

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PRESIDIO COMPONENTS, INC.,
Petitioner,

v.

AMERICAN TECHNICAL CERAMICS CORP.,
Patent Owner.

Case IPR2015-01331
Patent 6,992,879 B2

Before MITCHELL G. WEATHERLY, MATTHEW R. CLEMENTS, and
CHRISTOPHER G. PAULRAJ, *Administrative Patent Judges*.

PAULRAJ, *Administrative Patent Judge*.

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

I. INTRODUCTION

Presidio Components, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”), requesting institution of an *inter partes* review of claims 1–6 of U.S. Patent No. 6,992,879 B2 (Ex. 1001, “the ’879 patent”). Taking into account the Petition and Patent Owner’s Preliminary Response, we determined that there was a reasonable likelihood that claims 1–6 of the ’879 patent are unpatentable. Pursuant to 35 U.S.C. § 314, we instituted *inter partes* review, on December 3, 2015, as to claims 1–6 of the ’879 patent. Paper 10 (“Inst. Dec.”).

After institution, American Technical Ceramic Corp. (“Patent Owner”) filed a Patent Owner Response. Paper 16 (“PO Resp.”). Petitioner filed a Reply to the Patent Owner Response. Paper 18 (“Pet. Reply”). Additionally, Patent Owner filed a Motion to Exclude Evidence (Paper 28), to which Petitioner filed a Response (Paper 30). Patent Owner also filed a Motion for Observations of the Cross-Examination Testimony of Michael S. Randall, Ph.D. (Paper 26), to which Petitioner filed a Response (Paper 29). A hearing was held on August 10, 2016, a transcript of which appears in the record. Record of Oral Hearing, Paper 32 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the challenged claim. For the reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–6 are unpatentable.

A. *Related Proceedings*

The parties indicate that the ’879 patent is involved in a currently pending district court case, *American Technical Ceramics Corp. v. Presidio*

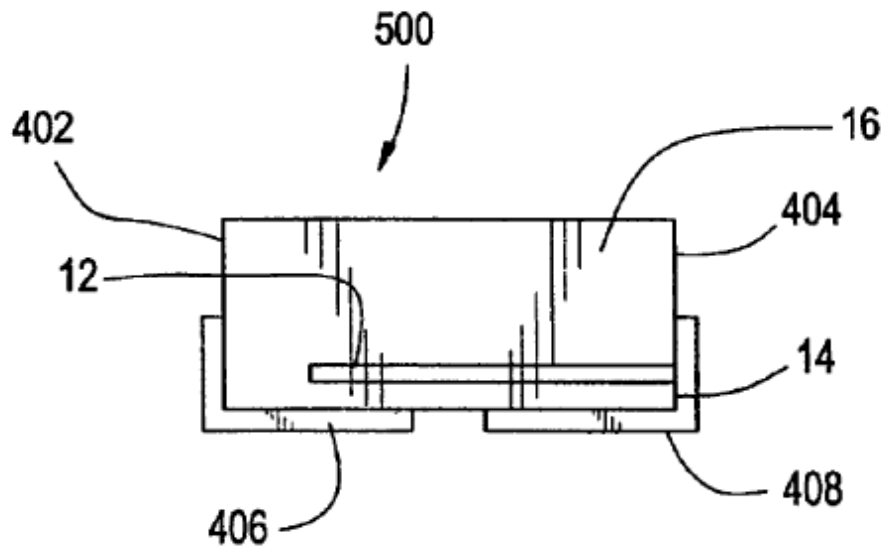
Components, Inc., Case 2:14-cv-06544-KAM-AKT (E.D.N.Y.). Pet. 2; Paper 4. Also, related U.S. Patent No. 6,337,791 is the subject of IPR2015-01330.

B. The '879 Patent (Ex. 1001)

The '879 patent generally relates to a capacitor with a “buried” electrode, and more specifically with an electrode layer that “is placed slightly off-center with respect to the dielectric layers so that the electrode layer extends to an end portion of the dielectric layers.” Ex. 1001, Title, Abstract. “[C]ontact members extend onto end portions of the dielectric layers with one of the contact members forming an electrical connection with the electrode layer.” *Id.* at Abstract. The '879 patent further explains that “[t]he combination of the electrode layer, the dielectric layer on which the contact members are mounted, and the contact member not connected to the electrode layer, allow development of a selected value of capacitance.” *Id.*

The '879 patent purportedly represents an improvement over prior art U.S. Patent 5,576,926 (“the Monsorno '926 patent,” Ex. 1007), issued to the same inventor. Figure 17 of the '879 patent, which is the only figure that was not previously included in the Monsorno '926 patent, is reproduced below:

FIG. 17



“FIG. 17 shows an exemplary embodiment of the buried layer capacitor generally designated 500 in which the electrode layer 12 is extended throughout dielectric layers 14, 16 to electrically connect to the termination 408.” *Id.* at 5:26–29. The ’879 patent explains that “shorting one of the two series capacitors, as seen in FIG. 17, has the net effect of doubling the capacitance.” *Id.* at 5:41–43.

