

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VOLKSWAGEN GROUP OF AMERICA, INC.,
Petitioner,

v.

SCRAMOGE TECHNOLOGY LTD.,
Patent Owner.

IPR2022-01354
Patent 10,546,685 B2

Before JAMESON LEE, MICHELLE N. WORMMEESTER, and
AARON W. MOORE, *Administrative Patent Judges*.

WORMMEESTER, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Volkswagen Group of America, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–18 of U.S. Patent No. 10,546,685 B2 (Ex. 1001, “the ’685 patent”). Scramoge Technology Ltd. (“Patent Owner”) did not file a preliminary response. We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted “unless . . . 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 institute an *inter partes* review as to all the challenged claims of the ’685 patent based on the sole ground presented.

II. BACKGROUND

A. Related Proceedings

The parties identify a related federal district court case, *Scramoge Technology Ltd. v. Volkswagen AG*, Case No. 2:22-cv-10730-GAD-APP (E.D. Mich.). Pet. 67; Paper 3, 2 (Patent Owner’s Mandatory Notices). Patent Owner further identifies a petition for *inter partes* review involving a related patent. Paper 3, 2.

B. The ’685 Patent

The ’685 patent describes a wireless power transmitting apparatus for use in a wireless charging system. Ex. 1001, 1:21–23. Figure 1 of the ’685 patent, reproduced below, is a diagram of a wireless charging system according to one embodiment.

FIG. 1

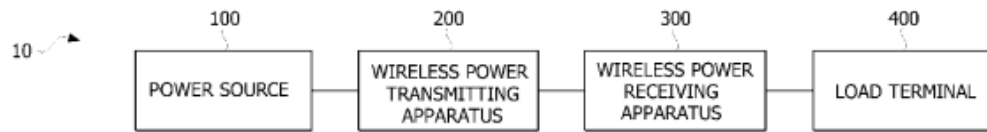


Figure 1 shows wireless charging system 10, which includes power source 100, wireless power transmitting apparatus 200, wireless power receiving apparatus 300, and load terminal 400. *Id.* at 4:5–8. Wireless power transmitting apparatus 200 receives power from power source 100, and then wirelessly transmits power to wireless power receiving apparatus 300 using electromagnetic induction or resonance. *Id.* at 4:9–16. Wireless power receiving apparatus 300 provides the power it receives to load terminal 400. *Id.* at 4:21–23.

The wireless power transmitting apparatus may include three transmitting coils. *Ex.* 1001, 6:56–59, 7:1–3. Figure 10 of the '685 patent, which illustrates this feature, is reproduced below.

FIG. 10

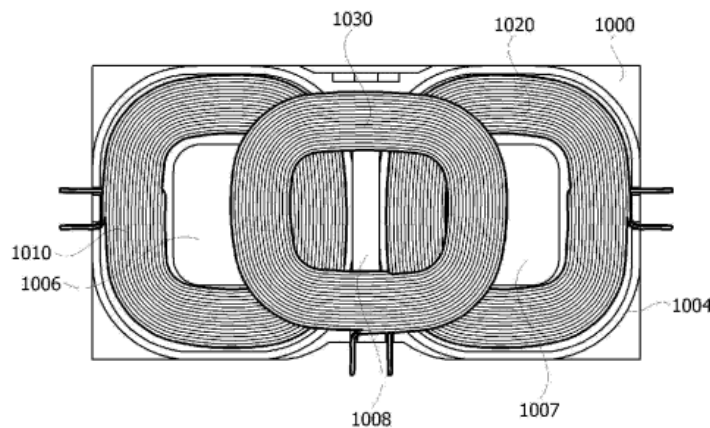


Figure 10 is a top view of a wireless power transmitting apparatus. *Id.* at 6:56–59. The apparatus includes soft magnetic substrate 1000, which accommodates transmitting coils 1010, 1020, and 1030. *Id.* at 7:1–3.

Coils 1010 and 1020 are disposed parallel to one another on substrate 1000, and coil 1030 is disposed on coils 1010 and 1020, orthogonal to them. *Id.* at 7:9–21.

To accommodate all three transmitting coils 1010, 1020, and 1030, substrate 1000 includes a groove formed on one of its sides that corresponds to the shape of the coils disposed therein. Ex. 1001, 7:22–26. To illustrate, Figures 12 and 13 of the '685 patent are reproduced below.

FIG. 12

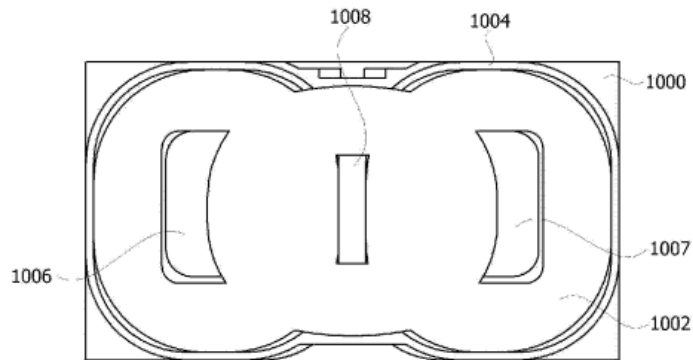


Figure 12 is a top view of substrate 1000. *Id.* at 6:61–63.

