

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ADVANCED BIONICS, LLC,
Petitioner,

v.

MED-EL ELEKTROMEDIZINSCHER GERÄTE GMBH,
Patent Owner.

IPR2019-01572
Patent RE46,057

Before LINDA E. HORNER, KALYAN K. DESHPANDE, and
RUSSELL E. CASS, *Administrative Patent Judges*.

CASS, *Administrative Patent Judge*.

DECISION

Denying Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

A. Background

Advanced Bionics, LLC (“Petitioner”)¹ filed a Petition requesting *inter partes* review of claim 19 (“the challenged claim”) of U.S. Patent RE46,057 (Ex. 1001, “the ’057 patent”) pursuant to 35 U.S.C. §§ 311–319, along with the supporting Declaration of Dr. Frank G. Shellock. Paper 1 (“Pet.”); Ex. 1002. MED-EL Elektromedizinische Geräte GmbH (“Patent Owner”) filed a Preliminary Response to the Petition, along with the supporting Declarations of Martin Zimmerling and Erwin Hochmair. Paper 5 (“Prelim. Resp.”); Exs. 2001, 2002. With authorization (Paper 6), Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 7 (“Pet. Reply”)), to which Patent Owner filed a Sur-reply (Paper 8 (“PO Sur-reply”)).

We have authority under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

For the reasons that follow, we determine that Petitioner has not demonstrated that there is a reasonable likelihood that it would prevail in showing the unpatentability of the challenged claim. For the reasons set forth below, and pursuant to 35 U.S.C. § 314, we decline to institute an *inter partes* review of claim 19 of the ’057 patent.

¹ Petitioner also identifies Advanced Bionics, AG and Sonova AG as real parties in interest. Pet. 65.

B. The '057 Patent

The '057 patent is entitled “Reducing Effect of Magnetic and Electromagnetic Fields on an Implant’s Magnet and/or Electronics,” and issued on July 5, 2016 from an application filed on December 3, 2014. Ex. 1001, code (22), (45), (54). As the “Background Art” section explains, hearing aids using cochlear implants “may use magnets to hold internal and external pieces in place.” *Id.* at 1:46–50. An example of a prior art cochlear implant is depicted in Figure 1 of the '057 patent, reproduced below.

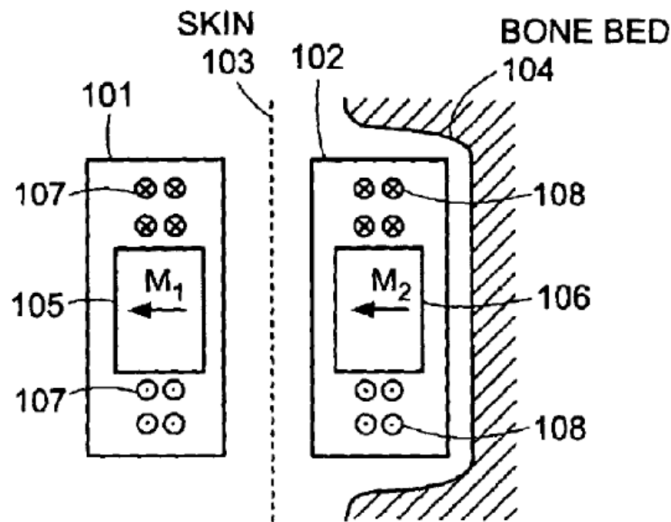
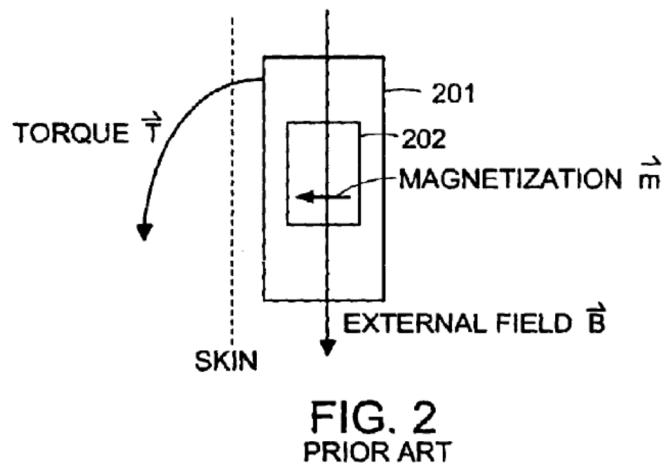


FIG. 1
PRIOR ART

Figure 1 illustrates a hearing aid device including a cochlear implant 102 located under the skin 103, and embedded in a bone bed 104. Ex. 1001, 1:48–49. The implant 102 includes a first magnet 106 in the center of the implant, and a coil 108 surrounding the magnet. *Id.* at 1:49–50. An external part 101 of the device outside the skin includes a second magnet 105 positioned over the first magnet 106 such that the external part 101 is held against the implant 102 in an optimal position. *Id.* at 1:50–53. An external coil 107 positioned inside the external part 101 can, via inductive coupling,

transmit a transcutaneous signal and/or power to the coil 108 of the implant 102. *Id.* at 1:53–57.

The '057 patent explains that problems may occur when “a wearer of such a cochlear implant 102” has to “undergo Magnetic Resonance Imaging (MRI) examination,” because “interactions between the implanted magnet 106 and the applied external MRI magnetic field may, at higher field strength (i.e. above about 1 Tesla), produce two harmful effects.” Ex. 1001, 1:58–63. First, the external magnetic field may create a torque on the implanted magnet, as shown in Figure 2 below.

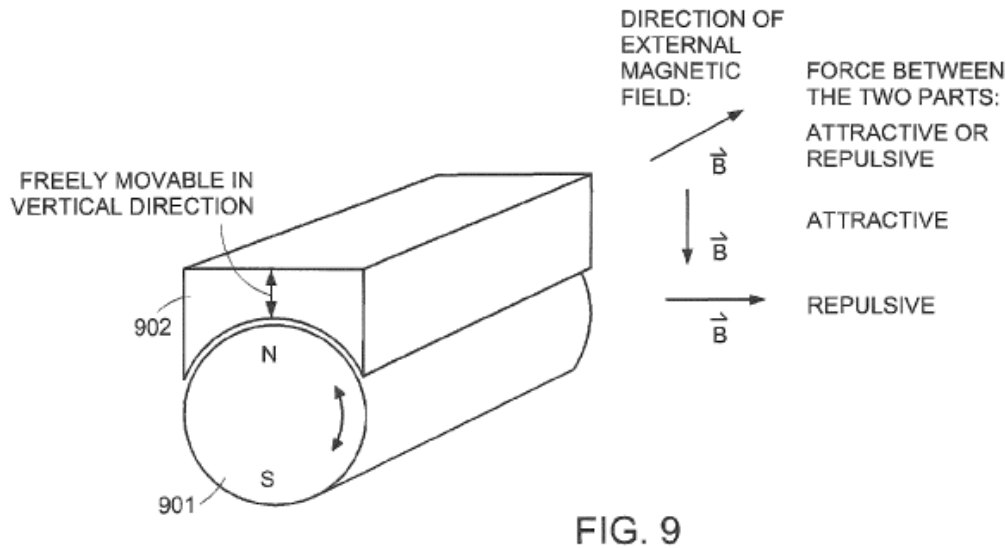


As shown in Figure 2, “the implanted magnet 202 may experience a torque that can twist the magnet 202 and the implant 201 out of position, thereby injuring the wearer.” Ex. 1001, 1:63–66. The second harmful effect is that, “due to the external magnetic field, the implant may become partly demagnetized and may not be strong enough after the MRI field exposure to hold the external part in place.” *Id.* at 1:66–2:2.

The '057 patent explains that various efforts have attempted to address this problem including “forbidding a patient with the cochlear implant to undergo the high-field MRI examination,” but this approach “may exclude the patient from certain important diagnostic measures.” Ex. 1001,

2:15–19. Alternatively, “the implant could be designed in such a way that the magnet can be removed from the patient before MRI examination and be reinserted afterwards,” but this “requires two surgical interventions in order to perform a MRI examination,” “makes it impossible to use the implant system during the healing phase of the incision,” and also “creates a drawback especially in emergency cases.” *Id.* at 2:19–29. Another approach is “to use a magnetically soft material (also called a ‘keeper’) instead of a permanent magnet inside the implant,” but the patent explains that “[a]t present, the magnetically soft material used for the keeper has been limited to solid alloys or Ferrite.” *Id.* at 2:33–37.