C. Illustrative Claim

The ’879 patent has six claims. Independent claim 1 is illustrative, and is reproduced below:

1. A buried layer capacitor comprising:
 - a first dielectric layer, with said first dielectric layer having a length dimension and a width dimension, and with said first dielectric layer having a first surface and a second surface;
 - an electrode layer, with said electrode layer having a length dimension and a width dimension, with said length and width dimensions of said electrode layer smaller than said length

and width dimensions respectively of said first dielectric layer, and with said electrode layer mounted on said first surface of said first dielectric layer,

a second dielectric layer, with said second dielectric layer having a length dimension and a width dimension and with said length and width dimensions of said second dielectric layer coextensive with said length and width dimensions respectively of said first dielectric layer; and

two spaced apart, opposite polarity contact member provided on said second surface of said first dielectric layer, each of said contact members extending onto an end surface of said first and said second dielectric layers, and with one of said contacts members connecting to an end surface of said electrode layer.

D. Grounds of Unpatentability

We instituted *inter partes* review of the '879 patent based upon the following grounds of unpatentability:

- A. Claims 1–4 under 35 U.S.C. § 102(b) as anticipated by Bonini;¹
- B. Claims 1–4 under 35 U.S.C. § 102(b) as anticipated by Heron;²
- C. Claims 1–4 under 35 U.S.C. § 102(b) as anticipated by Florian;³
- D. Claims 5 and 6 under 35 U.S.C. § 103(a) as obvious over Bonini in view of Monsorno '926;⁴
- E. Claims 5 and 6 under 35 U.S.C. § 103(a) as obvious over Heron in view of Monsorno '926; and
- F. Claims 5 and 6 under 35 U.S.C. § 103(a) as obvious over Florian in view of Monsorno '926.

Inst. Dec. 24.

¹ U.S. Patent 3,586,933, issued June 22, 1971 (Ex. 1002, “Bonini”).

² U.S. Patent 4,931,901, issued June 5, 1990 (Ex. 1003, “Heron”).

³ U.S. Patent 4,819,128, issued Apr. 4, 1989 (Ex. 1005, “Florian”).

⁴ U.S. Patent 5,576,926, issued Nov. 19, 1996 (Ex. 1007, “Monsorno '926”).

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2146 (2016). Under that standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

“Petitioner submits that each term of the challenged claims should be given its ordinary meaning.” Pet. 6. Patent Owner agreed in its Preliminary Response that claim terms should be given their ordinary meaning, and did not propose that any terms be construed separately in its Patent Owner Response. Prelim. Resp. 8. For the purposes of this Final Written Decision, we determine that none of the claim terms in the ’879 patent require express construction.

B. Patentability Analysis

1. Anticipation and Obviousness Based on Bonini

a. Bonini (Ex. 1002)

Bonini relates to a “trimmable monolithic capacitor.” Ex. 1002, Title. Figures 1, 2, and 3 of Bonini are reproduced below:

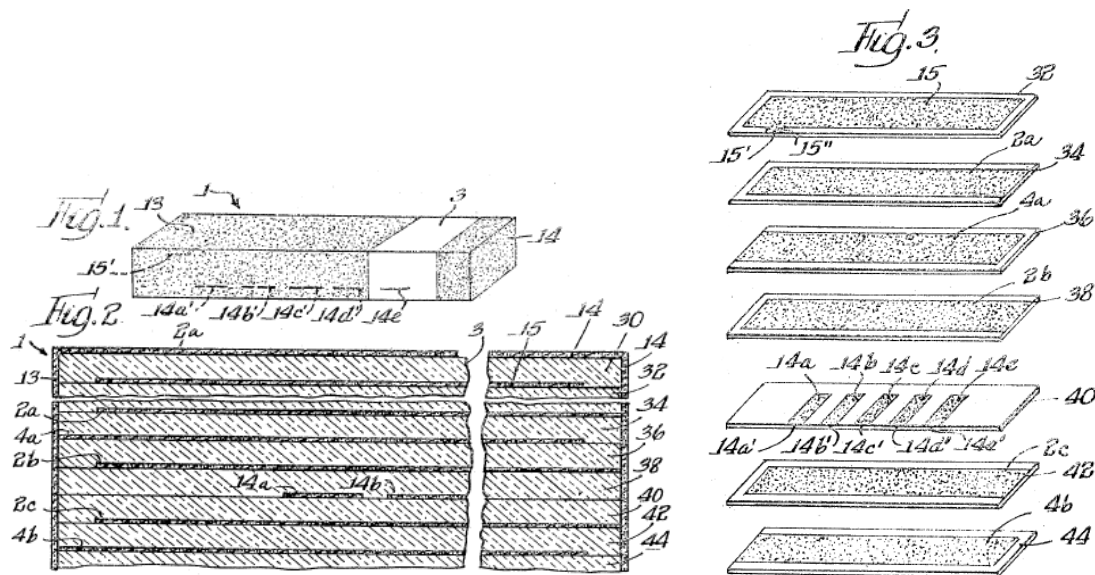


Figure 1 is “a perspective view of a trimmable monolithic capacitor” in accordance with Bonini, while Figure 2 shows “an enlarged fragmentary sectional view of the capacitor body” and Figure 3 shows “an exploded view of the various capacitor-plate-containing layers.” *Id.* at 2:42–47.

