

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GN HEARING A/S,
Petitioner,

v.

OTICON A/S,
Patent Owner.

Case IPR2017-01926
Patent 7,894,621 B2

Before NEIL T. POWELL, FRANCES L. IPPOLITO, and
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

IPPOLITO, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

GN Hearing A/S (“Petitioner”) filed a Petition (Paper 1, “Pet.”) seeking *inter partes* review of claims 1–10 of U.S. Patent No. 7,894,621 B2 (Ex. 1001, “the ’621 patent”). Patent Owner, Oticon A/S, filed a Preliminary Response to the Petition (Paper 6, “Prelim. Resp.”).

On March 9, 2018, we instituted an *inter partes* review of claims 1–10 of the ’621 patent on various grounds of unpatentability. Paper 7 (“Decision on Institution” or “Dec.”). On April 27, 2018, pursuant to *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348 (2018), we modified our Decision on Institution to include review of all challenged claims and all grounds presented in the Petition. Paper 9. Subsequently, Patent Owner filed a Patent Owner Response (Paper 11, “PO Resp.”), Petitioner filed a Reply (Paper 15, “Reply”), Patent Owner filed a Sur-Reply (Papers 22, “Sur-Reply”), and Petitioner filed a Sur-Sur-Reply (Paper 30, “Sur-Sur-Reply”).

Petitioner has also filed a Motion to Strike (Paper 29) and a Motion to Exclude (Paper 33). Patent Owner opposed both motions. Paper 31; Paper 35. Petitioner filed a Reply to Patent Owner’s Opposition to Petitioner’s Motion to Exclude (Paper 37).

An oral hearing was held on November 29, 2018, and a transcript of the hearing is included in the record. Paper 38 (“Tr.”). The Board has jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has established by a preponderance of the evidence that claims 1–6, 8, and 10 are unpatentable.

B. Related Matters

Related U.S. Patent No. 8,494,204 B2 is the subject of a petition in IPR2017-01927.

C. The '621 Patent

The '621 patent is directed generally to an audio microphone device. Figure 5 is reproduced below.

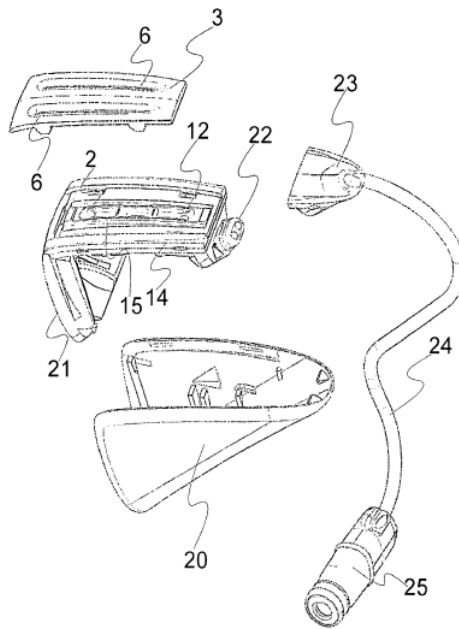


Fig. 5

Figure 5 shows an exploded view of various parts of the audio device. Ex. 1001, 3:38–39. As shown in Figure 5, chassis 14 fits into shell 20 from a first side and battery frame 21 fits into a second side of the shell part. *Id.* at 3:46–48. These three parts enclose the microphones 1, 11 (and other electronic parts). *Id.* at 3:48–51. Socket 22 outputs an electric audio signal and plug 23 fits the socket and leads inside tube 24 to power audio speaker 25. *Id.* at 3:53–55. In operation, the audio device is placed behind a user's ear and speaker 25 is placed inside the ear canal of the user. *Id.* at 3:55–58. Protection screen 3 is provided over sound entrances 2, 12 and protects the

entrances from direct impact of wind and other environmental influences.

Id. at 3:64–67. Screen 3 has two slit-formed openings 6 extending along the length of screen 3. *Id.* at 3:67–4:1. Figure 4 of the '621 patent is reproduced below.

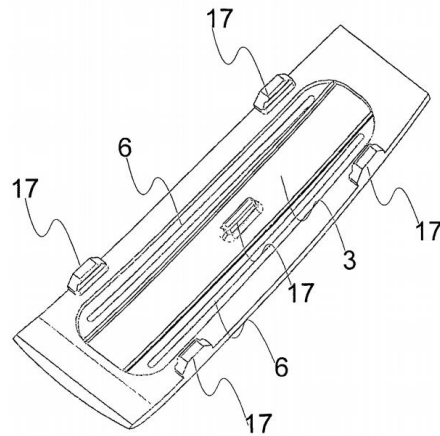


Fig. 4

Figure 4 depicts the protective screen 3 from below. *Id.* at 1:36–37. “The screen 3 has two slit-formed openings 6 extending along the length of the screen 3.” *Id.* at 3:67–4:1.

As seen in Figure 1 (shown below) the transition between the first surface 4 and slit-formed opening 6 is made with a smooth and rounded shoulder 7, whereas the transition between the second surface 5 and the opening 6 is made with a sharp edge 8. *Id.* at 4:36–39.

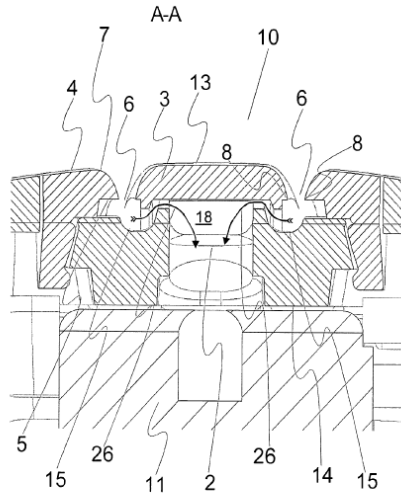


Fig. 1

Figure 1 is a sectional view along line A-A of an audio device with cover plate shown in Figure 3. *Id.* at 3:31–32. According to the '621 patent, a perfectly sharp edge between surface 5 and opening 6 is difficult to realize, and a rounded edge less than 0.05 mm is sufficiently sharp. *Id.* at 4:47–49. Further, the '621 patent teaches that the width of slit-formed openings 6 should preferably be between 0.1 and 0.3 mm, and in a preferred embodiment the slit is 0.2 mm. *Id.* at 4:49–52. This measure is taken at the narrow-most part of the slit. *Id.* at 4:52–53. The '621 patent notes that the angle between the surface 5 and the side-walls of the slits 6 is less than 90 degrees in order that the overall profile of the slit-formed openings 6 becomes v-shaped. *Id.* at 4:53–56.

C. Illustrative Claims

Of the challenged claims, claims 1 and 6 are independent. Independent claims 1 and 6, reproduced below, are illustrative of the claimed subject matter:

1. An audio device comprising a microphone and a sound canal allowing sound to pass from the surroundings to the

microphone wherein further a signal path from the microphone to a receiver is provided and powered by a current source, such that sounds received at the microphone may be enhanced and presented at the ear level of the user and wherein a protection screen is provided at the sound canal, whereby the screen comprises a first surface which faces the surroundings and a second surface which faces the sound canal whereby the screen has a slit-formed opening between the first surface and the second surface whereby the screen defines slit-formed opening therethrough and wherein the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge.

6. A protection screen for an audio device comprising a first surface which faces the surroundings and an opposed second surface which faces an audio device, wherein the protection screen defines a slit-formed opening therethrough and wherein the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge.

D. Grounds of Unpatentability Asserted in the Petition

Petitioner contends that claims 1–10 of the challenged patent are unpatentable under 35 U.S.C. § 103¹ based on the following grounds. (Pet. 5):

References	Claim(s) Challenged
Saltykov ² and Dodge ³	1–10

¹ The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (September 16, 2011), took effect on March 16, 2013. Because the application from which the ’621 patent issued was filed before that date, our citations to Title 35 are to its pre-AIA version.

² U.S. Patent No. 7,245,733 B2, filed Feb. 3, 2003 (Ex. 1004).

³ U.S. Patent No. 1,664,852, issued Apr. 3, 1928 (Ex. 1005).

References	Claim(s) Challenged
Sjursen ⁴ and Mundel ⁵	1, 2, 4–6, 9
Sjursen, Mundel, and Saltykov	3, 7, 8
Sjursen, Mundel, and Dodge	10

Petitioner also relies on the Declaration of Wayne J. Staab, Ph.D. (Ex. 1003, “Staab Declaration”).

II. ANALYSIS

A. *Principles of Law*

The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). One seeking to establish obviousness also must articulate sufficient reasoning with rational underpinning to combine teachings. *See KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

⁴ WO 00/41432 A2, published July 13, 2000 (Ex. 1006).

⁵ Mundel, A. B. and Carlisle, R. W., *Broadened Criteria of Hearing Aid Performance*, J. of the Acoustical Soc. of Am., Vol. 19, No. 4 (1947) (Ex. 1007).

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991).

Petitioner contends, relying on the Staab Declaration, that

[a] person of [ordinary] skill in the art (“POSITA”) of the ’621 patent during the relevant timeframe would hold at a minimum, a bachelor’s degree or higher in audiology or hearing science. Other areas of mechanical and human engineering are acceptable, but only when viewed in light of having been involved with the development of products for the ear or with particular concentrations in course work related to developing audio devices. The POSITA would also have at least three years of experience with developing audio devices.

Pet. 7 (citing Ex. 1003 ¶ 25).

In its Patent Owner Response, Patent Owner does not contest Petitioner’s proffered level of ordinary skill, but remarks that other levels of skill would be acceptable, such as an engineering degree and three or more years of actual industry experience. PO Resp. 7. We observe that Patent Owner’s proffered level of art is consistent with Petitioner’s proposed level of skill, which includes a mechanical or human engineering degree and at least three years’ experience. *See* Pet. 7.

We find, based on our review of the complete record, that the evidence supports a level of ordinary skill in the art consistent with Petitioner’s definition. Our findings are supported by the level of ordinary skill in the art reflected by the prior art of record and the ’621 patent. *See*

Ex. 1001, 1:6–13 (“The invention relates to the problem of protecting microphone openings. Microphones are very sensitive elements, and they need to be protected from detrimental influence from water and other substances like dust and dirt, which may all cause deterioration of a microphone. Further, it is a big problem with microphones that air moving at velocities above a certain level about the microphone entrance will cause a very annoying sound in the microphone, known as wind noise.”), *see id.* at 1:17–19 (“A number of different windscreen covers have been tried over time, but none works satisfactorily, and wind noise is still a major disturbance for people who wear hearing aids.”); *see also* Ex. 1004 1:12–14 (“The field of the invention concerns hearing instruments, and particularly hearing instruments with directional microphones.”); Ex. 2001 ¶ 12 (“Although I generally agree that the credentials described by Dr. Staab would adequately qualify one as a POSA, it is my opinion that other definitions of a POSA would be equally acceptable as long as the person’s credentials reflect a practical understanding of the design considerations and challenges associated with successfully producing the type of audio device at issue in the ‘621 patent. Such credentials would most likely include at least an engineering degree and three or more years of actual industry experience.”). Thus, we adopt Petitioner’s proposed level of ordinary skill in the art and apply it to our obviousness evaluation below.

C. Weight of Mr. DaBell’s Testimony

Petitioner argues that we should give the testimony of Patent Owner’s declarant Mr. Jerry L. DaBell (*see* Exhibit 2001) little or no weight because of Mr. DaBell’s “complete lack of experience in the contested issues of this trial proceeding.” Sur-Sur-Reply 4. Petitioner argues that Mr. DaBell was

“only a manager” (*id.*) and that his “testimony is deliberately obtuse.” Reply 18.