FIG. 13

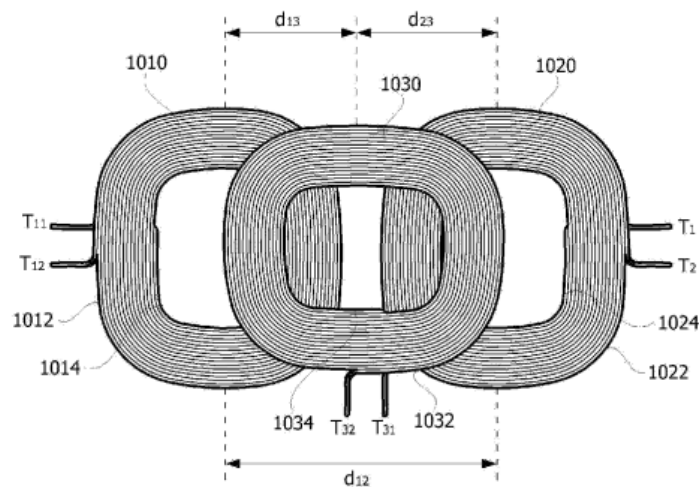


Figure 13 is a top view of coils 1010, 1020, and 1030. *Id.* at 7:63–65. The groove of substrate 1000 includes accommodating face 1002 where

coils 1010 and 1020 are disposed. *Id.* at 7:26–28. The groove further includes wall 1004, which surrounds portions of outer circumference 1012 of coil 1010, outer circumference 1022 of coil 1020, and outer circumference 1032 of coil 1030. *Id.* at 7:26–35. In this configuration, any magnetic flux in the direction of transmitting coils 1010, 1020, and 1030 decreases due to the shielding effect of wall 1004, and any magnetic flux in the direction of a receiving coil increases. *Id.* at 7:35–42. Thus, the power transmission efficiency between the wireless power transmitting apparatus and the wireless power receiving apparatus increases. *Id.* at 7:42–44. Additionally, the durability of the wireless power transmitting apparatus increases because wall 1004 prevents separation of coils 1010, 1020, and 1030. *Id.* at 7:44–47.

The groove of substrate 1000 also includes protruding faces 1006, 1007, and 1008. Ex. 1001, 7:51–53. Protruding face 1006 is surrounded by inner circumference 1014 of coil 1010 and outer circumference 1032 of coil 1030. *Id.* at 7:53–55. Protruding face 1007 is surrounded by inner circumference 1024 of coil 1020 and outer circumference 1032 of coil 1030. *Id.* at 7:56–58. Protruding face 1008 is surrounded by outer circumference 1012 of coil 1001, outer circumference 1022 of coil 1020, and inner circumference 1034 of coil 1030. *Id.* at 7:59–62.¹ With this configuration, any magnetic flux in the direction of transmitting coils 1010, 1020, and 1030

¹ The cited language recites “an outer circumference 822 of the transmitting coil 1020” instead of “an outer circumference 1022 of the transmitting coil 1020.” Ex. 1001, 7:60–61 (emphasis added). This appears to be a typographical error because the outer circumference of transmitting coil 1020 is designated by the numeral 1022 (not 822) throughout the rest of the ’685 patent. *E.g., id.* at 7:33–34, Fig. 13.

decreases due to the shielding effect of protruding faces 1006, 1007, and 1008, and any magnetic flux in the direction of a receiving coil increases. *Id.* at 7:62–8:2.

C. Illustrative Claim

As noted above, Petitioner challenges claims 1–18 of the '685 patent. Claims 1, 7, and 13 are independent. Claim 1, reproduced below, is illustrative of the claims under challenge.

1. A wireless power transmitting apparatus, comprising:
 - a first transmitting coil;
 - a second transmitting coil;
 - a third transmitting coil on the first transmitting coil and the second transmitting coil; and
 - a substrate to accommodate the first transmitting coil, the second transmitting coil, and the third transmitting coil, wherein the substrate comprises:
 - a wall to surround a part of an outer circumference of the first transmitting coil and a part of an outer circumference of the second transmitting coil;
 - a first protrusion inside an inner circumference of the first transmitting coil; and
 - a second protrusion inside an inner circumference of the second transmitting coil,wherein the third transmitting coil is disposed between the first protrusion and the second protrusion,
 - wherein the first protrusion comprises a first stepped portion to support the third transmitting coil, and
 - wherein the second protrusion comprises a second stepped portion to support the third transmitting coil.

D. Asserted Ground of Unpatentability

Petitioner challenges claims 1–18 of the ’685 patent on the following sole ground. Pet. 17, 19–67.

Claims Challenged	35 U.S.C. § ²	References/Basis
1–18	103	Jung, ³ Park ⁴

In support of its arguments, Petitioner relies on a Declaration of Dr. Shukri J. Sourì, Ph.D. (Ex. 1005).

III. DISCUSSION

A. Claim Construction

In an *inter partes* review proceeding, we construe a claim of a patent “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” *See* 37 C.F.R. § 42.100(b) (2019). That standard involves construing claims in accordance with the ordinary and customary meaning of such claims as would have been understood by one of ordinary skill in the art at the time of the invention. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner asserts, “Here, claim construction is unnecessary.” Pet. 19. For purposes of this Decision, we conclude that no claim term requires

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the ’685 patent issued from an application that was filed after this date, we apply the AIA version of § 103.

³ Jung et al., U.S. Publ’n No. 2013/0069586 A1, published Mar. 21, 2013 (Ex. 1006).

⁴ Park et al., Korean Publ’n No. 10-2014-0019955, published Feb. 18, 2014 (MultiLing Corp. trans. 2022) (Ex. 1008).

express interpretation at this time to resolve any controversy in this proceeding. *See VividTechs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

B. Obviousness over Jung and Park

Petitioner asserts that claims 1–18 of the '685 patent would have been obvious over Jung and Park. Pet. 19–67. For the reasons explained below, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on its asserted ground.