“Referring now to FIGS. 1, 2, and 3, there is seen a monolithic ceramic capacitor 1 which includes an elongated rectangular ceramic body 3 having a plurality of parallel spaced main capacitor plates 2a, 4a, 2c[,]4b,” wherein “[t]he main capacitor plates 2a, 2b, etc. . . . encompass[] most of the cross section of the ceramic body but spaced from all margins but the right end thereof, . . . and the main capacitor plates 4a, 4b, etc. . . . encompass[] most of the cross section of the ceramic body but spaced from all margins [b]ut the left end thereof.” *Id.* at 2:53–64. “The ceramic body 3 most advantageously comprises a plurality of sintered together ceramic layers of a suitable dielectric-forming material such as barium titanate.” *Id.* at 3:22–24. Bonini further teaches that “a terminal-forming coating 13 extending over and around the left side portion of the capacitor body 3 interconnects the various edges of the main capacitor plates 4a, 4b, etc.,” while “[t]he edges of

the group of main capacitor plates 2a, 2b, etc. extending to the right end of the capacitor body 3 are interconnected and covered by a narrow terminal-forming coating 14 which is spaced and insulated from the first-mentioned terminal-forming coating 13.” *Id.* at 3:5–21.

b. Analysis

With respect to challenged claims 1–4, Petitioner asserts that Bonini teaches the claimed buried layer capacitor based on its disclosure of a trimmable capacitor with ceramic layers 30, 32, 34, etc. (i.e., first and second dielectric layers), spaced apart capacitor plates (i.e., the electrode layer), and terminal-forming coatings 13, 14 that extend around the edges of the capacitor body (i.e., the opposite polarity contact members). With respect to challenged claims 5 and 6, Petitioner contends that the additional teachings of Monsorno ’926 (Ex. 1007) render obvious the requirement in these dependent claims that the electrode layer or dielectric layers are square. Petitioner relies upon disclosures with respect to Figures 1–3 of Bonini, and further includes a claim chart mapping Bonini’s teachings to the claim elements. Pet. 11–18, 42–43. Petitioner also relies upon the declaration of Dr. Michael Randall. *Id.* (citing Ex. 1012 ¶¶ 44–53, 96–123).

Based on record developed during this proceeding, we determine that Petitioner has not shown by a preponderance of the evidence that Bonini anticipates claims 1–4 or that Bonini in combination with Monsorno ’926 renders obvious claims 5 and 6. In particular, we find Petitioner has not demonstrated that Bonini teaches a “first dielectric layer” arranged in relation to other claimed elements in the manner required by independent claim 1, i.e., with the “electrode layer mounted on said first surface of said

first dielectric layer” and “two spaced apart, opposite polarity contact member[s] provided on said second surface of said first dielectric layer.”

In its Petition, Petitioner identified Bonini’s teaching of “ceramic body 3...compris[ing] a plurality of sintered together ceramic layers [i.e., layers 30, 32, 34, 36, 38, 40, 42, 44] of a suitable dielectric-forming material such as barium titanate” as meeting the requirements of the claimed first dielectric layer. Pet. 16. Petitioner, however, did not identify which particular ceramic layer disclosed in Bonini qualified as the first dielectric layer.

In its Reply, Petitioner asserts that dielectric layer 44 is the lowermost ceramic layer, and satisfies the requirements of the “first dielectric layer” because electrode layer 4b is mounted on the top, “first surface” and coating 13 is in contact with the bottom, “second surface.” Reply 5. We are not persuaded, however, that Petitioner has demonstrated sufficiently that ceramic layer 44 meets the requirements of the claim. Bonini teaches:

In the finished capacitor shown in FIG. 1, a terminal-forming coating 13 extending over and around the left side portion of the capacitor body 3 interconnects the various edges of the main capacitor plates 4a, 4b, etc. extending to the left end of the capacitor body 3 and extends longitudinally along the capacitor body a sufficient distance to overlies a preselected number of the edges of the fine and rough trimming capacitor plates to trim the capacitor to the desired value. In FIG. 1 the terminal-forming coating 13 extends over the edge 15 of the tab 15" of the rough trimming plate 15 and the edges 14a', 14b', 14c' and 14d' of the fine trimming plates 14a, 14b, 14c, 14d, leaving exposed and unconnected the edge 14e' of the fine trimming plate 14e.