The ’057 patent seeks to overcome this perceived problem by creating an implant that includes a magnet that is held in the implant in such a way that the magnet “can turn into the direction of an externally applied magnet[ic] field.” Ex. 1001, 6:11–14. As a result, the implanted magnet “does not experience any torque as a result of the external magnet[ic] field, nor will it become demagnetized.” *Id.* at 6:14–16. This implanted magnet “may be of a variety of shapes” such as “a cylinder that can rotate about its axis” and “carries a magnetization being normal to its axis.” *Id.* at 6:34–37. “This axis can be arranged horizontally parallel to the skin in the plane of the implanted coil,” which “allows the magnet to turn around its axis, so that it may turn its magnetic moment either towards the external holding magnet (as is typically the case during normal use) or so as to align with the field generated, for example, by a high field MRI seamer, whose field lines in a typical examination position run along the patient’s axis.” *Id.* at 6:38–44. Such a cylindrical magnet is shown in Figure 9, reproduced below.



As shown in Figure 9, “the permanent magnet 901” in the implant “may be a cylindrical structure which is free to turn around its rotational axis.” Ex. 1001, 9:43–46. The patent explains that the “advantage of a cylindrical magnet is that its aspect ratio (i.e. diameter vs. length) can be chosen such that for a given volume (which is necessary to generate an adequate holding force) the thickness of the magnet is smaller than that of a spherically shaped magnet.” *Id.* at 6:49–53.

The '057 patent includes four claims, claims 19–22, only one of which, claim 19, is challenged in the Petition. Ex. 1001, 14:25–56; Pet. 1. Claim 19 is reproduced below.

19. A hearing implant system comprising:
- an external portion for placement on the skin of a user and including:
 - i. a transmitting coil for transcutaneous transmission of a communication signal, and
 - ii. an external holding magnet within the transmitting coil;
 - an implantable portion including an implant housing containing:
 - i. a receiving coil for transcutaneous reception of the communication signal from the transmitting coil, and

- ii. a cylindrical-shape implant holding magnet having a rotational cylinder axis and adapted to be freely turnable within the implant housing around the rotational cylinder axis in response to an external magnetic field;
- wherein the implant holding magnet and the external holding magnet magnetically cooperate to maintain the external portion in a fixed position on the skin relative to the implantable portion so as to promote electromagnetic coupling between the transmitting coil and the receiving coil.

Ex. 1001, 14:25–46.

C. The Prior Art

Petitioner relies on the following prior art in its Petition.

Name	Reference	Exhibit
Teissl	Teissl, C., <i>Cochlear Implants and Magnetic Resonance Imaging: Compatibility and Safety Aspects</i> , (Innsbruck University, October 1998)	1004
Adelberg	US 6,077,299, issued June 20, 2000	1005
Dormer	US 4,352,960, issued October 5, 1982	1006
Beyar	US 6,127,597, issued October 3, 2000	1007

Pet. 28–29.

D. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claim 19 of the '057 patent on the following grounds:

Claim Challenged	35 U.S.C. §	Reference(s)/Basis
19	103(a) ²	Teissl, Adelberg
19	103(a)	Dormer, Beyar

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103. Because the application from which the '057 patent issued was filed before March 16, 2013, the effective date of the relevant amendment, the pre-AIA version of § 103 applies.

Claim Challenged	35 U.S.C. §	Reference(s)/Basis
19	103(a)	Teissl, Dormer, Beyar

Pet. 29.

E. Related Proceedings

At the time of filing, Petitioner identified as a related matter *MED-EL Elektromedizinische Geräte Ges.M.b.H and MED-EL Corp., USA v. Advanced Bionics LLC*, Case No. 1:18-cv-01530-MN (D. Del.) which, according to Petitioner, was filed October 3, 2018 and involves the '057 patent. Pet. 65. Petitioner also identified IPR2019-01469 which, according to Petitioner, sought *inter partes* review of U.S. Patent No. 8,634,090, owned by Patent Owner and subject to the above civil action. *Id.* (citing *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 1).

F. Real Parties in Interest

Petitioner identifies as real parties in interest Advanced Bionics, LLC, Advanced Bionics, AG, and Sonova AG. Pet. 65. Patent Owner identifies itself as the real party in interest. Paper 4, 1.

II. ANALYSIS

A. Claim Construction

In cases such as this, where the petition for *inter partes* review was filed after November 13, 2018, we interpret claim terms in accordance with the standard used in federal district court in a civil action involving the validity or infringement of a patent. 37 C.F.R. § 42.100(b) (2019). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by one of ordinary skill in the art “in the context of the entire

patent, including the specification.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Thus, “[i]n determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Additionally, “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.” *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner states that it “does not believe any terms need be construed to resolve the prior art issues presented in this Petition,” and “identifies no terms for construction for the purpose of this IPR proceeding.” Pet. 29. Patent Owner identifies the term “implant holding magnet” as “relevant to the issues presented to the Board at this phase,” and argues that this term “should be given its plain and ordinary meaning, as used consistently throughout the claims and throughout the disclosure of the ’057 Patent.” Prelim. Resp. 12. Patent Owner argues that the term “holding” is used “consistently throughout the claims and throughout the disclosure of the ’057 patent to describe a magnet that holds an external part in place.” *Id.* at 40 (citing Ex. 1001, 3:12–15; 6:49–53). Patent Owner contends that “Petitioner ignores the word ‘holding’ when discussing the internal magnet in Adelberg and Beyar,” and that “the word ‘holding’ should not be ignored.” *Id.*

Based on the present record, and at this stage of the proceeding, we agree with Patent Owner that “implant holding magnet” should be given its

ordinary meaning in light of the intrinsic evidence, which is an implanted magnet that holds an external part in place. Claim 19 recites “the implant holding magnet and the external holding magnet magnetically cooperate to maintain the external portion in a fixed position on the skin relative to the implantable portion,” thus requiring that the implanted magnet magnetically cooperates with the external holding magnet to hold the external portion in place. Ex. 1001, 14:41–44. The Specification also states that “[p]artly implantable systems may use magnets to hold internal and external pieces in place,” and explains that the magnet is positioned “such that the external part 101 is held against the implant 102 in an optimum position.” *Id.* at 1:46–53. The Specification further states that the implanted magnet “is adapted to be magnetically attracted to a non-implanted magnet of an external device so as to hold the external device in a desired position relative to the implant.” *Id.* at 3:13–15. *See also id.* at 6:64–65 (describing “the implant and the external part held adjacent to the implant”), 7:26–27 (describing “an external part 510 held in place by an implant 505”). Thus, for the purposes of this decision, we construe “implant holding magnet” to mean “an implanted magnet that holds an external part in place.”

We determine that it is not necessary to provide an express interpretation of any other claim terms at this juncture. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs.*, 200 F.3d at 803 (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art “would have had a degree in the field of physiology, physics, mechanical engineering, electrical engineering, or bioengineering, and at least 2–3 years of experience designing or working with implanted magnets.” Pet. 30 (citing Ex. 1002 ¶¶ 21–22). Petitioner further states that “[a]dditional education might compensate for a deficiency in experience, and vice versa.” *Id.* Patent Owner criticizes Petitioner’s proposed level of ordinary skill as insufficient, but does not offer its own definition of a person of ordinary skill. Prelim. Resp. 13–17.

We adopt Petitioner’s proposed level of ordinary skill for purposes of this decision. As discussed below, applying this level of skill, Petitioner has not demonstrated a reasonable likelihood that claim 19 of the ’057 patent is unpatentable. Because it is generally easier to establish obviousness under a higher level of ordinary skill in the art, adopting a greater level of ordinary skill here, as Patent Owner argues, would not affect the outcome in this case. *See Innovention Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

C. Ground 1: Obviousness of Claim 19 over Teissl and Adelberg

Petitioner contends that claim 19 would have been obvious over the combination of Teissl and Adelberg. Pet. 30–45. We begin our discussion with a brief summary of Teissl and Adelberg, and then address the specific obviousness arguments and evidence presented.

1. Overview of Teissl

Teissl is a Ph.D. dissertation. Ex. 1004, cover page.³ Teissl states that the “aim of this study was to determine the whole range of electromagnetic interferences of a multichannel cochlear implant system within a wide range of clinical MR [magnetic resonance] imaging applications” in order to answer the question whether MR imaging can “safely be performed with patients wearing the specific CI [cochlear implant] investigated in the study.” *Id.* at 1. Teissl further states that “the results should represent the basis for the design of an MR-safe cochlear implant device without restrictions.” *Id.*

Teissl discloses a cochlear implant system with “an external sound processing device” and an “implant includ[ing] a receiver for the reception of stimulation data via a transcutaneous inductive link.” Ex. 1004, 70. Teissl further states that “[s]mall internal magnets (rare-earth permanent magnets of cylindrical shape, magnetized in [the] main axis of symmetry, which is normal to the skin . . .) are used to guarantee a sufficient transmission quality between the external transmitter and the internal receiver by holding the external transmitter in place.” *Id.* at 72. Figure 1 of Teissl, reproduced below, shows a “[s]chematic drawing of” an “implanted CI.”

