

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

**DECLARATION OF DR. DANIEL M. NOSENCHUCK IN SUPPORT OF
PETITIONER'S OPPOSITION TO PATENT OWNER'S
MOTION TO AMEND UNDER 37 C.F.R. § 42.121**

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TABLE OF EXHIBITS

Exhibit	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 (“Jeong”)
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
1012	Declaration of Brian A. Rosenthal in Support of Petitioners’ Motion For Pro Hac Vice Admission
1013	Declaration of Ahmed Eldessouki in Support of Petitioners’ Motion For Pro Hac Vice Admission
1014	July 22, 2024 Deposition Transcript of Dr. Breigh Roszelle
1015	Supplemental Declaration of Dr. Daniel M. Nosenchuck
1016	U.S. Patent No. 8,104,694 (“Yang”)

I, Dr. Daniel M. Nosenchuck, hereby declare as follows:

I. INTRODUCTION AND QUALIFICATIONS

1. I understand that the Patent Trial and Appeal Board (“PTAB” or “Board”) has instituted an *inter partes* review (“IPR”) of U.S. Patent No. 9,414,662 (“the ’662 patent”) (Ex. 1001) and that the Patent Owner, Dyson Technology Limited, has filed a motion to amend claims 26-28 of the ’662 patent. I have been asked to offer opinions regarding the patentability of the proposed substitute claims 40-42.

2. I am not, and never have been, an employee of any of the Petitioners in this IPR. I received no compensation for this Declaration beyond my normal hourly compensation based on my time actually spent on the assignment described above, and I will not receive any added compensation based on the outcome of any IPR or other proceeding involving the ’662 patent.

3. My qualifications and experience to provide the opinions in this Declaration were previously provided in the first declaration I prepared in support of the Petition in this IPR and are incorporated by reference here.

4. My understandings of the legal principles as outlined in the first Declaration that I prepared in support of the Petition in this IPR have not changed and are incorporated by reference here.

5. My identification of the relevant field of art and the definition of a person of ordinary skill in the art (“POSITA”) in that field were set forth in my first Declaration and are incorporated by reference here. My analysis of the proposed substitute claims in this Declaration use that same definition of a POSITA.

6. My analysis in this Declaration is also based on my understanding of the state of the art that would have been known to a POSITA around July 2013, as set forth in my prior declaration, which are herein incorporated by reference.

II. MATERIALS CONSIDERED

7. I have considered information from various sources in forming my opinions. I have drawn on my decades of experience in this field. I have employed methods and analyses of a type reasonably relied upon by experts in my field in forming opinions or inferences on the subject. Additionally, in preparing this Declaration, I have relied upon the exhibits listed at the beginning of this Declaration and any documents and other information cited in this Declaration. I have also reviewed Patent Owner’s Response (and all exhibits thereto) and Patent Owner’s Contingent Motion to Amend (and all exhibits thereto), including a Declaration provided by Dr. Roszelle.

III. OVERVIEW OF CONCLUSIONS

8. It is my opinion that the proposed substitute claims are unpatentable for the following several reasons.

9. First, the proposed substitute claims are not supported by written description in the patent. All proposed claims introduce new elements to the claims: (1) that the handle has a “first end” proximal to the body, and (2) that the inner wall extends from the primary fluid inlet to the first end of the handle. See Mot. to Amend at 3. The patent specification does not convey or suggest these limitations at all.

10. Second, the proposed claims are indefinite because they do not inform a POSITA about the scope of the invention with reasonable certainty. Given the limited, if any, disclosure from the patent specification and intrinsic record supporting the proposed substitute claims, a POSITA would not know how to determine when an inner wall of the handle “extends to the first end of the handle.”

11. Finally, the proposed substitute claims are invalid over prior art, specifically original Grounds 1 and 4, and newly added Grounds 6 and 7.

IV. SUMMARY OF THE PROPOSED AMENDMENTS

12. The three proposed substitute claims are set forth below:

Claim 40

A hair care appliance comprising a body and a handle, the handle having a first end proximal to the body and a second end distal from the body and comprising an inner wall and an outer wall, wherein the inner wall is disposed radially inwardly from the outer wall, defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, and extends from the primary fluid inlet to the first end of the handle, wherein the outer wall is an external surface of the handle and wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.

Claim 41

The appliance of claim 40, wherein the primary fluid flows within the handle in a first direction and within the body in a second direction.

Claim 42

The appliance of claim 40, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.

13. The Patent Owner in its Motion to Amend summarized the proposed substitute claims as adding (1) the handle has a “first end” proximal to the body, and (2) the inner wall extends from the primary fluid inlet to the first end of the handle. See Mot. to Amend at 4.

V. ANALYSIS OF PROPOSED AMENDMENTS

14. It is my opinion that the proposed substitute claims are invalid on several bases. Below is a detailed analysis of the proposed substitute claims and these bases of invalidity.

A. The Proposed Substitute Claims Lack Written Description

15. It is my opinion that the proposed amendments do not have written description support in the '662 patent. Specifically, each of the proposed amended claims introduces new claim element that the patent fails to reasonably convey to a POSITA: that the claimed inner wall extends to the first end of the handle. Mot. to Amend at 4.

16. I understand that the written description requirement is satisfied if a POSITA reading the original patent application would have recognized that the inventor(s) actually possessed by the filing date of the original application the full scope of the claimed invention as it is claimed. I understand that in deciding whether a claim satisfies the written description requirement, the description is considered from the viewpoint of a POSITA when the original application was filed. I have been informed that a disclosure in an application that merely renders the later-claimed invention obvious is not sufficient to meet the written description requirement; the disclosure must describe the claimed invention with all its limitations. An application must describe the invention in sufficient detail that a POSITA can conclude that the inventor invented the claimed invention. I have also been informed that one single coincidental disclosure may not be sufficient written description for a claim with an extrapolated limitation covering multiple embodiments, which is known as a “genus” claim, but instead a sufficient description of a “genus” requires the disclosure of either *a representative number of species* falling within the scope of the genus or *structural features common to the members* of the genus so that a POSITA can visualize or recognize the members of the genus.

17. In its Motion to Amend, Patent Owner points to a total of five sentences in the U.S. application that Patent Owner submits to provide support for the new claim elements. Mot. To Amend, 6. As discussed below, neither these excerpts nor

anything else in the specification of the '662 patent provides support for the proposed substitute claims. As a convenience, I have reproduced here the totality of the written description that Patent Owner contends supports the proposed substitute claims:

- "... 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." U.S. Appl. (Ex. 1002) at 23;
- "The third piece comprising outer wall 360 of the body 30 and inner wall 220 of the handle 20 are moulded as a one piece unit from a plastic material." U.S. Appl. (Ex. 1002) at 24;
- "In one implementation, compatibility is provided between previous, current, and future versions mobile stations and SIMS by providing a test to identify the availability of such a list on the SIM and a similar backup list on the mobile station." U.S. Appl. (Ex. 1002) at 25; European Appl. (Ex. 1002) at 116;
- "The inner wall 220 is a duct which surrounds and defines a primary fluid flow path 400." U.S. Appl. (Ex. 1002) at 25;
- "...the outer wall 200 includes the primary fluid inlet 40; however, it is not essential that the outer wall extends over the entire length of the inner wall 20 . . . In the event that the outer wall 200 does not extend the entire length of the inner wall 220, then either the inner wall 220 would comprise the inlet 40 at its distal end from the junction 90 with the body 30 or a separate inlet body attachable to the outer wall 200 and/or inner wall 220 could be provided." U.S. Appl. (Ex. 1002) at 25.