Ex. 1002, 3:5–17. Thus, while Bonini teaches that coating 13 “extends longitudinally along the capacitor body a *sufficient distance to overlies a*

preselected number of the edges” of the capacitor, we discern nothing in the written description or the figures of the reference to suggest that the coating extends further around to the bottom of ceramic layer 44, such that it is “provided on said second surface of” ceramic layer 44, as recited in claim 1. *Id.* at 3:9–11 (emphasis added).

Alternatively, Petitioner asserts in its Reply that dielectric layer 30 can also serve as the claimed “first dielectric layer” because “[d]ielectric layer 30 is disclosed in Figure 3 as having a second surface (the top of dielectric layer 30) that is in contact with contact member 13.” Reply 6. Under this alternate theory, Petitioner contends that trimming plate 15 meets the requirements of an “electrode layer” that is mounted on the bottom, i.e., “first surface,” of ceramic layer 30. *Id.* at 6–8. In the Petition, however, Petitioner never identified trimming plate 15 of Bonini as satisfying the requirements of the claimed “electrode layer,” instead only identifying Bonini’s teaching of “a plurality of parallel spaced main capacitor plates 2a, 4a, 2c, 4b , etc.” Pet. 16 (citing Ex. 1002, 2:53–56).

Although a Reply may properly respond to arguments raised in Patent Owner’s Response (*see* 37 C.F.R. § 42.23(b)), it is not an opportunity for Petitioner to identify, for the first time, new and different prior art elements that are alleged to satisfy the claim requirements. Here, Petitioner’s reliance on trimming plate 15 is materially different from its prior reliance on capacitor plates 2a, 4a, 2c, 4b, etc., especially with respect to the requirement of “one of said contacts members connecting to an end surface of said electrode layer.” Whereas the Petition pointed to, and our Institution Decision relied upon, Bonini’s teaching that the capacitor plates extend to the left or right side portions of capacitor body 3 in order to contact

terminal-forming coating 13 or 14 (*see* Pet. 17; Inst. Dec. 10; Ex. 1002, 3:5–21, Fig. 2), Petitioner’s new argument relies upon Bonini’s teaching that trimming plate 15 has a narrow tab 15" having an edge 15' that extends to a difference surface (lateral side margin) of ceramic body 3. *See* Reply 8; Ex. 1002, 2:69–3:1. Because Patent Owner was not given a fair opportunity in this proceeding to respond to this argument, we consider Petitioner’s argument to be improper under 37 C.F.R. § 42.23(b) as not responding to arguments raised in the Patent Owner Response and, therefore, decline to consider it. *See In re Nuvasive, Inc.*, 2016 WL 6608999, Nos. 2015-01672, 2015-1673, slip op. at 11–13 (Fed. Cir. Nov. 9, 2016).

We, therefore, determine that Petitioner has not shown by a preponderance of the evidence that Bonini anticipates claims 1–4, or that Bonini in combination with Monsorno ’926 renders obvious dependent claims 5 and 6.

2. Anticipation and Obviousness Based on Florian

a. Florian (Ex. 1005)

Florian relates to an electrical multilayer component, which may be a capacitor. Ex. 1005, 1:9–10. Figures 1–3 of Florian are reproduced below:

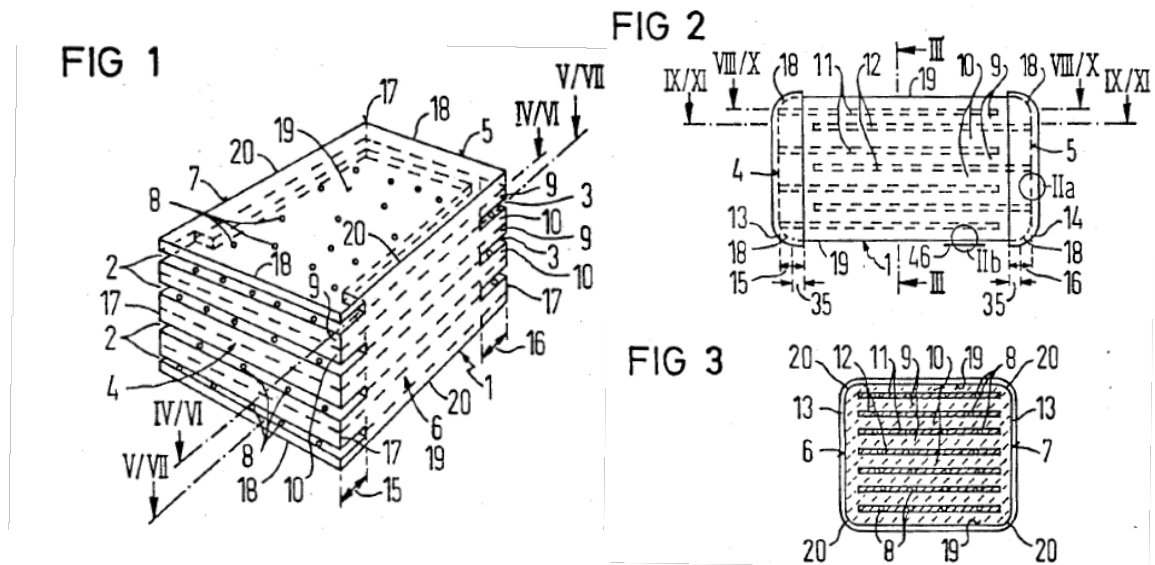


FIG. 1 is a perspective view of a monolithic ceramic body before the cavities have been filled with metal; FIG. 2 is a plan view of the completed multilayer capacitor; FIG. 3 is a cross-sectional view taken substantially along the line III-III of FIG. 2. *Id.* at 2:30–42. As described in Florian, “[t]he monolithic ceramic body is sintered together from the ceramic layers 9 and 10 and the cavities are filled with metal fillers 11 and 12.” *Id.* at 7:29–31. “Alternatively from layer to layer, these metal fillings 11 and 12 terminate at opposed end faces 4 and 5 and are electrically connected to one another there by the contact layers 13 and 14.” *Id.* at 7:31–35.

b. Analysis

With respect to challenged claims 1–4, Petitioner asserts that Florian teaches the claimed buried layer capacitor based on its disclosure of a multilayer capacitor with ceramic layers 9, 10 (i.e., first and second dielectric layers), metal fillers 11, 12 that alternately terminate at opposed end faces (i.e., the electrode layer), and contact layers 13, 14 (i.e., the opposite polarity contact members). With respect to challenged claims 5

and 6, Petitioner contends that the additional teachings of Monsorno '926 (Ex. 1007) render obvious the requirement in these dependent claims that the electrode layer or dielectric layers are square. Petitioner relies upon disclosures with respect to Figures 1 and 2 of Florian, and further includes a claim chart mapping Florian's teachings to the claim elements. Pet. 30–36, 48–49. Petitioner also relies upon the declaration of Dr. Randall. *Id.* (citing Ex. 1012 ¶¶ 76–86, 96–123).

Based on record developed during this proceeding, we determine that Petitioner has not shown by a preponderance of the evidence that Florian anticipates claims 1–4 or that Florian in combination with Monsorno '926 renders obvious claims 5 and 6. In particular, we find Petitioner has not demonstrated that Florian teaches the claim requirement that a “first dielectric layer” has length and width dimensions that are “coextensive” with a “second dielectric layer.” In its Petition, Petitioner indicated that this requirement is satisfied by Florian's teaching that “[t]he monolithic ceramic body 1 is sintered together from layers 9 and 10 which serve as a dielectric for the capacitor.” Pet. 35 (citing Ex. 1005, 7:11–13; Ex. 1012 ¶ 81). The Petition cited to Florian's discussion of a prior art multilayer capacitor disclosed in U.S. Patent No. 4,071,880 (“the '880 Patent”). *Id.* at 32–33 (citing Ex. 1005, 1:65–2:4). The Petition also cited to Figure 1 of Florian as showing that “each dielectric layer has a length and a width, as well as a first surface and a second surface.” *Id.* at 33. Petitioner, however, did not identify which specific dielectric layers of either the capacitor taught as prior art or the capacitor taught as Florian's invention were considered to be “coextensive.”

We find Petitioner’s reliance on Florian’s teachings regarding the prior art capacitor of the ’880 Patent to be insufficient. Florian discloses only that this prior art multilayer capacitor “is composed of a plurality of ceramic layers and internal electrodes which lie on top of one another in alternating fashion and is also composed of outer, double layer electrodes which are connected to the inside electrodes in a predetermined fashion.” For example, a comb-like electrode structure may be present.” Ex. 1005, 1:66–2:2. We find no basis to conclude from that limited teaching in Florian that the dielectric (ceramic) layers of the prior art capacitor taught by the ’880 Patent are coextensive.

We also find Petitioner’s reliance on Figure 1 of Florian to be insufficient. We agree with Patent Owner that Figure 1 “depicts only the monolithic ceramic body—before the cavities have been filled, ceramic body edges have been rounded and contacts have been applied—and not the complete Florian capacitor.” PO Resp. 48; *see also* Ex. 1005, 6:33–35, 7:23–27. As such, it does not necessarily show coextensive dielectric layers of a completed buried layer capacitor in the manner claimed.

