

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AVX CORPORATION,
Petitioner,

v.

GREATBATCH, LTD.,
Patent Owner.

Case IPR2015-00908
Patent 7,035,076 B1

Before MICHAEL P. TIERNEY, JON B. TORNQUIST, and
ELIZABETH M. ROESEL, *Administrative Patent Judges*.

ROESEL, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. §§ 316(d) and 318 and 37 C.F.R. § 42.73

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, AVX Corporation (“Petitioner”) challenges the patentability of claims 1–9, 11–22, 24–34, and 36–38 of U.S. Patent No. 7,035,076 B1 (Ex. 1001, “the ’076 patent”), owned by Greatbatch, Ltd. (“Patent Owner”).

We have jurisdiction under 35 U.S.C. § 6(b). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

Patent Owner filed a non-contingent Motion to Amend. For the reasons discussed below, Patent Owner’s motion is denied, and challenged claims 1–9, 11–22, 24–34, and 36–38 of the ’076 patent are unpatentable.

I. BACKGROUND

A. Procedural History

On March 20, 2015, Petitioner filed a Petition requesting *inter partes* review of claims 1–9, 11–22, 24–34, and 36–38 of the ’076 patent. Paper 1 (“Pet.”). On June 25, 2015, Patent Owner filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

On September 24, 2015, we instituted an *inter partes* review of all challenged claims, i.e., claims 1–9, 11–22, 24–34, and 36–38 of the ’076 patent. Paper 8 (“Decision to Institute” or “Dec.”).

Following institution, Patent Owner filed a non-contingent Motion to Amend pursuant to 35 U.S.C. § 316(d), Paper 14 (“Mot.”), and a non-substantive Patent Owner Response referring to the Motion to Amend, Paper 13. Petitioner filed an Opposition to the Motion to Amend. Paper 19 (“Opp.”). Patent Owner filed a Reply. Paper 20 (“PO Reply”).

With prior Board authorization, Petitioner filed a paper identifying portions of the Reply it contends are beyond the scope of a proper reply,

Paper 22, and Patent Owner filed a Response, Paper 23. The parties waived oral argument. Papers 28, 29.

Both Petitioner and Patent Owner present declaration testimony. A Declaration of John Galvagni, Ex. 1007, was submitted with the Petition. A first Declaration of Robert A. Stevenson, Ex. 2463, was submitted with Patent Owner's Motion to Amend, and a second declaration of the same witness, Ex. 2469, was submitted with the Reply. Neither Mr. Galvagni nor Mr. Stevenson was cross-examined as part of this proceeding.

B. Related Proceedings

No related proceedings involving the '076 patent have been identified by the parties. See Pet. 2; Paper 18, 6–7.

C. The '076 Patent

The '076 patent discloses a feedthrough terminal pin sub-assembly with an internally grounded hermetic insulator. Ex. 1001, 1:1–3, 1:7–8, 3:20–23. Figure 2 of the '076 patent is reproduced below:

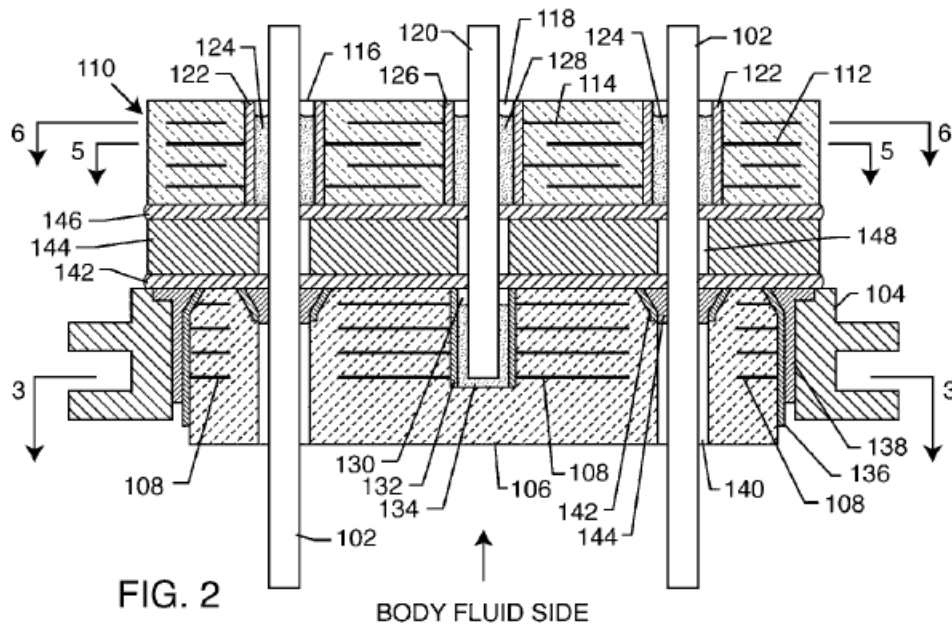


Figure 2 of the '076 patent is a cross-sectional view of an internally grounded quadpolar feedthrough filter capacitor assembly 100, including conductive terminal pins 102, ground pin 120, feedthrough capacitor 110, insulator 106, and conductive ferrule 104. *Id.* at 6:5–12, 7:14–21, 7:30–32.

Feedthrough capacitor 110 includes first and second sets of electrode plates 112 and 114, respectively. *Id.* at 7:30–33. Conductive terminal pins 102 extend through passageways 116 of feedthrough capacitor 110 and are conductively linked to the first set of electrode plates 112. *Id.* at 7:33–36, 7:43–53. Conductive ground pin 120 extends into passageway 118 of feedthrough filter capacitor 110 and is conductively linked to the second set of electrode plates 114. *Id.* at 7:36–39, 7:60–64, 7:67–8:4.

Insulator 106 is formed of a non-conductive material, such as alumina, and includes passageways 140 for conductive terminal pins 102 and passageway 130 for ground pin 120. *Id.* at 7:21–25, 8:27–29, 8:48–51. Insulator 106 has at least one embedded ground plate 108 and preferably a plurality of ground plates spaced apart from one another to form a set. *Id.* at 7:25–28. These ground plates 108 extend to the surface of passageway 130 and are conductively coupled to ground pin 120. *Id.* at 8:29–35. The ground plates 108 also extend to the outer peripheral surface of insulator 106 and are conductively coupled to ferrule 104. *Id.* at 8:36–47.

D. Illustrative Claims

The '076 patent issued with 38 claims, three of which—claims 1, 16, and 29—are independent. Claim 1 is illustrative of the challenged claims and is reproduced below:

1. A feedthrough filter capacitor assembly, comprising:
a conductive terminal pin;

a feedthrough filter capacitor having first and second sets of electrode plates, a first passageway through which the terminal pin extends in conductive relation with the first set of electrode plates;

a conductive ferrule through which the terminal pin extends in non-conductive relation;

an insulator having a first passageway through which the terminal pin extends in non-conductive relation, and a ground plate conductively coupled to the ferrule; and

means for conductively coupling the capacitor second set of electrode plates and the insulator ground plate.

Ex. 1001, 12:23–36.