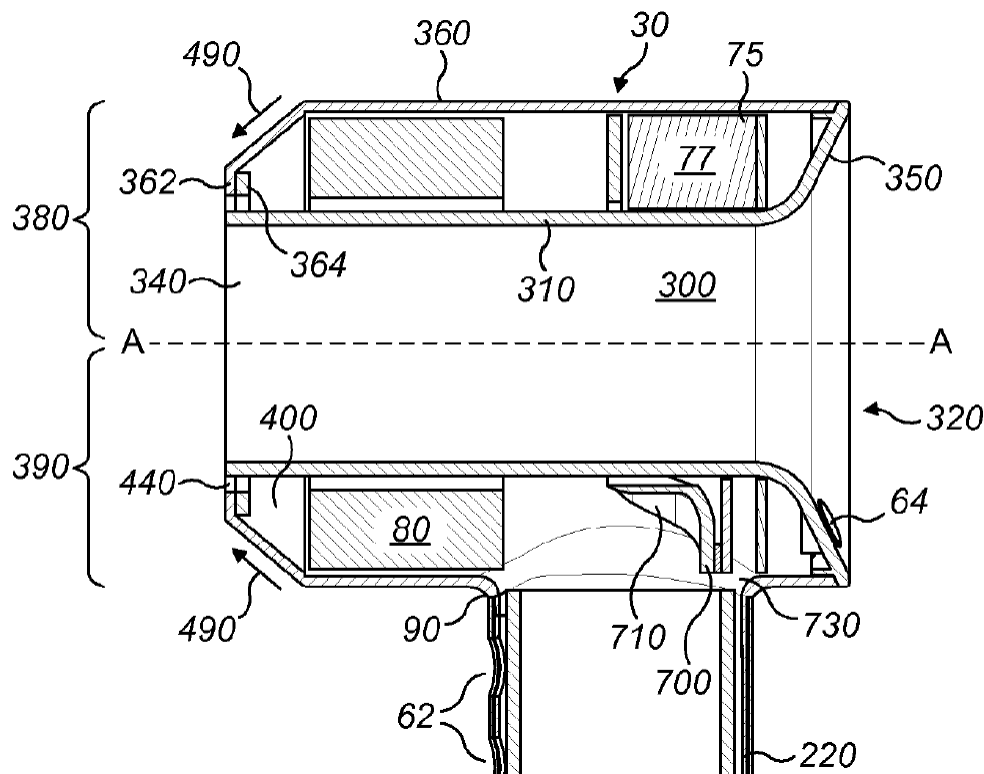
1. The "extends ... to the first end of the handle" Element Is Not Supported in the Specification

18. In order for a POSITA to evaluate whether the disclosure of an application conveys that the Applicants had possession of the claimed invention, where the inner wall of the handle extends to the "first end" of the handle that is

proximal to the body, the POSITA needs to know (1) where the “first end” of the handle, i.e., the boundary between the handle and the body is; and (2) whether the inner wall of the handle extends to that boundary, i.e., comparing the end of the inner wall that is proximal to the body with the end of the handle that is proximal to the body. The ’662 patent specification, including the language that Patent Owner points to as support for their amendments, is absolutely silent on these two issues. Patent Owner has to rely on very extraneous inferences, but a POSITA would not be able to be informed that the Applicant had possession of the claimed invention based on such inferences.

19. Patent Owner cites to the disclosure on page 25 of the U.S. Application: “In the event that the outer wall 200 does not extend the entire length of the inner wall 220, then either the inner wall 220 would comprise the inlet 40 at its distal end from the junction 90 with the body 30 or a separate inlet body attachable to the outer wall 200 and/or inner wall 220 could be provided.” But this does not convey anything about how far the inner wall 220 extends to in the “proximal” direction, i.e., where the inner wall’s end that is proximal to the body is. It discloses that at the end that is “distal” from the junction with the body, the inner wall would comprise the “inlet 40.” The relevant figure to this passage, Figure 3, does not convey anything regarding the upper (“proximal” to the body) end of the inner wall 220 or even where the boundary lies between the handle and the body, or whether it overlaps with the

first end of the handle. Figure 3 shows that the outer wall 200 of the handle also intersects with the outer wall 360 of the body. But then a POSITA is not conveyed where the inner wall 220 ends.



'662 patent, Fig. 3 (excerpted to show an enlarged view).

20. The figure shows that the inner wall 220 is a continuous piece with the outer wall 360, with a smooth curve connecting them. But it does not label where the boundary between the inner wall 220 of the handle and the outer wall 360 of the body is. "Junction 90" is shown to be a random spot along the smooth curve connecting the inner wall 220 of the handle and the outer wall 360 of the body, and the junction 90 is apparently neither of the junction between 220 and 360 nor the junction between 200 and 360.

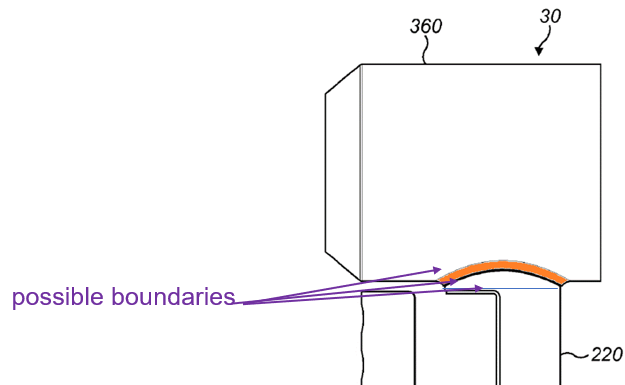
21. Patent Owner also cites to the fact that “[t]he third piece comprising outer wall 360 of the body 30 and inner wall 220 of the handle 20 are moulded as a one piece unit from a plastic material.” U.S. Appl. (Ex. 1002) at 24. This is reflected in both Figure 3 and Figure 5. However, Figure 5 does not help clarifying the issues of Figure 3, either. A POSITA evaluating the embodiment disclosed in Figures 3 and 5 would seek to determine at least three boundaries: (a) the boundary between the “handle” and the “body”; (b) the boundary between **the inner wall of the handle** and **the outer wall of the body** (which is one piece of plastic shown in Figure 5); and (c) the boundary between **the outer wall of the handle** and **the outer wall of the body**. Neither Figure 3 nor Figure 5 is clear on where the boundaries are. The issue of boundaries, in the 3-dimensional shape particularly complicated by the junction between two cylindrical shapes. Figure 5 (as well as Figure 3, albeit in lighter marks) shows two curved lines joining the 360 and 220 parts but does not label what boundaries these curves are. Comparing Figure 3’s junction 90 with Figure 5, it is apparent that the “junction 90” is labeled at a point in between the two curves.