³ Our citations to Teissl reference the page numbers of the original document, not the page numbers added by Petitioner at the bottom right of Exhibit 1004.

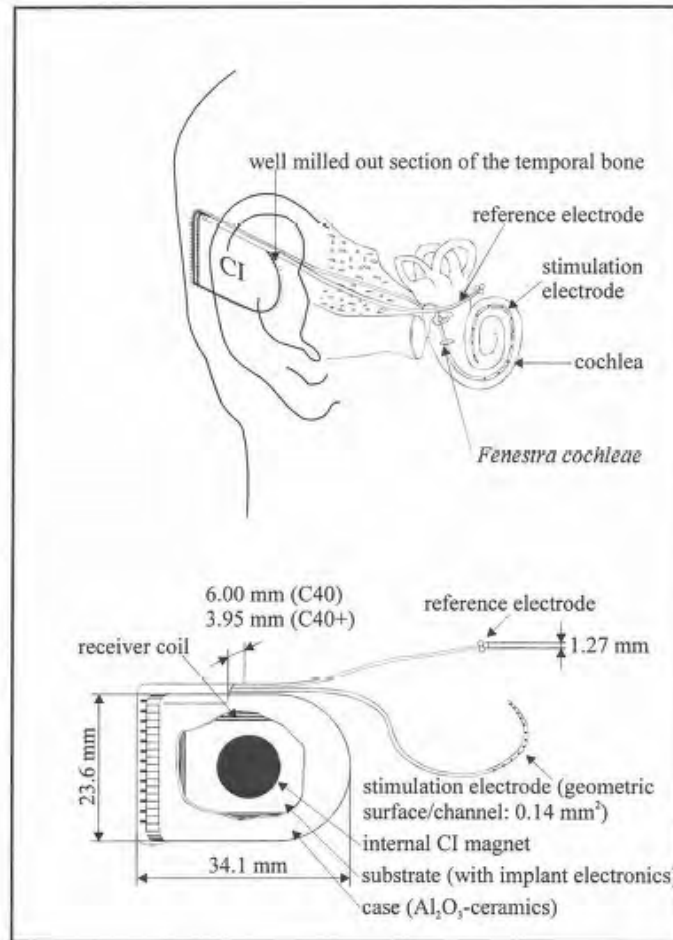


Figure 1 shows an implant placed in a well milled out in a section of the temporal bone, with the stimulation electrode inserted into the cochlea and the reference electrode placed within the temporal muscle. *Id.* at 106, Fig. 1.

Teissl explains that when a cochlear implant is worn by a patient undergoing MR imaging, “[t]he electromagnetic fields appearing during an MRI investigation (static magnetic field, static gradients, switched gradients, radio frequency (RF)-pulses) may interfere with the implant.” Ex. 1004, 70–71. For example, “[f]orce and torque on ferromagnetic parts of the implant due to magnetic field gradients and the homogenous magnetic field could dislodge the implant, which could result in damage to the implant or the surrounding tissue.” *Id.* at 71. Teissl also reports on in vitro experiments

using a 1.5 Tesla MR-scanner in which “most of the electromagnetic interferences between the cochlear implant and the 1.5 Tesla scanner remained within acceptable limits,” but “[o]ne exception is the torque on the internal magnet, which represents a hazard for patients with these cochlear implants.” *Id.* at 70.

Teissl includes a section titled “Suggestions for Design Changes for an MR-Safe CI.” *Id.* at 125. In this section, Teissl states that “[a]t present, the use of MR Imaging with CI patients represents residual risks,” and lists five risks, one of which is “increasing force and torque (especially on the internal CI magnet).” *Id.* In the same section, Teissl makes eight proposals for design changes to the cochlear implant, including: (1) omitting the internal CI magnet; (2) removing of the internal CI magnet; (3) reducing the torque due to a compensation effect; (4) reducing the weight of the external transmitter; (5) demagnetizable and self-aligning internal magnets; (6) software based consideration of artifacts; (7) reducing the induced voltage in the implant receiver circuit by means of a compensation effect; and (8) protection of the electronic circuit by reed switches. *Id.* at 125–29.

Under the proposal for “demagnetizable and self-aligning internal magnets,” Teissl states:

Another possibility of reducing the torque effectively, assuming reduced weight of the external transmitter, would be an internal magnet which aligns itself within an external magnetic field. This method would also prevent partial demagnetization. Internal CI magnets, made of materials which can be demagnetized before and remagnetized after the MR examination, could also be considered in that case.

Id. at 127.

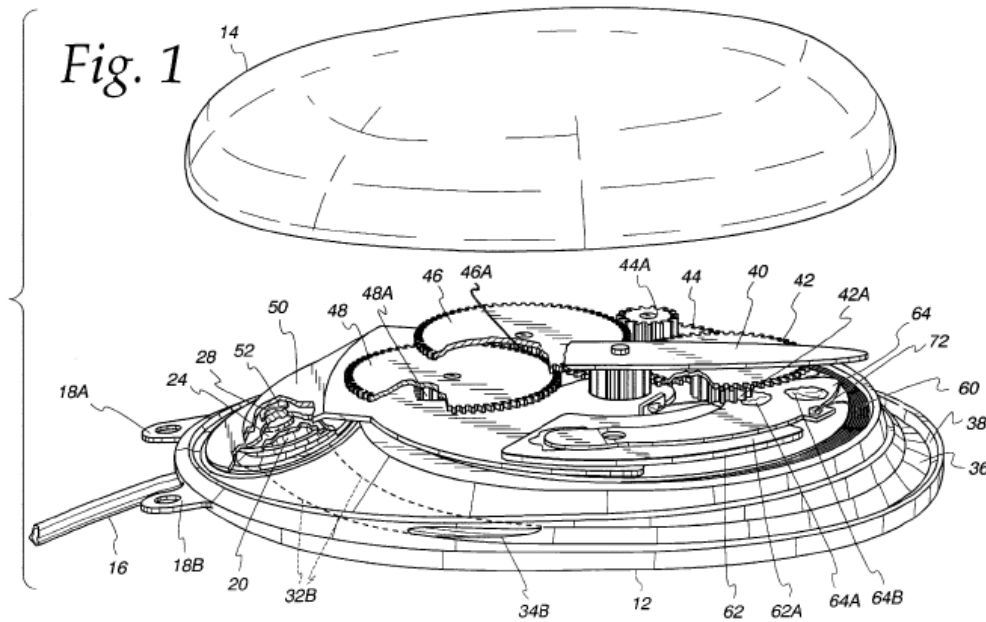
2. Overview of Adelberg

Adelberg is directed to a “non-invasively adjustable valve implant for the drainage of aqueous humor in glaucoma.” Ex. 1005, code (54).

Adelberg explains that “[g]laucoma is a disease characterized by elevated intraocular pressure which may lead to nerve damage and loss of vision if left untreated.” *Id.* at 1:12–14. Accordingly, “[m]edical therapy to reduce the intraocular pressure” is “important in the management of glaucoma.” *Id.* at 1:21–23.

Adelberg seeks to address this need by providing “an externally adjustable valve implant” which “can be used to treat glaucoma by regulating the flow of aqueous humor from the anterior chamber of the eye to relieve excess pressure.” *Id.* at 2:36–40. The “pressure flow characteristic can be adjusted in a non-invasive manner” by adjusting a set-point “by rotating an external magnet positioned near the implant.” *Id.* at 2:61–64. “The rotating magnetic field” caused by the rotating external magnet “causes a freely rotating magnetic or magnetizable rotor in the implant to rotate synchronously with the applied external field.” *Id.* at 2:64–67. “[U]sing a pressure regulating valve, the pressure set-point can be increased or decreased depending on the direction of rotation of the magnet.” *Id.* at 3:5–7.

