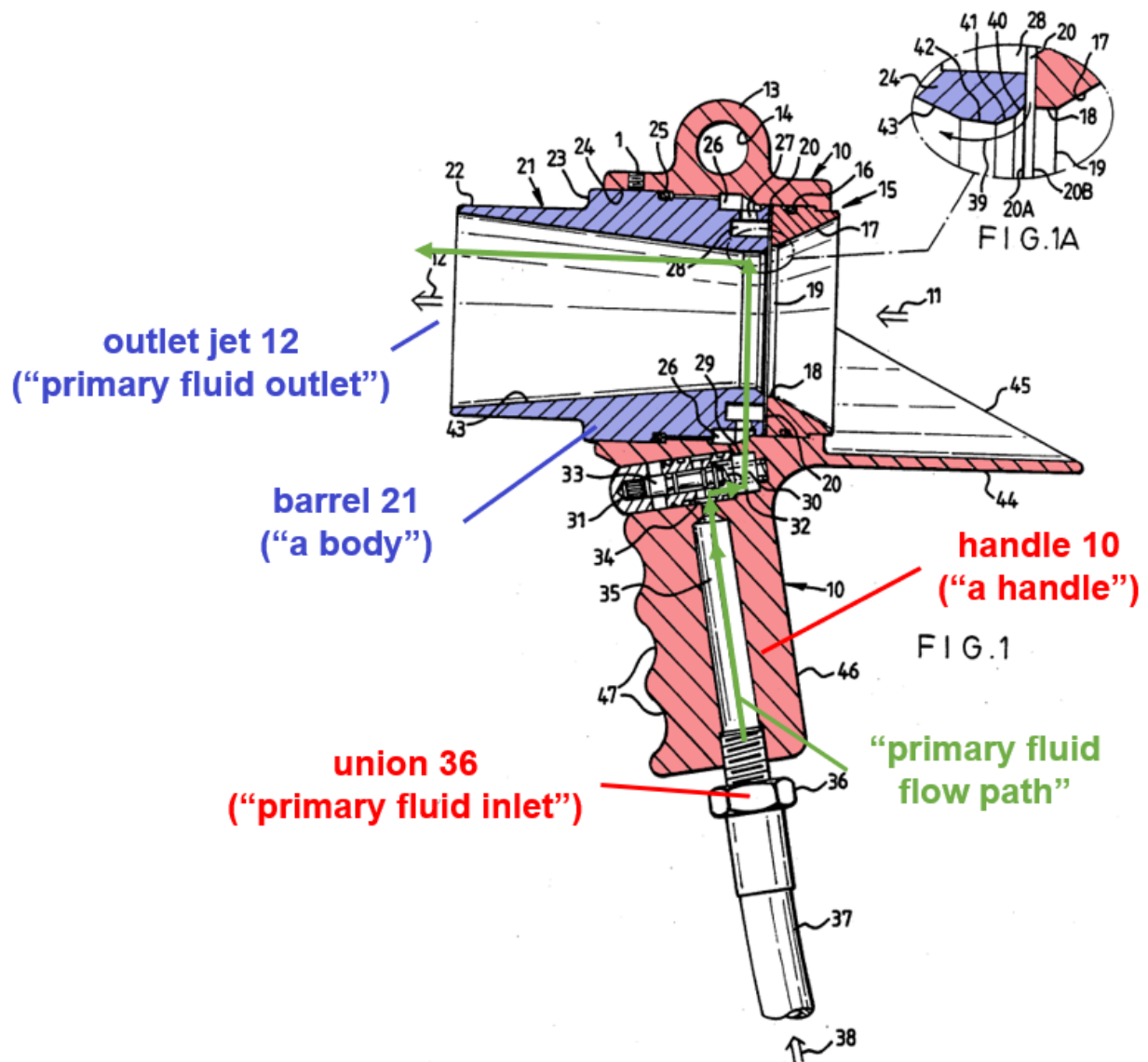
Accordingly, Jeffs discloses “wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear” as required by element [26e]. Ex. 1003, ¶154.

b. Claim 27

“The appliance of claim 26, wherein the primary fluid flows within the handle in a first direction and within the body in a second direction.”