1. Overview of Asserted Prior Art

We start with an overview of the asserted prior art, namely, Jung and Park.

a. Jung

Jung describes a wireless power transmitting apparatus for wirelessly transmitting power to a power receiving apparatus. Ex. 1006 ¶ 3. Figure 6 of Jung, which shows an exemplary wireless power transmitting apparatus according to Jung, is reproduced below.

[FIG. 6]

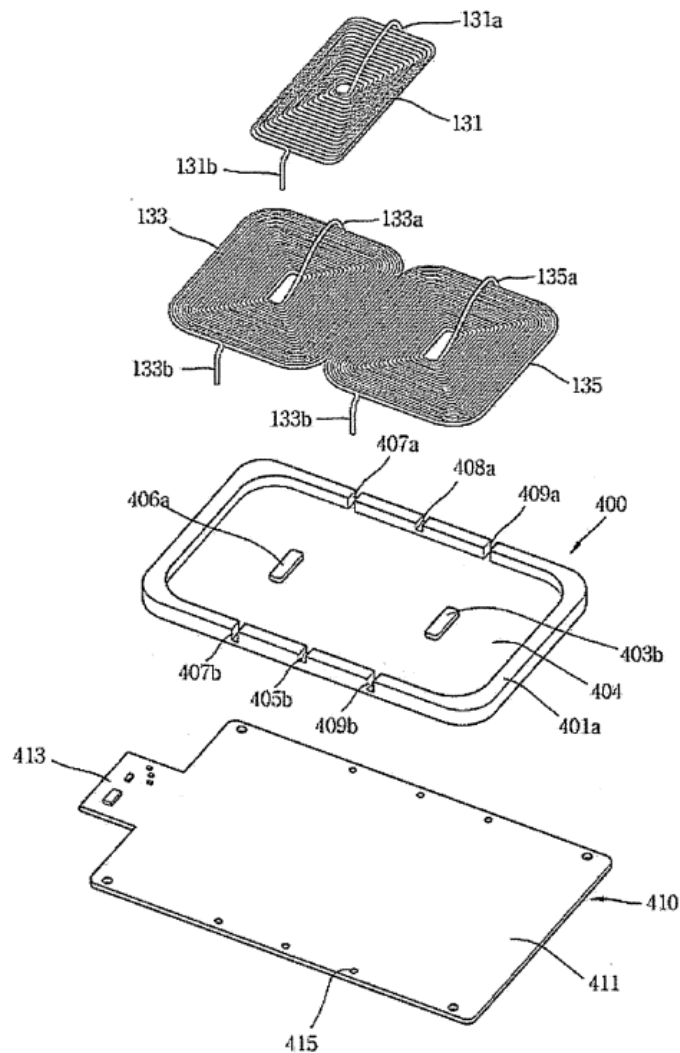


Figure 6 of Jung is an exploded view of the components of a core assembly in a wireless power transmitting apparatus. *Id.* ¶ 122. The core assembly includes central coil 131, side coils 133 and 135, core 400, and circuit board 410. *Id.* ¶¶ 122–123, 126–128.

Core 400 includes concave part 401,⁵ which receives central coil 131 and side coils 133 and 135, where central coil 131 is positioned on side coils 133 and 135. Ex. 1006 ¶¶ 131, 133. To illustrate, Figure 7 of Jung is reproduced below.

[FIG. 7]

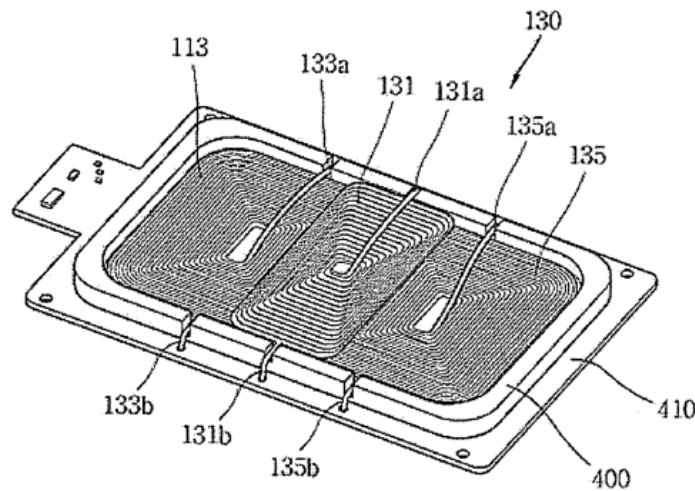


Figure 7 of Jung is an assembled view of the core assembly in the wireless power transmitting apparatus. *Id.* ¶ 122. Jung states that central coil 131 may be smaller or larger than each of side coils 133 and 135, or that central coil 131 may be the same size as each of side coils 133 and 135. *Id.* ¶ 131.

As shown in Figures 6 and 7, concave part 401 is a recess defined by sidewall 401a that protrudes upward along an outer circumferential edge of core 400. *Id.* ¶ 133. Concave part 401 includes two supports 403a and 403b

⁵ In Figure 6, the concave part is designated by numeral 404 instead of numeral 401. Ex. 1006, Fig. 6. This appears to be a typographical error because the concave part is designated by number 401 throughout the rest of the '685 patent. *See, e.g., id.* ¶¶ 133–138.

that protrude from its bottom surface.⁶ *Id.* ¶ 140. Supports 403a and 403b are inserted respectively into hollow parts formed at the center of side coil 133 and at the center of side coil 135, thereby fixing the positions of side coils 133 and 135.⁷ *Id.* Side coils 133 and 135 may be positioned so that they contact each other, or they may be positioned so that they are spaced apart from each other. *Id.* ¶¶ 144–145, Figs. 8A, 8B. Central coil 131 is attached onto side coils 133 and 135 using double-sided tape. *Id.* ¶ 141.