22. Figure 5 only shows that there is a curved angled surface between the handle’s inner wall and the body’s outer wall (the neck area) and that there are two unlabeled curves around this neck area. In addition to these two curves, a POSITA may instinctively imagine a horizontal plane extending through the neck area as the

boundary between the body and the handle, as Patent Owner's expert witness initially considered. *See* Ex. 1014, 43:24–44:10.

23. Patent Owner's expert witness, Dr. Roszelle, agrees that the boundaries are unclear. When asked where the boundary between the "body" and the "handle" is, her first instinct was to find a horizontal plane extending through the neck area , as it would be for a POSITA. But the added curved lines of Figure 5 confused her, and she then became unsure where the boundaries actually were. *See* Ex. 1014 (Roszelle Tr.) at 43:16-44:22.

24. A POSITA would be equally confused, if not more so. For example, A POSITA therefore now sees at least three potential boundaries and may conceivably consider the uppermost curve to be the boundary where the handle's inner wall borders the body's outer wall. The POSITA may further consider either the straight line or the lower curve the boundary where the handle's inner wall borders the body's outer wall. But as such, the POSITA is not sure whether the inner wall of the handle "extends" to the "first end" of the handle, i.e., the border between the handle and the body. For example, it is unclear whether the area between the two curves (colored orange below) is part of the handle or part of the body. The specification is silent and cannot help. A POSITA therefore would not have understood that the applicants had possession of the proposed amended claims based on this embodiment.



Ex. 1001, Fig. 5 (excerpted to show an enlarged view and annotated).

25. Additionally, given the very limited nature of the disclosure on the proximal end of the inner wall 220 in Figures 3, 5, and accompanying text, a POSITA cannot visualize or recognize the embodiments where the inner wall “extends to the first end of the handle” based on the limited disclosure. For example, if Figures 3 and 5 were to be considered disclosure of one embodiment where the inner wall “extends to the first end of the handle,” the specification does not provide any further examples of such embodiments, nor does it teach anything regarding structural features common to the inner walls that extend to the first end of the handle according to the substitute claims. For example, Figures 3 and 5 show an embodiment where 220 and 360 are molded into one single piece of plastic. But a POSITA does not have any disclosure as to the embodiments where the inner wall of the handle is a distinct physical part from the outer wall of the body but still “extends ... to the first end of the handle.” A POSITA is unable to extrapolate the

features based on function, either, because the specification is also silent on technical advantages or purposes such common features may achieve.

26. In summary, a POSITA would not be able to understand that the Applicant had possession of the claimed invention, specifically, with an inner wall which “extends ... to the first end of the handle.”

B. The Proposed Substitute Claims Are Indefinite

27. It is my opinion that the proposed amended claims are indefinite. The amendments make the claims inherently self-contradictory, such that a person of ordinary skill would not be able to determine, with any reasonable clarity, the scope of the amended claims. It is not clear to a POSITA what kind of appliances infringe the claims.

28. I understand that, in order to be valid, the claims of a patent must be sufficiently definite that one skilled in the art can determine the precise limits of the claimed invention. I understand that patent claims are invalid as indefinite 35 U.S.C. § 112, ¶ 2, if the claims, read in light of the patent’s specification delineating the patent, and prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. I understand that a patent claim must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them.

29. In order for a POSITA to determine if an inner wall of a handle “extends to the first end of the handle” the POSITA needs to know where the first end of the handle is, i.e., where the handle borders the body; additionally, the POSITA needs to know where the inner wall of the handle is extended to proximal to the body.

30. However, as discussed above in ¶ 25, given the specification’s very limited nature of the disclosure on the boundaries between the handle and the body and where the inner wall 220 is extended to on the upper (“proximal”) end, a POSITA cannot visualize or recognize if certain embodiments infringe. For a hypothetical example, when a POSITA analyzes an embodiment in view of the substitute claims 40-42 and tries to determine if the embodiment infringes, the specification provides absolutely no disclosure or examples regarding how positionally define where the inner wall of the handle ends when the inner wall continues into the body or positionally define the “first end” of the handle where the body and the handle form a continuous shape.

31. Therefore, the lack of clarifying disclosure from the specification renders the proposed substitute claims indefinite.

C. Prior Art Invalidity

32. The proposed substitute claims do not introduce any inventive concepts and, in my opinion, would have been invalidated based on at least Grounds 6-8 of invalidity discussed below.

33. The proposed amendments introduce the idea of extending the inner wall further into the body so as to help define an air flow. This idea would have been well known and obvious to a POSITA as of the priority date of the '662 patent.

34. It is my opinion that Yang anticipates substitute claims 40-42 and discloses each of the limitations in the proposed substitute claims.

35. It is further my opinion that Jeong in view of Yang and/or Yang in view of Jeong render obvious substitute claims 40-42.

36. It is further my opinion that Yoshida in view of Yang and/or Yang in view of Yoshida render obvious substitute claims 40-42.

1. Yang Anticipates the Substitute Claims 40-42

37. U.S. Patent No. 8,104,694 (“Yang”) is a U.S. Patent which issued from an Application with a priority date of February 5, 2008 and published as US2011210190A1 on January 31, 2012. Yang therefore is prior art . It is directed to an air blowing appliance (which is labeled an “air spray gun”) “used to blow dry a painted surface of cold baked coating, wherein an air-taking ring in a shape of an annular air chamber is formed after screwing a front tube with a rear tube in the air spray gun, and a gap size of the air-taking ring can be changed by rotating the front tube, to control air blow rate as required.” Ex. 1016, Abstract. The general shape of the disclosed embodiment is very similar to Jeong.