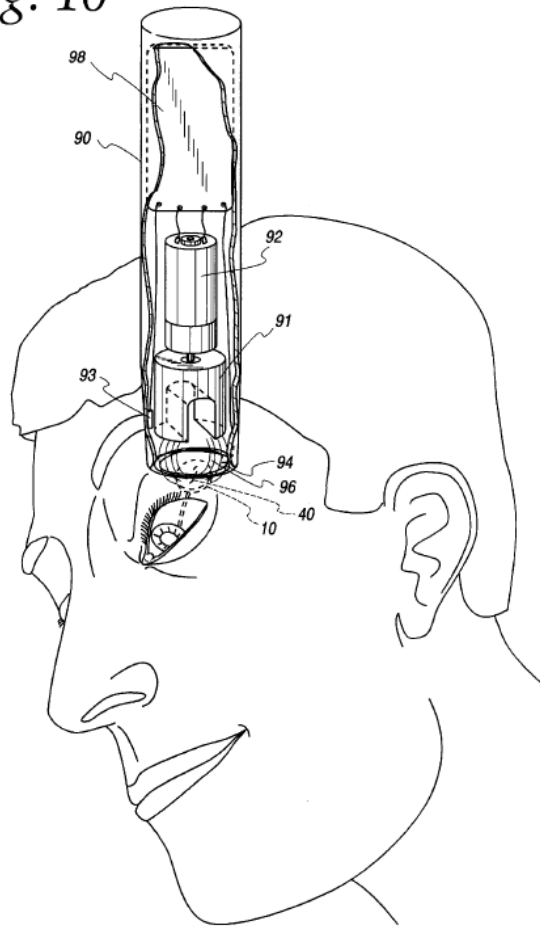
An embodiment of the implantable medical implant of Adelberg is shown in Figure 1.



Ex. 1005, Fig. 1. As shown in Figure 1, the implant includes a housing comprising “a base plate 12 [and] a cover 14” and, within the housing, a “freely magnetic or magnetizable rotor 40 which . . . is configured to rotate with an external applied magnet field.” *Id.* at 4:50–51, 5:8–11. Rotation of the rotor 40 drives a series of gears 42, 44, 46, and 48, which cause an inclined surface 52 of an armature plate 50 to slide over a complementary inclined surface 28 of a diaphragm 26, causing the diaphragm 26 to deflect, which in turn changes the pressure set-point of the pressure-sensitive valve 24. *Id.* at 5:11–25. Thus, the direction of rotation of the magnetic rotor 40 increases or decreases the pressure set-point of the ocular implant, thereby adjusting the rate of fluid flow from the eye. *Id.* at 5:32–34.

Adelberg discloses a hand-held instrument 90 that creates the external magnetic field for adjusting the implant’s magnetic rotor 40, as shown in Figure 10.

Fig. 10



Ex. 1005, Fig. 10. As Figure 10 illustrates, hand-held instrument 90 includes a rotating external magnet 91 driven by motor and gear drive 92. *Id.* at 6:18–24. A Hall effect sensor 93 senses the rotations of the magnet 91 to allow a microprocessor to precisely control the direction rate and number of rotations of the magnet 91. *Id.* at 6:24–28. The rotation of the external magnet 91 creates a rotating external magnetic field, which causes the implant's magnetic rotor 40 to rotate synchronously with the applied external field, thereby adjusting the set-point of the pressure-sensitive valve 24 in the implant. *Id.* at 6:28–31.

3. *Analysis*

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). 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).

Patent Owner focuses its Preliminary Response on the limitation of claim 19 reciting:

- ii. a cylindrical-shape implant holding magnet having a rotational cylinder axis and adapted to be freely turnable within the implant housing around the rotational cylinder axis in response to an external magnetic field

Prelim. Resp. 36–58 (the “freely turnable” limitation). Because, as discussed further below, Petitioner has not established a reasonable likelihood of proving that the prior art teaches this limitation, we will focus on this limitation in our analysis.

(i) Disclosures of Teissl Relating to the “Freely Turnable” Limitation

Petitioner argues that “Teissl discloses a cylindrical-shape implant holding magnet having a rotational cylinder axis and adapted to align itself to an external magnetic field.” Pet. 40–41 (citing Ex. 1002 (Shellock Decl.) ¶¶ 102–106). For the “cylindrical-shape implant holding magnet,” Petitioner points to Teissl’s disclosure that “[s]mall internal magnets (rare-earth

permanent *magnets of cylindrical shape*, magnetized along the main axis of symmetry, which is normal to the skin) are used to guarantee sufficient transmission quality between the external transmitted and the internal receiver by holding the external transmitter in place.” *Id.* at 41 (citing Ex. 1004, 100). Petitioner also points to Figure 1 of Teissl as “show[ing] ‘[a] schematic drawing of . . . an implanted CI,’ including an ‘internal CI magnet.’” *Id.* (citing Ex. 1004, 106).

Petitioner further argues that Teissl discloses that the cylindrical magnet has “a rotational cylinder axis and [is] adapted to align itself to an external magnet field,” on page 127, which states:

1.5 Demagnetizable and Self-Aligning Internal Magnets

Another possibility of reducing the torque effectively, assuming reduced weight of the external transmitter, would be an internal magnet which aligns itself within an external magnetic field.

This method would also prevent partial demagnetization.

Internal CI magnets, made of materials which can be demagnetized before and remagnetized after the MR examination, could also be considered in that case.

Pet. 42 (citing Ex. 1004, 127). Petitioner’s expert, Dr. Sherlock, points to the same language on page 127 of Teissl as disclosing this claim limitation. Ex. 1002 ¶¶ 103–104.

Patent Owner argues that Teissl fails to disclose a cylindrical-shape implant holding magnet “adapted to be freely turnable within its housing around a rotational cylinder axis in response to an external magnetic field.” Prelim Resp. 37. With reference to the disclosure on page 127 of “an internal magnet which aligns itself within an external magnetic field,” Patent Owner argues that “[t]here is no description of any structure in such an internal magnet or how the internal magnet would function or interact with the other parts of the cochlear implant.” *Id.* According to Patent Owner,

this portion of Teissl could be disclosing another structure for minimizing the torque on the internal magnet, such as “using a magnetically soft material (that becomes magnetized in the direction of an external magnetic field) instead of a permanent magnet inside the implant,” as disclosed in the ’057 patent Specification. *Id.* (citing Ex. 1001, 2:30–35, 7:35–37). “In this case,” Patent Owner asserts, “the internal magnet would align within an external magnetic field, without needing to rotate at all.” *Id.* Thus, Patent Owner contends, “it is unclear what [Teissl] might have been suggesting as a design change when suggesting alignment with an external magnetic field.” *Id.*

We agree with Patent Owner that Petitioner has not demonstrated a reasonable likelihood that Teissl discloses a cylindrical-shape holding magnet “having a rotational cylinder axis and adapted to be freely turnable within the implant housing around the rotational cylinder axis in response to an external magnetic field.” Page 127 of Teissl, upon which Petitioner relies, does not expressly describe any particular structure of the internal magnet, whether it is rotatable, and if so, what its rotational axis would be. Petitioner also fails to present sufficient evidence that Teissl’s disclosure that the internal magnet “aligns itself with an external magnetic field” necessarily means that the magnet rotates and has a rotational cylindrical axis. Dr. Sherlock merely points to page 127 of Teissl without further explanation of why it discloses a rotational cylindrical axis. Ex. 1002 ¶¶ 103–104. Additionally, neither Petitioner nor Dr. Sherlock explain why one of ordinary skill would have understood the “self-aligning” magnet discussed on page 127 of Teissl to be a rotatable magnet rather than a magnetically soft material that becomes magnetized in the direction of an external magnetic field, as discussed in ’057 patent. *Id.*

(ii) Disclosures of Adelberg Relating to the “Freely Turnable” Limitation

Petitioner argues that “Adelberg discloses an implant holding magnet having a rotational cylinder axis and adapted to be freely turnable within the implant housing around the rotational cylinder axis in response to an external magnetic field.” Pet. 42–43 (citing Ex. 1002 ¶¶ 105–106).

Petitioner points to Adelberg’s disclosure that “the implantable ‘adjustable medical valve 10 further includes a *freely rotating magnetic* or magnetizable rotor which . . . is configured to rotate with an external applied magnetic field.” Pet. 43 (citing Ex. 1005, 5:8–11). According to Petitioner, Adelberg discloses that “[t]he ‘rotor 40’ is an implant holding magnet that ‘may be made from a magnetic material’ and ‘*rotate[s] synchronously* with the applied external field.’” *Id.* (citing Ex. 1005, 6:28–31, 8:27–29).

Petitioner further points to Figures 2 and 4 of Adelberg as showing that the rotor 40 is configured to rotate around a rotational cylinder axis in response to an external magnetic field. *Id.* at 43–44 (citing Ex. 1005, Figs. 2, 4; Ex. 1002 ¶ 105).