Patent Owner proposes to substitute claims 39, 54, and 67 for issued claims 1, 16, and 29. Mot., Appendix 1. Claim 39 is illustrative of the proposed substitute claims and is reproduced from Patent Owner's Appendix 1 below:¹

39. A feedthrough filter capacitor assembly, comprising:
a first conductive terminal pin and a second conductive terminal pin;

a feedthrough filter capacitor having first and second and third sets of electrode plates, a first capacitor passageway through which the first terminal pin extends in conductive relation with the first set of electrode plates, a second capacitor passageway, and a third capacitor passageway through which the second terminal pin extends in conductive relation with the third set of electrode plates;

a conductive ferrule through which the first terminal pin and the second terminal pin extend [extends] in non-conductive relation;

an insulator having a first insulator passageway through which the first terminal pin extends in non-conductive relation,

¹ Additions to original claim 1 are underlined, and deletions from that claim are enclosed by brackets.

a second insulator passageway, a third insulator passageway through which the second terminal pin extends in non-conductive relation, and [a] an insulator ground plate conductively coupled to the ferrule; and

means, passing through the second capacitor passageway of the feedthrough filter capacitor and into the second insulator passageway of the insulator, for conductively coupling the capacitor second set of electrode plates and the insulator ground plate; and

wherein the insulator ground plate extends around the first terminal pin and around the second terminal pin;

wherein the insulator ground plate extends between the first terminal pin and the second terminal pin and does not contact either the first terminal pin or the second terminal pin;

wherein the first terminal pin and the second terminal pin extend through the insulator ground plate; and

wherein the insulator ground plate is embedded in the insulator.

Mot. 23–24. Proposed substitute claims 54 and 67 include the same “wherein” clauses as proposed substitute claim 39, and like claim 39, recite a second conductive terminal pin, a third set of electrode plates, second and third capacitor passageways, and second and third insulator passageways. *Id.* at 24–27.

E. Petitioner’s Prior Art References

The grounds of unpatentability asserted in the Petition are based primarily on the following references:

Stevenson et al., US 7,038,900 B2, filed May 10, 2004 and published January 13, 2005, asserted as prior art to the ’076 patent under 35 U.S.C. § 102(a) and (e) (“Stevenson”), Ex. 1002;

Brendel et al., US 6,529,103 B1, issued March 4, 2003, asserted as prior art to the '076 patent under 35 U.S.C. § 102(b) (“Brendel”), Ex. 1003; and

Wolf et al., US 6,414,835 B1, issued July 2, 2002, asserted as prior art to the '076 patent under 35 U.S.C. § 102(b) (“Wolf”), Ex. 1004.

F. Instituted Grounds

Inter partes review was instituted based on the following grounds of unpatentability asserted in the Petition:

1. Whether original claims 1–9, 11–22, 24–34, and 36–38 of the '076 patent are anticipated under 35 U.S.C. § 102 by Stevenson;
2. Whether original claims 1, 5, 6, 11–19, 24–27, 29–31, and 36–38 of the '076 patent are anticipated under 35 U.S.C. § 102 by Brendel; and
3. Whether original claims 1–6, 11–19, 24–31, and 36–38 of the '076 patent are unpatentable under 35 U.S.C. § 103 as having been obvious in view of Brendel and Wolf.

II. DISCUSSION

A. Claim Construction

The Decision to Institute provides the following claim constructions:

Claim term	Claim construction
“conductively coupled”	“electrically connected either by direct contact or by indirect contact through a conductive medium”
“means for conductively coupling the capacitor second set of electrode plates and the insulator ground plate”	A “means-plus-function” term under 35 U.S.C. § 112(6). Function: “conductively coupling the capacitor second set of electrode plates and the insulator ground plate” Corresponding structure: “conductive material, including one or more ground pins, a ground wire, a solder material, a conductive thermosetting material, a weld, a braze, a conductive glass, or a conductive spring coil”
“ground plate”	“a flat, relatively thin layer by which electrical signals may be transmitted to ground”
“an insulator having . . . a ground plate”	Ordinary meaning

Neither party identifies any error in the above constructions or proposes any modifications or additional constructions. Accordingly, for the reasons set forth in the Decision to Institute, Dec. 5–13, we adopt these constructions for purposes of determining whether Petitioner has met its burden to establish unpatentability of the challenged claims of the ’076 patent.

For purposes of Patent Owner's Motion to Amend, neither party proposes additional constructions directed to the newly added claim terms. And, upon review of the record as a whole, we determine that no additional claim terms require construction for purposes of this Final Written Decision. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (noting that only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy).

B. Person of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art would have had a Bachelor's degree in electrical engineering, chemistry, and/or physics along with several years of relevant applied research or industry work experience in the field of filter capacitors. Pet. 16 (citing Ex. 1007 ¶ 16).

Patent Owner contends that the relevant field is more specific and narrower than filter capacitors and requires knowledge of electromagnetic interference (EMI) filtering and implantable medical devices (IMDs) and that Petitioner's declarant lacks such knowledge. Prelim. Resp. 27–30.

On the present record, we determine a person of ordinary skill in the art would have had a Bachelor's degree in electrical engineering, chemistry, and/or physics, along with several years of relevant applied research or industry work experience in the field of filter capacitors, including electromagnetic interference (EMI) filtering and implantable medical devices (IMDs). Our conclusion is supported by Petitioner's asserted prior art references, which disclose filter capacitors for electromagnetic interference (EMI) filtering and implantable medical devices (IMDs). Ex. 1002, 1:17–24; Ex. 1003, 1:9–14; Ex. 1004, 1:12–21. *See Okajima v.*

Bourdeau, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art, itself, can reflect the level of skill in the art).

On the present record and based upon the stated qualifications of Petitioner's declarant, Ex. 1007 ¶¶ 2–5; Ex. 1008, we consider Petitioner's declarant qualified to opine from the viewpoint of a person of ordinary skill in the art regarding Petitioner's asserted grounds of unpatentability.

C. Petitioner's Ground 1: Anticipation by Stevenson

Petitioner contends that claims 1–9, 11–22, 24–34, and 36–38 are anticipated under 35 U.S.C. § 102 by Stevenson. Pet. 16–39.

Stevenson discloses an electro-magnetic interference (“EMI”) filter terminal assembly for use in active implantable medical devices, such as cardiac pacemakers. Ex. 1002, Abstract, 1:17–20. Petitioner relies on the embodiment shown in Stevenson Figures 71 to 74, which are reproduced below:

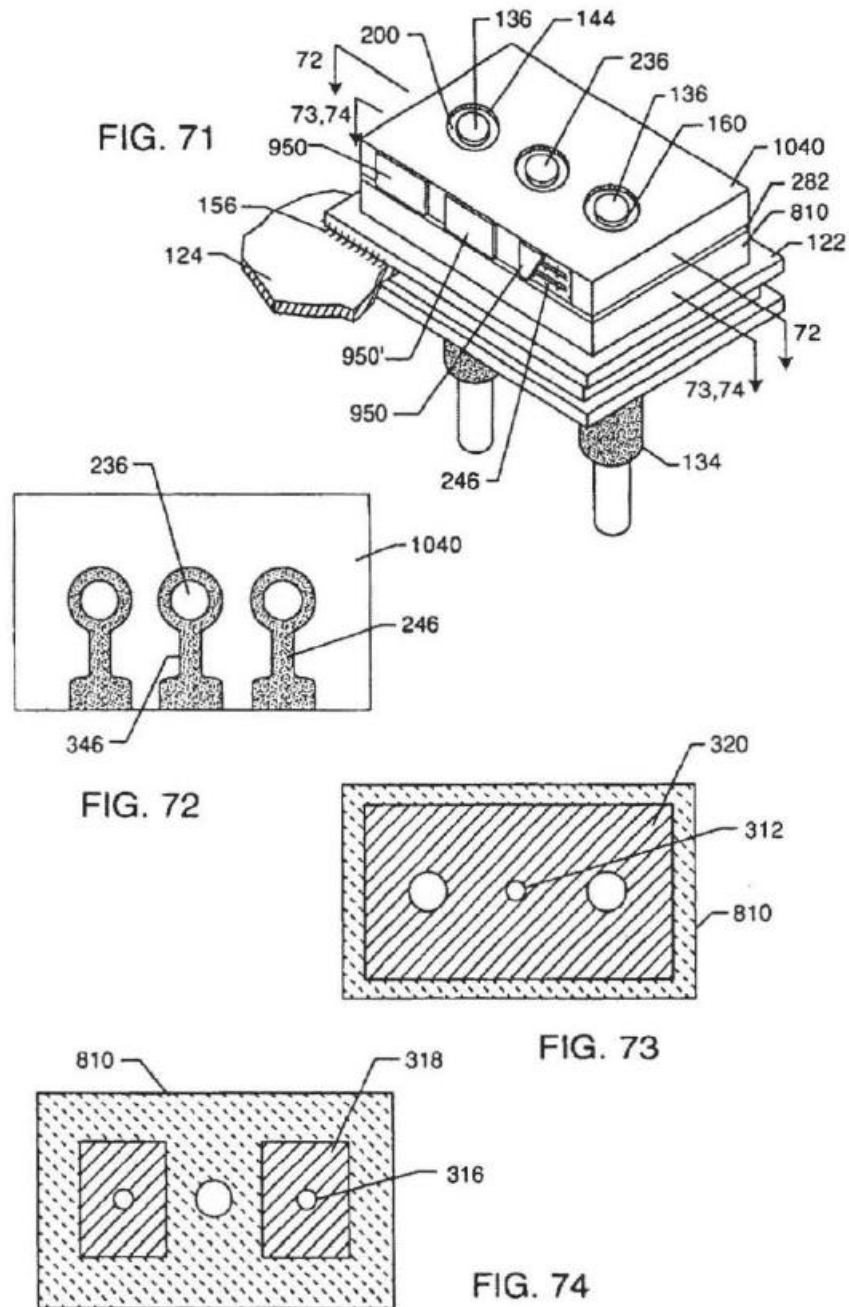


Figure 71 is a perspective view of an EMI filter terminal assembly including internally grounded feedthrough capacitor 810 and multi-layer alumina substrate 1040 bonded on top of the capacitor. Ex. 1002, 9:39–41, 29:1–4. Figure 72 is a sectional view along line 72–72 of Figure 71 and illustrates circuit traces 246 and 346 embedded within multi-layer alumina

substrate 1040. *Id.* at 9:43–45, 29:10–12, 29:19. Figure 73 is a sectional view along line 73–73 of Figure 71 and illustrates ground electrode plates 320 within capacitor 810. *Id.* at 9:46–48, 29:12–14. Figure 74 is a sectional view along line 74–74 of Figure 71 and illustrates active electrode plates 318 within capacitor 810. *Id.* at 9:49–51, 29:14–15.

Petitioner asserts that Stevenson discloses each limitation of independent claims 1, 16, and 29, as well as dependent claims 2–9, 11–15, 17–22, 24–28, 30–34, and 36–38, in connection with the embodiment shown in Stevenson Figures 71–74. Pet. 20–39. We compare the challenged claims to the identified disclosures of Stevenson and make the following findings, which are supported by a preponderance of the evidence.

Claim 1. Stevenson’s feedthrough filter capacitor assembly includes a conductive terminal pin 136. Ex. 1002, 12:1, 24:65–67, 29:1–4, Fig. 71. As shown in Stevenson Figures 71, 73, and 74, feedthrough capacitor 810 includes first and second sets of electrode plates, namely active electrode plates 318 and ground electrode plates 320. *Id.* at 2:64–3:2, 29:12–15. Terminal pin 136 extends through a passageway in capacitor 810 in conductive relation to active electrode plates 318. *Id.* at 2:67–3:2, 29:14–15, Fig. 71 (showing terminal pins 136 extending through a passageway in capacitor 810), Fig. 74 (showing metallization 316 connecting terminal pins to electrode plates 318); *see* Pet. 16–18, 20–21.

Stevenson’s assembly includes conductive ferrule 122 through which lead wire (terminal pin) 136 extends in non-conductive relation. Ex. 1002, 24:65–67, 29:6–9. Stevenson’s assembly further includes an insulator in the form of multi-layer alumina substrate 1040 having a passageway through which terminal pin 136 extends in non-conductive relation. *Id.* at 29:1–4,

Figs. 71 and 72; *see also id.* at 28:17–29 (describing similar multi-layer substrate). Multi-layer alumina substrate 1040 includes a ground plate in the form of embedded circuit trace 346. *Id.* at 29:10–12, 29:19, Fig. 72. Circuit trace (ground plate) 346 is conductively coupled to ferrule 122 through ground pin 236. *Id.* at 29:4–9, 29:21–22. Consistent with our construction for “ground plate,” Stevenson’s circuit trace 346 is a flat, relatively thin layer formed by chemical etching, silk screening, or selective plating, *id.* at 4:59–64, 5:25–31, Fig. 72, and transmits electrical signals to ground, *id.* at 29:4–9, 29:16–22; *see* Pet. 17–19, 21–22.

Stevenson’s assembly includes means for conductively coupling the capacitor second set of electrode plates and the insulator ground plate in the form of grounded lead wire 236. Ex. 1002, 29:4–9, Figs. 71–74. Consistent with our constructions for “conductively coupled” and the means-plus-function element of claim 1, Stevenson’s grounded lead wire 236 is a ground pin that electrically connects capacitor ground electrode plates 320 and insulator circuit trace (ground plate) 346. *Id.* at 29:4–9, 29:18–22; *see* Pet. 17–19, 23.

Claim 16. The above findings with respect to claim 1 apply equally to claim 16, which is the same as claim 1, except for an additional limitation in the last paragraph of claim 16, which we address as follows: Stevenson discloses a conductive material in the form of grounded lead wire 236. As shown in Figures 71–73, lead wire 236 extends through a passageway of capacitor 810 in conductive relation with ground electrode plates 320 and extends through a passageway of substrate (insulator) 1040 in conductive relation with circuit traces (ground plates) 346. Ex. 1002, 29:1–14, 29:18–22, Figs. 71–73; *see* Pet. 16–20, 30–31.

Claim 29. The above findings with respect to claim 16 apply equally to claim 29, which recites the same limitations as claim 16, except for additional or modified limitations in the third, fourth and last paragraphs of claim 29, which we address as follows: Stevenson discloses that conductive ferrule 122 is conductively coupled to a housing for an active implantable medical device. Ex. 1002, 29:16–28, 38:50–52 (claim 15), Fig. 71. Stevenson Figures 71 and 72 show that circuit trace (ground plate) 346 extends to center wire bond pad 950', which is a conductive outer peripheral surface of substrate (insulator) 1040 and is conductively coupled to ferrule 122 through ground pin 236. *Id.* at 29:4–9, 29:16–22. Stevenson discloses a conductive material—ground pin 236—for conductively coupling capacitor ground electrode plates 320 and ferrule 122. *Id.* at 29:4–9, 29:21–22; see Pet. 16–20, 33–38.

Claims 2 and 28. Stevenson discloses a set of circuit traces (ground plates) 346 embedded at various levels within multi-layer alumina substrate 1040. Ex. 1002, 28:17–20, 29:1–2, 29:18–19, Fig. 72;² see Pet. 17–18, 23.

Claims 3, 4, 17, and 30. Stevenson discloses that the coupling means includes conductive lead wire or ground pin 236, Ex. 1002, 29:4–9, Fig. 71, which meets the limitations of claim 3 for the same reasons as stated above with respect to the last paragraph of claim 16. See Pet. 16–20, 24–25, 31, 38.

² Stevenson explains that functionally equivalent or similarly related components of the various embodiments are given the same reference number in increments of 100. Ex. 1002, 11:14–18. Accordingly, Stevenson's description of multi-layer substrate 940 in Figure 67, 28:17–29, applies to multi-layer substrate 1040 in Figure 71.