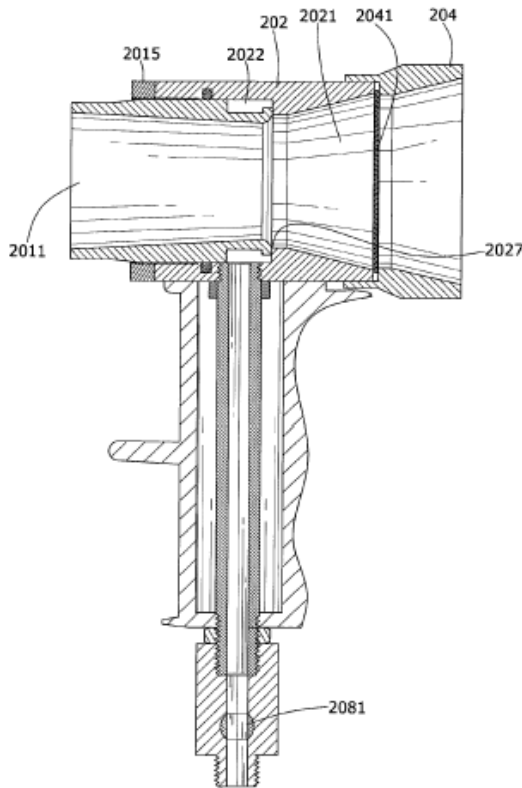


Fig.5

Ex. 1016, Fig. 5

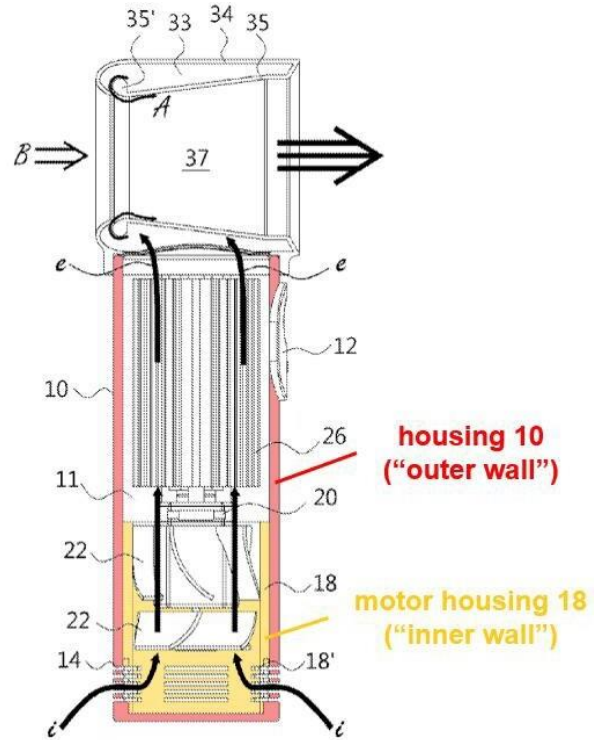


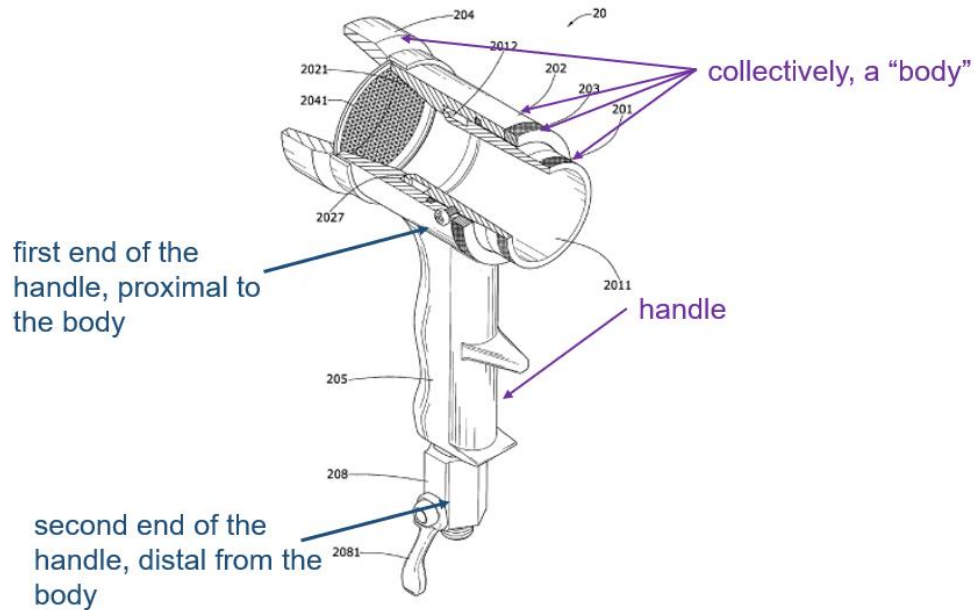
FIG. 5

Ex. 1004, Fig. 5 (annotated)

38. It is my opinion that Yang discloses each of the limitations of the substitute claims 40-42 and therefore anticipates them.

[40a] a body and a handle

39. Yang discloses “a body and a handle.” For example, referring to Figure 2, Yang discloses that an air spray gun “comprises a front tube 201, a rear tube 202, a fixing ring 203, a rear cap 204” (collectively, “a body”) and a grip 205 (i.e., “a handle”). Ex. 1016, 2:63-66 and Figs. 2 and 3.



Ex. 1016, Fig. 3 (annotated).

[40b] the handle having a first end proximal to the body and a second end distal from the body and comprising an inner wall and an outer wall

40. Yang discloses “the handle having a first end proximal to the body and a second end distal from the body and comprising an inner wall and an outer wall.” For example, Yang discloses that, with respect to Figures 4 and 5, “[t]he grip 205 is fixed at the bottom of the rear tube 202” (*i.e.*, “a first end”) and “the high-pressure air tube 208 is connected with an air compressor or an air supply system” (*i.e.*, at “a second end”). Ex. 1016, 3:43-48 and Figs. 4 and 5. And because the rear tube 202 is part of the claimed “body” the connection between grip 205, high-pressure air tube 208 at the bottom of rear tube 202 is “proximal” to the body, and therefore it is the

“first end” of the handle. The grip 205 housing is the claimed outer wall, and the high-pressure air tube 208 is the claimed inner wall.

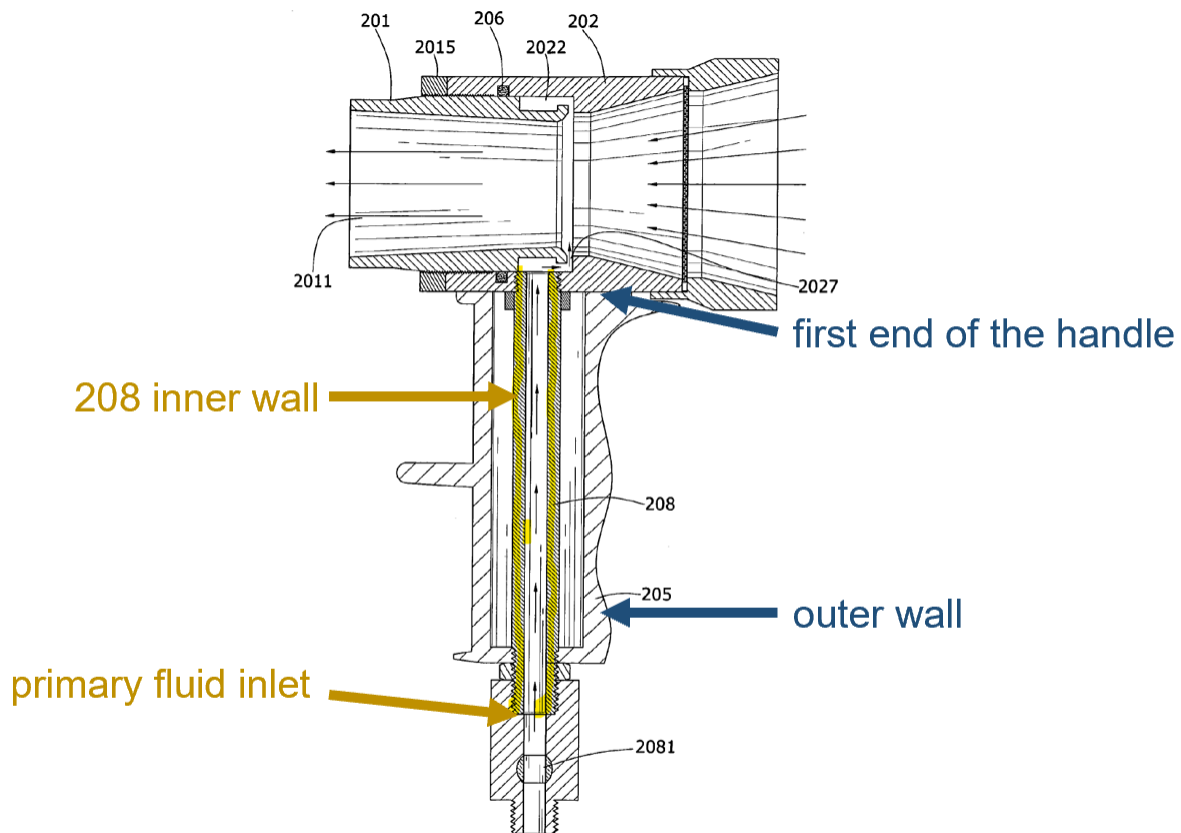


Fig.4

Ex. 1016, Fig. 4 (annotated).