Petitioner’s argument is not persuasive. Mr. DaBell’s qualifications exceed the level of skill in the art as he has a Master of Engineering, Electrical Engineering, degree and more than three years of experience designing and developing audio devices, including hearing aids. Ex. 2001 ¶¶ 4–9. Mr. DaBell’s declaration indicates that from 2000 to 2010 his product development responsibilities at Sonic Innovations, Inc., extended to all phases of hearing aid design and manufacturing, both for custom-type in-the-ear (ITE) and behind the- ear (BTE) hearing aid models, and that he has a working knowledge of hearing science, acoustics, electronics, mechanical design and tooling, software development, verification, validation, product reliability, yield and cost, supplier liaison and manufacturing engineering. *Id.* ¶ 6. Thus, we are not persuaded to give Mr. DaBell’s testimony little or no weight as a general matter, but instead will afford Mr. DaBell’s (and Dr. Staab’s) testimony appropriate weight in light of the ’621 patent, the cited art, and the other documentary evidence in this proceeding on which we primarily rely as set forth herein.

D. Claim Construction

For petitions filed before November 13, 2018, we interpret the claims of an unexpired patent using the broadest reasonable interpretation in light of the specification. See 37 C.F.R. § 42.100(b) (2016); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Consistent with the broadest reasonable construction standard, the challenged claims are presumed to be given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re*

Translogic Tech., Inc., 504 F.3d 1249, 1257 (Fed. Cir. 2007). We shall construe only terms that are in controversy and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’r, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs.* in the context of an *inter partes* review).

Petitioner proposes constructions for the terms “slit-formed opening,” “protection screen,” and “sharp edge.” Pet. 11–14. In our Decision on Institution, we did not adopt Petitioner’s constructions and determined that no claim term required express construction. Dec. 9–11. In the Patent Owner Response, Patent Owner asserts that “[b]ecause the claims use common words with well-understood plain and ordinary meanings, Patent Owner does not contend that any claim terms require construction.” PO Resp. 9. For purposes of this Final Written Decision, based on the complete record, we see no need to construe expressly any claim term to resolve the dispute between the parties.

E. Obviousness Challenge Based on Saltykov and Dodge

Petitioner asserts claims 1–10 of the ’621 patent would have been obvious based on a combination of the teachings and suggestions of Saltykov and Dodge. Pet. 15–38. Patent Owner disputes those contentions. PO Resp. 21–37.

1. Scope and Content of the Prior Art

a. Saltykov

Saltykov is a U.S. patent that “is directed to a hearing instrument for positioning in the ear of a user.” Ex. 1004, (57) (Abstract). The hearing instrument incorporates “a faceplate having first and second spatially

separated sound openings for receiving sound to be provided to respective inlets of a microphone” and “at least one screen partially blocking the sound openings.” *Id.* The hearing instrument has “a housing for containing the microphone, the housing having the faceplate mounted thereon.” *Id.*

Figure 1 of Saltykov is reproduced below.

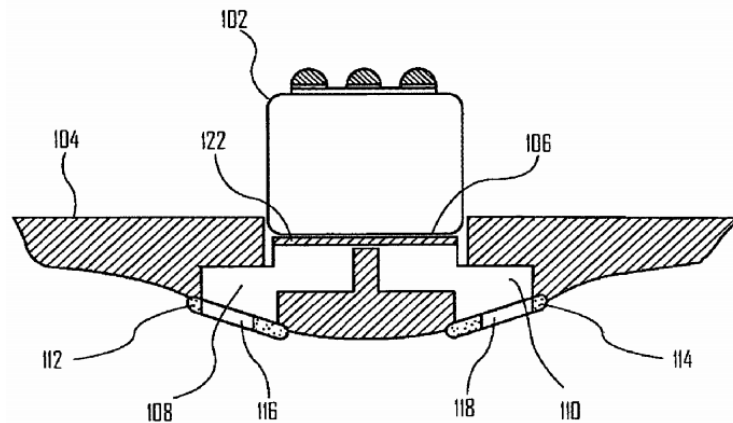


FIG. 1

Figure 1 depicts the “microphone section of a hearing instrument.” *Id.* at 2:16–18. In Figure 1, the microphone assembly 102 includes gasket 122, which is used to seal surface 106 within the hearing instrument to faceplate 104. *Id.* at 3:33–35. “Sound port covers 112 and 114 extend across and partially block sound ports 108 and 110.” *Id.* at 3:1–2. “Optionally, a mesh covering (not shown in the drawings) may be provided over the openings 112 and 114 to prevent unwanted particles from entering the sound ports 108 and 110.” *Id.* at 3:10–13.

Figure 4 of Saltykov is reproduced below.

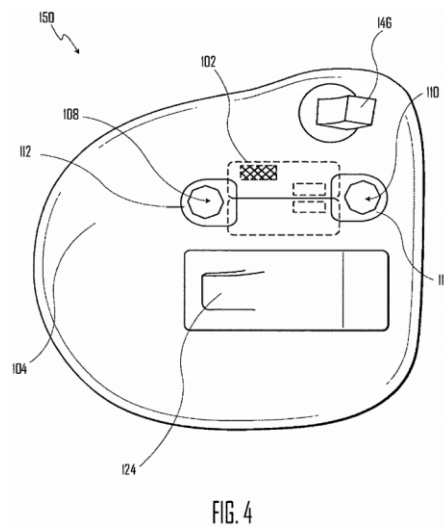


Figure 4 depicts a hearing instrument. *Id.* at 4:6–7. “The position of the microphone assembly 102 behind the faceplate 104 is illustrated by dashed lines. The sound ports 108 and 110 are visible through the sound port covers 112 and 114, respectively.” *Id.* at 4:8–12.

b. Dodge

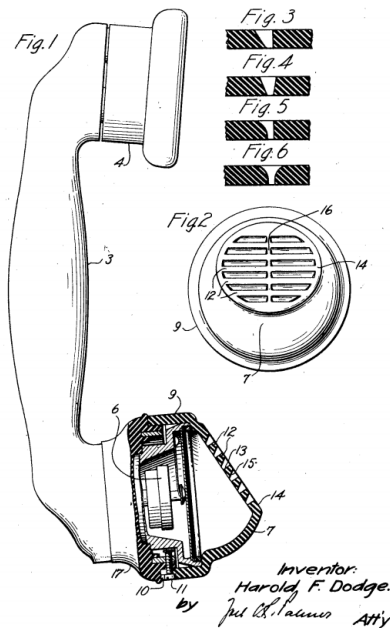
Dodge is a U.S. patent titled “Transmitter Mouthpiece.” Ex. 1005, 1.

Dodge states,

there is provided a mouthpiece which . . . will prevent the emphasis of the hissing and the explosive sounds in speech, which involve windage [T]he mouthpiece is in the form of a shell having a plane face provided with a plurality of elongated slots or openings tapered inwardly.

Id. at 1:6–16.

Figures 1–6 of Dodge are reproduced below.



Figures 1–6 depict the mouthpiece. *Id.* at 2:21–29. Claim 5 recites, “[a] transmitter mouthpiece comprising a grid having long, narrow bars, one side of each bar being substantially perpendicular to the face of said grid and the opposite side oblique thereto, adjacent bars thereby forming long narrow openings having converging walls.” *Id.* at 2:84–90. Figures 3–6 depict shapes of the openings. *Id.* at 2:25–29.

2. Claim 1

We are persuaded that Petitioner has shown by a preponderance of the evidence that Saltykov and Dodge teach every limitation of claim 1. See Pet. 15–23. Our findings for each limitation are presented below.

- a. “a microphone and a sound canal allowing sound to pass from the surroundings to the microphone”

Claim 1 is directed generally to an audio device that includes “a microphone and a sound canal allowing sound to pass from the surroundings to the microphone.”

According to Petitioner, “[t]he hearing instrument 150 in Saltykov is an audio device” that includes microphone assembly 102 and sound canal (sound ports 108 and 110), which allow sound to pass from the surroundings to the microphone. Pet. 20 (citing Ex. 1004, Figs. 1, 4, 2:59–61; Ex. 1003 ¶ 45).

Consistent with Petitioner’s arguments, we find that Saltykov’s Figure 1 teaches a hearing instrument (i.e., audio device) with microphone assembly 102 (i.e., microphone) and sound port covers 112 and 114 that extend across and partially block sound ports 108 and 110. Ex. 1004, 2:47–49, 3:1–2; *see also* Pet. 20.

- b. *“a signal path from the microphone to a receiver is provided and powered by a current source, such that sounds received at the microphone may be enhanced and presented at the ear level of the user”*

Petitioner further argues that Saltykov’s microphone assembly 120 is connected by electric circuit 140 to receiver 142 which generates an acoustical signal in the user’s ear. Pet. 20 (citing Ex. 1004, 3:55–65; Ex. 1003 ¶ 46).

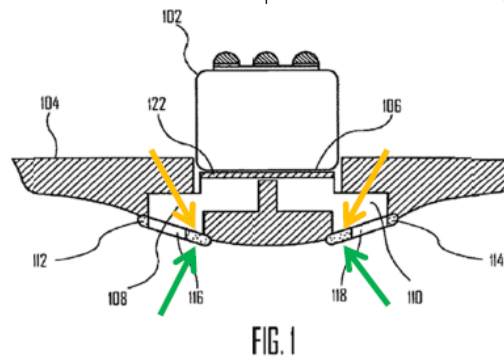
Based on the complete record, Petitioner’s arguments are persuasive. For example, we find that Saltykov teaches:

An electric circuit 140 is operatively connected to the microphone assembly 102. The electronic circuitry processes an electrical signal from the microphone assembly representing the received sound. The microphone assembly 102 is operatively connected to an electrical switch assembly 120 through the electric circuit 140, so that the microphone assembly can be switched between the directional mode and omni-directional mode. A receiver 142 is operatively connected to the electric circuit 140 to generate an acoustical signal in the user[’]s ear based upon the received sound.

Ex. 1004, 3:55–65.

- c. “wherein a protection screen is provided at the sound canal, whereby the screen comprises a first surface which faces the surroundings and a second surface which faces the sound canal whereby the screen has a slit-formed opening between the first surface and the second surface whereby the screen defines slit-formed opening therethrough and wherein the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge.”

For these limitations, Petitioner argues that Saltykov teaches a protection screen in the form of sound port covers 112 and 114, which extend across and partially block sound ports 108 and 110. Pet. 21 (citing Ex. 1004, 3:1–10, Fig. 1; Ex. 1003 ¶ 47). Petitioner further asserts that sound port covers 112 and 114 have two surfaces that face the surroundings and sound canal. *Id.* (citing Ex. 1004, Fig. 1; Ex. 1003 ¶ 48). Petitioner provides an annotated Figure 1 (reproduced below) to show these surfaces. Pet. 21.



Annotated Figure 1 depicts the microphone section of Saltykov’s hearing instrument, including green arrows pointing to an alleged first surface and orange arrows pointing to an alleged second surface of covers 112 and 114.

Id.