Jeffs discloses this limitation. Ex. 1003, ¶155. As explained above with respect to element [26e], Jeffs’s primary fluid flow path (*i.e.*, the airflow path through the union 36 into the high pressure air inlet 35 within the handle 10, the inner chamber 30, through channel 29 to the barrel chambers 26 and 28, out the outlet slot 20, and down the longitudinal axis of the barrel 21 to outlet jet 12) changes

by approximately 90 degrees between the direction in the handle 10 and the direction within the barrel 21:

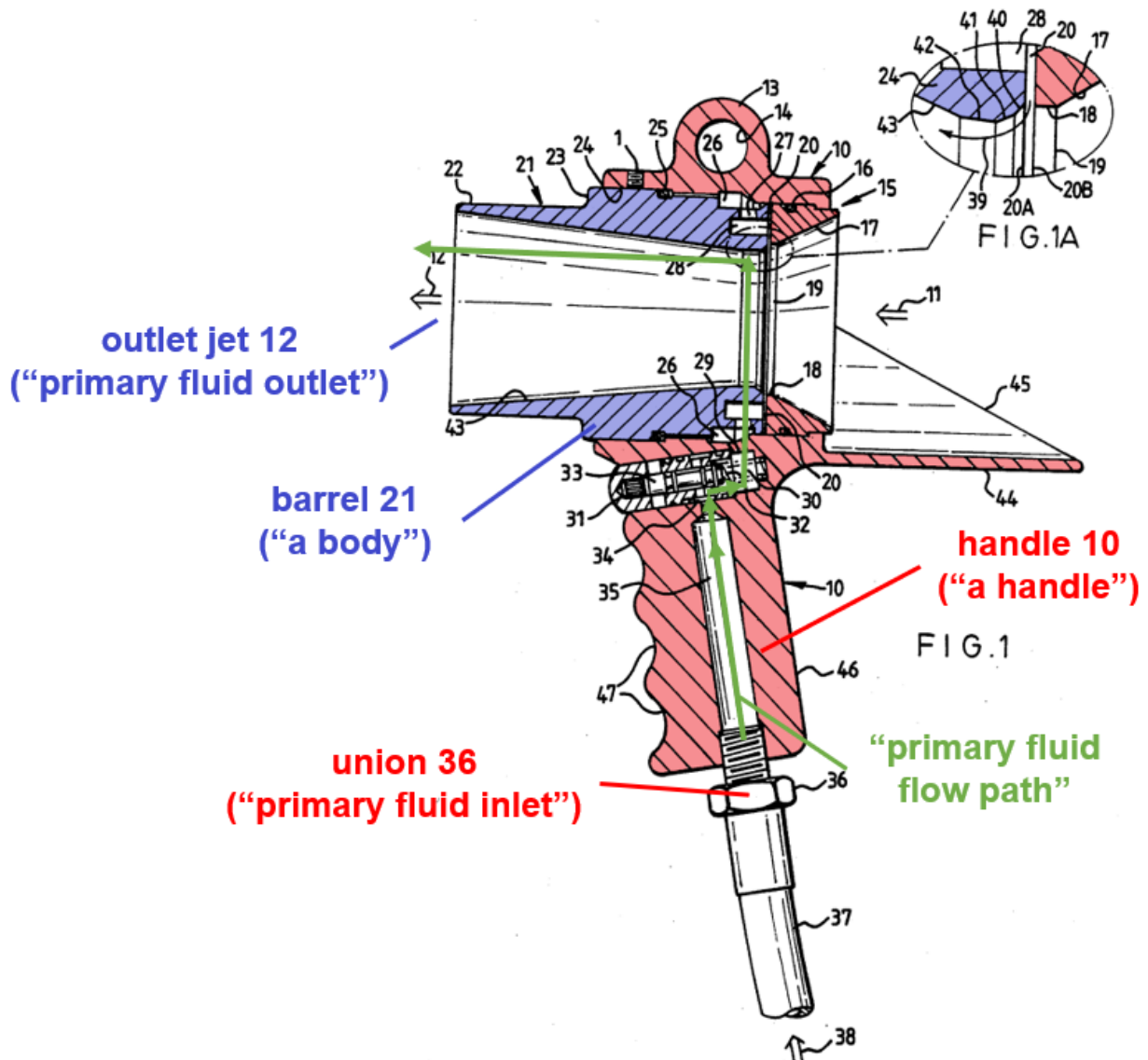


Ex. 1006, Fig. 1 (annotations added). Accordingly, Jeffs discloses the additional limitation of dependent claim 27. Ex. 1003, ¶156.

c. Claim 28

“The appliance of claim 26, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.”