[40c] wherein the inner wall is disposed radially inwardly from the outer wall, defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, and extends from the primary fluid inlet to the first end of the handle,

41. Regarding this high-pressure air tube 208 structure corresponding to the claimed “inner wall,” Yang discloses that this high-pressure air tube 208 “is disposed radially inwardly from the outer wall, defines a primary fluid flow path that extends

from a primary fluid inlet into the appliance, and extends from the primary fluid inlet to the first end of the handle.” Yang discloses that the high-pressure air tube 208 is “transfixed” on the interior of grip 205. Ex. 1016, 3:22-24, 47-49. The high-pressure air tube 208 is “connected with an air compressor or an air supply system” (*i.e.*, “primary fluid flow inlet”) Ex. 1016, 3:43-48. Further, through the high-pressure air tube 208, “the high-pressure air will be blown out toward a front side of the air-discharge conduit 2011 of the front tube 201 through the air-taking ring 2027.” Ex. 1016, 3:51-53.

**[40d] wherein the outer wall is an external surface of the handle,
 and**

42. Yang discloses that the grip 205 housing (“outer wall”) is “an external surface of the handle.” For example, Yang discloses that the handle is a “grip” where necessarily the hand touches externally, and with regard to Figures 4 and 5, Yang discloses that the grip 205 is an external surface.

**[40e] wherein the primary fluid flow path from the primary fluid
 inlet to a primary fluid outlet from the body is non linear.**

43. Yang further discloses that “the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.” For example, Yang explicitly discloses the primary fluid flow with arrows in Figure 4, which is consistent with the textual description. It is nonlinear. Ex. 1016, 3:43-4:6, Fig. 4.

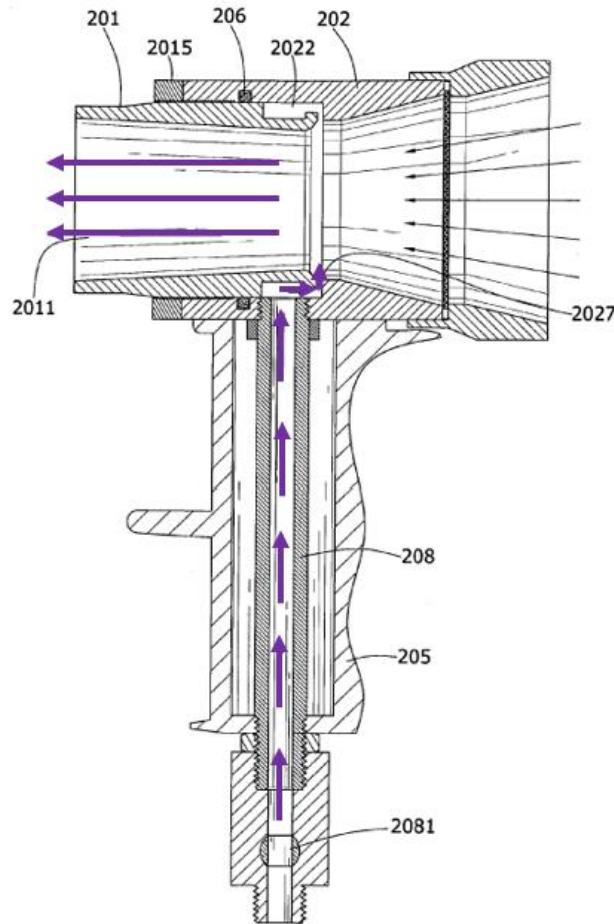


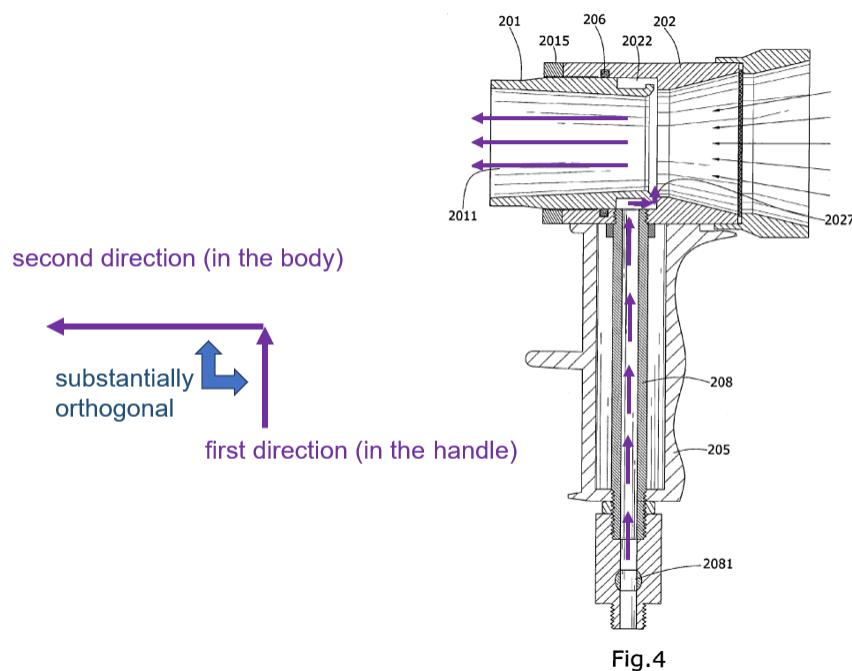
Fig.4

Ex. 1016, Fig. 4 (annotated).

41	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.
42	The appliance of claim 26, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.

44. Yang discloses “the primary fluid flows within the handle in a first direction and within the body in a second direction” as required by substitute claim 41, which depends on substitute claim 40. As shown above, Yang at Figure 4 and

the accompanying text discloses that the primary fluid flow has a first direction (upward) in the handle and a second direction in the body (forward toward a front side of the air-discharge conduit 2011).



45. Yang discloses “wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle” as required by substitute claim 42, which depends on substitute claim 40. As shown above, Yang at Figure 4 and the accompanying text discloses that the primary fluid flow in the body (forward toward a front side of the air-discharge conduit 2011) is substantially orthogonal to the primary fluid flow in the handle (upward).

2. Jeong in View of Yang and/or Yang in View of Jeong Render Claims 40-42 Obvious

46. It is my opinion that Jeong in view of Yang and/or Yang in view of Jeong render the substitute claims 40-42 obvious to a POSITA.

47. More specifically, should the “hair care appliance” part of the preamble of substitute claim 40 be determined to be limiting, Yang in view of Jeong renders substitute claims 40-42 obvious. Additionally, and alternatively, Jeong’s disclosed hair care device may be modified to include an inner wall according to Yang’s disclosure of the high-pressure air tube (“inner wall”).