Additionally, Petitioner acknowledges that Saltykov does not disclose slit-formed openings. Pet. 22 (“The openings 116 and 118 between the first surface and the second surface, defined by sound port covers 112 and 114, in Saltykov appear to be in the form of holes, rather than slits. (See Ex. 1004, Fig. 4.).”). Nonetheless, Petitioner asserts that Dodge discloses that contouring openings and different opening geometries to decrease wind noise were well-known. Pet. 22 (citing Ex. 1005, Fig. 2; Ex. 1003 ¶ 49). Referring to Figure 6 in Dodge, Petitioner argues that the slit-formed openings disclosed in Dodge have a first surface that extends toward the opening along a smooth, gradual curve and meets the second surface along a sharp edge. Pet. 22–23 (citing Ex. 1005, Fig. 6; Ex. 1003 ¶¶ 49–56).

Petitioner further argues that “[a] POSITA would have been motivated to modify Saltykov’s faceplate 104 to include one or more slit-formed openings from Dodge to reduce the effects of wind noise.” Pet. 17. This is because “Saltykov explains that wind noise is a particular problem with directional microphones . . . and Dodge explicitly teaches that the slit orientation of the openings minimizes background wind noise” Pet. 17–18 (citing (Ex. 1004, 1:40; Ex. 1005, 1:43–53). Petitioner adds that a POSITA implementing a hearing aid including a directional cartridge as taught by Saltykov would have been motivated to use slit openings instead of Saltykov’s holes to reduce wind noise when the hearing aid is in directional mode. *Id.* at 18 (citing Ex. 1003 ¶ 51). Petitioner further asserts that slits were already used for microphones to keep debris and moisture from entering the mic ports, because those skilled in the art were always concerned with protecting the microphone. *Id.* “And, a POSITA would

expect that this modification would successfully reduce wind noise in the hearing aid of Saltykov because the slit-formed openings are being used for the same purpose as was taught in Dodge—serving as an interface for sound to reach a microphone.” Pet. 18–19 (citing Ex. 1003 ¶ 54).

In its Response, Patent Owner argues that the Petition does not explain or show how the alleged combination of Saltykov and Dodge would teach or suggest a “slit-formed opening” of a protective screen for Saltykov’s hearing instrument. PO Resp. 29; *see id.* at 27 (“Neither the Petition nor Dr. Staab specify whether it is Saltykov’s openings or the sound port covers or some other aspect of the device that would be modified to include the slit openings in Dodge.”). *Id.* at 27. First, Patent Owner asserts that there is no explanation as to how Dodge’s slit openings would be implemented with Saltykov’s hearing instrument to achieve a protection screen with a slit-formed opening.” *Id.* at 30. Second, Patent Owner argues that a modification of Saltykov’s faceplate to include the slit openings of Dodge would negate the benefits of Saltykov’s invention and change the principle of operation of Saltykov. *Id.* at 30–33. Patent Owner asserts that Petitioner’s proposed modification would negate the increase in the effective distance between sound ports in Saltykov’s directional microphone. *Id.* at 32 (citing Ex. 2001 ¶ 75). Third, Patent Owner argues that the purpose of Dodge is to reduce windage effects of hissing and explosive sounds from speech, which Patent Owner argues is different from background wind noise. *Id.* at 33–34. Fourth, Patent Owner contends that Petitioner does not explain why a rounded surface or Figures 5 or 6, would be chosen over the embodiment with a preferred right angle between the faceplate and the bar shown in Figure 3. *Id.* at 35–36. Fifth, Patent Owner asserts that Saltykov

teaches a bi-modal device that switches between omni-directional and directional microphones to address the problem of wind noise in directional microphones, and, thus, a further modification of the sound ports would be unnecessary. *Id.* at 27.

Based on the complete record, including Patent Owner's rebuttal arguments, we find Petitioner's position persuasive. With regard to claim 1, the Petition states:

The openings 116 and 118 between the first surface and the second surface, defined by sound port covers 112 and 114, in Saltykov appear to be in the form of holes, rather than slits. (See Ex. 1004, Fig. 4.) But, as shown in Dodge, contouring openings and providing different opening geometries to decrease wind noise was well-known. In particular, Dodge teaches slit-formed openings in the protection screen of an audio device.

Pet. 22 (citing Ex. 1005, Fig. 2; Ex. 1003 ¶ 49). With regard to combining the relevant teachings of Saltykov and Dodge, the Petition states, among other things, that

Saltykov and Dodge teach every element of the claims of the '621 patent. (Ex. 1003, ¶ 44.) A POSITA would have been motivated to modify Saltykov's faceplate 104 to include one or more slit-formed openings from Dodge to reduce the effects of wind noise. (*Id.*, ¶ 50.) Saltykov explains that wind noise is a particular problem with directional microphones (Ex. 1004, 1:40), and Dodge explicitly teaches that the slit orientation of the openings minimizes background wind noise. . . . POSITA would recognize that reducing "windage" across the mouthpiece of a microphone is the same action as reducing wind across a surface leading to a microphone in a hearing aid. (Ex. 1003, ¶ 51.) As such, a POSITA implementing a hearing aid including a directional cartridge as taught by Saltykov would have been motivated to modify Saltykov's openings (whose shapes are not disclosed as being provided for any particular reason) into one or more slit-formed openings to reduce wind noise when the

hearing aid is in directional mode. (*Id.*) A POSITA would have known that small openings, either in the form of a slit or a hole, would allow sufficient sound to enter the microphone port, and would have used rounded leading edges to reduce wind noise. (*Id.*) Small openings in the form of slits for microphones were already in practice to keep debris and moisture from entering the mic ports, because those skilled in the art were always concerned with protecting the microphone. (*Id.*) And, a POSITA would expect that this modification would successfully reduce wind noise in the hearing aid of Saltykov because the slit-formed openings are being used for the same purpose as was taught in Dodge—serving as an interface for sound to reach a microphone. (*Id.*, ¶ 54.)

Pet. 17–18. Thus, although Patent Owner may not agree with the merits of the showing, the Petition, nonetheless, explains Petitioner’s challenge.

In Patent Owner’s Sur-Reply, Patent Owner further asserts that Petitioner’s proposed modification of Saltykov’s sound ports is a new argument different from the modification of the faceplate. Sur-Reply 8–9. Nonetheless, we find that the Petition sufficiently presents the theory that Saltykov’s sound ports would have been modified. In the quoted passage above, the Petition states “a POSITA implementing a hearing aid including a directional cartridge as taught by Saltykov would have been motivated to modify *Saltykov’s openings* (whose shapes are not disclosed as being provided for any particular reason) into one or more slit-formed openings to reduce wind noise when the hearing aid is in directional mode.” Pet. 18 (emphasis added). Saltykov teaches that “[s]ound port covers 112 and 114 extend across and partially block sound ports 108 and 110. The sound port covers 112 and 114 comprise openings 116 and 118.” Ex. 1004 3:1–4. Given this disclosure, we understand Saltykov to teach that the sound port

covers define the shape of the openings 116, 118 of sound ports 108 and 110. On page 21 of the Petition, Petitioner maps the sound port covers 112 and 114 to the recited “protection screen” and further, on pages 22–23 of the Petition, explains that the Saltykov openings would have been modified with Dodge’s teachings. The claim charts on pages 21–23 of the Petition include an annotated drawing of Saltykov’s Figure 1 indicating that Petitioner relies on sound port covers 112, 114 to teach the “protection screen” recited in claim 1.

Next, we do not agree that Petitioner’s proposed modification of Saltykov’s faceplate to include the slit-formed openings of Dodge would negate the effective distance achieved by Saltykov’s invention and change the principle of operation of Saltykov. PO Resp. 32 (citing Ex. 2001 ¶ 75). Patent Owner asserts that “[i]f the slit openings of Dodge were applied to Saltykov’s faceplate and traversed both of Saltykov’s sound ports, the effective distance becomes the original, unmodified physical distance between the sound ports.” *Id.* at 32. With respect to claim 1, Petitioner does not argue that Dodge’s slit openings traverse both sound ports. Pet. 20–23. Rather, Petitioner asserts a POSITA “would have been motivated to modify Saltykov’s openings (whose shapes are not disclosed as being provided for any particular reason) into one or more slit-formed openings to reduce wind noise when the hearing aid is in directional mode.” *Id.* at 17. Thus, Patent Owner has not explained how Petitioner’s modification of openings 116, 118, as defined by sound port covers 112, 114, to have a shape/geometry as disclosed in Dodge would change the “effective distance” between the

ports.⁶ Put another way, Petitioner has not argued that the distance or position of Saltykov's ports are changed by the proposed modification to the shape of the ports. Reply 13 ("Petitioner proposed modifying the configuration of Saltykov's faceplate referring to the screen mounted thereon, and not other aspects of the faceplate itself.").

Additionally, we are not persuaded that the type of windage addressed by Dodge is so different from background wind noise discussed in Saltykov as to rebut Petitioner's arguments. We observe first that the references themselves do not explicitly exclude any type of air turbulence or wind. Dodge states that the disclosed mouthpiece "will offer a minimum external reflecting surface to impinging sound waves and will prevent the emphasis of the hissing and explosive sounds in speech, which involve windage." Ex. 1005, 1:5–11. Dodge broadly refers to "impinging sound waves" and "windage," but does not limit either of these to specific types of sounds. In this regard, Mr. DaBell's testimony is not supported persuasively by the evidence of record. During cross-examination, Mr. DaBell testified that Dodge's windage excludes wind. Ex. 1011, 65:3–5 ("Q: So you're interpreting the word 'windage' to exclude wind? A: Yes."). However, Mr. DaBell's testimony is based on his reading of Dodge, which we find does not explicitly exclude "wind" from "windage" or other impinging sounds. *Id.*; see also Ex. 2001 ¶¶ 81–83 (relying on Dodge's disclosure to exclude background wind noise).

⁶ Petitioner asserts that Patent Owner's arguments are directed to claims 6–10, particularly claim 7. Reply 12–15. Nonetheless, in its Response, Patent Owner does not limit these arguments to a subset of the challenged claims.

Further, Patent Owner relies on the discussion of wind noise in Exhibit 2003 (“Thompson”), titled “Directional Microphone Patterns: They also have disadvantages,” for the proposition that a skilled artisan would have understood the issues for a “close-talking” headset microphone and a hearing aid in wind with a directional microphone are different and “backwards.” Sur-Reply 6 (citing Ex. 2003, 4–5). Unlike Dodge, Thompson excludes certain sounds from the “wind noise” at issue for the described devices. Thompson states:

The particular wind noise we are talking about here is the noise that is heard by people caused by the wind rushing past their own heads. *We do not mean the sound of trees being blown by the wind, nor do we mean the sounds heard inside a house caused by the wind blowing against the walls outside.* Wind noise caused by turbulent airflow around the head is a clear nuisance for normal hearing as well as hearing impaired people.

Ex. 2003, 5 (emphasis added). Thompson does what Dodge does not, which is limit its discussion to a *particular* type of wind noise, as discussed above, and further shown in Figure 4 of Thompson. There is no such restriction of “windage” in Dodge and we are not persuaded by Patent Owner that the disclosure in a separate reference requires otherwise.

In addition, we do not agree that Petitioner has disregarded Dodge’s disclosure of a “preferred embodiment” as Patent Owner suggests. See PO Resp. 35–36. In claim 1, the screen “has a slit-formed opening between the first surface and the second surface . . . wherein the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge.” Petitioner asserts that it would have been obvious to modify Saltykov’s ports with the shape shown in Dodge’s Figure 6 that provide a slit-formed opening with a first surface

with smooth curves and a second surface with sharp edges. Pet. 17. Patent Owner argues that, in making that assertion, Petitioner has ignored Dodge's preference for the orthogonal form shown in Figure 3, which Patent Owner asserts does not have a smooth curve or rounded surface. PO Resp. 37 ("The Petitioner fails to provide any evidence or explanation as to why a rounded surface, or Figures 5 or 6, would be chosen over Dodge's stated preference. Such picking and choosing further demonstrates that the rationale is defective."). However, a reference is good for all that it teaches to a person of ordinary skill in the art, and not only for what it sets forth as preferred. *See, e.g., Merck & Co., Inc. v. Biocraft Labs, Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989). Thus, we do not find fault in Petitioner's reliance on the embodiments disclosed in Figures 5 and 6 of Dodge, even assuming these disclosed examples are not the preferred embodiments.