Claims 5, 6, 18, 19, and 31. Stevenson discloses that ferrule 122 is conductively coupled to a housing for an active implantable medical device, such as a cardiac pacemaker. Ex. 1002, 1:17–20, 29:4–9, 29:21–22; *see* Pet. 25–26, 31, 38.

Claims 7, 8, 20, 21, 32, and 33. Stevenson discloses that the EMI filter terminal assembly may include a ferrite bead inductor, as described in U.S. Patent Application Serial No. 60/508,426 (“the ’426 application”), which Stevenson incorporates by reference. Ex. 1002, 2:59–61, 26:39–43. The ’426 application discloses an EMI filter feedthrough terminal assembly including a ferrite inductor slab through which the terminal pin extends in non-conductive relation. Ex. 1006, 2; *see also* Ex. 1002, Fig. 56 (showing terminal pin 136 extending through ferrite inductor 194); *see* Pet. 26–27, 31–32, 38.

Claims 9, 22, and 34. Stevenson and the ’426 application both disclose that the ferrite inductor is disposed adjacent to the capacitor. Ex. 1002, 26:41–43, Fig. 56; Ex. 1006, 2; *see* Pet. 27, 32, 38–39.

Claims 11, 24, and 36. Stevenson discloses that an outer peripheral surface of the capacitor is non-conductive. More particularly, Stevenson discloses that the embodiment of Figures 71–74 includes the internally grounded feedthrough capacitor of Figures 45–49. Ex. 1002, 29:1–4. As shown in Figures 46–48, as well as Figures 71, 73, and 74, the outer periphery of ceramic capacitor 410/810 comprises non-conductive ceramic material surrounding electrode plates 118'/318 and 120'/320. *Id.* at 25:4–8, 25:20–22; *see* Pet. 27–28, 32, 39.

Claims 12, 25, and 37. Stevenson discloses an alumina insulator in the form of multi-layer alumina substrate 1040. Ex. 1002, 29:1–4, 29:10–12, Figs. 71 and 72; *see* Pet. 28, 32, 39.

Claims 13, 14, and 26. As discussed above in connection with the fourth paragraph of claim 29, Stevenson discloses that the insulator ground plate extends to a conductive outer peripheral surface of the insulator, which is conductively coupled to the ferrule. Ex. 1002, 29:4–9, 29:16–22, Figs. 71 and 72; *see* Pet. 28–29, 32–33.

Claims 15, 27, and 38. Stevenson discloses that the capacitor and insulator are disposed adjacent to each other and separated by a non-conductive material. More particularly, as shown in Figure 71, non-conductive insulating adhesive material 228³ bonds multi-layer alumina substrate 1040 to the top of capacitor 810. Ex. 1002, 25:20–22, 29:1–3, 29:10–12; *see* Pet. 29–30, 33, 39.

Based on the foregoing, we find that Petitioner has shown by a preponderance of the evidence that Stevenson discloses every element of the challenged claims, arranged as set forth in the claims. *See Connell v. Sears Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (“Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim.”).

Patent Owner does not present any persuasive argument or objective evidence to refute Petitioner’s showing that claims 1–9, 11–22, 24–34, and 36–38 of the ’076 patent are anticipated by Stevenson. *See* Paper 13.

³ The identification of this layer by the identifier 282 in Figure 71 appears to be a typographical error.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–9, 11–22, 24–34, and 36–38 of the '076 patent are anticipated by Stevenson.

D. Petitioner’s Ground 2: Anticipation by Brendel

Petitioner contends that claims 1, 5, 6, 11–19, 24–27, 29–31, and 36–38 of the '076 patent are anticipated under 35 U.S.C. § 102 by Brendel. Pet. 39–59.

Brendel discloses an internally grounded feedthrough filter capacitor assembly. Ex. 1003, Abstract. Petitioner relies on the embodiment shown in Brendel Figures 20 and 21, which are reproduced below:

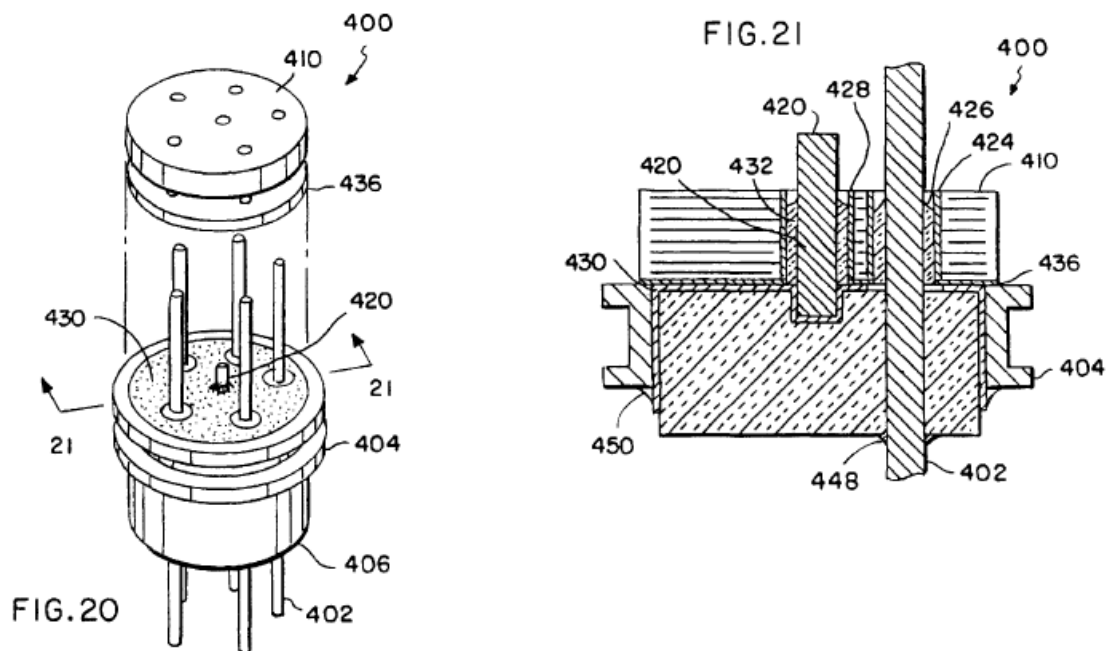


Figure 20 is a perspective view of internally grounded feedthrough filter capacitor assembly 400, including feedthrough capacitor 410 and pentapolar

terminal pin subassembly 406⁴ prior to installation of the capacitor. Figure 21 is an enlarged, partially fragmented sectional view along line 21–21 of Figure 20 and illustrates capacitor 410 installed on terminal pin subassembly 406. Ex. 1003, 7:28–34, 8:52–58.

Petitioner asserts that Brendel discloses each limitation of independent claims 1, 16, and 29, as well as dependent claims 5, 6, 11–15, 17–19, 24–27, 30, 31, and 36–38, in connection with the embodiment shown in Brendel Figures 20 and 21. Pet. 39–59. We compare the challenged claims to the identified disclosures of Brendel and make the following findings, which are supported by a preponderance of the evidence.

Claim 1. Brendel’s feedthrough filter capacitor assembly includes conductive terminal pins 402. Ex. 1003, 8:66–9:3, 12:57, Fig. 20.⁵ As shown in Brendel Figure 21, feedthrough capacitor 410 includes first and second sets of electrode plates 112 and 114. *Id.* at 9:8–10; *see also id.* at Figs. 2–4. Terminal pins 402 extend through passageway 116 in capacitor 410 in conductive relation to the first set of electrode plates 112. *Id.* at 9:10–13, 9:53–61, Fig. 21; *see* Pet. 39–42.

⁴ Brendel uses reference numeral 406 to designate both the insulator and terminal pin subassembly. *See id.* at 12:48, 12:61.