48. As explained above, Yang discloses a handheld device capable of controlling “air blow” which is used to “blow dry a painted surface of cold baked coating.” Ex. 1016, Abstract. Yang teaches that the air spray gun can be used to blow dry a painted surface and also “to feed the air or blow dry for other purposes.” Ex. 1016, 1:42-44. Yang also teaches that its disclosed air blower is “used to blow dry” a painted surface which may be water based. Ex. 1016, Abstract and 1:65-2:5. A POSITA having read Yang would know that this air blower may be applied to other applications, such as blowing dry other water-wet objects, such as hair.

49. Yang’s disclosed air blower device is analogous to the Jeffs air blower device which I have analyzed in detail in my previous Declaration, and thus Yang may be combined with Jeong for the same reasons Jeffs may be combined with Jeong set forth in the Petition. See First Decl., ¶¶ 124-133. All my analyses regarding Jeffs

in my first Declaration apply, and I incorporate that part by reference herein. As explained in my first Declaration, Jeong discloses a hair dryer, and it therefore would have been obvious to a POSITA to utilize the “air spray gun” device disclosed by Yang as a hair care appliance.

50. Jeong utilizes an electrically powered fan to generate air flow, whereas the Yang air spray gun uses externally generated high-pressure air (e.g., from an air compressor). However, I note that none of the Substitute Claims require any specific method or mode of generating airflow.

51. More specifically, as I have explained previously, I note that the ’662 patent itself states that blowers “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. Accordingly, a person of skill in the art would have recognized that blowers (such as the Yang device or the ’662 patent device) would have been used for a “variety of applications.” For example, a person of ordinary skill in the art would have recognized the application of the Yang device to hair care, or conversely, the ’662 patent device to paint drying.

52. The evaporation rate (*i.e.*, drying) 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. A common feature of hairdryers is the cool- or cold-shot button which generally turns off the heating

elements while maintaining the convective flow established by region of higher pressure within the hair dryer. Such a “cool” or “cold” flow is used for a variety of purposes, including the removal of moisture from hair.

53. Yang’s device does not include a heating element, a person of ordinary skill in the art would have been motivated to use it as a “cold-shot” hair dryer, which would have provided a decreased but finite evaporation rate compared to a hairdryer that provides the same airflow but with additional heating. In other words, the lack of a heating element decreases the drying rate, but not to zero.

54. The ’662 patent also recognizes that heating of the air is optional, and it is not required by any of the Challenged Claims. For example, the ’662 patent states that “[t]he fluid may be heated prior to exiting the body,” that the fluid “is optionally heated by the heater 80,” and that “[t]he appliance can be used with or without a heater; the action of the outflow of fluid at high velocity has a drying effect.” Ex. 1001 at 1:22-23, 11:31-33, and 18:23-25. Also, a POSITA would find it straightforward, if not trivial, to install a heating element within the inner wall in Yang’s device.

55. Therefore the air blowing devices disclosed in Yang and Jeong are only different in their stated intended uses, and it would have been obvious to a POSITA to utilize the “air spray gun” device disclosed by Yang as a hair care appliance. Moreover, as explained above in ¶¶ 53–54, a POSITA would only need to repurpose

the air spray gun according to Yang's disclosure for hair drying purposes, without any significant structural or functional changes. a POSITA would have had a reasonable expectation of success to use the Yang air spray gun device as a hair care appliance, as in Jeong.

56. Further, I understand that Patent Owner is proposing substitute claims 40-42 specifically to amend Elements [40b] and [40c] the structural and functional similarities between the Jeong device and the air sprayer disclosed in Yang are extremely similar. A person of ordinary skill in the art would have been motivated to modify Jeong's hair appliance in view of the high-pressure air tube 208.

57. The use of a tube within a handle to guide an air flow path is not new. Even Yang admits that the use of an air tube 103 is in its own prior art. Ex. 1016, 1:31-34 and Fig. 1.

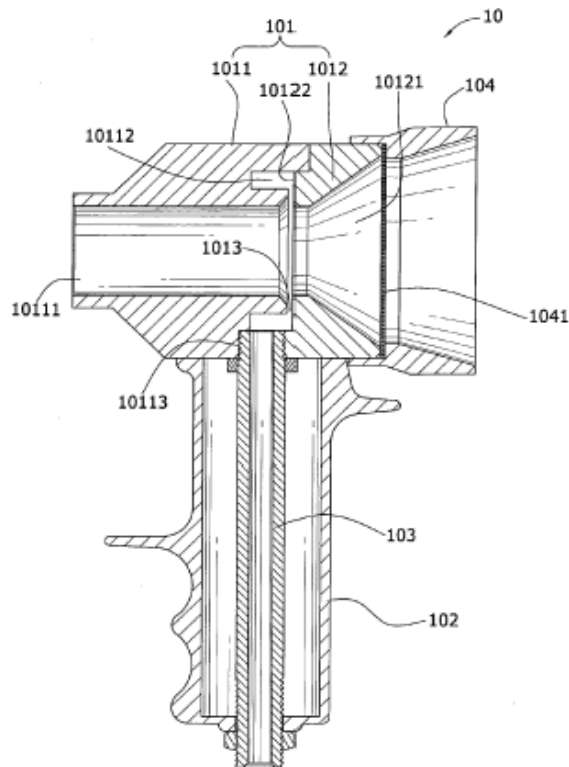


Fig.1
Prior Art

Ex. 1016, Fig. 1.

58. A POSITA would have known, as common knowledge of the art, that because the structure of an internal tube guiding an air flow path provides a smooth internal surface, it provides a more parallel air flow, preventing turbulence at the interface with the inner wall, which in turn reduces air drag and pressure drop, thereby providing higher energy efficiency; it is a common device used within a handle to guide an air flow path. A POSITA would have been motivated to use a tube-shaped motor housing 18 similar to the high-pressure air tube 208 as taught by Yang.

59. Further, given the remarkable structural similarities between Jeong and Yang's embodiments, a POSITA would only need to use a high-pressure air tube 208 as taught by Yang as the motor housing 18 or simply elongate the motor housing 18 upward and merge it with the cap 24, reaching the body and the "first end" of the handle, in order to achieve the higher energy efficiency desired, and it would not implicate any other structures or functions. A POSITA would have had a reasonable expectation of success in modifying Jeong's motor housing as proposed.