Jung states that “[t]he core 400 is made of magnetic material and shields magnetic fields deviating from a direction toward the power receiving apparatus . . . in magnetic fields generated by the power supplied to the central coil 131 and . . . side coils 133 and 135.” Ex. 1006 ¶ 135.

b. Park

Park describes a cover for a wireless charger that includes three coils for power transmission (TX). Ex. 1008, code (57) (Abstract). Figure 3, reproduced below, illustrates a cover according to Park.

⁶ In Figure 6, the supports are designated by numerals 406a and 403b instead of numerals 403a and 403b. Ex. 1006, Fig. 6. This appears to be a typographical error because the supports are designated by numerals 403a and 403b throughout the rest of the ’685 patent. *See e.g., id.* ¶¶ 140–141.

⁷ In Figure 7, the side coils are designated by numerals 113 and 135 instead of numerals 133 and 135. Ex. 1006, Fig. 7. This appears to be a typographical error because the side coils are designated by numerals 133 and 135 throughout the rest of the ’685 patent. *See, e.g., id.* ¶ 122 (describing Figures 6 and 7), Fig. 6.

FIG. 3

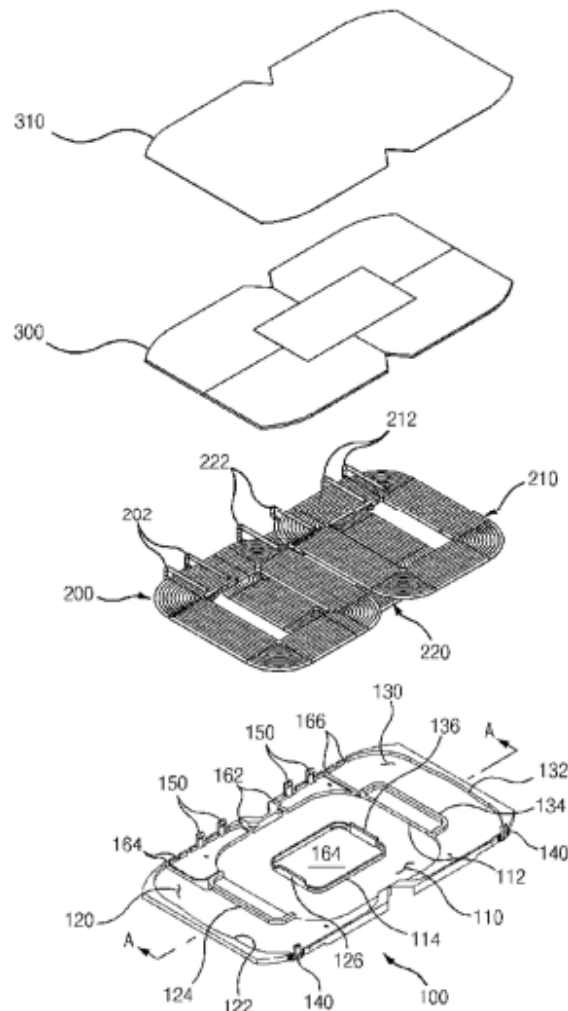


Figure 3 of Park shows an exploded view of cover 100, left coil 200, right coil 210, central coil 220, and shield plate 300 for a wireless charger. *Id.* at 4. Cover 100 includes central coil seating recess 110 in which central coil 220 can be seated. *Id.* Cover 100 also includes left coil seating recess 120 and right coil seating recess 130 in which a left-side portion of left coil 200 and a right-side portion of right coil 210 can be seated, respectively. *Id.* Park explains that left coil seating recess 120 is formed on a left side of central coil seating recess 110 with a step from central coil seating recess 110, and that right coil seating recess 130 is formed on a right

side of central coil seating recess 110 with a step from central coil seating recess 110. *Id.* at code (57). During assembly, central coil 220 is seated in central coil seating recess 110 first, and then left coil 200 is seated in left coil seating recess 120 and right coil 210 is seated in right coil seating recess 130, respectively. Ex. 1008, 4.

2. Independent Claim 1

We turn now to our discussion of the claims. Independent claim 1 is directed to a “wireless power transmitting apparatus.” Independent claims 7 and 13 also are directed to a “wireless power transmitting apparatus,” and recite similar limitations as claim 1. Petitioner relies primarily on its discussion of claim 1 for claims 7 and 13. Pet. 53–54. Accordingly, we address claim 1 in detail. Our analysis of claim 1 applies to claims 7 and 13.

Claim 1 recites a “first transmitting coil,” a “second transmitting coil,” a “third transmitting coil,” a “substrate,” a “wall,” a “first protrusion,” and a “second protrusion.” We discuss these claim elements in turn.

a. Preamble

As noted above, claim 1 is directed to “[a] wireless power transmitting apparatus,” which is recited in the preamble of the claim. Petitioner identifies Jung’s wireless power transmitting apparatus 100 as corresponding to the recited “wireless power transmitting apparatus.” Pet. 19–20. As support, Petitioner directs us to where Jung describes a wireless power transmitting system that “may include the wireless power transmitting apparatus 100 . . . wirelessly transmitting a power and a power receiving

apparatus 200 receiving the power transmitted by the wireless power transmitting apparatus 100.” Ex. 1006 ¶ 52 (cited by Pet. 19).