Patent Owner argues that “Adelberg shows the magnetic or magnetizable rotating rotor in the implant as a propeller-shaped part” and “fails to disclose that the rotor has a cylindrical shape.” Prelim. Resp. 38. “[T]hus,” Patent Owner asserts, Adelberg “necessarily fails to disclose a cylindrical-shaped magnet adapted to be turnable around a rotational cylinder axis,” as claim 19 requires. *Id.*

“More importantly,” Patent Owner contends, in Adelberg “the rotor in the implant is provided to turn gears that adjust the pressure set point” and “is not able to hold or support the external hand-held instrument in place on the skin.” *Id.* at 39. “Rather,” Patent Owner argues, “the external

instrument is held over the rotor by hand, not by an implant holding magnet that holds the hand-held instrument in place.” *Id.* Thus, Petitioner asserts, rotor 40 is not “an implant holding magnet” because it “does not hold anything.” *Id.*

We agree with Petitioner that Adelberg’s magnetic rotor 40 is an implant with a magnet having a rotational cylindrical axis that is freely turnable within the implant housing around the rotational axis in response to an external magnetic field. However, we agree with Patent Owner that Adelberg’s rotor 40 is not a “cylindrical-shape magnet.” We also agree with Patent Owner, based on our claim construction of “implant holding magnet” above, that Adelberg’s rotor 40 is not an implant “holding” magnet, because rotor 40 does not “hold” anything.

(iii) Rationale to Combine Teissl and Adelberg

Petitioner argues that a person of ordinary skill (POSA) “would have been motivated to combine Teissl and Adelberg because of the similarities between the two systems,” including that both systems: (1) “are biomedical implants for use in or near the head” (Pet. 31 (citing Ex. 1004, 1; Ex. 1005, 2:36–44; Ex. 1002 ¶ 84)); (2) “have an implanted component that includes a magnet within a housing implanted near the skin” (*id.* (citing Ex. 1004, 11, 94, 100; Ex. 1005, 1:7–9, 4:50–51, 5:8–11; Ex. 1002 ¶ 84)); (3) “have an external component with a magnet configured to cooperate or interact with the internal magnet” (*id.* (citing Ex. 1004, 9, 95; Ex. 1005, 6:18–23)); and (4) “include coils, antennas, and circuits to form a transcutaneous inductive link between the internal and external components” (*id.* (citing Ex. 1004, 132; Ex. 1005, 3:35–47; Ex. 1002 ¶ 84.)). “Given the substantial overlap, similarities, and shared components between Teissl and Adelberg,” Petitioner argues, a person of ordinary skill “would have naturally looked to

Adelberg's implanted magnets when seeking to improve the implanted magnet in the hearing system disclosed by Teissl." *Id.*

Beyond these similarities, Petitioner further argues that persons of ordinary skill "would have been specifically motivated to look to the teachings of Adelberg because Teissl explicitly explains to POSAs that magnets like those disclosed in Adelberg would be a design improvement for cochlear implants." Pet. 31 (citing Ex. 1002 ¶ 85). According to Petitioner, Teissl discloses that "a cochlear implant system containing 'an internal magnet which aligns itself within an external magnetic field' would reduce the negative effects of an MRI system of the implanted magnet." *Id.* at 32 (citing Ex. 1004, 127). Petitioner argues that "Adelberg is a prime example of such a magnet, and . . . it would have been evident to a POSA that the teachings of Adelberg would fit with the cochlear implant of Teissl." *Id.* (citing Ex. 1002 ¶ 86).

More specifically, Petitioner argues that "Adelberg discloses an implanted magnet that 'rotate[s] synchronously with [an] applied external field' and thus meets Teissl's own identified criteria." *Id.* (citing Ex. 1005, 6:28–31). "A magnet that rotates synchronously with a rotating external magnetic field," Petitioner argues, "is aligning itself with the external magnetic field." *Id.* (citing Ex. 1002 ¶ 86). According to Petitioner, "[g]iven the explicit teaching in Teissl that POSAs should seek out an implanted magnet that aligns itself within an external magnetic field,' and given that Adelberg discloses an implanted magnet that aligns itself with an external magnetic field[], POSAs would be motivated to combine Adelberg's teaching of a freely rotating magnet with Teissl to improve the MRI compatibility of Teissl's implant." *Id.*

In addition to the above arguments, Petitioner also argues that one of ordinary skill would have been further motivated to focus on Teissl's suggestion to use a magnet that aligns itself with an external magnet field because it was one of only two of Teissl's suggestions without any stated drawbacks. Pet. 33. Moreover, according to Petitioner, as of the critical date, MRI systems were increasing in field strength from 1.5 Tesla to 3.0 Tesla, which would have further motivated a person of ordinary skill to use a freely turnable implanted magnet to avoid the undesirable problems caused by this stronger magnetic field. *Id.* at 34. Finally, Petitioner argues that "POSAs would have expected to succeed in combining the teachings of Teissl and Adelberg" because such a person "would have understood and expected that the freely rotatable implanted magnet of Adelberg would function in a similar fashion as the cylindrical implanted magnet of Teissl." *Id.* at 34–35 (citing Ex. 1004, 127; Ex. 1002 ¶ 89).

In response, Patent Owner argues that one of ordinary skill would not have combined Teissl and Adelberg in the manner claimed. More specifically, Patent Owner argues that, in Teissl, "the implant holding magnet in the cochlear implant system is used to align the coils and to hold the external part in place," while "the function of the rotating magnetic rotor in Adelberg is to drive gears in order to adjust a pressure set point" for removal of fluid from the eye. Prelim. Resp. 45. Moreover, Patent Owner argues, "the implant magnet in the cochlear implant system disclosed in [Teissl] interacts with a stationary external magnet in order to hold an external part in place" and the two magnets "are not meant to move or rotate during normal operation." *Id.* at 45–46. By contrast, Patent Owner argues, "[i]n Adelberg, the external magnet provided in the hand-held part rotates (e.g., hundreds of rotations) and causes the rotor to rotate synchronously

with the external magnet in order to adjust a pressure set point during an adjustment process.” *Id.* “During normal operation of the eye implant” of Adelberg, according to Patent Owner, “the rotor has no interaction with an external magnet at all and therefore does not hold an external magnet in place over the implant.” *Id.* Finally, Patent Owner argues, “[n]either [Teissl] nor Adelberg provides any suggestion that a rotor that functions” as in the one in Adelberg “would improve the design of a cochlear implant system at all.” *Id.* at 49.

We determine, based on the current record, that Petitioner has not sufficiently shown that a person of ordinary skill would have combined Teissl with Adelberg to achieve the claimed invention, including specifically the “freely turnable” limitation. We agree with Petitioner that Teissl describes the problem the ’057 patent is directed to, namely that when a patient with the implant undergoes an MRI procedure, “[f]orce and torque on ferromagnetic parts of the implant due to magnetic field gradients and the homogenous magnetic field could dislodge the implant, which could result in damage to the implant or the surrounding tissue.” Ex. 1004, 70–71. Teissl also discloses that a possible solution to this problem could be the use of “an internal magnet which aligns itself within an external magnetic field.” *Id.* at 127. As discussed above, however, Teissl does not describe the structure of this “self-aligning” magnet. And although Teissl elsewhere describes cylindrical shape magnets (Ex. 1004, 72), it does not disclose that these cylindrical magnets could be used as the “self-aligning” magnet described on page 127, much less that such a magnet could be freely turnable around a rotatable cylinder axis.

The question then becomes whether Adelberg would have taught a person of ordinary skill to use a cylindrical shape magnet that is freely

turnable around a rotational cylinder axis as Teissl's "self-aligning" magnet. We agree with Patent Owner that Petitioner has not sufficiently articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Petitioner fails to establish that Adelberg's propeller-shaped rotor would have taught one of ordinary skill to use a "cylinder shaped" rotatable magnet as the "self-aligning" magnet in Teissl. Although Teissl elsewhere teaches the use of "magnets of cylindrical shape" in the implant for "holding the external transmitter in place" (Ex. 1004, 72), Petitioner does not show how Adelberg would have led one of ordinary skill to make such a cylindrical magnet in a cochlear implant rotate around a cylindrical axis and still hold the external transmitter in place. Not only is Adelberg's rotor not cylindrical, it also is not an "implant holding magnet" because it does not hold anything in place, as discussed above.

Petitioner further argues that Patent Owner's arguments against combining Teissl and Adelberg are inconsistent with Patent Owner's arguments in another proceeding, IPR2020-00176 (the "-176 IPR"), in which Patent Owner challenges a patent owned by Petitioner, U.S. Patent No. 6,761,681 (the '681 patent"). *See generally* Pet. Reply. We, however, agree with Patent Owner that the "claimed subject matter in the two IPRs is distinctly different, the scope of the analogous art in the two IPRs is not comparable, the articulated rationale for combining the references in the two IPRs is entirely different," and "the outcome in the one IPR will not affect the outcome in the other IPR." PO Sur-reply at 1.

Based on our review of the record, we find that Petitioner has not provided sufficient evidence to show a reasonable likelihood that the combined teachings of the prior art would have led one having ordinary skill in the art to the "freely turnable" limitation.