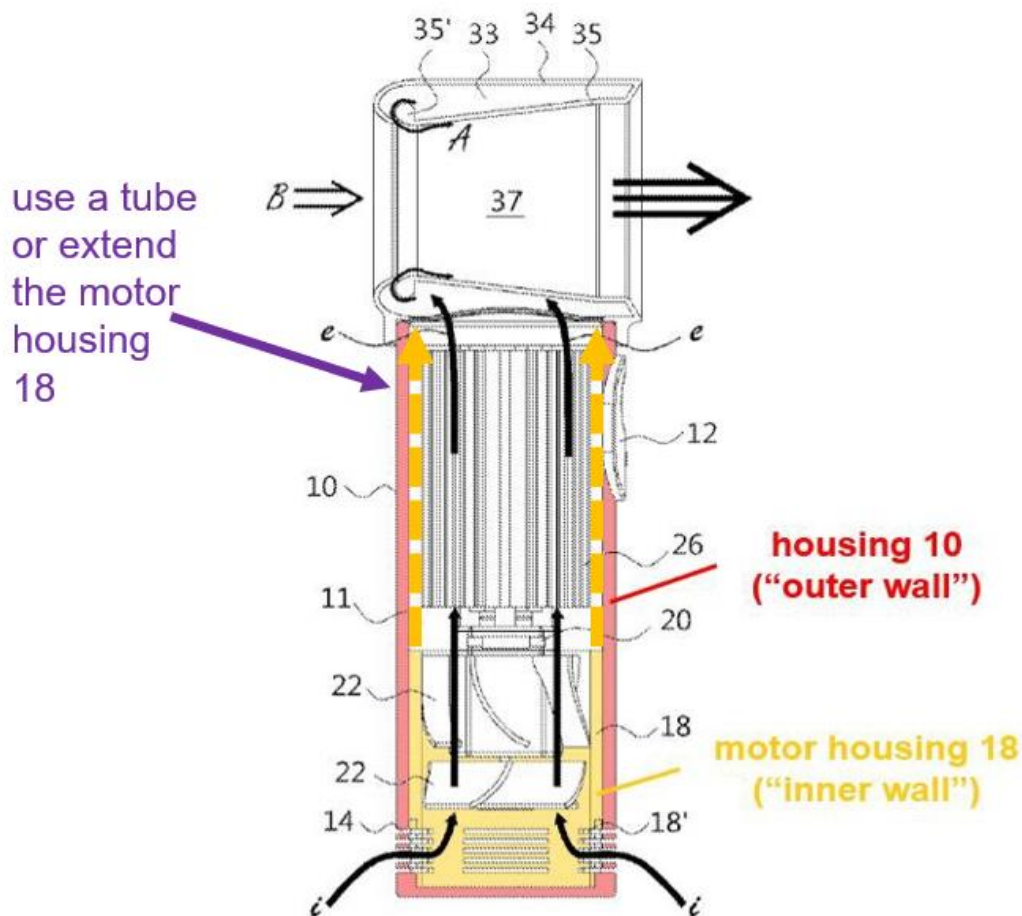


FIG. 5

Ex. 1004, Fig. 5 (annotated to show the modification).

60. Modifying as such would have been well within the skill of a POSITA. Moreover, given the predictability of this area of technology, a POSITA would have had a near-certain (not merely reasonable) expectation of success in implementing this modification. There is nothing difficult, tricky, or unpredictable involved in the implementation of a motor/fan or compressor within the inner wall.

3. Yoshida in View of Yang and/or Yang in View of Yoshida Render Claims 40-42 Obvious

61. It is my opinion that Yoshida in view of Yang and/or Yang in view of Yoshida render the substitute claims 40-42 obvious to a POSITA. More specifically, should the “hair care appliance” part of the preamble of substitute claim 40 be determined to be limiting, Yang in view of Yoshida renders substitute claims 40-42 obvious. Additionally, and alternatively, Yoshida’s disclosed hair care device may be modified to include an inner wall according to Yang’s disclosure of the high-pressure air tube (“inner wall”).

62. A POSITA would have combined Yang and Yoshida for the similar and analogous reasons I have set forth regarding combining Yoshida and Jeffs in my first declaration. See First Decl., ¶¶ 124-133. Yang’s disclosed air blower device is analogous to the Jeffs air blower device which I have analyzed in detail in my previous Declaration, and thus Yang may be combined with Jeong for the same reasons Jeffs may be combined with Jeong set forth in the Petition. See First Decl., ¶¶ 124-133. All my analyses regarding Jeffs in my first Declaration apply, and I

incorporate that part by reference herein. As explained in my first Declaration, Jeong discloses a hair dryer, and it therefore would have been obvious to a POSITA to utilize the “air spray gun” device disclosed by Yang as a hair care appliance.

63. My analysis regarding combining Yang and Jeong is also similar and applicable. *See supra* at Sec. V.C.2. I incorporate these sections by reference herein.

64. As explained above, Yang discloses a handheld device capable of controlling “air blow” which is used to “blow dry a painted surface of cold baked coating.” Ex. 1016, Abstract. Yang teaches that the air spray gun can be used to blow dry a painted surface and also “to feed the air or blow dry for other purposes.” Ex. 1016, 1:42-44. Yang also teaches that its disclosed air blower is “used to blow dry” a painted surface which may be water-based. Ex. 1016, Abstract and 1:65-2:5. A POSITA having read Yang would know that this air blower may be applied to other applications, such as blowing dry other water-wet objects, such as hair.

65. Similar to Jeong, Yoshida utilizes an electrically powered fan to generate air flow (not required by the Substitute Claims), whereas the Yang air spray gun uses externally generated high pressure air.

66. More specifically, as I have explained previously and above, the ’662 patent itself states that blowers “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. Accordingly, a person of skill in the art would have recognized that blowers

(such as the Yang device or the '662 patent device) would have been used for a “variety of applications.” For example, a person of ordinary skill in the art would have recognized the application of the Yang device to hair care, or conversely, the '662 patent device to paint drying.

67. The evaporation rate (*i.e.*, drying) 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. A common feature of hairdryers is the cool- or cold-shot button which generally turns off the heating elements while maintaining the convective flow established by region of higher pressure within the hair dryer. Such a “cool” or “cold” flow is used for a variety of purposes, including the removal of moisture from hair.

68. Yang’s device does not include a heating element, a person of ordinary skill in the art would have been motivated to use it as a “cold-shot” hair dryer, which would have provided a decreased but finite evaporation rate compared to a hairdryer that provides the same airflow but with additional heating. In other words, the lack of a heating element decreases the drying rate, but not to zero.

69. The '662 patent also recognizes that heating of the air is optional, and it is not required by any of the Challenged Claims. For example, the '662 patent states that “[t]he fluid may be heated prior to exiting the body,” that the fluid “is optionally heated by the heater 80,” and that “[t]he appliance can be used with or

without a heater; the action of the outflow of fluid at high velocity has a drying effect.” Ex. 1001 at 1:22-23, 11:31-33, and 18:23-25. Also, a POSITA would find it straightforward, if not trivial, to install a heating element within the inner wall in Yang’s device.