Although we do not determine whether the preamble is limiting at this stage of the proceeding, we are persuaded based on Petitioner’s argument and evidence that Petitioner has shown sufficiently for purposes of this Decision that Jung teaches the subject matter of the preamble.

b. Limitations 1a, 1b: “first transmitting coil,” “second transmitting coil”

Claim 1 recites “a first transmitting coil” and “a second transmitting coil.” For these limitations, which Petitioner designates respectively as limitations 1a and 1b, Petitioner identifies Jung’s first side coil 133 as a “first transmitting coil” and Jung’s second side coil 135 as a “second transmitting coil.” Pet. 20, 22. As support, Petitioner directs us to where Jung teaches that wireless power transmitting apparatus 100 includes one central coil 131 and two side coils 133 and 135. Ex. 1006 ¶¶ 56, 122 (cited by Pet. 20–22). Petitioner further directs us to where Jung teaches that a power transmission controlling unit selects a coil “among the central coil 131 and the two side coils 133 and 135 as a power transmitting coil that is to transmit the power.” *Id.* ¶ 83 (cited by Pet. 21–22).

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Jung teaches the recited first and second transmitting coils of limitations 1a and 1b.

c. Limitation 1c: “third transmitting coil”

Claim 1 recites “a third transmitting coil on the first transmitting coil and the second transmitting coil.” For this limitation, which Petitioner designates as limitation 1c, Petitioner identifies Jung’s central coil 131 as the “third transmitting coil.” Pet. 23. As support, Petitioner directs us to where Jung teaches that wireless power transmitting apparatus 100 includes one central coil 131 and two side coils 133 and 135. Ex. 1006 ¶¶ 56, 122 (cited by Pet. 23). Petitioner further directs us to where Jung teaches that a power transmission controlling unit selects a coil “among the central coil 131 and the two side coils 133 and 135 as a power transmitting coil that is to transmit the power.” *Id.* ¶ 83 (cited by Pet. 23–24). Petitioner additionally points to Jung’s teaching that “the central coil 131 is disposed on the first and second side coils 133 and 135.” Pet. 24 (emphasis omitted) (quoting Ex. 1006 ¶ 126); *see also* Ex. 1006, Fig. 7 (cited by Pet. 24).

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Jung teaches the recited third transmitting coil of limitation 1c.

d. Limitation 1d: “substrate”

Claim 1 recites “a substrate to accommodate the first transmitting coil, the second transmitting coil, and the third transmitting coil.” For this limitation, which Petitioner designates as limitation 1d, Petitioner identifies Jung’s core 400 as a “substrate.” Pet. 28. As support, Petitioner directs us to where Jung teaches that “core 400 is made of a magnetic material and receives the one central coil 131 and the two side coils 133 and 135 therein.” Ex. 1006 ¶ 127 (quoted by Pet. 28). Petitioner further directs us to where

Jung teaches that “the concave part 401 may have a size enough to tightly receive an outer circumference formed by the central coil 131 and the first and second side coils 133 and 135.” *Id.* ¶ 136 (cited by Pet. 28).

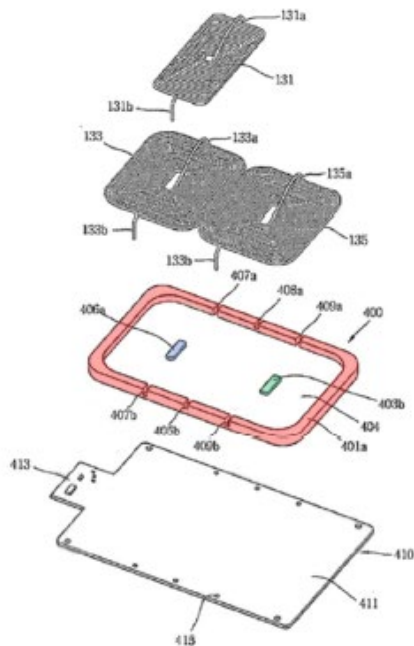
Additionally, Petitioner points to Figure 6 of Jung in which, according to Petitioner, “the concave part is visible as a recess circumscribed by the sidewall 401a.” Pet. 29 (emphasis omitted). This position is consistent with Jung’s teaching that “the concave part 401 is recessed.” Ex. 1006 ¶ 136 (cited by Pet. 28). Petitioner also points to Figure 7 of Jung, which Petitioner asserts “depicts an embodiment of the core 400 accommodating each of the first, second, and third transmitting coils, 131, 133, and 135.” Pet. 29–30.

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Jung teaches the recited substrate of limitation 1d.

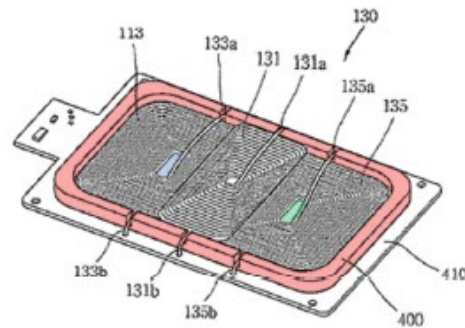
e. Limitation 1e: “wall”

Claim 1 requires that the substrate comprises “a wall to surround a part of an outer circumference of the first transmitting coil and a part of an outer circumference of the second transmitting coil.” For this limitation, which Petitioner designates as limitation 1e, Petitioner identifies Jung’s sidewall 401a as a “wall.” Pet. 31–32. As support, Petitioner provides annotated versions of Figures 6 and 7 of Jung, reproduced below. Pet. 32.