4. Conclusion as to Ground 1

On this record, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertion that claim 19 would have been obvious over Teissl in view of Adelberg.

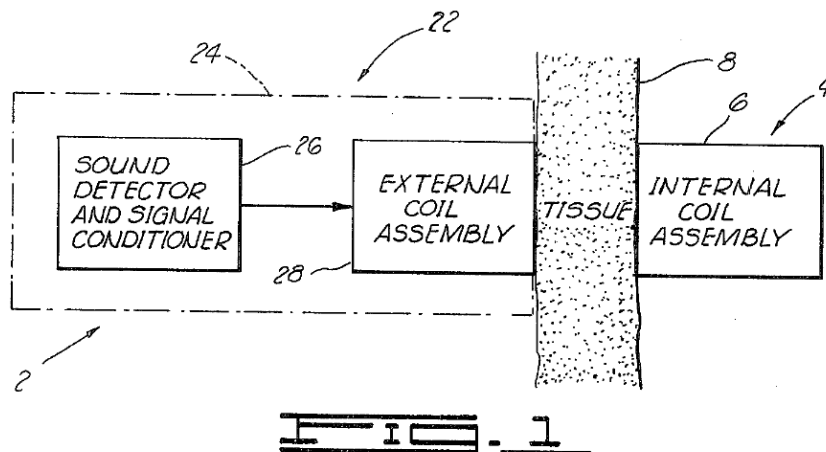
D. Ground 2: Obviousness of Claim 19 over Dormer and Beyar

Petitioner contends that claim 19 would have been obvious over the combination of Dormer and Beyar. Pet. 45–55. We begin our discussion with a brief summary of Dormer and Beyar, and then address the obviousness arguments and evidence presented.

1. Overview of Dormer

Dormer “relates to a bio-electronic signal coupling device (such as a hearing aid having a cochlear implant unit and a sound receiving unit) utilizing rare-earth magnets to properly align and secure an external member (such as the sound receiving unit) with an internal member (such as the cochlear implant unit).” Ex. 1006, 1:10–16.

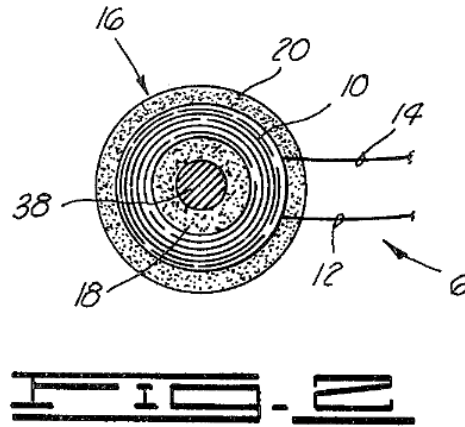
An embodiment of Dormer’s hearing aid system is shown in Figure 1.



Ex. 1006, Fig. 1. As shown in Figure 1, Dormer discloses a hearing aid 2 including an internal first member 4 made up of a cochlear implant unit having an internal coil assembly 6 containing a first electrically conductive

coil 10 (not shown in Figure 1) with an electrode inserted into the cochlea of the user. *Id.* at 3:55–4:7. The internal coil assembly 6 “is subcutaneously located beneath a layer of tissue 8 which includes the epidermal and dermal layers of the skin of the user of the device.” *Id.* at 3:65–68. The device also includes a second member 22 located outside the skin that includes a sound detector and signal conditioner 26 and an external coil assembly 28 including a second electrically conductive coil 29. *Id.* at 4:16–30. The second detector and signal conditioner 26 is electrically connected to the second coil 29 within the external coil assembly 28, and generates an electric signal which is electromagnetically transferred transcutaneously to the first coil 10 within the internal coil assembly 6 for electrically stimulating the cochlea. *Id.* at 4:31–38.

Dormer also discloses the use of “magnet means” for “properly securing the external coil assembly 28 (and the sound detector and signal conditioner means 26 if it is unistructurally combined with the external coil assembly 28) with the internal assembly 6 without significantly adversely affecting the intervening tissue.” *Id.* at 4:58–65. Dormer discloses that this “magnet means” can be a rare-earth magnet located within the electrically conductive coil 10 of the internal assembly 6, as shown in Figure 2. *Id.* at 5:8–13.



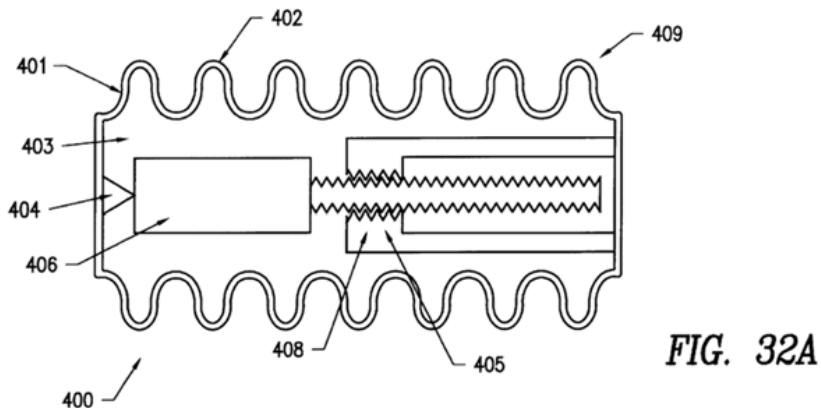
Ex. 1006, Fig. 2. As shown in Figure 2, internal coil assembly 6 includes “a first rare-earth magnet 38 associated with first coil 10 by being concentrically positioned therewith in the pot type core half 20.” *Id.* at 5:8–13. The system also includes “a second rare-earth magnet associated with the second coil 29 of the second member 22 for magnetically coupling with the first rare-earth magnet 38 so that the first and second coils 10 and 29 are positioned for electromagnetically inductive coupling.” *Id.* at 5:21–27.

2. Overview of Beyar

Beyar is directed to “systems for percutaneous bone and spinal stabilization, fixation and repair, including intramedullar bone and vertebral fixtures, vertebral disc prostheses, and electrocautery probes.” Ex. 1007, 1:21–24. “In accordance with the present invention,” Beyar explains, “prostheses are . . . provided which can be remotely activated outside the body, after they have been implanted within the body.” *Id.* at 37:26–29. Beyar states that “[t]he invention is particularly suited for orthopedic applications.” *Id.* at 37:29–30. Beyar further explains that “[t]he remote activation is used to expand or increase the size of the prosthesis (e.g. its length and/or diameter) to eliminate the loosening effects which develop

over time between fixture and bone, and which have posed a problem in the prior art.” *Id.* at 37:30–34.

Petitioner points to the embodiment of Beyar shown in Figure 32A, which is reproduced below.



Ex. 1007, Fig. 32A, *cited in* Pet. 27. Figure 32A shows “an inflatable member 400” having “a chamber 401 preferably made of metal or polymer.” *Id.* at 37:35–37. “The chamber 401,” Beyar discloses, “has an inner lumen 402 and is of a shape and material allowing the chamber 401 to expand in size, whether length, diameter, and/or volume 403.” *Id.* at 37:37–39. The chamber 401 also has “an inner support 404, a screw 408 and fixed nut 405 at the inflatable member’s proximal end, and a magnet 406 attached to either the nut or the shaft.” *Id.* at 37:44–47. According to Beyar, “[t]he magnet 406 is preferably cylindrical, and is rotatable on magnet support 404 along with screw 408 which mates with the threads of nut 405.” *Id.* at 37:48–51.

Beyar further discloses “[t]he external unit 407 can be an MRI machine, or a rotating magnet or member which produces a magnetic field.” *Id.* at 38:3–5. The external unit “is magnetically coupled to the implanted magnet 406” and “[t]he magnetic field produced by the external unit causes rotation of the magnet 406 . . . rotating the magnet and screw” in order to either lengthen or shorten the inflatable member 400. *Id.* at 37:51–67.

3. *Analysis*

As with Ground 1, Patent Owner focuses its Preliminary Response on the “freely turnable” limitation of claim 19. Prelim. Resp. 36–58. Because, as discussed further below, Petitioner has not established a reasonable likelihood of proving that the prior art teaches the “freely turnable” limitation, we will focus on this limitation in our analysis.