Finally, Patent Owner asserts that because Saltykov already addresses the issue of wind noise for directional microphones, Petitioner has not adequately explained why a POSA would be motivated to modify Saltykov with Dodge's slit-openings. PO. Resp. 27–28. More specifically, Patent Owner contends that Saltykov's device can be switched to an omni-directional microphone from the directional microphone to mitigate background wind noise. *Id.*

Petitioner responds that Patent Owner's expert, Mr. DaBell, agreed that manual toggling between the omni-directional and directional microphones would be impractical for a majority of hearing aid patients. Reply 5 (citing Ex. 1011, 61:21–62:17). In its Sur-Reply, Patent Owner asserts that Saltykov's inclusion of both microphones would address wind noise regardless of the type of toggle switch used (i.e., remote or automatic

switching). Sur-Reply 17.

Turning to Saltykov, we find that Saltykov teaches generally that dual mode hearing instruments have two separate microphone cartridges and a separate toggle switch for switching between them. Ex. 1004, 1:51–54. Saltykov notes that prior devices were larger and, therefore, were used in ears large enough to accommodate the devices, which often excluded children. *Id.* at 1:56–57. Saltykov seeks to address this problem with a reduced sized dual microphone hearing instrument with a toggle switch. *See id.* at 1:58–61, 4:6–14. Saltykov’s described device includes a toggle switch located on the outside of the faceplate for access by the user. *Id.* at 4:12–14. Although Patent Owner is correct that Saltykov’s device includes an omnidirectional microphone to mitigate wind noise sensitivity in the directional microphone mode, Saltykov also expressly teaches that children often could not use these devices.

Saltykov’s disclosure is consistent with Petitioner’s arguments and supporting evidence that toggling devices may be “highly impractical” for hearing aid patients. For example, Mr. DaBell’s deposition testimony acknowledges that manual toggling between microphones would be impossible for some hearing aid users. Ex. 1011, 61:21–25 (“Q: Okay. And you agree that toggling is not possible for all users, such as the elderly, children, mentally challenged, et cetera. Is that right? A: Yes.”).

Additionally, Exhibit 2002, titled “Directional Hearing Aids,” states that

[d]espite advances in remote control and switch technology relative to ease of use, the fact remains that a number of hearing aid wearers are unable to switch between settings due to physical and/or mental limitations. This switching may be especially difficult, or impossible, for very young children, and elderly

adults. In response to these concerns, at least three manufacturers have introduced instruments that automatically switch between directional and omnidirectional modes depending on the acoustic environment.

Ex. 2002, 169. We further credit Dr. Staab's testimony that a "POSITA would understand Saltykov discloses a manual mode-switch . . . that is impractical for a majority of hearing aid users, including the elderly and children." Ex. 1012 ¶ 8. Dr. Staab's testimony is supported and consistent with evidence of record, including Mr. DaBell's deposition testimony, and Exhibit 2002.

Additionally, we note that Petitioner does not rely solely on "windage" as the basis for the proposed combination. Petitioner relies on the testimony of Dr. Staab who states that "[s]maller openings in the form of slits for microphones were already in practice to keep debris and moisture from entering the mic ports, because those skilled in the art were always concerned with protecting the microphone." Ex. 1003 ¶ 51. In other words, separate from reducing background wind noise, Dr. Staab testifies that the slits, disclosed in Dodge, "would be useful to prevent debris/moisture from entering the openings." Ex. 1003 ¶ 56. We credit Dr. Staab's testimony in this regard because it is consistent with Saltykov's teaching that a mesh covering may be provided over openings 112 and 114 to prevent unwanted particles from entering sound ports 108 and 110. Ex. 1004, 3:10–13. In other words, Saltykov contemplates the need to protect the ports from unwanted particles (e.g., debris), which is consistent with Dr. Staab's testimony that modifying Saltykov's port shape would achieve that purpose.

Thus, in reading Saltykov in this context, we find persuasive and reasonable Petitioner's arguments that a POSITA would have been

motivated to modify Saltykov with Dodge's slit-opening configuration to address the problems of background wind noise, especially for users (e.g., children) who could not readily use dual microphone devices, and, separately, to keep debris and moisture from entering the microphone ports. *See KSR*, 550 U.S. at 418 ("To determine whether there was an apparent reason to combine the known elements in the way a patent claims, it will often be necessary to look to . . . the effects of demands known to the design community or present in the marketplace; and to the background knowledge possessed by a person having ordinary skill in the art.").

We have reviewed Petitioner's assertions with respect to each limitation of claim 1 and find them persuasive. Accordingly, we determine that Petitioner has established by a preponderance of the evidence that claim 1 would have been obvious over Saltykov and Dodge.

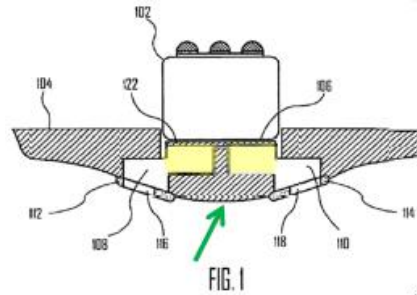
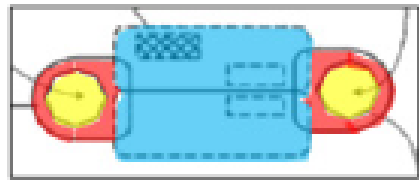
3. Claim 2

Claim 2 depends from claim 1, and further recites:

two slit-formed openings in the protection screen with an intermediate plate element between the two slit-formed openings and including a canal below the intermediate plate element leading to the microphone such that a sound path is provided from the surroundings through the slit-formed openings and into the canal leading to the microphone.

Ex. 1001, 5:18–24.

For these limitations, Petitioner asserts that Saltykov teaches a device with two openings, an intermediate plate element between the two openings with a canal below the plate element leading to the microphone. Pet. 24. Petitioner's annotated Figures 1 and 4 from Saltykov are reproduced below.



Petitioner’s annotated Figure 4 of Saltykov (left) shows the openings in yellow and the port covers in red. *Id.* at 23–24. Petitioner’s annotated Figure 1 of Saltykov shows an intermediate plate element marked by a green arrow and canals in yellow. *Id.* Petitioner further argues that Dodge teaches multiple slit-formed openings as shown in Figure 2 of Dodge. Pet. 24.

Based on the complete record, we find persuasive Petitioner’s argument that the proposed combination of Saltykov and Dodge teaches or suggests all the elements of claim 2 of the ’621 patent. Pet. 23–38. For example, we find that Saltykov discloses, in Figure 4, sound ports 108, 110 visible through sound port covers 112, 114. Ex. 1004, 4:10–12. As shown in Figure 1, the space inside of sound port covers 112, 114 is next to microphone assembly surface 106. *See id.* at Fig 1. Saltykov teaches that a “front sound port 108 and a rear sound port 110 may be positioned in the faceplate 104 to allow sound to travel to the microphone assembly inlets.” *Id.* at 2:59–61.

Patent Owner does not present arguments for claim 2 other than those discussed above with respect to claim 1. PO Resp. 21–37. For the same reasons discussed above with regard to claim 1, Patent Owner’s arguments are not persuasive.

Accordingly, we have reviewed Petitioner’s assertions with respect to each limitation of claim 2 and find them persuasive. Thus, we determine

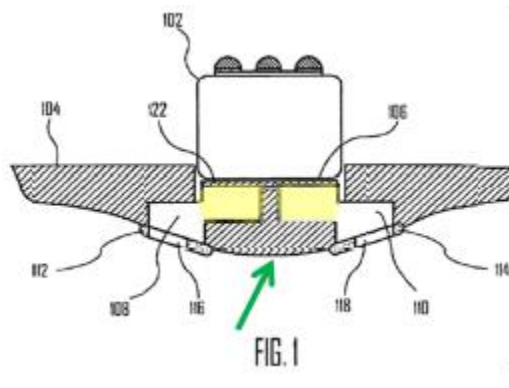
that Petitioner has established by a preponderance of the evidence that claim 2 would have been obvious over Saltykov and Dodge.

4. Claim 3

Claim 3 depends from claim 1 and further recites “wherein two or more canals leading to a microphone or microphones are provided in an area below the intermediate plate element.”

For these limitations, Petitioner asserts that Figure 1 of Saltykov, discussed in relation to claim 2 above, shows two canals below the intermediate plate element leading to the microphone assembly. Pet. 25 (citing Ex. 1004, Fig. 1; Ex. 1003 ¶ 61).

Consistent with Petitioner’s arguments, we find that Saltykov’s Figure 1 teaches two sound ports 108 and 110, each having a space that is contact with the microphone assembly. Ex. 1004, 3:1–2; *see also* Pet. 20. Petitioner relies on annotated Figure 1 reproduced below.



According to Petitioner, annotated Figure 1 shows canals in yellow. Pet. 24–25. Petitioner argues the areas marked in yellow teach two canals leading to the microphones. *See id.*

Patent Owner does not provide any arguments specific to claim 3 other than those discussed above for claim 1. PO Resp. 21–37. For the

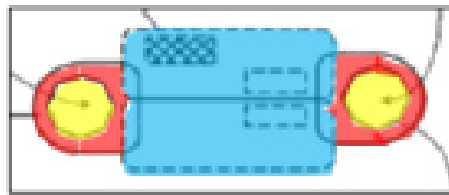
same reasons discussed above with regard to claim 1, Patent Owner's arguments are not persuasive.

Accordingly, we have reviewed Petitioner's assertions with respect to each limitation of claim 3 and find them persuasive. Thus, we determine that Petitioner has established by a preponderance of the evidence that claim 3 would have been obvious over Saltykov and Dodge.

5. *Claim 4*

Claim 4 depends from claim 2 and further recites "wherein the two slit-formed openings extend side-by-side, and wherein a distance between the slit-formed openings is such that the intermediate plate element covers the canal that leads to the microphone."

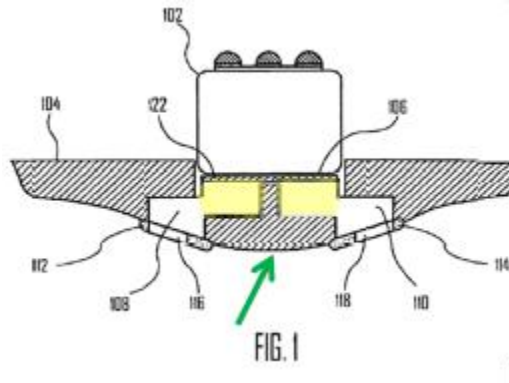
Petitioner relies on an annotated Figure 4 of Saltykov as teaching two slit-formed openings. Pet. 25.



According to Petitioner, annotated Figure 4 of Saltykov shows two openings in yellow that are side-by-side. *Id.* Petitioner argues that the intermediate plate (see annotated Figure 1 above marked by the green arrow) covers the canals leading to the microphone. *Id.*

Consistent with Petitioner's arguments, we find that Saltykov's Figure 1 teaches two sound ports 108 and 110, each having a space (i.e., canal) that is contact with the microphone assembly. Ex. 1004, 3:1–2; *see also* Pet. 20. The intermediate plate (shown in Petitioner's annotated Figure 1, reproduced

below) covers the space (marked yellow) between the ports 108, 110 and the microphone assembly.