[FIG. 6]



[FIG. 7]



Figures 6 and 7 of Jung, as annotated by Petitioner, respectively show exploded and assembled views of a core assembly in wireless power transmitting apparatus 100. *See* Ex. 1006 ¶ 122. Jung’s sidewall 401a is highlighted with red shading. Petitioner directs us to where Jung teaches that “the core 400 . . . is provided with a concave part 401 formed in order to receive the central coil 131 and the first and second side coils 133 and 135 therein,” and that “[t]he concave part 401 is defined by a sidewall 401a protruding upwardly along an outer circumferential edge of the core 400.” *Id.* ¶ 133 (cited by Pet. 31). As discussed above, Jung’s core 400 corresponds to the recited substrate. Petitioner also directs us to where Jung teaches that “the concave part 401 may have a size enough to tightly receive an outer circumference formed by the central coil 131 and the first and second side coils 133 and 135.” *Id.* ¶ 136 (cited by Pet. 31). In addition, Petitioner directs us to where Jung teaches that “[t]he sidewall 401a has a height corresponding to a depth at which the concave [part] 401 is recessed,”

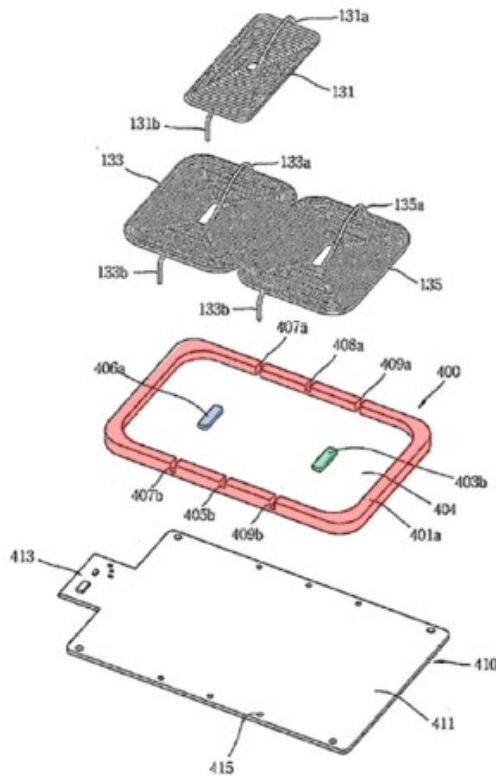
which may be “the sum of thicknesses of the central coil 131 and the first and second coils 133 and 135.” *Id.* ¶ 138 (cited by Pet. 31). Petitioner adds that Figures 6 and 7 show that “sidewall 401a surrounds three sides of the outer circumference of each of lower coils 133 and 135.” Pet. 32.

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Jung teaches the recited wall of limitation 1e.

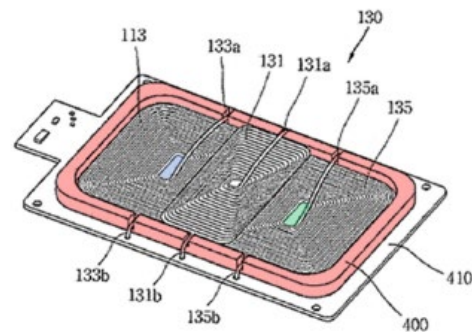
f. Limitations 1f, 1g: “first protrusion,” “second protrusion”

Claim 1 requires that the substrate further comprises “a first protrusion inside an inner circumference of the first transmitting coil” and “a second protrusion inside an inner circumference of the second transmitting coil.” For these limitations, which Petitioner designates respectively as limitations 1f and 1g, Petitioner identifies Jung’s support 403a as a “first protrusion” and Jung’s support 403b as a “second protrusion.” Pet. 35–37, 39–41. As support, Petitioner points to its annotated versions of Figures 6 and 7 of Jung, reproduced above and again below. Pet. 36, 40–41.

[FIG. 6]



[FIG. 7]



Figures 6 and 7 of Jung, as annotated by Petitioner, respectively show exploded and assembled views of a core assembly in wireless power transmitting apparatus 100. *See* Ex. 1006 ¶ 122. Jung’s protrusion 403a is highlighted with blue shading, and Jung’s protrusion 403b is highlighted with green shading. Petitioner directs us to where Jung teaches that “[t]he concave part 401 may include two supports 403a and 403b protrudedly formed on a bottom surface thereof,” and that “[t]he two supports 403a and 403b are formed at positions at which they may be inserted into hollow parts formed at the center of the first and second side coils 133 and 135, respectively.” *Id.* ¶ 140 (cited by Pet. 35, 39–40). Petitioner further contends that its annotated versions of Jung’s figures show that “support 403a protrudes from a bottom surface of the core 400 inside the inner

circumference of coil 133, the first transmitting coil,” and that “support 403b protrudes from a bottom surface of the core 400 inside the inner circumference of coil 135, the second transmitting coil.” Pet. 37, 41.

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Jung teaches the recited first and second protrusions of limitations 1f and 1g.

g. Limitation 1h: third transmitting coil disposed between first and second protrusions

Claim 1 additionally recites that “the third transmitting coil is disposed between the first protrusion and the second protrusion.” For this limitation, which Petitioner designates as limitation 1h, Petitioner points to its annotated version of Jung’s Figure 7, reproduced above and again below. Pet. 43–44.