(i) Disclosures of Dormer Relating to the “Freely Turnable” Limitation

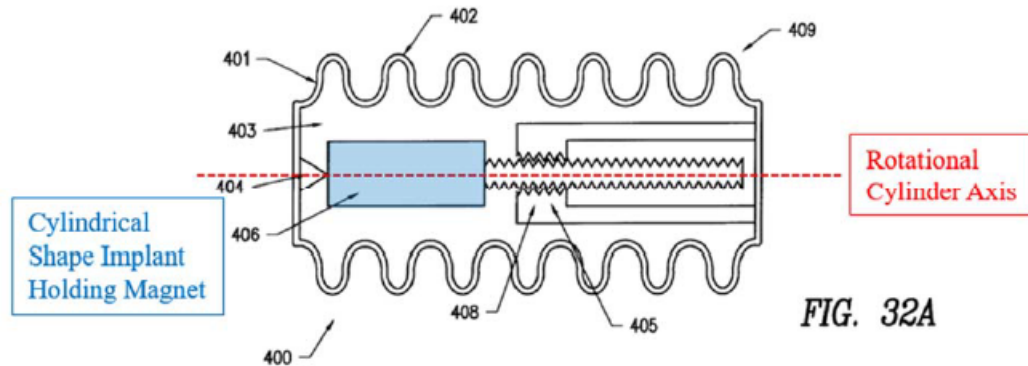
Petitioner argues that “Dormer discloses an implant holding magnet” in the form of “a first rare-earth magnet 38 associated with the first coil 10 by being concentrically positioned therewith in the pot-type core-half 20.” Pet. 52 (citing Ex. 1006, 5:7–13). Petitioner also argues that the “implant holding magnet” is magnet 38 in the implantable portion 6 in Figure 2. *Id.* at 52–53 (citing Ex. 1006, Fig. 2). Petitioner does not argue that Dormer discloses that the “implant holding magnet” has a cylindrical shape. *Id.*

Patent Owner does not argue in its Preliminary Response that Dormer fails to disclose an implant holding magnet. *See generally* Prelim Resp. 36–51. Patent Owner, however, contends that Dormer does not disclose that the internal member rotates, and “therefore necessarily fails to disclose a cylindrical-shape implant holding magnet adapted to be freely turnable within the implant housing around its rotational cylinder axis.” Prelim. Resp. 40.

(ii) Disclosures of Beyar Relating to the “Freely Turnable” Limitation

Petitioner argues that Beyar discloses a “cylindrical-shape implant holding magnet having a rotational cylinder axis and adapted to be freely turnable within the implant housing around the rotational cylinder axis in response to an external magnetic field.” Pet. 53. Petitioner points to an

annotated version of Figure 32A of Beyar, reproduced below, to support its argument.



Pet. 54. Petitioner argues that this annotated version of Figure 32A “shows cylindrical-shape implant holding magnet 406 (blue) that is freely turnable in response to an external magnetic field about a rotational cylinder axis (red) running through 404.” *Id.* at 53. According to Petitioner, Beyar further discloses that the external magnetic field “can be generated by, for example, ‘an MRI machine, or a rotating magnet or member.’” *Id.* (citing Ex. 1007, 38:3–5).

Patent Owner argues that Beyar does not disclose a “holding magnet.” Prelim. Resp. 40–41. Patent Owner argues that “[t]here is no disclosure that the implanted magnet in Beyar is able to hold or support the external unit in place on the skin of a user.” *Id.* “Rather,” according to Patent Owner, “the implanted magnet is provided to rotate within the inflatable member in order to press and move a chamber wall and expand the inflatable member with no mention of the external unit being held in place on the skin near the inflatable member or intramedullary nail, or the desirability of doing so.” *Id.* at 41. Patent Owner further contends that “[t]here is no disclosure of another external magnet that is held in place on the skin by an implant holding magnet that holds the external unit in place.” *Id.*

As discussed above, we have construed an “implant holding magnet” to mean “an implanted magnet that holds an external part in place.” Given that construction, and on this record, we find that magnet 406 of Beyar is not an “implant holding magnet” because it does not hold another part in place. Beyar’s magnet 406 interacts with an external magnetic field created by an external unit 407, but there is no disclosure that the magnet 406 of Beyar holds this external unit in place.

Consequently, Petitioner has shown a reasonable likelihood that Beyar discloses a cylindrical shape magnet having a rotational cylinder axis and adapted to be freely turnable within the implant housing around the rotational cylinder axis in response to an external magnetic field. However, we agree with Patent Owner that Petitioner has not shown that Beyar discloses an “implant holding magnet.”

(iii) Rationale to Combine Dormer and Beyar

As with the combination of Teissl and Adelberg, Petitioner argues that a person of ordinary skill (POSA) “would have been motivated to combine Dormer and Beyar because of the similarities between the two systems,” including that both systems: (1) “are biomedical implants” (Pet. 45 (citing Ex. 1006, 1:9–16; Ex. 1007, 37:26–29; Ex. 1002 ¶ 112)); (2) “include an implanted component with a housing and an external component” (*id.* (citing Ex. 1006, 1:9–16; Ex. 1007, 37:26–29, 37:35–37; 37:51–53; Ex. 1002 ¶ 112)); and (3) “include a magnet within the implanted component housing designed for transcutaneous magnetic coupling with a magnet within the external component” (*id.* (citing Ex. 1006, 2:67–3:8, 7:30–36; Ex. 1007, 37:48–53; Ex. 1002 ¶ 112)). “Given the substantial overlap, similarities, and shared components between Dormer and Beyar,” Petitioner argues, a person

of ordinary skill “would have naturally looked to Beyar when seeking to improve the hearing system disclosed by Dormer.” *Id.* at 45–46.

Beyond these similarities, Petitioner further argues that persons of ordinary skill “would have desired to improve Dormer’s design by incorporating the teachings of Beyar to permit the use of diagnostic MRI procedures.” *Id.* at 46. Petitioner then goes on to rely primarily on testimony from its expert, Dr. Shellock, rather than disclosures from Dormer and Beyar, to provide the requisite reason or motivation to combine the references. *Id.* at 46–47. Petitioner argues, citing Dr. Shellock, that at the time of the alleged invention, “some cochlear implants could withstand the magnetic fields associated with relatively low strength MRI systems,” but “the necessary precautions for such an examination included a special headband-like dressing that could be problematic due to the discomfort it caused patients.” *Id.* at 46 (citing Ex. 1002 ¶ 113). Petitioner also argues that, prior to the critical date, persons of ordinary skill understood that MRI machines were increasing in strength, and that “[t]hese higher strength MRI[] machines presented new ‘important MR safety issues’ for ‘individuals with metallic implants’ like those disclosed by Dormer.” *Id.* (citing Ex. 1002 ¶¶ 42–43, 113; Ex. 1015, 721 (Shellock paper on 3.0 Tesla magnetic field interactions)). For these reasons, Petitioner argues, one of ordinary skill “would have been motivated to modify Dormer’s implanted magnet to reduce MRI-related issues associated with the increased strength MRI systems.” *Id.* (citing Ex. 1002 ¶ 113).

Petitioner then relies on Dr. Shellock and another reference, Hakim⁴, to argue that “[b]y the late 1980s, POSAs understood that rotatable magnets

⁴ US 4,595,390; issued Jun. 17, 1986 (Ex. 1018).

could be designed to have ‘immunity to the magnetic field generated by NMR (nuclear magnetic resonance) diagnostic devices,’ which is the older term for MRI.” Pet. 46–47 (citing Ex. 1018, 3:41–45; Ex. 1002 ¶ 114). Petitioner argues that “Beyar discloses an implanted magnet that is ‘cylindrical, and is rotatable’ in response to a ‘magnetic field produced by an external unit,’ which means that the magnet is self-aligning with the external magnetic field,” and that the magnetic field is generated by “an MRI machine, or a rotating magnet or member.” *Id.* at 47 (citing Ex. 1007, 37:44–51, 37:53–57, 38:3–5; 38:17–20; Ex. 1002 ¶ 114).

Thus, Petitioner contends, “POSAs would be motivated to combine Beyar’s teaching of a rotating cylindrical magnet with the cochlear implant disclosed in Dormer to allow the internal magnet to align itself with an external magnetic field to ensure Dormer’s cochlear implant would have minimal issues relating to an MRI system, including the new, higher strength MRI systems.” Pet. 47 (citing Ex. 1002 ¶ 114). Petitioner further asserts that “POSAs would have been motivated by the fact that such a modification could reduce MRI-related issues for Dormer’s implant by potentially reducing torque and preventing demagnetization of Dormer’s implanted magnet.” *Id.* Finally, Petitioner argues that “[t]he ’057 Patent does not claim any unexpected success achieved via the claimed invention, and there is in fact no such unexpected result.” *Id.* (citing Ex. 1002 ¶ 115).