In addition, we find that the other figures and written description of Florian do not teach coextensive dielectric layers of the completed capacitor. As noted by Patent Owner, Florian consistently discloses an electrical multilayer capacitor with *rounded* edges as its invention. PO Resp. 37–41; *see, e.g.*, Ex. 1005, 4:25–32, 5:16–22, 34–39; Figs. 2–3. Specifically, Florian discloses a process by which “edges and corners are eroded, i.e., rounded off” by a mechanical surface treatment process. Ex. 1005, 10:8–18. In its Reply, Petitioner acknowledges that “the length and width of the dielectric layer located immediately below the topmost dielectric layer may

be (but are not necessarily) slightly less than the length and width of the topmost dielectric layer (because the rounding process arguably has a slightly greater effect on the edges of the topmost dielectric layer),” but nonetheless contends that the top and bottom dielectric layers of Florian’s capacitor are “equally affected by the rounding process and therefore have equal lengths and widths.” Pet. Reply 22–23 (citing Ex. 1014 ¶¶ 40–42). Petitioner additionally argues in its Reply that “the rounding process disclosed in Florian has a very slight effect on the dielectric layer dimensions at most,” and “[i]n view of the minimal effect of the rounding process on the length and width of any layer, a [person of ordinary skill in the art] would consider Florian to disclose dielectric layers having coextensive length and width dimensions.” *Id.* at 24 (citing Ex. 1014 ¶ 43). However, the evidence does not support either conclusion. To the contrary, Patent Owner’s expert, Dr. Shanfield, opines “that the extent to which an edge is rounded is uncertain by virtue of the mechanical surface treatment process described in Florian.” Ex. 1004 ¶57. Furthermore, Petitioner’s expert, Dr. Randall, acknowledged during his deposition that there is nothing in Florian that says how much rounding or eroding is going take place as a result of the surface treatment. Ex. 2006, 102:3–11.

As such, there an insufficient basis for us to conclude that the dielectric layers of Florian’s multilayer capacitor are necessarily coextensive based on the fact that the top and bottom layers are “equally affected” by the rounding process or that the rounding process will only have a “minimal” or “slight” effect on the length and width dimensions. Indeed, even assuming that the rounding process has only a *de minimis* effect on dielectric layer dimensions, Petitioner has not explained why the “coextensive” requirement

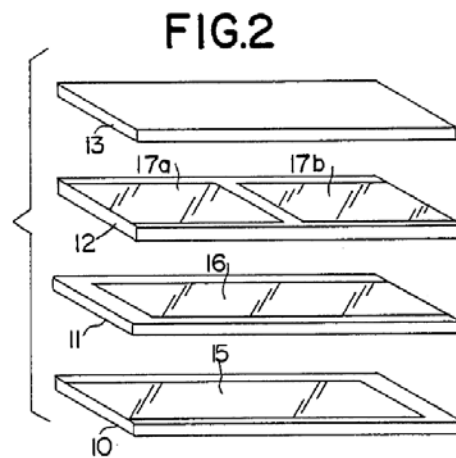
in the claims would allow for *any* variation in the length and width dimensions as between the first and second dielectric layers.

We, therefore, determine that Petitioner has not shown by a preponderance of the evidence that Florian anticipates claims 1–4, or that Florian in combination with Monsorno '926 renders obvious dependent claims 5 and 6.

3. Anticipation and Obviousness Based on Heron

a. Heron (Ex. 1003)

Heron relates to multilayer ceramic capacitors (MLC). Ex. 1003, Abstract. Figure 2 of Heron is reproduced below:



“FIG. 1 shows a side sectional view of a capacitor,” while “FIG. 2 shows in exploded view four green ceramic layers that are stacked, sintered and terminated to make the capacitor of FIG. 1.” *Id.* at 2:25–29. “The body 20 . . . contains two conventional mutually overlapping buried electrodes 15 and 16 in unique combination with a buried electrode pattern 17 composed of two spaced-apart coplanar electrodes 17a and 17b.” *Id.* at 3:1–5. Heron further teaches that “[e]nd terminations 22 and 24 are formed by coating the left and right side faces (as shown) of the ceramic body . . . with a silver

loaded paste and heating to remove the organic components and to solidify and bond the terminals to the ceramic.” *Id.* at 3:6–11.

b. Analysis

With respect to challenged claims 1–4, Petitioner asserts that Heron teaches the claimed buried layer capacitor based on its disclosure of a multilayer capacitor with green ceramic layers 10, 11 (i.e., first and second dielectric layers), buried electrodes 15, 16 (i.e., the electrode layer), and terminations 22, 24 (i.e., the opposite polarity contact members). With respect to challenged claims 5 and 6, Petitioner contends that the additional teachings of Monsorno ’926 (Ex. 1007) render obvious the requirement in these dependent claims that the electrode layer or dielectric layers are square. Petitioner relies upon disclosures with respect to Figure 2 of Heron, and further includes a claim chart mapping Heron’s teachings to the claim elements. Pet. 18–24, 44–45. Petitioner also relies upon the declaration of Dr. Randall. *Id.* (citing Ex. 1012 ¶¶ 54–64, 96–123). In our Institution Decision, we determined that Petitioner demonstrated a reasonable likelihood of prevailing with respect to its anticipation and obviousness challenges relying upon Heron. Inst. Dec. 11–13, 18–19.

We have revisited the analysis set forth in our Institution Decision and considered the question of patentability anew in view of all the evidence and arguments presented in this proceeding. Based on record developed during this proceeding, we determine that Petitioner has shown by a preponderance of the evidence that Heron anticipates claims 1–4, and that Heron in combination with Monsorno ’926 renders obvious claims 5 and 6. We have considered, but are unpersuaded by Patent Owner’s arguments to the contrary regarding these challenges.