⁵ Brendel explains that functionally equivalent elements of the various disclosed embodiments share the same reference number in increments of 100. Ex. 1003, 8:63–65. Brendel’s description of a feedthrough filter capacitor assembly as illustrated in Figures 1–5, *id.* at 8:66–9:24, 9:49–10:17, 10:57–11:38, is generally applicable to the embodiment of Brendel Figures 19–21, except as it pertains to the particular configuration of the ground plane and ground pin. *See id.* at 7:22–36 (brief description of Figures 19–21); *id.* at 4:40–65 (describing various ground plane designs); *id.* at 12:40–13:7 (detailed description of Figures 19–21).

Brendel's assembly includes conductive ferrule 404 through which terminal pins 402 extend in non-conductive relation. Ex. 1003, 8:66–9:3, 12:58; see Pet. 39–40, 42.

Brendel's assembly includes insulator 406 through which terminal pins 402 extend in non-conductive relation. Ex. 1003, 9:3–7, Figs. 20 and 21. As shown in Brendel Figure 21, ground plane 430 is formed on the peripheral and inward facing surfaces of insulator 406 and is conductively coupled to ferrule 404. *Id.* at 9:19–21, 12:40–61. Consistent with our construction for “ground plate,” Brendel's ground plane 430 is a flat, relatively thin layer formed by metal deposition techniques, such as sputtering, plating, or silk screening, followed by vacuum brazing, *id.* at 4:56–60, 7:22–32, 12:40–61, Fig. 21, and transmits electrical signals to ground, *id.* at 5:62–6:7; see Pet. 39–40, 43–44.

Brendel's assembly includes means for conductively coupling the capacitor second set of electrode plates and the insulator ground plate in the form of ground pin 420. Ex. 1003, 9:16–21, 12:40–44, Figs. 20 and 21. Consistent with our constructions for “conductively coupled” and the means-plus-function element of claim 1, Brendel's grounded pin 420 electrically connects capacitor second set of electrode plates 114 and insulator ground plane 430. *Id.* at 9:16–21, 10:12–17, 12:63–13:1, Figs. 20 and 21; see Pet. 40, 44.

Claim 16. The above findings with respect to claim 1 apply equally to claim 16, which recites the same limitations as claim 1, except for an additional limitation in the last paragraph of claim 16, which we address as follows: Brendel discloses a conductive material in the form of ground pin 420. As shown in Figure 21, ground pin 420 extends through second

passageway 118 of capacitor 410 in conductive relation with second set of electrode plates 114. Ex. 1003, 9:13–17, 10:12–17. As shown in Figures 19 to 21, ground pin 420 extends into a counter-bored or counter-sunk hole within insulator 406, thus extending at least partially through a passageway in the insulator, and is in conductive relation with ground plane 430. *Id.* at 9:16–21, 12:40–44, 12:63–13:1; see Pet. 40, 51.

Claim 29. The above findings with respect to claim 16 apply equally to claim 29, which recites the same limitations as claim 16, except for additional or modified limitations in the third, fourth and last paragraphs of claim 29, which we address as follows: Brendel discloses that conductive ferrule 404 is conductively coupled to a housing for an active implantable medical device. Ex. 1003, 5:39–47, 9:21–24, 12:58, Figs. 20 and 21; see *also id.* at 16:39–41 (claim 14). Brendel Figure 21 shows that ground plane 430 extends to a conductive outer peripheral surface of insulator 406 that is conductively coupled to ferrule 404. *Id.* at 9:19–21, Fig. 21. Brendel discloses a conductive material—ground pin 420—for conductively coupling second set of electrode plates 114 and ferrule 404. *Id.* at 9:16–21, Fig. 21; see Pet. 40, 54–56.

Claims 5, 6, 18, 19, and 31. Brendel discloses that ferrule 404 is conductively coupled to a housing for an active implantable medical device, such as a cardiac pacemaker. Ex. 1003, 4:9–20, 5:39–47, 9:21–24, 12:58, Figs. 20 and 21; see Pet. 47–48, 52, 59.

Claims 11, 24, and 36. Brendel discloses that the outer peripheral surface of the capacitor is non-conductive. Ex. 1003, 5:24–26, 9:49–52, 11:33–38, 16:19–21 (claim 7); see Pet. 48, 52.

Claims 12, 25, and 37. Brendel discloses an alumina insulator. Ex. 1003, 11:14–15; *see* Pet. 48, 52, 59.

Claims 13, 14, and 26. As discussed above in connection with the fourth paragraph of claim 29, Brendel Figure 21 shows that ground plane 430 extends to a conductive outer peripheral surface of insulator 406 that is conductively coupled to ferrule 404. Ex. 1003, 9:19–21, Fig. 21; *see* Pet. 48–49, 53.

Claims 15, 27, and 38. Brendel discloses that capacitor 410 and insulator 406 are disposed adjacent to each other and separated by a non-conductive material, namely insulative washer 436. Ex. 1003, 11:14–32, Figs. 20 and 21; *see* Pet. 49, 52, 59.

Claims 17 and 30. Brendel discloses that the conductive material includes conductive ground pin 420. Ex. 1003, 9:16–21, 12:40–44, 12:63–13:1, Figs. 20 and 21; *see* Pet. 51, 59.

Based on the foregoing, we find that Petitioner has shown by a preponderance of the evidence that Brendel discloses every element of the challenged claims, arranged as set forth in the claims. *See Connell*, 722 F.2d at 1548.

Patent Owner does not present any persuasive argument or objective evidence to refute Petitioner’s showing that claims 1, 5, 6, 11–19, 24–27, 29–31, and 36–38 of the ’076 patent are anticipated by Brendel. *See* Paper 13.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 5, 6, 11–19, 24–27, 29–31, and 36–38 of the ’076 patent are anticipated by Brendel.

E. Petitioner's Ground 3: Obviousness over Brendel and Wolf

Petitioner contends that claims 1–6, 11–19, 24–31, and 36–38 of the '076 patent would have been obvious over Brendel and Wolf. Pet. 39–59.

Wolf discloses a capacitive filtered feedthrough assembly for an implantable medical device. Ex. 1004, Abstract, 1:6–8, 3:37–41. Petitioner relies on Figure 5 of Wolf, which is reproduced below:

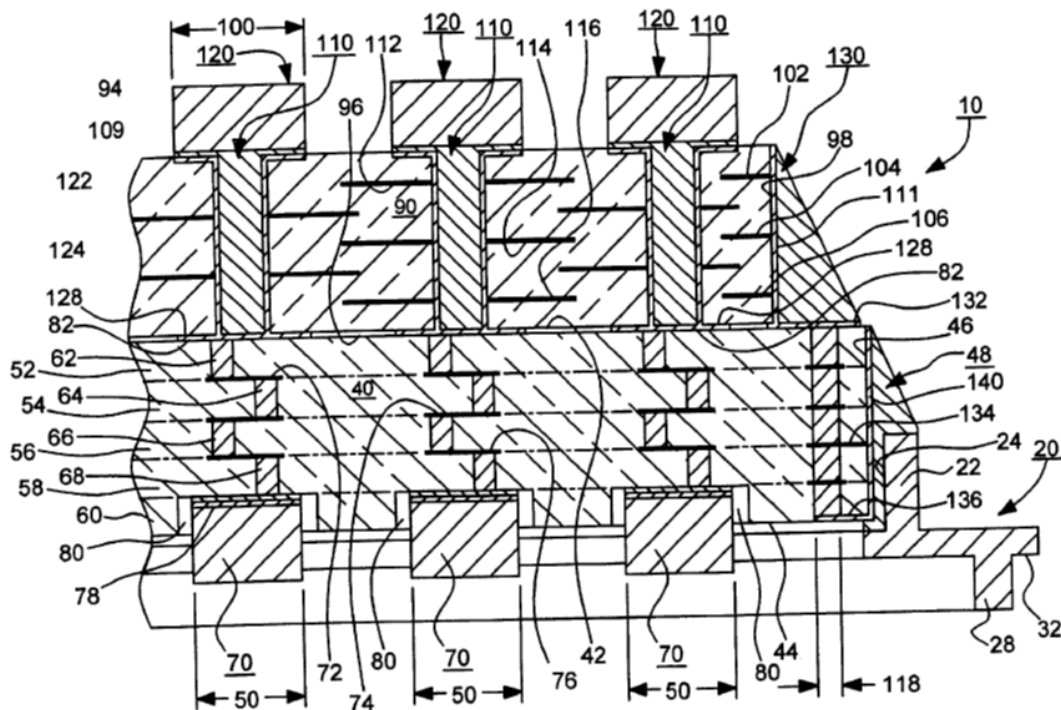


Figure 5

Figure 5 is an expanded end portion of a cross-sectional view of the filtered feedthrough assembly of Wolf. *Id.* at 5:19–23. In Figure 5, filtered feedthrough assembly 10 includes discoidal capacitor filter array 90, multi-layer metal-ceramic substrate 40, and ferrule 20. *Id.* at 5:58, 5:66–67, 6:28–29. Capacitor 90 includes active electrodes 112, 114, 116 and ground electrodes 102, 104, 106. *Id.* at 5:47–50, 8:24–28. The capacitor ground

electrodes are electrically coupled through substrate ground paths to the ferrule. *Id.* at 3:64–4:3, 4:48–52, 8:38–42.

As shown in Wolf Figure 5, metal-ceramic substrate 40 is formed of a plurality of planar ceramic layers 52, 54, 56, 58, and 60. *Id.* at 6:37–38. Substrate ground paths 118 extend through layers 52, 54, 56, 58, and 60, and ground plane traces or layers 132, 134, and 136 extend peripherally along the ceramic layer surfaces from substrate ground paths 118 to substrate edge 46. *Id.* at 3:64–4:1, 6:66–7:7. Together with ground solder joint 130, metallization 140, substrate-ferrule braze joint 48, and substrate ground paths 118, ground traces 132, 134, 136 assist in making electrical contact between capacitor ground electrodes 102, 104, 106 and ferrule 20. *Id.* at 3:64–4:3, 6:35–36, 7:7–11, 8:38–42.

Wolf discloses steps for forming conductive traces between the layers of metal-ceramic substrate 40 and for forming ground plane or trace layers 134 and 136 on the outward facing surfaces of the substrate. *Id.* at 9:53–65, 10:19–24, 10:35–40; *see also id.* at 9:24–25, Fig. 10 (steps S104, S114).

Petitioner contends that it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute one or more of Wolf's ground plates 132, 134, and 136 for Brendel's ground plane 430. Pet. 46–47; Ex. 1007 ¶¶ 46–49. We are persuaded by Petitioner's contention and make the following findings, which are supported by a preponderance of the evidence.

Brendel teaches various ground plane designs, Ex. 1003, 4:9–11, 4:40–65, Figs. 1–15, 19–21, 31, 35, 39–43, and also suggests that various modifications can be made to the disclosed ground plate designs, *id.* at 15:44–47. Conductive layers such as Brendel's ground plane 430 and

Wolf's ground plates 132, 134, and 136 were known alternatives for providing conductive coupling between the interior and peripheral edge of a component in a capacitor assembly. Ex. 1007 ¶ 47; Ex. 1003, 9:17–21, 5:62–6:11, 12:40–61, Figs. 20 and 21; Ex. 1004, 3:64–4:3, 6:66–7:10, 8:38–42, Fig. 5. We credit the unrebutted testimony of Mr. Galvagni that substituting Wolf's ground plates for the ground plane of Brendel provides the predictable result of creating a path to ground for the filtering of unwanted signals from the terminal pin of a feedthrough assembly. Ex. 1007 ¶ 48; Ex. 1004, 4:48–56, 7:11–16, 8:28–32; *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007) (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976))).

A person of ordinary skill in the art would have been motivated to substitute Wolf's ground plates for Brendel's ground plane to avoid manufacturing complexity. Ex. 1007 ¶ 46. More particularly, the unrebutted testimony of Mr. Galvagni establishes that ground plates having a flat profile, as disclosed in Wolf, are more readily manufactured than a ground plane that needs to be sputtered or plated into a small hole for receiving a ground pin, as disclosed in Brendel. Ex. 1007 ¶ 49; *compare* Ex. 1003, 7:22–32, 12:40–61, Fig. 21 (showing ground plane 430 that has been sputtered into counter-bored hole for receiving ground pin), *with* Ex. 1004, 9:53–65, 10:19–24, 10:35–40 (describing steps S104 and S114 for forming flat conductive layers). Thus, the evidence establishes that a person of

ordinary skill in the art “would have seen a benefit” to making the substitution proposed by Petitioner. *KSR*, 550 U.S. at 424.

We find that substitution of one or more of Wolf’s ground plates 132, 134, and 136 for Brendel’s ground plane 430, as proposed by Petitioner, would have resulted in the subject matter of claims 1–6, 11–19, 24–31, and 36–38 of the ’076, as discussed below.

Claims 1, 2, 13, 14, 16, 26, 28, and 29. Wolf’s ground plates 132, 134, and 136 comprise a set of insulator ground plates, as recited in claims 2 and 28. Ex. 1004, 3:64–4:3, 7:2–7, Fig. 5; see Pet. 44–45, 49. Consistent with our construction for “ground plate,” Wolf’s ground plates 132, 134, and 136 are flat, relatively thin layers formed by metal deposition techniques, such as deposition, spraying, screening, dipping, or plating, Ex. 1004, 9:53–65, 10:19–24, 10:35–41, Fig. 5, and transmit electrical signals to ground, *id.* at 3:64–4:3, 4:48–56, 6:66–7:16. See Pet. 45–47. Wolf teaches that ground plates 132, 134, and 136 are conductively coupled to the ferrule, as recited in claims 1 and 16. Ex. 1004, 3:64–4:3, 4:48–52, 6:35–36, 6:66–7:11, 8:38–42; see Pet. 45–46. Wolf teaches that ground plates 132, 134, and 136 extend to a conductive outer peripheral surface 46 of the insulator that is conductively coupled to the ferrule, as recited in claims 13, 14, 26, and 29. Ex. 1004, 6:28–36, 7:2–11, Fig. 5; see Pet. 48–49.

We find that one of ordinary skill in the art would have known how to conductively couple the insulator ground plates, as taught by Wolf, with the capacitor second set of electrode plates and the ferrule, as taught by Brendel, including making any necessary adjustments to the structure or location of the ground pin and associated metallizations. Ex. 1007 ¶¶ 46, 49.

We find that Brendel teaches the remaining limitations of independent claims 1, 16, and 29 and that such limitations are taught by the combination of Brendel and Wolf for the same reasons as discussed above in connection with Ground 2.

Claims 3–6, 11, 15, 17, 18, 19, 24, 27, 30, 31, 36, and 38. We find that Brendel teaches the limitations of dependent claims 3 and 4 and that such limitations are taught by the combination of Brendel and Wolf for the same reasons as discussed above in connection with Ground 2 and claim 16, last paragraph, and claim 17. We find that Brendel teaches the limitations of dependent claims 5, 6, 11, 15, 17, 18, 19, 24, 27, 30, 31, 36, and 38 and that such limitations are taught by the combination of Brendel and Wolf for the same reasons as discussed above in connection with Ground 2.

Claims 12, 25, and 37. Both Brendel and Wolf teach an alumina insulator. Ex. 1003, 11:14–15; Ex. 1004, 6:37–46, 9:28–32.