Petitioner's annotated Figure 1 of Saltykov shows canals in yellow and an immediate plate indicated by a green arrow. Pet. 24.

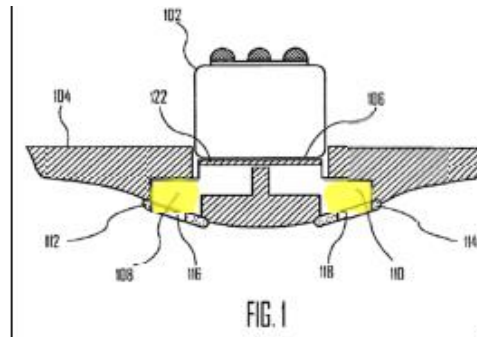
Patent Owner does not provide any arguments relating to claim 4 other than those discussed above for claim 1. PO Resp. 21–37. For the same reasons discussed above with regard to claim 1, Patent Owner's arguments are not persuasive.

We have reviewed Petitioner's assertions with respect to each limitation of claim 4, and determine that Petitioner has established by a preponderance of the evidence that claim 4 would have been obvious over Saltykov and Dodge.

6. Claim 5

Claim 5 depends from claim 4, and further requires “a space beneath the slit-formed openings along the whole length of the openings, such that sound may pass through the slit-formed openings at any point and reach the microphone.”

We find that Saltykov discloses this limitation. Figure 1 of Saltykov shows a space under the openings 116, 118. Ex. 1004, Fig. 1. Petitioner provides an annotated Figure 1 (reproduced below).



Petitioner's annotated Figure 1 of Saltykov shows the space beneath slit-formed openings in yellow. Pet. 25.

Patent Owner does not provide any arguments related to claim 5 separate from those discussed above for claim 1. PO Resp. 21–37. For the same reasons discussed above with regard to claim 1, Patent Owner's arguments are not persuasive. Thus, we have reviewed Petitioner's assertions with respect to each limitation of claim 5, and determine that Petitioner has established by a preponderance of the evidence that claim 5 would have been obvious over Saltykov and Dodge.

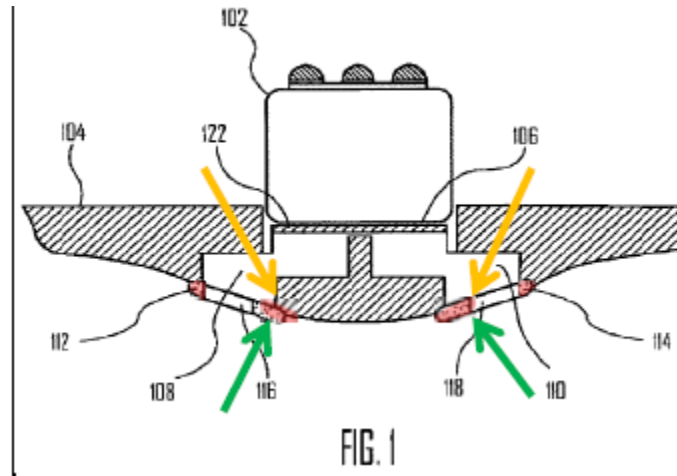
7. Independent Claim 6

Independent claim 6 is directed to a protection screen for an audio device that includes

a first surface which faces the surroundings and an opposed second surface which faces an audio device, wherein the protection screen defines a slit-formed opening therethrough and wherein the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge.

For these limitations, Petitioner asserts that Saltykov's sound port covers 112, 114 "are equivalent to the protection screen, particularly because Saltykov teaches that the sound port covers may be constructed as an integral piece." Pet. 27 (citing Ex. 1004, 3:13–14). Petitioner further

provides an annotated Figure 1, reproduced below.



Petitioner’s annotated Figure 1 from Saltykov shows the first surface facing the surroundings (green arrows) and a second surface facing the interior of the audio device (orange arrows). *Id.* (citing Ex. 1004, Fig. 1; Ex. 1003 ¶ 67). Petitioner acknowledges that the openings in Saltykov “appear to be in the form of holes, rather than slits.” Pet. 27-28. Petitioner asserts that Dodge teaches the “first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge” limitation recited in claim 6 because Dodge’s Figure 6 shows curved surface meeting a sharp edge. *Id.* at 28.

Petitioner relies on the rationale discussed above with respect to claim 1 for the modification of Saltykov’s device with Dodge’s slit-formed openings shown in Dodge’s Figure 6. *Id.* (citing Ex. 1003 ¶¶ 49–56). These include that a skilled artisan would have modified Saltykov’s device in light of Dodge’s slit-formed openings to reduce background wind noise and unwanted debris or moisture from entering the microphone ports. *See*

Ex. 1003 ¶¶ 51–56.

Turning to the references, we find that Saltykov teaches sound port covers 112, 114 extend across and partially block sound ports 108, 110, and that openings 116, 118 into the ports are smaller than sound ports 108 and 110. Ex. 1004, 3:1–5. Saltykov also teaches that a mesh covering may be provided over openings 112 and 114 to prevent unwanted particles from entering sound ports 108 and 110. *Id.* at 3:10–13. Saltykov teaches that the two sound port covers 112 and 114 may be realized as a *monolithic construction*. *Id.* at 3:14–15. Consistent with Petitioner’s arguments, Saltykov does not describe the shape or geometry of openings 112, 114. Dodge discloses the shape of slit-formed openings as shown in Figure 6 of Dodge. And, further, Dodge teaches that these shapes reduce “windage.” Ex. 1005, Fig. 6, 1:5–12. Additionally, as discussed above with regard to claim 1, Dr. Staab provides credible testimony that a POSITA would have modified Saltykov’s device with Dodge’s slit-formed openings to reduce wind noise and unwanted debris/moisture. *See* Ex. 1003 ¶¶ 51–56.

Patent Owner does not provide any arguments specific to independent claim 6 different from those discussed above for independent claim 1. PO Resp. 21–37. For same reasons discussed above with regard to claim 1, Patent Owner’s arguments are not persuasive. Thus, we have reviewed Petitioner’s assertions with respect to each limitation of claim 6, and determine that Petitioner has established by a preponderance of the evidence that claim 6 would have been obvious over Saltykov and Dodge.

8. Claim 7

Claim 7 depends from claim 6, and further recites “the slit-formed opening has a lengthwise extension allowing two microphone openings in a

directional microphone system to be placed along the length of the slit-formed opening.”

Petitioner asserts that Saltykov teaches a directional microphone with two microphone openings at front sound port 108 and rear sound port 110. Pet. 28–29 (citing Ex. 1004, 2:59–64). Referring to Figure 2 of Saltykov, Petitioner argues that microphone assembly 102 includes front inlet 136 and rear inlet 134. *Id.* at 29 (citing Ex. 1004, Fig. 2, 3:22–27). In its proposed combination of Saltykov and Dodge, Petitioner asserts that a slit, such as the one shown in Figure 2 of Dodge, would extend over two microphone openings (e.g., ports 108 and 110). *Id.* at 30–31 (citing Ex. 1003 ¶ 77). According to Petitioner, Dodge teaches that reinforcing rib 16 between the slits can be omitted. *Id.* at 31–32 (citing Ex. 1005, 1:54–60). In combination with Saltykov, Petitioner argues that Dodge’s optional reinforcing rib would have been omitted as unnecessary when adapted to a hearing instrument. *Id.* at 30–31 (citing Ex. 1003 ¶ 77). Petitioner relies on an annotated Figure 4 of Saltykov (reproduced below).

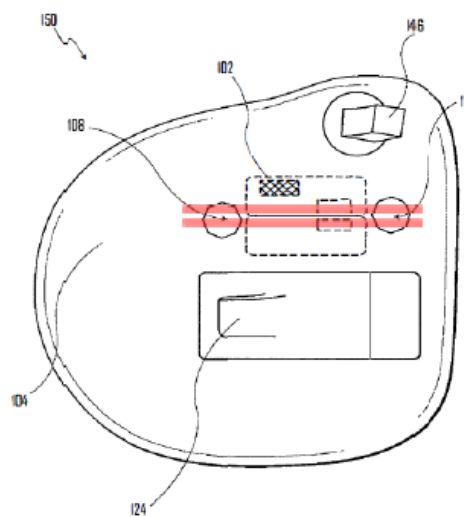


FIG. 4

Petitioner's annotated Figure 4 from Saltykov shows slit-formed openings in red. Pet. 33. Petitioner argues that "one implementation of Saltykov's hearing device with Dodge's slit-formed openings would have had two slit-formed openings (the two center openings shown in red in the figure below) each having a lengthwise extension allowing two microphone openings (108 and 110) to be placed along the length of the slit-formed opening."

Petitioner argues that "[t]his arrangement still minimizes windage effects, as the openings remain parallel to each other." Pet. 32 (citing Ex. 1005, 1:43–53; Ex. 1003, ¶ 79).

In its Response, Patent Owner asserts that claim 7 requires a *single* slit-formed opening that extends above two microphone openings. PO Resp. 22. Patent Owner adds that claim 7 recites plural microphone openings but only a single slit-formed opening that must extend above multiple microphones. *Id.* Patent Owner further argues that Petitioner's annotated Figure 4 provides an unsupported hypothetical reconstruction that puts slit-formed openings in the faceplate of Saltykov, which is not the protection screen. *Id.* at 23.

In Petitioner's Reply, Petitioner alleges that the claim language "allowing two microphone openings in a directional microphone system to be placed along the length of the slit-formed opening" recited in claim 7 does not limit the screen structure and is aspirational as to a possible intended use. Reply 12–13; *see* Sur-Sur-Reply 7–8. Under this construction, Petitioner asserts that "Patent Owner's arguments regarding the principle of operation . . . need not be considered further." Reply 13; *see id.* at 12 ("Patent Owner's arguments regarding the effective distance relate to the construction of Saltykov's hearing aid itself, not its wind screens.").

Petitioner further argues that it does not allege that Saltykov's faceplate 104 is modified to have an elongated slit, but that the screens attached thereon (i.e., sound port covers) are elongated to provide lengthwise slits. *Id.* at 15.