Patent Owner argues that Heron does not disclose first and second dielectrics having “coextensive” length and width dimensions. PO Resp. 30–33. We disagree, as we find that requirement satisfied by the capacitor shown in Heron’s figures. Specifically, “FIG. 1 shows in side section view of a capacitor,” “FIG. 2 shows in exploded view four green ceramic layers that are stacked, sintered and terminated to make the capacitor of FIG. 1,” and “FIG. 3 shows in perspective view the capacitor of FIG. 1.” Ex. 1003, 2:25–31, Figs. 1–3. Figures 4, 7, and 8 show side sectional views, while figures 5 and 6 show top views of capacitors with alternate electrode geometries. Ex. 1003, 2:32–36; Figs. 5–8. Taken as a whole, these figures indicate plainly that the lengths and widths of dielectric layers 10 and 11 terminate at the same location, thereby satisfying the “coextensive” requirement. Patent Owner contends that reliance on Heron’s figures is improper under the Federal Circuit’s decision in *Hockerson-Halberstadt, Inc. v. Avia Group Int’l, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000). PO Resp. 31–33. We do not find *Hockerson*’s holding to be applicable here. Unlike with the claim at issue in *Hockerson*, which was construed to require that the “central longitudinal groove” has a width that must be less than the combined width of the two peripheral fins, the challenged claims do not require any particular size or proportion. The requirement that the dielectric layers have coextensive length and width dimensions can be assessed by simply viewing the figures of Heron, and no additional measurements are necessary to make that determination. It is well established “that a claimed invention may be anticipated or rendered obvious by a drawing in a reference, whether the drawing disclosure be accidental or intentional.” *In re Meng*, 492 F.2d 843, 847 (CCPA 1974).

Patent Owner also contends that the Petition fails to identify what specific elements in Heron correspond to numerous claim elements. PO Resp. 34–37. We disagree. As noted above, the Petition identifies specific teachings of Heron, and includes a claim chart mapping Heron’s teachings to the claim elements. Pet. 18–24. In particular, Patent Owner argues that the Petition does not specify where the claimed “electrode layer” is found in Heron. PO Resp. 34–35. As Patent Owner recognizes, however, the Petition identified overlapping buried electrodes 15 and 16 for this claim element. See Pet. 19–20. We find this to be sufficient as both layers 15 and 16 satisfy the claim requirements of having dimensions smaller than the dielectric layer, being mounted on the first surface of a dielectric layer, and extending to a side face of the capacitor body so as to contact the end terminations. Patent Owner also argues that the Petition fails to specify where in Heron “opposite polarity” is taught. PO Resp. 35–36. We find that the Petition’s identification of end terminations 22 and 24 is sufficient. See Pet. 23–24. As explained by Petitioner’s expert, Dr. Randall, in order to store charge, a voltage must be imposed across the terminals of Heron’s capacitor, “and the resulting voltage difference across the two contact members 22 and 24 establishes the opposite polarities of the capacitor.” Ex. 1014 ¶ 38. Finally, Patent Owner argues that the Petition fails to specify where “said second surface of said first dielectric layer” is found in Heron. PO Resp. 36–37. The Petition, however, noted that “[a]s seen in Fig. 2, each dielectric layer has a length and width, as well as a first and second surface.” Pet. 19. The Petition further notes that “Heron discloses that green ceramic (dielectric) layer 10 would be first formed and screen printing the electrode pattern 15 thereon.” *Id.* at 18. Because the Petition identifies electrode layer

15 as being on the “first surface” of the first dielectric layer 10, we find that the Petition also sufficiently identified the opposite surface of dielectric layer 10 as satisfying the requirements of the “second surface.” Figure 1 of Heron shows terminations 22 and 24 provided on the bottom, i.e., “second surface,” of the dielectric layer and extending to the edges of the capacitor body. The Petition, therefore, identified sufficiently the specific features of Heron’s capacitor that correspond to the claim elements. Based on those identified features, and the record developed during this proceeding, we find that Heron anticipates claims 1–4.

With respect to dependent claims 5 and 6, Patent Owner further argues that Petitioner fails to articulate why the skilled artisan would have been motivated to use square electrode or dielectric layers in Heron’s capacitor. PO Resp. 55–58. It is undisputed, however, that Monsorno ’926 discloses a buried layer capacitor with square electrode and dielectric layers. *See* Ex. 1007, 6:4–7 (claims 6 and 7). In its Petition, Petitioner, relying upon Dr. Randall’s Declaration, asserted that “the combination of Heron and Monsorno leverages the capacitor of Heron by providing additional benefits, including effectiveness at high frequencies, high reliability, and over a broad range of temperatures, and as having the capability of being manufactured in quantity at a low unit cost, while maintaining levels of quality.” Pet. 45 (citing Ex. 1012 ¶ 115). Dr. Randall also opined in his Declaration submitted with the Petition that “[i]t would have been obvious for one of ordinary skill in the art to try different geometric shapes of electrode layers and dielectric layers . . . in order to improve high frequency properties for example.” Ex. 1012 ¶ 119. Dr. Randall further opined that the use of square geometries would have been a matter of design choice. *Id.* ¶ 120.