Based on the foregoing, we find that Petitioner has shown by a preponderance of the evidence that every element of the challenged claims is disclosed in the combination of Brendel and Wolf. Petitioner has also presented sufficient articulated reasoning with rational underpinning to support the proposed combination of references.

Patent Owner does not present any persuasive argument or objective evidence to refute Petitioner's showing that claims 1–6, 11–19, 24–31, and 36–38 of the '076 patent would have been obvious over Brendel and Wolf. See Paper 13.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 1–6, 11–19,

24–31, and 36–38 of the '076 patent would have been obvious over Brendel and Wolf.

F. Patent Owner's Motion to Amend

1. Proposed Substitutes for Unchallenged Claims

The relevant statute provides:

During an inter partes review instituted under this chapter, the patent owner may file 1 motion to amend the patent in 1 or more of the following ways:

- (A) Cancel any challenged patent claim.
- (B) For each challenged claim, propose a reasonable number of substitute claims.

35 U.S.C. § 316(d).

The Petition challenges claims 1–9, 11–22, 24–34, and 36–38 of the '076 patent. Pet. 1. Claims 10, 23, and 35 are not challenged in the Petition. Section 316(d) does not permit Patent Owner to propose substitutes for non-challenged claims 10, 23, and 35. We, therefore, deny Patent Owner's Motion to Amend with respect to proposed substitute claims 48, 61, and 73, identified by Patent Owner as substitutes for claims 10, 23, and 35, respectively. Mot. 1 ("Each one of substitute claims 39–76 substitute for the corresponding sequential one of claims 1–38.").

2. Patent Owner's Burden

In an *inter partes* review, unlike examination, a proposed amendment is not entered automatically. As the moving party, Patent Owner bears the burden of proof to establish that it is entitled to the relief requested.

37 C.F.R. § 42.20(c); *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1334 (Fed. Cir. 2016); *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1304–08 (Fed. Cir. 2015).

On a motion to amend, Patent Owner has the burden to show a patentable distinction over the prior art of record in the proceeding. *Microsoft*, 789 F.3d at 1307–08; *MasterImage 3D, Inc. v. RealD Inc.*, Case IPR2015-00040, slip op. at 2 (PTAB July 15, 2015) (Paper 42) (precedential); *Idle Free Systems, Inc. v. Bergstrom, Inc.*, Case IPR2012-00027, slip op. at 7 (PTAB June 11, 2013) (Paper 26) (informative). Here, Petitioner’s asserted prior art includes Brendel (Ex. 1003) and Wolf (Ex. 1004).

Patent Owner contends that the proposed substitute independent claims patentably distinguish over Brendel and Wolf by reciting two terminal pins and a ground plate that extends around and between the two terminal pins. Mot. 2, 6–8, 11. According to Patent Owner, Wolf does not disclose or suggest that ground plane traces or layers 132, 134, and 136 extend between conductive paths 50 and does not suggest a ground plate extending around or between two terminal pins. Mot. 7, 11.

Patent Owner argues that providing a centrally-located ground pin, either by moving Wolf’s ground paths 118 centrally or by retaining Brendel’s centrally-located ground pin 420, would be contrary to the teachings of Wolf and that Wolf teaches away from a centrally-located ground path 118. Mot. 10–11. According to Patent Owner, a centrally-located ground path or pin would increase the distance from the ground path or pin to the ferrule and the length of the ground traces or layers 132, 134, 136, contrary to Wolf’s teaching to reduce inductance and maximize insertion loss. *Id.* at 10. Patent Owner also argues that a centrally-located ground path or pin would be inconsistent with the alignment of Wolf’s ground path 118 with metallization 130. *Id.*

Petitioner's Opposition does not respond to Patent Owner's argument regarding patentability over Brendel and Wolf.

On a motion to amend, the “burden is not on the petitioner to show unpatentability, but on the patent owner to show patentable distinction over the prior art of record.” *Idle Free*, slip op. at 7; *see also Nike*, 812 F.3d at 1333 (“[P]lacing the burden on the patent owner ensures that proposed substitute claims are critically analyzed before they are entered as claims that are part of the issued patent.”); *Microsoft*, 789 F.3d at 1307–08 (same). Where a feature added by the proposed substitute claim was known in combination with other claim elements, the motion to amend should explain “why it would not have been obvious for one with ordinary skill in the art to adapt that knowledge for use with the rest of the claim elements.” *Corning Optical Communications RF, LLC v. PPC Broadband, Inc.*, Case IPR2014-00441, slip op. at 4–5 (PTAB Oct. 30, 2014) (Paper 19).

For the reasons set forth below, we determine that Patent Owner has not met its burden to show that the proposed substitute claims would have been patentable over Brendel and Wolf.

For the reasons discussed in Section II.D. above, we find that Brendel discloses the limitations of proposed substitute independent claims 39, 54, and 67 that are unchanged from the original claims. Regarding the newly added limitations of proposed substitute independent claims 39, 54, and 67, Brendel discloses a feedthrough filter capacitor assembly including first, second, and third sets of electrode plates. More particularly, Brendel discloses five sets of active electrode plates 112, one set for each terminal pin 402, and a second set of ground electrode plates 114. Ex. 1003, 6:35–40, 9:8–10, 9:53–67, 12:40–44, Figs. 3, 4, 20, and 21. Each terminal pin 402

extends through one of first capacitor passageways 116 in conductive relation to a set of first electrode plates 112, and ground pin 420 extends into second capacitor passageway 118. *Id.* at 9:10–16, 9:53–61, 10:1–8, Figs. 20 and 21. Brendel teaches an insulator ground plate 430 that extends around and between first and second terminal pins 402 without contacting the terminal pins, where the terminal pins extend through the insulator ground plate. Ex. 1003, Figs. 20 and 21. Thus, Brendel discloses all limitations of Patent Owner’s proposed substitute independent claims 39, 54, and 67, except for the “embedded” feature.

Wolf discloses a ground plate embedded in an insulator. In particular, Wolf discloses a feedthrough filter capacitor assembly including multi-layer metal-ceramic substrate 40 having substrate ground paths 118. Ex. 1004, 3:42–44, 3:64–4:1, 6:37–38, 6:66–7:2, Fig. 5. Ground plane traces or layers 132, 134, and 136 extend peripherally along the ceramic layer surfaces from substrate ground paths 118 to the substrate edge. *Id.* at 7:2–7, Fig. 5. As shown in Wolf Figure 5, ground plane trace or layer 134 is embedded between the ceramic layers of metal-ceramic substrate 40. *Id.* at 3:64–4:1, 7:2–7, Fig. 5.

To show patentability over Brendel and Wolf, Patent Owner needed to show that it would not have been obvious to modify a ground plate that extends around and between the terminal pins, as taught by Brendel, such that the ground plate is embedded in the insulator, as taught by Wolf. Stated differently, Patent Owner needed to show that it would not have been obvious to modify a ground plate that extends from a centrally-located ground pin to a circumferential ferrule, as taught by Brendel, such that the ground plate is embedded in the insulator, as taught by Wolf.

Although Patent Owner makes several arguments addressing obviousness based on Brendel and Wolf, Patent Owner does not specifically address the combination of Brendel's ground plate with the embedded feature disclosed in Wolf. We address Patent Owner's arguments below.

Patent Owner argues that a centrally-located ground pin would be contrary to the teachings of Wolf regarding inductance. Mot. 10–11. We are not persuaded by that argument because it fails to address whether it would have been obvious to modify a ground plate that extends from a centrally-located ground pin, as taught by Brendel, to include the embedded feature taught by Wolf and because it fails to address the inductance of such a ground plate.