Jeffs discloses this limitation. Ex. 1003, ¶157. As explained above with respect to element [26e], Jeffs’s primary fluid flow path (*i.e.*, the airflow path through the union 36 into the high pressure air inlet 35 within the handle 10, the inner chamber 30, through channel 29 to the barrel chambers 26 and 28, out the outlet slot 20, and down the longitudinal axis of the barrel 21 to outlet jet 12) changes by approximately 90 degrees between the direction in the handle 10 and the direction within the barrel 21:



Ex. 1006, Fig. 1 (annotations added); *see* Ex. 1003, ¶158. Because the angle between Jeffs's airflow path is approximately 90 degrees (*i.e.*, the directions are perpendicular), it is "substantially orthogonal" as required by this claim. Accordingly, Jeffs discloses the additional limitation of dependent claim 28. Ex. 1003, ¶159.

V. ENABLEMENT AND SECONDARY CONSIDERATIONS

The prior art references relied upon in this petition are all enabled. Ex. 1003, ¶¶49, 54, 63. There are also no secondary considerations of non-obviousness tied to the Challenged Claims. *Id.*, ¶¶160–62.

VI. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

A. Discretionary Denial Under § 314(a) Is Not Warranted

SharkNinja filed this Petition before any Complaint was filed by Patent Owner against SharkNinja for infringement of the Challenged Claims. Given the lack of any pending lawsuit, the *Fintiv* factors weigh in favor of institution. If Patent Owner later brings an infringement action against SharkNinja asserting any of the Challenged Claims, SharkNinja may request leave to address any such developments.

B. Discretionary Denial Under § 325(d) Is Not Warranted

The arguments presented in this Petition are new and non-cumulative of the art considered during prosecution. Although Jeong was disclosed in an Information Disclosure Statement by the Applicant and included in a list of references considered by the Examiner, there is no evidence that the Examiner substantively considered or addressed Jeong as prior art in light of the amendments to the claims that put them in condition for allowance during prosecution of the '662 patent. *See generally* Ex. 1002, 1084 (Feb. 2, 2015 Information Disclosure Statement by Applicant), 2202

(Feb. 2, 2016 List of References cited by applicant and considered by examiner). Moreover, for grounds 2–5 presented in this petition, neither Yoshida nor Jeffs is listed on the face of the '662 patent. *See* Ex. 1001, Cover. Moreover, Sarocchi was the only reference applied in a substantive rejection of claims 26–28 of the '662 patent, and it did not include an inner wall “disposed radially inward from the outer wall,” and an outer wall that is “an external surface of the handle,” both of which are explicitly described in each of Jeong, Yoshida, and Jeffs. *See* Sections IV.A–C.

VII. CONCLUSION

Petitioners have established a reasonable likelihood that the Challenged Claims are unpatentable. Petitioners therefore respectfully request that IPR be instituted.

DATED: August 18, 2023

Respectfully Submitted,

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned attorney hereby certifies that the word count for Sections I–VII of the foregoing Petition for *Inter Partes* Review is 10,961, according to the word count tool in Microsoft Word.

DATED: August 18, 2023

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CERTIFICATE OF SERVICE

The undersigned certifies service pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(a), (b) on the Patent Owner via FedEx overnight mail of a copy of this Petition for *Inter Partes* Review and supporting materials at the Patent Owner at the correspondence address of record for the '662 patent:

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DATED: August 18, 2023

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APPENDIX: CHALLENGED CLAIM LISTING

No.	Limitation
[26pre]	A hair care appliance comprising
[26a]	a body and a handle
[26b]	the handle comprising an inner wall and an outer wall,
[26c]	wherein the inner wall is disposed radially inwardly from the outer wall and defines a primary fluid flow path that extends from a primary fluid inlet into the appliance,
[26d]	wherein the outer wall is an external surface of the handle, and
[26e]	wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.
27	The appliance of claim 26, wherein the primary fluid flows within the handle in a first direction and within the body in a second direction.
28	The appliance of claim 26, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.