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571-272-7822

Paper 26  
Entered: June 29, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG  
ELECTRONICS AMERICA, INC.,  
Petitioner,

v.

GUI GLOBAL PRODUCTS, LTD., D/B/A GWEE,  
Patent Owner.

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Patent 10,259,020 B2

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Before SALLY C. MEDLEY, JON M. JURGOVAN, and  
SHEILA F. McSHANE, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

JUDGMENT  
Final Written Decision  
Determining All Challenged Claims Unpatentable  
*35 U.S.C. § 318(a)*

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## I. INTRODUCTION

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively “Petitioner”) filed a Petition for *inter partes* review of claims 1–19 of U.S. Patent No. 10,259,020 B2 (Ex. 1001, “the ’020 patent”). Paper 3 (“Pet.”). GUI Global Products, Ltd., D/B/A Gwee (“Patent Owner”) filed a Preliminary Response. Paper 10 (“Prelim. Resp.”). Upon review of these papers, we instituted *inter partes* review, pursuant to 35 U.S.C. § 314, as to claims 1–19 based on the challenges set forth in the Petition. Paper 11 (“Decision to Institute” or “Dec.”).

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 15, “PO Resp.”), Petitioner filed a Reply to Patent Owner’s Response (Paper 17, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 18, “PO Reply”). On April 12, 2022, we held an oral hearing. A transcript of the hearing is of record. Paper 25 (“Tr.”).

For the reasons that follow, we conclude that Petitioner has proven by a preponderance of the evidence that claims 1–19 of the ’020 patent are unpatentable.

### *A. Related Matters*

The parties indicate that related district court litigations are *GUI Global Prods., Ltd. d/b/a Gwee v. Samsung Elecs. Co.*, No. 4:20-cv-02624 (S.D. Tex.) and *GUI Global Prods., Ltd. d/b/a Gwee v. Apple, Inc.*, No. 4:20-cv-02652 (S.D. Tex.). Pet. 76–77; Papers 6, 9.

### *B. The ’020 Patent*

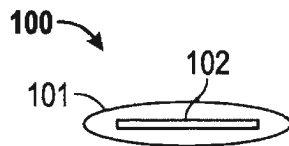
The Specification of the ’020 patent describes how an apparatus may be used for cleaning view screens of electrical devices. Ex. 1001, 1:30–34.

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The '020 patent aims to address the lack of convenient cleaning materials faced by users of portable electronic devices. *Id.* at 1:57–2:6.

In one embodiment, a cleaning component for cleaning a view screen of an electronic device is coupled to a first case of the electronic device using magnetic attractive force. *Id.* at 2:10–16; Fig. 1B.

Figure 1B is illustrative and is reproduced below.

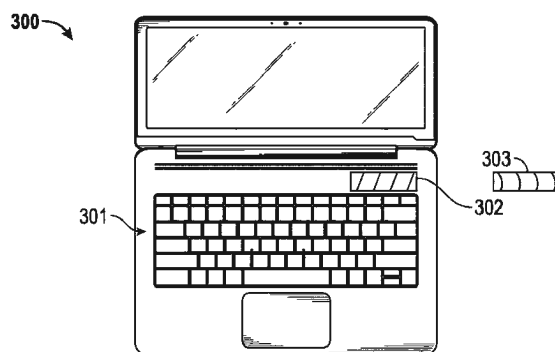


**FIG. 1B**

Figure 1B shows a side view of a cleaning component. *Id.* at 4:27–28. Cleaning component 100 includes ferromagnetic or ferrimagnetic substrate 102 covered by cleaning material 101, such as a fabric or a cloth. *Id.* at 6:19–39.

In another embodiment, a second case receives the cleaning component and also “functions to protect an electronic device’s primary case.” *Id.* at 2:39–52; Fig. 3.

Figure 3 is illustrative and is reproduced below.



**FIG. 3**

Figure 3 shows a computer case configured to receive a cleaning component. *Id.* at 4:35–36. Laptop 300 has rectangular indentation 302

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dimensioned for receiving cleaning component 303 which has a magnet. *Id.* at 8:51–58.

Figure 5A is also illustrative and is reproduced below.

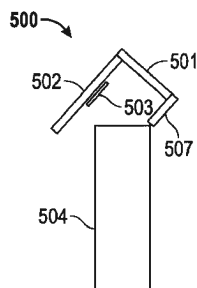


FIG. 5A

Figure 5A shows “a lateral type phone case configured to receive a cleaning component.” *Id.* at 4:39–40. Case 500 includes body 504 “which functions to hold a smart phone” and lid having tip 501, side 502, hinge 507, and cleaning component 503. *Id.* at 10:2–7.