Patent Owner argues that one of ordinary skill would not have been motivated to combine Dormer and Beyar because the references “share very little in common” and “Petitioner disregards the specific teachings within each reference and the intended purpose of the disclosed inventions.” Prelim. Resp. 52. “Dormer,” Patent Owner argues, “relates to a hearing aid that uses magnets to properly align and secure an external member with an

internal member, whereas Beyar relates to a bone implant with an inflatable member that is expanded by magnets.” *Id.*

Patent Owner further argues that “Dormer and Beyar have different components that function in a different way for a different purpose.” *Id.* Patent Owner contrasts the coil assemblies in the hearing aid of Dormer’s Figure 1, which secure the parts to one another and allow electrical signal transmission, with the magnet, screw and fixed nut in Figures 32A and 35 of Beyar, which allow the implant to be “lengthened or contracted through rotation of the implanted magnet in an inflatable member” in order to enable the implant “to fit securely . . . against the bone eliminating the gaps that develop over time between the implanted nail and bone.” *Id.* at 52–53.

Moreover, Patent Owner argues, the “magnetic components of the two references serve entirely different functions.” *Id.* at 54. According to Patent Owner, Dormer’s “internal and external magnets are used to align and secure the internal and external coil assemblies without significantly adversely affecting the skin between the two assemblies.” *Id.* By contrast, Patent Owner argues, “Beyar discloses that the internal magnet is turned by an external magnetic field, such as an MRI machine or rotating magnet,” and that this “turning of the internal magnet expands or contracts the inflatable member.” *Id.*

Patent Owner further argues that Petitioner’s motivation to combine arguments are deficient because “[t]here is no explanation as to why using a magnet to expand an inflatable chamber has anything to do with allowing a hearing implant to be present during an MRI procedure.” *Id.* at 54–55. With regard to the Hakim reference, upon which Petitioner and Dr. Shellock rely, Patent Owner contends that “Hakim is directed to an implanted shunt valve in which popping pressure is adjusted in finite increments.” *Id.* at 55 (citing

Ex. 1018, 2:28–31). Patent Owner quotes the referenced portion of Hakim as follows:

The invention has the advantages of immunity to the magnetic field generated by NMR (nuclear magnetic resonance) diagnostic devices; such devices generate a steady magnetic field which cannot cause more than about one incremental change of popping pressure.

Id. (quoting Ex. 1018, 3:41–45). Patent Owner argues that this statement is “completely foreign to finding any benefit from rotatable magnets in an MRI,” and “[n]o attempt is made by the Petitioner or Dr. Shellock to reconcile the disparity between Hakim and the issues encountered by hearing implants in an MRI.” *Id.*

We determine, based on the present record, that Petitioner has not sufficiently articulated reasoning with some rational underpinning to support the legal conclusion of obviousness based on Dormer and Beyar. Petitioner points to no disclosure in Dormer itself that the use of cochlear implants in MRIs are problematic, or to any suggestion in Dormer as to why altering the implanted magnet would be desirable. Petitioner points to Dr. Shellock’s testimony that problems with using cochlear implants in MRIs were known in the art, but this testimony does not suggest that one of ordinary skill would have looked to Beyar for a solution to this problem.

Petitioner also fails to sufficiently show that Beyar would have taught a person of ordinary skill to use a cylindrical shape magnet that is freely turnable around a rotational axis as Dormer’s “implant holding magnet.” Dormer teaches a magnet within the coil of the internal cochlear implant assembly. *See* Ex. 1006, Fig. 2, 5:8–13. Petitioner points to no teaching in Dormer that this magnet is cylindrical, much less that it could be freely turnable around a rotatable cylinder axis. *See* Pet. 25–26, 52–53. Petitioner

also fails to show how Beyar would have led one of ordinary skill to make Dormer's magnet cylindrical and rotatable around a cylindrical axis while still holding the external transmitter in place. Indeed, Beyar's magnet is not an "implant holding magnet" because it does not hold anything in place, as discussed above.

In its reply brief, Petitioner asserts that Patent Owner's argument that no motivation exists to combine Dormer and Beyar is inconsistent with Patent Owner's arguments in the -176 IPR, making essentially the same arguments as it did with respect to Teissl and Adelberg, discussed above. *See generally* Pet. Reply. Patent Owner's responses closely track those with respect to Teissl and Adelberg as well. *See generally* PO Sur-reply. For the reasons discussed above with respect to Ground 1, Petitioner has not persuaded us that Patent Owner's arguments in the -176 IPR are inconsistent with Patent Owner's arguments in this case.

Consequently, based on our review of the record, we find that Petitioner has not provided sufficient evidence to show a reasonable likelihood that the combined teachings of the prior art would have led one having ordinary skill in the art to the "freely turnable" limitation of claim 19.

4. Conclusion as to Ground 2

On this record, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertion that claim 19 would have been obvious over Dormer in view of Beyar.

E. Ground 3: Obviousness of Claim 19 over Teissl, Adelberg, and Dormer

Petitioner contends that claim 19 would have been obvious over the combination of Teissl, Adelberg, and Dormer, relying on similar arguments as in the previous grounds. Pet. 55–62. As with the other grounds, Patent

Owner focuses its Preliminary Response on the “freely turnable” limitation of claim 19. Prelim. Resp. 36–58.

Petitioner argues that the combination of Teissl, Dormer and Adelberg teaches the “freely turnable” limitation, pointing to its arguments made for Grounds 1 and 2. Pet. 61. Petitioner argues that “[t]o the extent Patent Owner argues that the combination of Teissl and Adelberg does not disclose all limitations of Claim 19, Dormer would fill any alleged gaps.” *Id.* at 55. More specifically, Petitioner contends that to the extent Teissl does not “disclose[] all the basic cochlear implant limitations of claim 19,” persons of ordinary skill “would have been motivated to combine Dormer’s teachings of the components of a cochlear implant system with Teissl.” *Id.* (citing Ex. 1002 ¶ 136).

Patent Owner argues that “Petitioner admits that Dormer is being used just to fill any gaps with [Teissl] regarding the details of ‘prior art cochlear implant systems,’” but “[t]he gaps that need filling . . . are showing a freely turnable cylindrical-shaped implant holding magnet.” Prelim. Resp. 57 (citing Pet. 56). Patent Owner contends that “Dormer adds nothing further in this regard” because “Dormer’s internal magnet does not freely turn.” *Id.* To the contrary, according to Patent Owner, “Dormer simply discloses a cochlear implant system that was known in the art at the time of the priority date of the ’057 Patent and had the known problems with MRI systems due to a fixed internal magnet that the ’057 patent solved.” *Id.* at 57–58.

As discussed above with respect to Ground 1, we agree with Patent Owner that the combination of Teissl and Adelberg does not teach this claim limitation. Moreover, as discussed above with respect to Ground 2, we agree with Patent Owner that Dormer does not teach a cylindrical-shape implant magnet, or an implant magnet having a rotational cylinder axis and

adapted to be freely turnable around the rotational cylinder axis. For this reason, we determine that Petitioner has failed to sufficiently show that Dormer rectifies the deficiencies of the Teissl/Adelberg combination.

Consequently, based on our review of the record, we find that Petitioner has not provided sufficient evidence that the prior art teaches the “freely turnable” limitation of claim 19. Therefore, on this record, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertion that claim 19 would have been obvious over Teissl, Adelberg, and Dormer.

F. Secondary Considerations of Nonobviousness

Patent Owner contends that “[t]he substantial objective evidence of non-obviousness in this case weighs against any potential finding of obviousness.” Prelim. Resp. 58–62. Petitioner argues that “[t]here is no evidence that supports any secondary considerations tending to shown non-obviousness.” Pet. 62. Because we determine that Petitioner has failed to establish a reasonable likelihood that claim 19 is unpatentable over the prior art, we need not consider Patent Owner’s secondary considerations arguments.

G. Patent Owner’s Arguments Based on Section 325(d)

Patent Owner contends that “[t]he Board should exercise its discretion to deny institution” in this case under Section 325(d) because the “prior art or subject matter relied on by Petitioner was previously considered during prosecution of the ’057 patent and the additional references are from non-analogous fields and thus do not warrant additional consideration by the Board.” Prelim. Resp. 62. Because we determine that Petitioner has failed to demonstrate a reasonable likelihood of proving unpatentability of the

challenged claims, we need not reach the question of whether we should exercise our discretion to deny institution based on Section 325(d).

III. CONCLUSION

Based on the arguments and evidence presented in the Petition, the Preliminary Response, Petitioner's Reply, and Patent Owner's Sur-reply, and accompanying exhibits, we conclude that Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to at least one claim challenged in the Petition. Therefore, we do not institute an *inter partes* review in this proceeding.

IV. ORDER

Accordingly, it is:

ORDERED that the Petition is denied and no *inter partes* review is instituted in this proceeding.

IPR2019-01572
Patent RE46,057

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