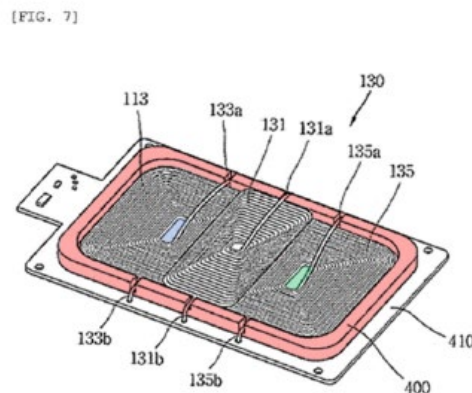


Figure 7 of Jung, as annotated by Petitioner, shows an assembled view of a core assembly in wireless power transmitting apparatus 100. *See* Ex. 1006 ¶ 122. According to Petitioner, “[a]s can be seen in Figure 7, the third transmitting coil 131 is disposed between the first and second protrusions, which are visible on either side of the third transmitting coil 131.” *Id.*

Based on Petitioner's argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Jung teaches the recited feature of limitation 1h.

h. Limitations 1i, 1j: "first stepped portion," "second stepped portion"

Lastly, claim 1 requires that "the first protrusion comprises a first stepped portion to support the third transmitting coil," and that "the second protrusion comprises a second stepped portion to support the third transmitting coil." For these limitations, which Petitioner designates as limitations 1i and 1j, respectively, Petitioner asserts that Jung does not expressly disclose the recited first and second stepped portions. Pet. 45. Relying on the declaration testimony of Dr. Souri, however, Petitioner additionally asserts that "[s]tepped features were known in the prior art and were used to provide support in electronic devices for components located at different levels within the same device." Pet. 45 (citing Ex. 1005 ¶ 106). As support, Petitioner points to Park. Pet. 45–53. In particular, Petitioner points to Park's abstract, which describes "a left coil seating recess which is formed on a left side of a left outer wall of the central coil seating recess with a step from the central coil seating recess." Ex. 1008, code (57) (quoted by Pet. 45–46). Park's abstract also describes "a right coil seating recess which is formed on a right side of a right outer wall of the central coil seating recess with a step from the central coil seating recess." *Id.* (quoted by Pet. 51–52).

Petitioner also points to Figure 3 of Park, which is reproduced below. Pet. 46 (citing Ex. 1008, Fig. 3).

FIG. 3

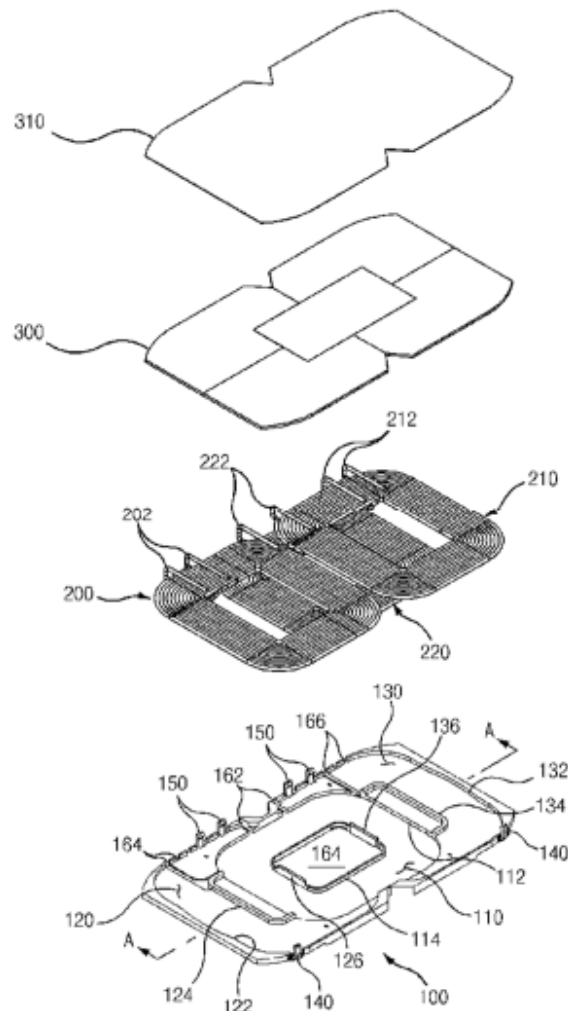


Figure 3 of Park shows an exploded view of components for a wireless charger. Ex. 1008, 4. Cover 100 includes central coil seating recess 110 in which central coil 220 can be seated. *Id.* Cover 100 also includes left coil seating recess 120 and right coil seating recess 130 in which a left-side portion of left coil 200 and a right-side portion of right coil 210 can be seated, respectively. *Id.* Petitioner directs us to where Park explains,

[The] left coil seating recess 120 and [the] right coil seating recess 130 are formed on a left side and a right side of upper ends of outer walls . . . of the left side and the right side of the central coil seating recess 110 to have a left side portion of a left coil 200

and right side portion of a right coil 210 seated thereon, respectively, and as a result, *the central coil seating recess 110, and the left coil seating recess 120 and the right coil seating recess 130 have steps* corresponding to a thickness of the coil.

Id. at 4 (emphasis added) (cited by Pet. 45–46, 51–52). Petitioner contends that “th[e] step, central coil seating recess outer wall 112, separates central coil seating recess 110 from left coil seating recess 120” and “separates central coil seating recess 110 from right coil seating recess 130.” Pet. 46, 52. Petitioner relies on the declaration testimony of Dr. Souri. *Id.* (citing Ex. 1005 ¶¶ 107, 115).

Here, we note that Park’s central coil seating recess outer wall 112 is shown as a surface in a vertical plane that, according to Petitioner, “separates” central coil seating recess 110 and left coil seating recess 120, which are shown as surfaces in different horizontal planes. *See* Pet. 46; Ex. 1008, Fig. 3. Similarly, Park’s vertical central coil seating recess outer wall 112 “separates” central coil seating recess 110 and right coil seating recess 130, which also are shown as surfaces in different horizontal planes. *See* Pet. 52; Ex. 1008, Fig. 3. To illustrate, we provide a truncated and annotated version of Figure 3 of Park below.