Brendel discloses centrally-located ground pin 420 and circular ground plate 430 extending radially from centrally-located ground pin 420 to ferrule 404. Ex. 1003, Figs. 20 and 21; *see also id.* at 10:57–62 (discussing circumferential attachment of ground plate to ferrule). Petitioner's declarant testified that substituting Wolf's ground plates 132, 134, and/or 136 for Brendel's ground plane 430 would avoid manufacturing complexity by providing a flat profile that is more readily manufactured than a ground plane that needs to be sputtered into a hole for receiving a ground pin. Ex. 1007 ¶¶ 46, 49. Patent Owner provides no persuasive evidence to rebut that testimony. Nor does Patent Owner explain why the same rationale would not have motivated a person of ordinary skill in the art to modify a ground plate that extends from a centrally-located ground pin to a circumferential ferrule, as disclosed by Brendel, such that there is a set of ground plates embedded in a multi-layer ceramic insulator, as disclosed by Wolf. Ex. 1004, 3:64–4:1, 7:2–7, Fig. 5.

We note that the Petition asserts that a person of ordinary skill in the art would have been motivated to substitute Wolf's ground plates 132, 134, and/or 136 for Brendel's ground plane 430 in order to avoid the need for masking to create an opening for non-conductive passage of terminal pin 402. Pet. 46–47 (citing Ex. 1007 ¶ 49). Although the “masking” aspect of Petitioner's asserted motivation may not apply to a combination of Brendel's ground plane with Wolf's embedded feature, such non-applicability is not dispositive because the burden is on Patent Owner to show that the proposed substitute claims are patentably distinct over Brendel and Wolf. More particularly, a ground plate that extends around and between the terminal pins with the terminal pins extending through the ground plate, as disclosed in Brendel, may not avoid the need for masking in order to create an opening for non-conductive passage of the terminal pins. Nevertheless, Patent Owner provides no persuasive evidence to rebut Mr. Galvagni's testimony that a ground plate having flat profile, as disclosed in Wolf, is easier to manufacture than one having a “tortuous profile,” as disclosed in Brendel. Ex. 1007 ¶ 49. Patent Owner also does not persuade us that this benefit identified by Mr. Galvagni fails to provide sufficient reason to combine Wolf's embedded feature with the remaining claim elements disclosed by Brendel, regardless of whether another benefit identified by Mr. Galvagni—avoiding masking—is not obtained. *KSR*, 550 U.S. at 424.

Patent Owner argues that increasing the length of Wolf's traces or layers would increase the inductance along the ground path and reduce the desired high insertion loss. Mot. 10. We are not persuaded by that argument, which incorrectly assumes that a combination of Brendel and Wolf would require ground traces or layers that are long and narrow. As

already discussed, Wolf discloses embedded ground plane trace or layer 134, which extends peripherally from a plurality of substrate ground paths 118 to the substrate edge. Ex. 1004, 6:66–7:7, Fig. 5. Brendel teaches a circular ground plate that extends radially in all directions from a centrally-located ground pin to the substrate edge. Ex. 1003, Fig. 20 (showing centrally-located ground pin 420 and circular ground plane 430 extending radially from ground pin 420 to ferrule 404). A combination of Wolf’s embedded feature with the shape and orientation of Brendel’s ground plate would not result in ground traces or layers that are long and narrow.

Patent Owner argues that a centrally-located ground pin would result in increased inductance along the ground path. Mot. 10. We are not persuaded by that argument, which fails to address the inductance of a ground plate that radially extends from a centrally-located ground pin, as taught by Brendel. According to Brendel, the disclosed ground plane and centrally-located ground pin are “designed to present a low impedance path between the ground plane electrode set of the feedthrough capacitor EMI filter and [the] electromagnetic shield/housing.” Ex. 1003, 5:66–6:2. More particularly, Brendel teaches that “the radial shape of the improved ground plane acts to reduce inductance between the electromagnetic shield housing (or ferrule of the insulator terminal) and the grounded terminal pin which connects to the feedthrough capacitor ground plane electrode set.” *Id.* at 6:7–11; *see also id.* at 13:13–16 (a centrally-located ground pin minimizes ground plane electrode inductance and maximizes EMI filter attenuation). Patent Owner does not address these disclosures of Brendel, which demonstrate that a ground plate that radially extends from a centrally-located ground pin to a circumferential ferrule has low inductance.

Furthermore, Patent Owner's argument fails to address the width of the ground plate, which the inventor testified is a factor that affects inductance. In a declaration submitted with the Preliminary Response, Mr. Stevenson testified that self inductance increases with the length of a conductor and decreases with the width of the conductor. Ex. 2144 ¶ 16. Patent Owner's inductance argument fails to address the width of the ground plate of Brendel and is therefore not persuasive to show nonobviousness of a ground plate that extends across the entire width of the insulator, as disclosed in Brendel, and that is embedded in the insulator, as taught by Wolf.⁶ See Ex. 1003, Fig. 20 (centrally-located ground pin 420 and ground plane 430); Ex. 1004, Fig. 5 (ground plane trace or layer 134 embedded between the ceramic layers of metal-ceramic substrate 40).

We are also not persuaded by Patent Owner's argument that a centrally-located ground path 118 would not be aligned with Wolf's peripheral metallization 130 on the exterior of the feedthrough capacitor. Mot. 10. Wolf's peripheral metallization 130 electrically connects the

⁶ In the Preliminary Response, Patent Owner argued:

Wide flat current flow paths have greatly reduced inductance compared with narrow long paths. Paths having a radial symmetry to the current flow also result in cancellation of B fields due to symmetry, and therefore reduced inductance, as explained and pictorially shown Ex. 2094, pages 4 and 5. Prof Stevenson previously testified that a POSITA in the field of EMI passive filter design would know the relationship between width, length, thickness, and inductance, of a conductive material.

Prelim. Resp. 9 (internal citations omitted).

capacitor ground electrodes to the substrate ground paths. Ex. 1004, Fig. 5, 8:38–42. Brendel, on the other hand, teaches that a centrally-located ground pin may be electrically connected to the capacitor ground electrodes via metallization and conductive fill in a central passageway through the capacitor. Ex. 1004, Fig. 21, 10:13–17. Brendel’s central ground pin thus eliminates the need for Wolf’s peripheral metallization 130.

For the same reasons, we are not persuaded by Patent Owner’s “teaches away” argument. Mot. 11.

Accordingly, Patent Owner has not met its burden to show that the proposed substitute independent claims are patentable over Brendel and Wolf. Patent Owner presents no separate patentability arguments for the proposed substitute dependent claims, relying only on its arguments regarding the independent claims. Accordingly, Patent Owner has not met its burden to show that the proposed substitute dependent claims are patentable over Brendel and Wolf.

Because we determine that Patent Owner has not met its burden to show patentability over Brendel and Wolf, we need not consider whether Patent Owner has shown that the proposed substitute claims are patentable over other prior art, *e.g.*, Stevenson (Ex. 1002).

G. Improper Reply

The Board’s rules provide: “All arguments for the relief requested in a motion must be made in the motion. A reply may only respond to arguments raised in the corresponding opposition or patent owner response.” 37 C.F.R. § 42.23(b).

Petitioner identifies portions of Patent Owner’s Reply and portions of Mr. Stevenson’s reply declaration as allegedly exceeding the proper scope of

a reply. Paper 22. We do not rely on any of the identified portions of the Reply or reply declaration in reaching our decision. Accordingly, Petitioner's objections are moot.

III. CONCLUSION

Petitioner has established by a preponderance of the evidence that claims 1–9, 11–22, 24–34, and 36–38 of the '076 patent are unpatentable. Patent Owner has not demonstrated by a preponderance of the evidence that its proposed substitute claims are patentable over Brendel and Wolf.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–9, 11–22, 24–34, and 36–38 of the '076 patent are unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend is *denied*;

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

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Patent 7,035,076

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