We observe that Petitioner has argued in its Reply for the first time that language recited in claim 7 amounts only to aspirational intended use entitled to no patentable weight. Reply 12–13. This construction was not argued in the Petition. Petitioner cannot introduce a new argument in a reply. Our regulations require the Petition to identify “[h]ow the challenged claim is to be construed” and “[h]ow the construed claim is unpatentable.” 37 C.F.R. § 42.104(b)(3),(4). The Supreme Court also has acknowledged that “petitioner’s contentions [in a petition] . . . define the scope of the litigation all the way from institution through to conclusion.” *SAS*, 138 S. Ct. at 1357. Furthermore, Petitioner’s Reply is limited to responding to arguments raised in the Patent Owner Response. *See* 37 C.F.R. § 42.23(b). Nonetheless, even if we consider Petitioner’s new claim construction, we are not persuaded that Petitioner has demonstrated by a preponderance of the evidence under that construction that Saltykov and Dodge teach the limitations recited in claim 7. Looking at Figures 1 and 4 of Saltykov, we find that sound ports 108, 110 and sound port covers 112, 114 appear to be separated by a portion of faceplate 104 and, therefore, neither the ports nor port covers appear to be connected by a lengthwise extension. This reading of Saltykov is consistent with Saltykov’s teaching that

[s]ound port covers 112 and 114 extend across and partially block sound ports 108 and 110. The sound port covers 112 and 114 comprise openings 116 and 118, respectively, where the openings 116 and 118 are smaller than the sound ports 108 and 110, and are offset from the respective centers of the sound ports

to partially obstruct the ports, *therefore increasing the effective distance between the sound ports 108 and 110.*

Ex. 1004, 3:1–8 (emphasis added). Saltykov teaches that increasing the effective distance between the sound ports “provide a higher sensitivity in the directional mode.” *Id.* at 2:43–46. Therefore, we find that Saltykov teaches the sound ports are separated and the sound port covers 112, 114 obstruct the ports to increase the effective distance between the ports for higher sensitivity. *See id.* The testimony of Petitioner’s expert, Dr. Staab, also supports our reading of Saltykov. Dr. Staab testifies that “[e]ffective distance relates to the openings leading to the microphone ports of the rear versus the microphone ports -- port for the -- from the front.” Ex. 2004, 73:17–20. Further, Dr. Staab agrees that Saltykov teaches that the sound port covers are positioned to increase the effective distance between the sound ports to provide higher sensitivity in the directional mode. *Id.* at 74:9–22.

In Petitioner’s proposed modification, the slit-formed opening extends between the sound ports 108, 110. Petitioner’s modified Figure 4 is shown below.

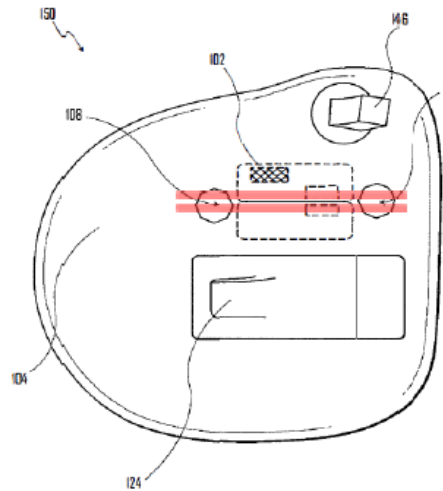
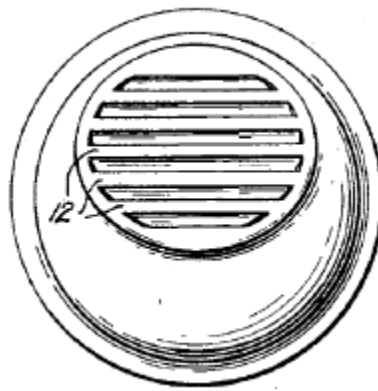


FIG. 4

As shown above in Petitioner's annotated Figure 4, Petitioner proposes that the protection screen, or the sound port covers 112, 114 would be modified to extend from sound port 108 to sound port 110, connecting the two sound ports. Pet. 32 (“[O]ne implementation of Saltykov’s hearing device with Dodge’s slit-formed openings would have had two slit-formed openings (the two center openings shown in red in the figure below) each having a lengthwise extension allowing two microphone openings (108 and 110) to be placed along the length of the slit-formed opening, as shown below.”). Petitioner further provides a modified Figure 2 from Dodge (reproduced below).



Petitioner's Modified Figure 2 from Dodge shows lengthwise slit-formed openings without an optional rib. Pet. 32. Taken together, and considering Petitioner's arguments made for claim 6, from which claim 7 depends, we understand Petitioner's proposed modification to connect sound ports 108, 110 along a lengthwise slit-formed opening such as the one shown in modified Figure 2 from Dodge. Petitioner argues that its proposed modification does not change Saltykov's faceplate and only affects the protection screen (i.e., sound port covers). See Reply 12–13. Even so, by extending and modifying the sound port covers in view of Dodge's slit-formed openings (as proposed in Petitioner's Modified Figure 2 from Dodge), we find Petitioner's modification would extend the slit-formed opening between sound ports 108, 110 effectively connecting them, as shown in Petitioner's annotated figure from Saltykov, and eliminating the effective distance between the ports.

In this regard, we find Patent Owner's arguments persuasive that Petitioner has not explained sufficiently why a skilled artisan would have made this modification, which would have reduced or eliminated the benefits of the effective distance between the sound ports. See PO Resp. 32 (“[T]he proposed modification of Saltykov's faceplate would negate the increase in the effective distance achieved by Saltykov's invention. Ex. 2001, ¶ 75. If the slit openings of Dodge were applied to Saltykov's faceplate and traversed both of Saltykov's sound ports, the effective distance would become the original, unmodified physical distance between the sound ports. *Id.*”). Petitioner's expert, Dr. Staab, testifies that changes in the effective distance between the ports would change sensitivity. Ex. 2004, 75:3–9.

However, neither Petitioner nor its expert explains why one of ordinary skill in the art would have modified Saltykov in this manner given the change in effective distance. Petitioner provides rationales for the modification of Saltykov's sound ports with the shape/geometry of Dodge's openings. *See* Pet. 15–19. Nevertheless, these rationales do not specifically address why a skilled artisan would have included a lengthwise extension between the sound ports. Petitioner does argue that the proposed “arrangement still minimizes windage effects, as the openings remain parallel to each other.” *Id.* at 32. But that would be the case with the modification to the shape/geometry of Saltykov's sound ports without the addition of a lengthwise extension. *See id.* at 15–19.

We are mindful that tradeoffs in balancing the benefits and drawbacks of a proposed combination do not necessarily prevent the proposed combination or negate the obviousness of the claimed subject matter. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (“[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.”). Yet, ultimately, it is Petitioner's burden to address these tradeoffs and provide a showing of an articulated basis with rational underpinnings for combining the relevant teachings of the references (*see KSR*, 550 U.S. at 418). We find that Petitioner has not done so for claim 7. Thus, we determine that Petitioner has not established by a preponderance of the evidence that claim 7 would have been obvious over Saltykov and Dodge.

9. *Claims 8*

Claim 8 depends from claim 6, and further recites “including two slit-formed openings positioned side-by-side and spaced around 3mm apart,

such that an intermediate plate part is formed between the slit-formed openings.”

For these limitations, Petitioner argues that Saltykov’s openings and Dodge’s slit-formed openings are all positioned side-by-side, and an intermediate plate is positioned between the Saltykov openings. Pet. 33–34 (citing Ex. 1004, Fig. 4; Ex. 1005, Figs. 2 and 6; Ex. 1003 ¶ 82). Petitioner acknowledges that Saltykov does not explicitly teach how far apart the openings are. *Id.* at 34. Petitioner notes, however, that Saltykov states that the distance between the front and rear sound ports “is preferably in a range of about 5 mm to about 12 mm, although not limited thereto.” *Id.* (citing Ex. 1004, 2:65–67). Petitioner argues that the “distance between the front and rear sound ports is not strictly tied to the distance between openings in the protective screen, but serves as an indicator of the general scale of the hearing aid of Saltykov.” *Id.*

Petitioner asserts that the spacing of the openings is a result-effective variable that is a factor in determining how much sound is able to reach the microphone. Pet. 35. Petitioner argues that through routine optimization, and with small devices and children’s devices in mind, a 3 mm spacing would have been an obvious variation for a POSITA to try. *Id.* (citing Ex. 1003 ¶ 86). Additionally, Petitioner asserts that the ’621 patent does not associate any particular advantage with this spacing, other than this allows for an intermediate plate suitable for use with directional systems. *Id.* (citing Ex. 1001, 3:7–11; Ex. 1003 ¶ 87).

Patent Owner responds that Dr. Staab’s testimony regarding claim 8 is unsupported and conclusory. PO Resp. 24 (citing Ex. 1003 ¶¶ 82, 84–87, 90–93, 96–97, 99; Ex. 2001 ¶ 66). Patent Owner further adds that the ’621

patent teaches “[w]ind noise is known to be a serious problem to especially hearing aid wearers, but through the shape of the screen 3 and the openings 6 and the arrangement of the microphones, it is ensured that wind noise is minimized, and at the same time the screen 3 provides good protection against other environmental influences like moisture and dust.” *Id.* (citing Ex. 1001, 4:59–67; Ex. 2001 ¶ 67).

Based on the complete record, we find Petitioner’s arguments persuasive. Here, we agree with Petitioner that the proposed combination of Saltykov and Dodge discloses slit-formed openings in a side-by-side position separated by an intermediate plate. *See* Ex. 1004, Fig. 4; Ex. 1005, Figs. 2, 6. Thus, the remaining difference between the prior art and claim 8 is the recited specific dimension of 3mm. Our reviewing court has instructed that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *See Gardner v. TEC Syst., Inc.*, 725 F.2d 1338 (Fed. Cir. 1984). Patent Owner argues that the ’621 patent teaches the shape of the screen and openings, and the arrangement of the microphones provides protection against wind noise and other environmental influences. *See* PO Resp. 24. Contrary to Patent Owner’s arguments, the cited portions of the ’621 patent do not discuss the distance between the slit-formed openings spaced or the recited “around 3mm” distance between the openings. *See* Ex. 1001, 4:59–67. As such, we are not persuaded that this general disclosure in the ’621 patent is attributable to the specific dimensions recited in claim 8.

Further, even assuming that there may be purported advantages to the “about 3mm” limitation, we are not persuaded that these advantages patentably distinguish the prior art. Dodge teaches that its slit-formed openings also reduce the “windage,” which when combined with Saltykov provides the *same* advantages against wind and environmental influences that Patent Owner asserts are attributable to the arrangement of the openings in claim 8. See Pet. 15 (“Wind noise reduction through rounding the leading edge of sound entrance openings was a well-advanced technique at the time of the ’621 patent.”); Ex. 1003 ¶¶ 51–52. In this way, we find that the claimed device would not perform differently from that which is taught by the prior art. Further, we are persuaded that it would have been a matter of a design choice to a POSITA to select the recited 3mm distance in order to accommodate devices of appropriate scale for target users such as children. See Pet. 34–35; Ex. 1003 ¶ 86. As Petitioner observes, Saltykov discerns the need to create smaller devices because children often cannot use larger devices. Ex. 1004, 1:51–57. In fact, Saltykov notes that a problem with previous dual microphone devices is that the total space occupied by components limits their use to users with large enough ears. *Id.* We find Saltykov’s teaching to support Dr. Staab’s testimony that a POSITA would be motivated to make an audio device dimensioned as appropriate on a scale for a given market, including one with openings spaced 3 mm apart. Ex. 1003 ¶¶ 86–87. “When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.” *KSR*, 550 U.S. at 421.

Additionally, Patent Owner argues that the development of hearing

devices “from designing with the mechanical engineers, working with the electrical engineers on the electronics, designing a unit for evaluating different formats, testing for the fit, etc. would take considerable time and effort.” PO Res. 26 (Ex. 2001 ¶¶ 68–70). Even assuming Patent Owner’s assertions are correct, Patent Owner has not explained sufficiently how these efforts would be out of the capabilities of a skilled artisan, or that the selection of a 3mm distance between openings would in itself take “considerable time and effort.” Thus, we have reviewed Petitioner’s assertions with respect to each limitation of claim 8, and determine that Petitioner has established by a preponderance of the evidence that claim 8 would have been obvious over Saltykov and Dodge.

10. Claim 9

Claim 9 depends from claim 8, and further recites “wherein the slit-formed openings have a width in the range of 0.1 mm to 0.5 mm.”