The cleaning component is secured and adhered to a case via “dimensional stability to increase the security with which the clean components are adhered to the case.” *Id.* at 11:39–45; Fig. 9.

Figure 9 is illustrative and is reproduced below.

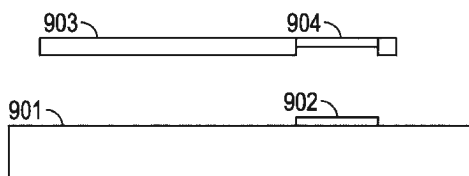


FIG. 9

Figure 9 shows a cleaning component “employing a structural feature to enhance adhesion.” *Id.* at 4:50–51. Device 901 has raised section 902 that is configured to fit within recess 904 of cleaning component 903. *Id.* at 11:39–41.

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Still in another embodiment, the cleaning component has a magnetic element that activates or deactivates a magnetic switch. *Id.* at 3:12–17. The '020 patent describes “activating or deactivating a device having a magnetic switch” as a “secondary application[.]” and that “cleaning devices” “may also be manufactured without a cleaning component for use with the secondary application.” *Id.* at code (57); *see also id.* at 11:53–56. Thus, a device “may or may not include cleaning capabilities but will include a rare earth magnet or magnets” for “additional functionality.” *Id.* at 16:31–33, 16:41–43.

Figure 24 is illustrative and is reproduced below.

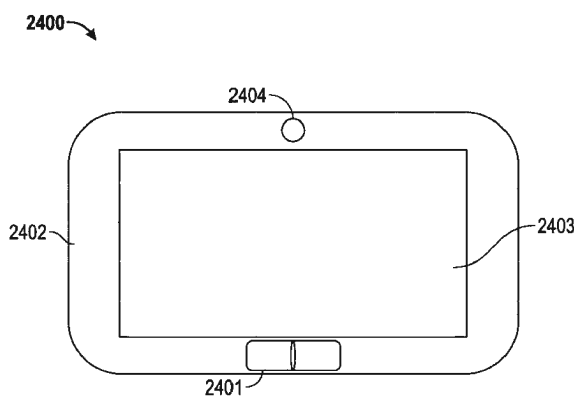


FIG. 24

Figure 24 shows a tablet computer having a switching device. *Id.* at 5:43–44. Tablet computer 2400 has switching device 2401 that “is selectively coupled to the front of the portable electronic device 2402 outside of the view screen 2403.” *Id.* at 17:65–67. A “magnetic switch is normally disposed with the portable electronic device but is shown [in Figure 24] for illustration purposes (2404).” *Id.* at 17:67–18:2. The '020 patent describes that the switching component “may be picked up” and the switching device “is either applied directly to the magnetic switch or applied

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to either side of the switch and then slid past it to activate or deactivate the portable electronic device.” *Id.* at 18:5–8.

Figure 25, reproduced below, shows a side view of the switching device in Figure 24. *Id.* at 5:45–46, 18:9–10.

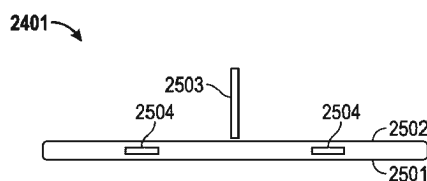


FIG. 25

Figure 25 shows switching device 2401 having bottom surface 2501, top surface 2502, and ferromagnetic or ferrimagnetic substrate 2504 disposed therebetween. *Id.* at 18:10–12 and 18:14–15. Tab 2503 “on the top surface” facilitates manipulation of switching device 2401. *Id.* at 18:12–13.

### C. Illustrative Claim

Petitioner challenges claims 1–19 of the ’020 patent. Claim 1 is an independent claim, and claims 2–19 depend therefrom. Claim 1 is reproduced below.

1. A system comprising:
  - a portable switching device coupled to a portable electronic device;
  - wherein:
    - the switching device and the electronic device are configured to selectively couple to each other employing magnetic force from a first magnet disposed within the switching device;
    - the switching device comprises a first case;

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the electronic device comprises a second case and an electronic circuit that is responsive to the switching device;

the electronic device comprises at least one element selected from the group consisting of beveled edges, ridges, recessed areas, grooves, slots, indented shapes, bumps, raised shapes, and combinations thereof; configured to correspond to complimentary surface elements on the switching device;

the portable switching device is configured to activate, deactivate or send into hibernation the portable electronic device; and

when coupled, the second case functions to protect the first case.

Ex. 1001, 21:28–22:2.