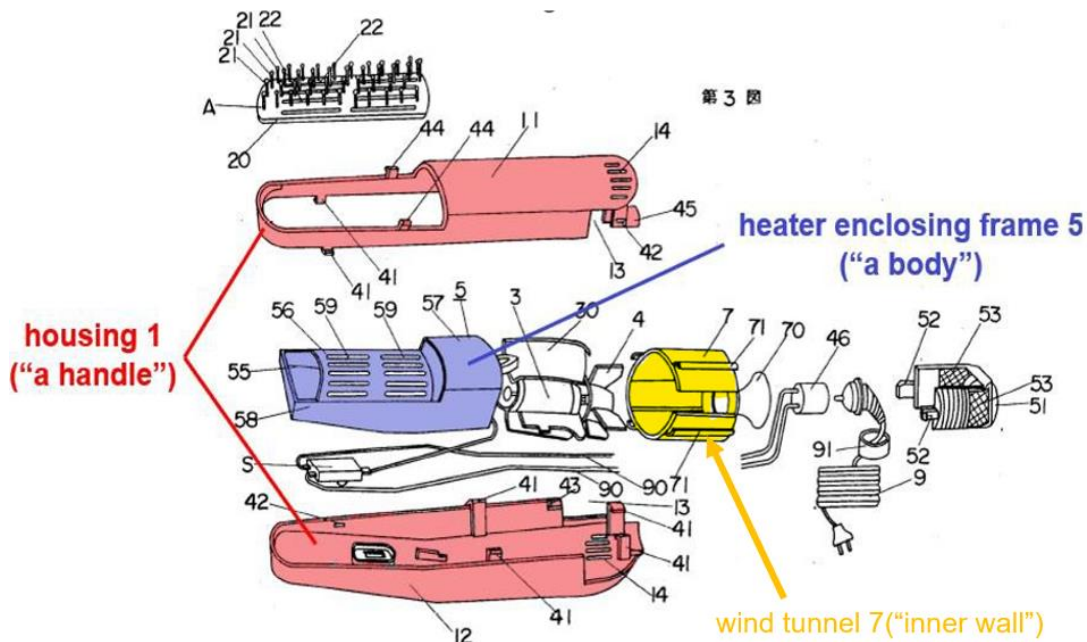
70. Therefore, the air blowing devices disclosed in Yang and Yoshida are only different in their stated intended uses, and it would have been obvious to a POSITA to utilize the “air spray gun” device disclosed by Yang as a hair care appliance. A POSITA would only need to repurpose the air spray gun according to Yang’s disclosure for hair drying purposes, without any significant structural or functional changes. a POSITA would have had a reasonable expectation of success to use the Yang air spray gun device as a hair care appliance, as in Jeong

71. Further, as I have explained above in Section V.C.2, the use of a tube within a handle to guide an air flow path is not new. I understand that Patent Owner is proposing substitute claims 40-42 specifically to amend Elements [40b] and [40c]. The structural and functional similarities between the Yoshida device and the air sprayer disclosed in Yang are extremely similar. A person of ordinary skill in the art would have been motivated to modify Yoshida’s hair appliance in view of Yang’s the high-pressure air tube 208.

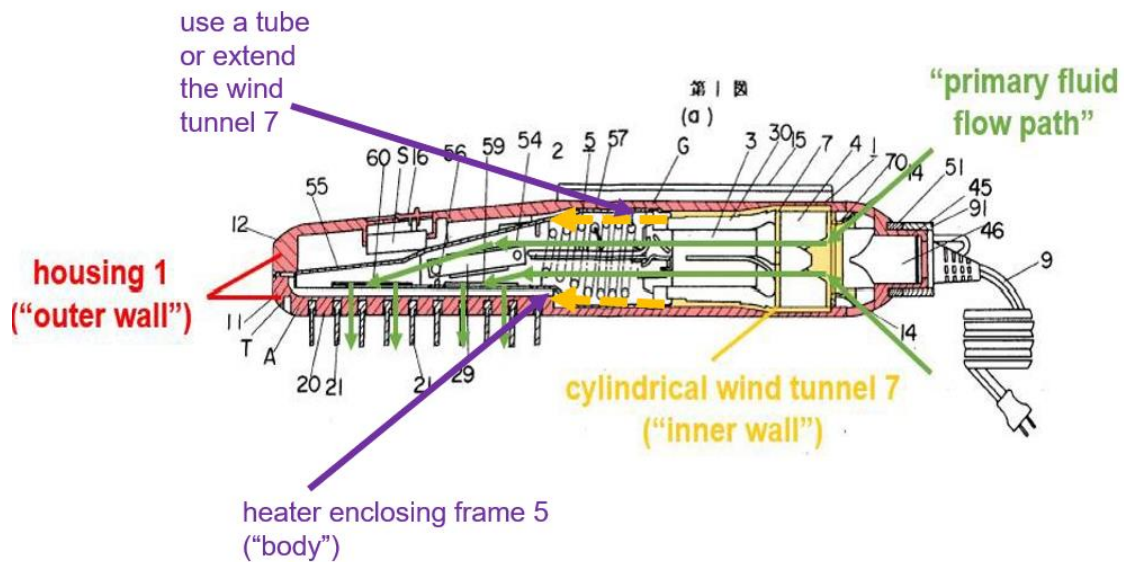
72. A POSITA would have known, as common knowledge of the art, that because the structure of an internal tube guiding an air flow path provides a smooth

internal surface, it provides a more uniform air flow which in turn reduces pressure drop, thereby providing higher energy efficiency; it is a common device used within a handle to guide an air flow path. A POSITA would have been motivated to use a tube-shaped wind tunnel 7 similar to the high-pressure air tube 208 as taught by Yang.

73. Further, given the remarkable structural similarities between Yoshida and Yang's embodiments, a POSITA would only need to use a high-pressure air tube 208 as taught by Yang as the wind tunnel or simply elongate the wind tunnel 7 upward and merge it with the cap 24, reaching the body and the "first end" of the handle, in order to achieve the higher energy efficiency desired, and it would not implicate any other structures or functions. A POSITA would have had a reasonable expectation of success in modifying Yoshida's wind tunnel as proposed.



Ex. 1004, Fig. 3 (annotated).



Ex. 1004, Fig. 1 (annotated).

74. Modifying as such would have been well within the skill of a POSITA. Moreover, given the predictability of this area of technology, a POSITA would have

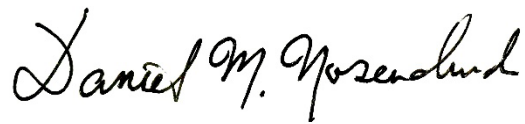
had a near-certain (not merely reasonable) expectation of success in implementing this modification. There is nothing difficult, tricky, or unpredictable involved in the implementation of a motor/fan or compressor within the inner wall.

VI. ADDITIONAL REMARKS

75. I currently hold the opinions expressed in this Declaration. My analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made are of my own knowledge, are true, and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this proceeding.

Executed this 13th day of August, 2024, in Newtown, PA.

A handwritten signature in black ink, reading "Daniel M. Nosenchuck". The signature is written in a cursive style with a horizontal line underneath it.

Dr. Daniel M. Nosenchuck

APPENDIX A: TEXT OF PROPOSED SUBSTITUTE CLAIMS

No.	Limitation
[40pre]	A hair care appliance comprising
[40a]	a body and a handle
[40b]	the handle having a first end proximal to the body and a second end distal from the body and comprising an inner wall and an outer wall,
[40c]	wherein the inner wall is disposed radially inwardly from the outer wall, defines a primary fluid flow path that extends from a primary fluid inlet into the appliance, and extends from the primary fluid inlet to the first end of the handle,
[40d]	wherein the outer wall is an external surface of the handle, and
[40e]	wherein the primary fluid flow path from the primary fluid inlet to a primary fluid outlet from the body is non linear.
41	The appliance of claim 40, wherein the primary fluid flows within the handle in a first direction and within the body in a second direction.
42	The appliance of claim 40, wherein the primary fluid flow in the body is substantially orthogonal to the primary fluid flow in the handle.