Petitioner concedes that Saltykov and Dodge do not describe the sizes of their respective openings. Pet. 35. Petitioner argues, instead, that Saltykov teaches the cross-sectional area of the front inlet 136 of the microphone is preferably in the range of about 0.05 mm² to about 2.0 mm². *Id.* (citing Ex. 1004, 3:30–32). Petitioner proposes that a square or circular inlet with this cross-sectional area would have a width of about 0.2 mm to 1.6 mm, which overlaps widths in the range of 0.1 mm to 0.5 mm. *Id.* (citing Ex. 1003 ¶ 90). Petitioner adds that Saltykov teaches that widths in this range would have functioned properly for sound to travel to the microphone inlets, and a POSITA would have been motivated to configure the slit-formed openings to also have similar widths in this range for sound to travel through to the microphone inlets. *Id.* at 36 (citing Ex. 1003 ¶ 91).

Petitioner further argues that the size of the opening is “simply a matter of design choice” and the ’621 patent does not associate any particular advantage with this size of opening, other than helping prevent dirt and moisture from entering the device, while allowing sufficient sound to enter. *Id.* (citing Ex. 1001, 3:15–20; Ex. 1003 ¶ 93).

In response, Patent Owner asserts generally that Dr. Staab’s testimony is conclusory, and that the ’621 patent teaches a width in the range of 0.1 mm to 0.5 mm will prevent both moisture and dust from entering into the area beneath the screen and at the same time allow sufficient sound transparency of the protection screen. PO Resp. 24.

Based on the complete record before us, Patent Owner has the better position. First, Petitioner has not established persuasively that the cross-sectional area of the inlet 136 has any bearing on the width of openings 116, 118. Petitioner relies on Saltykov’s disclosure of cross-sectional area for inlet 136 for its conclusion that a separate structure at openings 116, 118 would have a width of 0.2 mm to 1.6 mm. *See* Pet. 35. Even assuming there is a relationship between the structures, such relationship appears tenuous at best where Dr. Staab’s testimony on this point provides no further detail or citation to the record for this proposition. Ex. 1003 ¶ 91 (“Since Saltykov had determined that widths in this range would have functioned properly for sound to travel to the microphone inlets, a POSITA would have been motivated to configure the slit-formed openings to also have similar widths in this range for sound to travel through to the microphone inlets.”). Further, if we consider Saltykov’s cross-sectional area of inlet 136 to apply to the width of Saltykov’s openings, then Petitioner has still not explained sufficiently why the width of the openings is a result-effective variable ripe

for routine optimization. Saltykov states “[t]he cross-sectional area of front inlet 136 is preferably in a range of about 0.05 mm² to about 2.0 mm².” Ex. 1004, 3:31–32. But Saltykov does not attribute any result or effect to the inlet cross-sectional area, nor does Saltykov identify or recognize the width of the openings to be a result-effective variable. Thus, upon review of the complete record, we determine that Petitioner has not established by a preponderance of the evidence that claim 9 would have been obvious over Saltykov and Dodge.

11. Claim 10

Claim 10 depends from claim 6 and recites “wherein the sharp edge between the first and second surfaces has a maximum radius of curvature of 0.05 mm.”

For these limitations, Petitioner asserts that:

[t]he edge of the second surface in Saltykov appears to be a sharp edge, but Saltykov does not explicitly teach a sharp edge between the first and second surfaces having a maximum radius of curvature of 0.05 mm. (Ex. 1003, ¶ 96.) And, the edge of the second surface in Dodge is a sharp edge (green arrow below), and Dodge teaches that the edge can be modified to various degrees of sharpness, and thus, a sharp edge between the first and second surfaces having a maximum radius of curvature of 0.05 mm would have been obvious over Dodge. (Ex. 1003, ¶ 97.)

Pet. 37. Petitioner further asserts that Dodge “notes that the form and shapes of the edges can be modified, and different versions are shown in the figures.” *Id.* at 38 (citing Ex. 1005, 1:25–29). Petitioner argues that a skilled artisan would have understood that the shape of the openings, and thus the sharpness or curvature of the openings’ edges, is a result-effective variable that factors in determining the type and quality of sound that is permitted to reach the microphone. *Id.* Petitioner contends that it would

have been obvious to use routine optimization of the edges to achieve a “sharp” edge with a radius of curvature of 0.05 mm or less. *Id.* (citing Ex. 1003 ¶ 99).

Patent Owner argues that Petitioner’s arguments are unsupported and that it would take considerable time and effort to make the design changes proposed by Petitioner. PO Resp. 24–26 (citing Ex. 2001 ¶¶ 68–70); Sur-Reply 21–22.

We find that Dodge recognizes that the shape of the slit-formed openings on a mouthpiece can “prevent the emphasis of the hissing and the explosive sounds in speech, which involve windage, without loss in articulation.” Ex. 1005, 1:5–12. To achieve this effect, Dodge teaches that the perforations in the face 14 are formed by parallel bars 12, one side, 13, of each bar being preferably substantially perpendicular to the face 14 and the opposite side 15 being oblique thereto. The sides of adjacent bars form long, narrow openings having converging walls with the planes bisecting the openings along their greatest dimensions parallel to each other and to the average direction of sound propagation, which arrangement minimizes the windage effects of hissing and explosive sounds. *Id.* at 1:43–2:54. We find that Dodge teaches that the shape of the opening, specifically, the angles formed by the bars (e.g., parallel bar 12 and side bars 13, 15) affects the sound quality, particularly the effects of windage. Figures 2–6 further provide examples of varying shapes and angles of Dodge’s slit-formed openings. *Id.* at Figs. 2–6. Thus, we agree with Petitioner that Dodge recognizes sharpness and the degree of sharpness as a result-effective variable and that absent any criticality of unobvious and/or unexpected results, “a maximum radius of curvature of 0.05 mm” is generally achievable

through routine optimization/experimentation. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Applied Materials, Inc.*, 692 F.3d 1289, 1295 (Fed. Cir. 2012) (citations omitted). “This rule is limited to cases in which the optimized variable is a ‘result-effective variable.’” *Id.*; see *Boesch*, 617 F.2d 272, 276 (CCPA 1980) (“[Discovery of an optimum value of a result effective variable . . . is ordinarily within the skill of the art.”). “A recognition in the prior art that a property is affected by the variable is sufficient to find the variable result-effective.” *In re Applied Materials*, 692 F.3d at 1297.

Further, we are not persuaded that the “considerable time and effort” that may be required for the proposed routine optimization of sharpness is beyond the capabilities of a skilled artisan. Mr. DaBell testifies that design practice is costly and time consuming, but does not indicate that a skilled artisan could not perform this optimization. Additionally, Patent Owner has not otherwise provided persuasive arguments or evidence of criticality of unobvious and/or unexpected results. PO Resp. 24–26 (citing Ex. 2001 ¶¶ 68–70); Sur-Reply 21–22.

c. Summary We have reviewed Petitioner’s assertions with respect to each limitation of claims 1–6, 8, and 10 find them persuasive. Accordingly, we determine that Petitioner has established by a preponderance of the evidence that claims 1–6, 8, and 10 would have been obvious over Saltykov and Dodge. For the reasons stated above, we do not find that Petitioner has established by a preponderance of the evidence that claims 7 and 9 would have been obvious over Saltykov and Dodge.

F. Obviousness Challenge Based on Sjursen and Mundel

Petitioner asserts that claims 1, 2, 4–6, and 9 would have been obvious based on a combination of the teachings and suggestions of Sjursen and Mundel. Pet. 5, 38–53.

1. Sjursen

Sjursen is an international patent application published under the Patent Cooperation Treaty (PCT). Ex. 1006, 1. Sjursen is titled, “Hearing Aid with Large Diaphragm Microphone Element including a Printed Circuit Board.” *Id.* at (54). Sjursen’s Figure 4 is reproduced below.

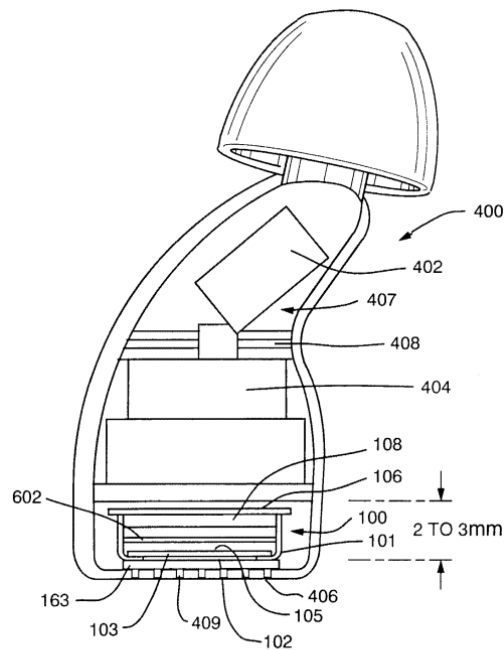


FIG. 4

Figure 4 depicts a “hearing aid microphone assembly 100 . . . disposed at a proximal end of an enclosure 408 for a disposable hearing aid 400.” *Id.* at 9:25–27. The microphone is located in housing 101. *Id.* at 9:27–28.

Sjursen states, “[f]laring the outside and/or inside surfaces of the microphone sound inlet holes (see 102A Fig. 16A or openings 409 of Fig. 4)

helps to reduce the turbulence produced by wind, and hence, wind-induced noises.” *Id.* at 23:10–12. Sjursen also states, “the felt [163] will protect the microphone diaphragm from foreign objects.” *Id.* at 23:17–18.

2. Mundel

Mundel is an article from The Journal of the Acoustical Society of America (July, 1947). Ex. 1007, 639. Mundel discloses a hearing aid with a grille with rounded edges over the microphone. Figure 8 of Mundel is reproduced below.

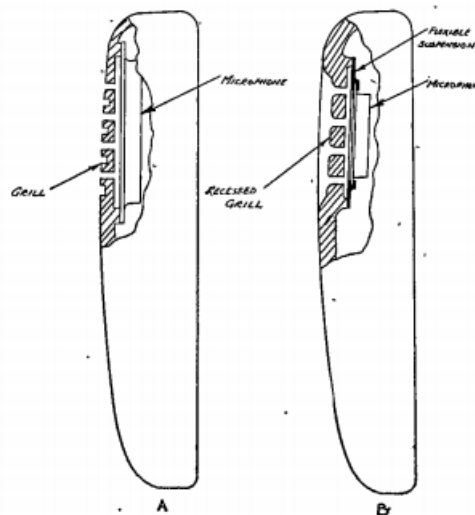


FIG. 8. Cross sections of (A) flush grille and (B) recessed grille.

Figure 8 depicts a grille over the microphone. Mundel states, “[i]nstrument B has a recessed grille in which the edges are rounded to reduce the noise generated.” *Id.* at 642.

3. Analysis

Independent claim 1 is directed to an audio device that includes a protection screen is provided at the sound canal, whereby the screen comprises a first surface which faces the surroundings and a second surface which faces the sound canal whereby the screen has a slit-formed opening between the first surface and the second surface whereby the screen defines slit-formed opening

therethrough and wherein *the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge.*

Ex. 1001, 5:7–17 (emphasis added).

Independent claim 6 is directed to a protection screen having a first surface which faces the surroundings and an opposed second surface which faces an audio device, wherein the protection screen defines a slit-formed opening therethrough and wherein *the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge.*

Id. at 6:8–14 (emphasis added).