The record developed in this proceeding supports the conclusion that the use of square geometries for the electrode and dielectric layers taught by Heron would have been an obvious design choice. Monsorno '926 demonstrates that the use of square electrode and dielectric layers was a known design choice for buried layer capacitors. Furthermore, there is no record evidence of any unexpected functional benefits associated with the use of square layers, as opposed to the rectangular layers illustrated in Heron. *See In re Kuhle*, 526 F.2d 553, 555 (CCPA 1975) (concluding that the use of the particular metallic connection in a conductivity measuring device “solves no stated problem” and “presents no novel or unexpected result” and “would be an obvious matter of design choice within the skill of the art”); *In re Dailey*, 357 F.2d 669, 672–73 (CCPA 1966) (holding that shape configuration was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant). Patent Owner argues that “neither the Petition nor the Randall Declaration articulate why a skilled artisan would have otherwise been motivated to use square electrodes or dielectric layers . . . and mere design choice by itself cannot remedy this lack of evidence.” PO Resp. 58 (citing *Cutsforth, Inc. v. MotivePower, Inc.*, 636 F. App'x 575, 578 (Fed. Cir. 2016) (non-precedential)). We disagree that no reason is provided to use square electrodes or dielectric layers. As noted above, Petitioner's expert opined that a skilled artisan would have considered the shapes of electrode layers and dielectric layers in order to improve the high frequency properties of a buried layer capacitor. Ex. 1012 ¶ 119. Moreover, Patent Owner's expert also acknowledged during his deposition that the skilled artisan would have

considered square versus rectangular shapes when designing a capacitor for high frequency performance. Ex. 1015, 56:20–57:2.

We, therefore, determine that Petitioner has shown by a preponderance of the evidence that Heron anticipates claims 1–4, and that Heron in combination with Monsorno '926 renders obvious dependent claims 5 and 6.

III. PATENT OWNER'S MOTION FOR OBSERVATIONS

Patent Owner filed a Motion for Observation on the cross-examination testimony of Petitioner's expert, Dr. Randall. Paper 26. Petitioner, in turn, filed a Response. Paper 29. We have considered Patent Owner's observations and Petitioner's responses in rendering this Final Written Decision, and accorded Dr. Randall's testimony appropriate weight where necessary.

IV. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner filed a motion to exclude certain evidence. Paper 28. Specifically, Patent Owner seeks to exclude Exhibits 1004, 1006, 1008, 1009, 1010, and 1011, portions of Dr. Randall's Declaration concerning those exhibits (paragraphs 65–75, 87–94, and 124–151 of Ex. 1012), as well as Appendices E, G, J, L, M, N, O and P of Dr. Randall's Declaration on the grounds that they relate to patentability challenges that did not form the basis of our Institution Decision in this proceeding. *Id.* at 2–4, 6, 7. Patent Owner additionally seeks to exclude paragraphs 22 and 25 of Dr. Randall's Declaration under Fed. R. Evid. 702 for failing to be based on sufficient facts or data. *Id.* at 4–5. Furthermore, Patent Owner seeks to exclude Exhibit 1015, Dr. Shanfield's deposition transcript, on the grounds that the

testimony cited to at 8:21–9:2 in Exhibit 1015 was objected to for lack of relevance. *Id.* at 7.

Because we did not rely upon any of the exhibits, portions of Dr. Randall’s Declaration, or the cited testimony from Dr. Shanfield’s deposition transcript that are sought to be excluded in this Final Written Decision, we dismiss Patent Owner’s motion to exclude as moot.

V. CONCLUSION

We conclude that Petitioner has shown by a preponderance of the evidence that Heron anticipates claims 1–4, and that Heron in combination with Monsorno ’926 renders obvious dependent claims 5 and 6.

We further conclude that Petitioner has not shown by a preponderance of the evidence that Bonini anticipates claims 1–4, or that Bonini in combination with Monsorno ’926 renders obvious dependent claims 5 and 6.

We further conclude that Petitioner has not shown by a preponderance of the evidence that Florian anticipates claims 1–4, or that Florian in combination with Monsorno ’926 renders obvious dependent claims 5 and 6.

This is a final written decision of the Board under 35 U.S.C. § 318(a). Parties to the proceeding seeking judicial review of this decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

VI. ORDER

Accordingly, it is:

ORDERED that claims 1–6 of U.S. Patent 6,992,879 B2 are held to be unpatentable;

FURTHER ORDERED that Patent Owner’s Motion for Observation is taken into consideration;

FURTHER ORDERED that Patent Owner's Motion to Exclude is dismissed as moot; and

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

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Patent 6,992,879 B2

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