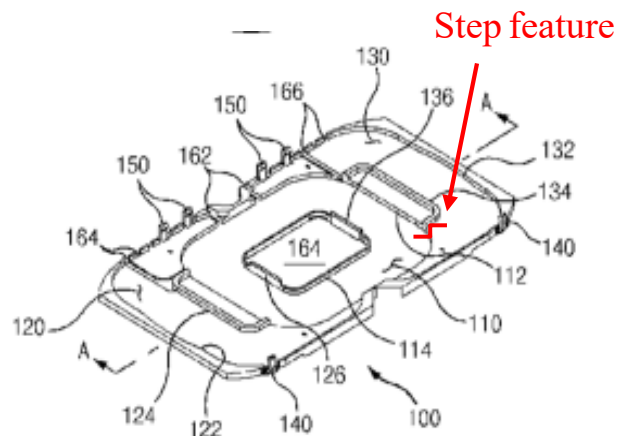


Figure 3 of Park, as truncated and annotated above, shows a cover for a wireless charger. *See* Ex. 1008, 4. We have annotated the figure in red to show our understanding of what Petitioner considers to be Park’s step feature. *See* Pet. 46, 52. Specifically, our annotation shows Park’s central coil seating recess outer wall 112 that “separates” central coil seating recess 110 and right coil seating recess 130. *See* Pet. 52. Our annotation follows Park’s teaching in the abstract that “a right coil seating recess [130] . . . is formed on a right side of a right outer wall [112] of the central coil seating recess [110] with a step from the central coil seating recess [110].” *See* Ex. 1008, code (57).

Petitioner further contends that it would have been obvious to incorporate Park’s step feature into each of Jung’s support 403a (which corresponds to the recited first protrusion) and support 403b (which corresponds to the recited second protrusion) to provide “a first protrusion with a stepped portion that supports the third transmitting coil” and “a second protrusion with a stepped portion that supports the third transmitting coil” in order to “secure the top coil in place and prevent unwanted lateral movement.” Pet. 47–48, 53 (emphases omitted); *see also id.* at 48–51. Petitioner acknowledges that “Jung depicts some embodiments where the top central coil is smaller than each of the first and second side coils,” (Pet. 47), but points to Jung’s teaching that “the one central coil 131 may . . . have a size equal to . . . that of each of the first and second side coils 133 and 135,” (Ex. 1006 ¶ 131). Petitioner asserts that “with equally sized coils, a three-coil arrangement assembled as depicted in Jung’s Figure 7 would have the side edges of the top coil directly align with the fixing protrusions [supports 403a, 403b] of the lower two coils,” and, after incorporating

Park's step feature, "the edges of the top coil . . . would rest on the flat portion of the stepped protrusion and against the vertical surface of the stepped portion." Pet. 47–48.

Petitioner additionally acknowledges that Jung already teaches using double-sided tape to secure central coil 131 to first and second side coils 133 and 135, but contends that Jung's method of securing central coil 131 to side coils 133 and 135 could be improved with Park's step feature. Pet. 49. As support, Petitioner points us to where Park describes the disadvantages of using adhesives to secure coils. *Id.* (citing Ex. 1008, 3). Park states that "when an external shock is applied" in this case, "bonding may be released and there may be a problem that a defect occurs." Ex. 1008, 3. Park adds that applying adhesives "may be performed in a complicated manner or manually," and, "[t]herefore, it may be difficult to accurately align gaps between the three coils or positions, and accordingly, there may be a problem that uniformity is not guaranteed." *Id.* According to Park, its cover for a wireless charger "can simplify a process, increase durability, and achieve uniformity of quality, by allowing three coils for power transmission (TX) of a wireless charger to be easily arranged in proper positions by a simple process." *Id.* In other words, Park's step feature provides an alternative, advantageous way to secure coils.

Based on Petitioner's argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Petitioner's proposed combination of Jung and Park teaches the recited first and second stepped portions of limitations 1i and 1j. We also are persuaded that Petitioner's proffered reasoning for modifying Jung's first and second protrusions 403a and 403b to include Park's step feature is sufficient for

institution. *See In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”).

3. *Summary*

In view of the foregoing, we determine that Petitioner has demonstrated a reasonable likelihood of showing that claims 1, 7, and 13 would have been obvious over Jung and Park. Claims 2–6, 8–12, and 14–18 depend from claims 1, 7, or 13. Having reviewed Petitioner’s arguments asserting that claims 2–6, 8–12, and 14–18 would have been obvious over Jung and Park, (*see* Pet. 54–67), we also determine that Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion as to these dependent claims.

IV. CONCLUSION

For the foregoing reasons, Petitioner has demonstrated on the record before us a reasonable likelihood that it will prevail in showing that claims 1–18 of the ’685 patent are unpatentable. We have not, however, made a final determination with respect to the patentability of these claims.

V. ORDER

For the reasons given, it is

ORDERED that *inter partes* review is instituted as to all the challenged claims of the ’685 patent based on the sole ground presented in the Petition, namely, obviousness under 35 U.S.C. § 103 of claims 1–18 over Jung and Park; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this Decision.

For PETITIONER:

Elliot C. Cook
Daniel M. Jordan
Finnegan, Henderson, Farabow,
Garrett & Dunner, LLP
elliot.cook@finnegan.com
dan.jordan@finnegan.com

For PATENT OWNER:

Brett Cooper
BC Law Group, P.C.
bcooper@bc-lawgroup.com

Robert A. Auchter
Auchter PLLC
robert@auchterlaw.com