For these limitations in both claims, Petitioner asserts that Sjursen teaches microphone housing 101 contained in a hearing aid enclosure with faceplate 406 having multiple inlet holes 409. Pet. 39 (citing Ex. 1006, 22:28–23:2). Petitioner further argues that while Sjursen does not describe the exact shape of its inlet holes 409 (or a slit-formed opening), Sjursen’s inlet holes “may be of any convenient shape and number without limitation.” *Id.* (citing Ex. 1006, 33:20–21). Petitioner acknowledges that “[t]he openings 409 in Sjursen appear to be round, rather than slits.” *Id.* at 46 (repeated); *see also* Ex. 1003 ¶ 106.

Turning to Mundel, the openings in Mundel are depicted in Figure 8, reproduced below.

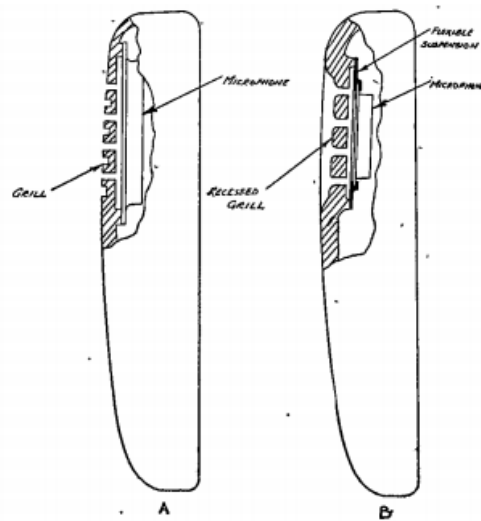


FIG. 8. Cross sections of (A) flush grille and (B) recessed grille.

Figure 8 labels the sound openings as a “grill” and a “grille,” as does the description of Figure 8 (Ex. 1007, 7). There is no further disclosure regarding the sound openings in Mundel. Petitioner contends, “[t]o a POSITA, the ‘grille’ in Mundel would be understood to refer to bars across the sound inlet face, resulting in slit openings.” Pet. 40, 47.

With regard to combining the relevant teachings of Sjursen and Mundel, Petitioner contends one of ordinary skill in the art would have been “motivated to configure Sjursen’s openings as slit openings with rounded outer surfaces, as taught by Mundel, for their noise-reduction properties” and “to provide the added benefit of minimizing background noise.” *Id.* at 41–42; see *id.* at 51–52 (claim 6). Petitioner cites to paragraph 107 of the Staab Declaration as support. *Id.* Paragraph 107 of the Staab Declaration states:

In my opinion, a POSITA would have been motivated to use the slit-formed openings from Mundel in a hearing aid device of Sjursen because both references are directed to reducing the effects of wind noise using flared openings. Sjursen explains that flaring the outside and/or inside surfaces of the microphone

sound inlet holes helps to reduce wind noise and is especially designed to help cope with background noise such as from wind (Ex. 1006, 23:10–12), and Mundel explicitly teaches that the slit orientation with rounded outer surfaces reduces background noise (Ex. 1007, 642). A POSITA would therefore have been motivated to configure Sjursen's sound inlet holes as slits with rounded outer surfaces to provide the added benefit of minimizing background noise.

Ex. 1003 ¶ 110.

The statement that “[b]oth references are directed to reducing the effects of wind noise using flared openings” is not correct with respect to Mundel. Mundel makes no mention of reducing the effects of wind noise. Mundel is directed to reducing the noise caused by the “clothes-rubbing noise” when a hearing aid is worn under clothing. Ex. 1007, 7 (“The relative motion of the hearing aid and the clothing under which it is worn creates a noise which is exaggerated whenever any sharp or rough edges of the instrument rub against the clothing.”). As a solution, Mundel proposes “a recessed grille in which the edges are rounded to reduce the noise generated.” *Id.* Dr. Staab testified that wind noise is not generally a consideration when the hearing aid is worn under clothing. Ex. 2004, 109:5–8. Likewise, Dr. Staab's statement in paragraph 110 (citing Ex. 1007, 7) of his Declaration that “Mundel explicitly teaches that the slit orientation reduces background noise” finds no support in Mundel. Again, Mundel addresses “clothes-rubbing noise” when a hearing aid is worn under clothing. Ex. 1007, 7. Mundel makes no mention of reducing background noise. Dr. Staab's reasoning and opinions in paragraph 110 for combining Sjursen and Mundel of the references are not supported by the cited art.

Patent Owner contends that “[t]he alleged combination of Sjursen and Mundel is not supported by a valid rationale and instead appears, at best, to be based on an incorrect reading of Mundel and impermissible hindsight reconstruction.” PO Resp. 43–44. Patent Owner argues:

The Petition’s alleged rationale as to why a POSA would seek to combine Sjursen and Mundel is based on a misinterpretation of Mundel. Sjursen discloses a single-piece hearing aid for placement into a user's ear and focuses on achieving an improved microphone in a disposable-type hearing aid. Ex. 1006, abstract; *see also* Pet. at 38-39; Ex. 2001, ¶ 93. Mundel describes issues with body-worn-type hearing aids of the 1940’s timeframe, including reduction of the clothes-rubbing noise that results from concealing the hearing aid under clothing. Ex. 1007, 7, col. 1; Ex. 2001, ¶ 94. Mundel is not directed to and does not address wind noise. *Id.*; *see also* Ex. 2001, ¶ 93. The differences between the two references cannot be reconciled and the record is devoid of evidence or a reasonable rationale to combine.

Id. at 41–42. Patent Owner’s argument is supported by the DaBell Declaration. Mr. DaBell testifies, “Mundel is not directed to a design for addressing the direct effect of wind and other environmental forces” (Ex. 2001 ¶ 105) and “Mundel’s efforts to reduce clothes-rubbing noise for a body-worn device are not relevant to the in-the-ear device of Sjursen. In-the-ear devices would not be affected by clothes-induced noise” (*id.* ¶ 94). We credit Mr. DaBell’s testimony because it is consistent with the disclosure in Mundel, which teaches that “the majority of hearing aid users insist upon wearing the instrument in a concealed fashion which results in noise [because] [t]he relative motion of the hearing aid and the clothing under which it is worn creates a noise which is exaggerated whenever any sharp or rough edges of the instrument rub against the clothing.” Ex. 1007, 7. Mundel measures this “clothes-rubbing noise” by measuring the output

when the instrument is drawn across a standard fabric with the microphone grill *in contact* with the fabric. *Id.* Mundel teaches the recessed grill shapes, as shown in Figure 8 (B), to reduce the physical contact between the microphone grill and clothing. *Id.*

Further, Petitioner argues that it would have been a matter of design choice to change the shape of the inlets in Sjursen. Pet. 42. Petitioner's assertion that the proposed modification is a mere change in "shape" to that disclosed in Mundel and that this aspect of the product boils down to a simple design choice lacks a reasoned basis with rational underpinnings. *Id.* at 42–43; *see KSR*, 550 U.S. at 418 (stating that obviousness requires more than "mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006))). By resorting to the design choice rationale, Petitioner suggests that changing the shape of Sjursen inlet holes to that of Mundel does not impact the functionality of the proposed combination. Yet, Petitioner relies on Mundel for more than its shape; Petitioner relies on Mundel for, among other things, the alleged noise reduction that is achieved by the recessed grill shape. Pet. 41. The '621 patent also describes the function of this shape. *See* Ex. 1001, 3:21–27. The '621 patent itself, therefore, suggests that the features Petitioner seeks to take from Mundel and add to Sjursen are more than mere shapes that do not impact the functionality of the proposed combination. Additionally, we note that Dr. Staab's Declaration goes no further, and repeats the conclusory assertions in the Petition without explaining sufficiently why the decision to use Mundel's shape amounts to a mere design choice. *See* Ex. 1003 ¶¶ 112–113.

Weighing the arguments and evidence presented by the parties relating to the motivation to combine the relevant teachings of Sjursen and Mundel, we find that a preponderance of the evidence does not support the articulated reasoning provided by Petitioner. We conclude that Petitioner has not shown that claims 1, 2, 4–6, and 9 would have been obvious in view of the combination of Sjursen and Mundel.

F. Obviousness Challenges Based on Sjursen, Mundel, and Saltykov, and Sjursen, Mundel, and Dodge

Petitioner also asserts that dependent claims 3, 7, and 8 would have been obvious in view of the Sjursen, Mundel, and Saltykov. Pet. 53–60. Claim 3 depends from claim 1. Claims 7 and 8 depend from claim 6. Additionally, Petitioner asserts that dependent claim 10 would have been obvious in view of Sjursen, Mundel, and Dodge. *Id.* at 60–65. Claim 10 depends from claim 6.

Petitioner's presentation related to the asserted combinations of Sjursen, Mundel, and Saltykov, and Sjursen, Mundel, and Dodge addresses only the further limitations set forth in dependent claims 3, 7, 8, and 10. *See id.* at 53–61. Petitioner provides no further argument or evidence, beyond that provided for the asserted ground challenging claims 1 and 6 based on Sjursen and Mundel, addressed above, relating to a protective screen with the first surface extends towards the slit-formed opening along a smooth and gradual, curve and meets the second surface along a sharp edge. *Id.* Accordingly, for the reasons given above, based on this record, we conclude that Petitioner has not established that claims 3, 7, 8, and 10 would have been obvious in view of the combination of Sjursen, Mundel, and Dodge or Saltykov.

III. PENDING MOTIONS

Petitioner moves to strike Exhibits 2006–2011 filed by Patent Owner with its Sur-Reply (Motion to Strike 1) “along with the references to these exhibits in Patent Owner’s Sur-Reply” (*id.* at 6). Petitioner contends Patent Owner knowingly violated the Board’s procedures as “[t]he Board did not authorize the filing of new evidence with the Sur-Reply, and the Trial Practice Guide does not permit any new evidence with sur-replies, other than the deposition transcript of a reply witness.” *Id.* at 1.

Petitioner moves to exclude Exhibits 2007–2011 filed by Patent Owner and “any reference to or reliance on them.” Motion to Exclude 1. “Petitioner moves to exclude these exhibits on the basis that they are inadmissible hearsay.” *Id.*

Exhibit 2006 is the definition of “attach” from the American Heritage Dictionary. Exhibits 2007–2011 are curriculum vitae or biographies of the inventors or authors of the cited art. The Board did not rely on these exhibits in making any factual determination or reaching any conclusion.

Similar to a district court in a bench trial, the Board, sitting as a non-jury tribunal with administrative expertise, is well positioned to determine and assign appropriate weight to evidence presented, including not relying on it or giving it no weight. *See, e.g., Donnelly Garment Co. v. NLRB*, 123 F.2d 215, 224 (8th Cir. 1941) (“One who is capable of ruling accurately upon the admissibility of evidence is equally capable of sifting it accurately after it has been received . . .”). Thus, in this *inter partes* review, the better course is to have a complete record of the evidence to facilitate public access as well as appellate review. Accordingly,

Petitioner's Motions to Strike and Exclude are dismissed as moot because the targeted exhibits were not relied upon.

IV. CONCLUSION

Petitioner has established, by a preponderance of the evidence, that claims 1–6, 8, and 10 of the '621 patent are unpatentable under 35 U.S.C. § 103(a) in view of Saltykov and Dodge. Petitioner has not established that claims 7 and 9 are unpatentable.

V. ORDER

Accordingly, it is

ORDERED that claims 1–6, 8, and 10 of U.S. Patent No. 7,894,621B2 are *unpatentable*;

FURTHER ORDERED that Petitioner's Motion to Strike (Paper 29) and Petitioner's Motion to Exclude (Paper 33) are *dismissed* as moot; and

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

IPR2017-01926
Patent 7,894,621 B2

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