#### *D. Instituted Grounds of Unpatentability*

We instituted *inter partes* review based on the following grounds of unpatentability under 35 U.S.C. § 103(a)<sup>1</sup> as follows (Dec. 8, 40):

<b>Claim(s) Challenged</b>	<b>35 U.S.C §</b>	<b>Reference(s)/Basis</b>
1–9, 11–15, 19	103(a)	Kim <sup>2</sup>
10	103(a)	Kim, Koh <sup>3</sup>

<sup>1</sup> The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended several provisions of 35 U.S.C., including § 103. Here, Petitioner alleges that the ’020 patent has a November 3, 2011 effective filing date. Pet. 7–9. Patent Owner does not contest Petitioner’s assertions as to the November 3, 2011 effective filing date. *See generally* PO Resp. Because the November 3, 2011 effective filing date is before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of 35 U.S.C. § 103.

<sup>2</sup> US Pat. Appl. Pub. No. 2010/0227642 A1, published Sept. 9, 2010 (Ex. 1010, “Kim”).

<sup>3</sup> Korean Pat. Pub. No. 10-2008-0093178, published Oct. 21, 2008 (Ex. 1012, 16–30, “Koh”). Petitioner provides a certified English-language



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<b>Claim(s) Challenged</b>	<b>35 U.S.C §</b>	<b>Reference(s)/Basis</b>
16, 17	103(a)	Kim, Lee <sup>4</sup>
18	103(a)	Kim, Jiang <sup>5</sup>

## II. DISCUSSION

### *A. Principles of Law*

To prevail in its challenges to Patent Owner’s claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2019). A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary

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translation of Koh (Ex. 1012, 1–15). Any reference to Koh hereinafter will be to the English-language translation.

<sup>4</sup> US Pat. Appl. Pub. No. 2010/0298032 A1, published Nov. 25, 2010 (Ex. 1013, “Lee”).

<sup>5</sup> US Patent No. 5,946,121, issued Aug. 31, 1999 (Ex. 1014, “Jiang”).



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skill in the art; and (4) when in evidence, objective evidence of nonobviousness.<sup>6</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

*B. Level of Ordinary Skill*

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). Petitioner relies on the declaration testimony of Dr. Sayfe Kiaei, who testifies that a person having ordinary skill in the art “would have had at least a bachelor’s degree in electrical engineering, computer science, or a similar field and one year of experience in consumer electronics product design” and that “[m]ore education can supplement practical experience and vice versa.” Pet. 16–17 (citing Ex. 1002 ¶¶ 21–22). Patent Owner relies on the declaration testimony of Dr. Mark Horenstein, who applies a similar definition and testifies that a person having ordinary skill in the art “would be someone with either a bachelor’s degree in electrical engineering, computer science, or mechanical engineering with some level of post-baccalaureate electronic device or system design experience, or someone with an equivalent level of experience and training through other means.” PO Resp. 6 n.2 (citing Ex. 2004 ¶ 25). Dr. Horenstein further testifies that “Dr. Kiaei’s definition of a POSITA<sup>7</sup> is somewhat different than mine, nevertheless my opinions in This Declaration would be the same regardless

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<sup>6</sup> Patent Owner does not present any objective evidence of nonobviousness as to the challenged claims.

<sup>7</sup> Person of ordinary skill in the art.

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of whether or not my description or Dr. Kiaei’s description of a POSITA is used.” Ex. 2004 ¶ 25.

We adopt Petitioner’s definition of the level of skill for purposes of this Decision, except that we delete the phrase “at least” to avoid ambiguity in the definition of the level of skill. Patent Owner’s proposed level overlaps substantially with Petitioner’s proposed level. Even if we adopted Patent Owner’s proposed level, the outcome would remain the same.

### *C. Claim Construction*

In an *inter partes* review, “[claims] of a patent . . . shall be construed using the same claim construction standard that would be used to construe the [claims] in a civil action under 35 U.S.C. 282(b), including construing the [claims] in accordance with the ordinary and customary meaning of such [claims] as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” See 37 C.F.R. § 42.100(b) (2019); see also *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

For purposes of this Decision, we need not expressly construe any claim terms. See *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”); see also *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs.* in the context of an *inter partes* review).

### *D. Asserted Obviousness of Claims 1–9, 11–15, and 19 over Kim*

#### *1. Kim*

Kim describes a mobile terminal that allows a sub-device to be attached thereto or detached therefrom. Ex. 1010 ¶ 3. Coupling and

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separation of a main device and a sub-device of the mobile terminal allow controlling an operation and a state of the mobile terminal. *Id.* ¶ 9. The mobile terminal includes a sub-device having an input/output unit and is attached to or detached from the mobile terminal, a controller configured to receive a user input via a certain communication path from the sub-device when the sub-device is separated, and control elements and applications of the mobile terminal according to the user input. *Id.* ¶ 10.

Figure 1 is illustrative and is reproduced below.

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FIG. 1

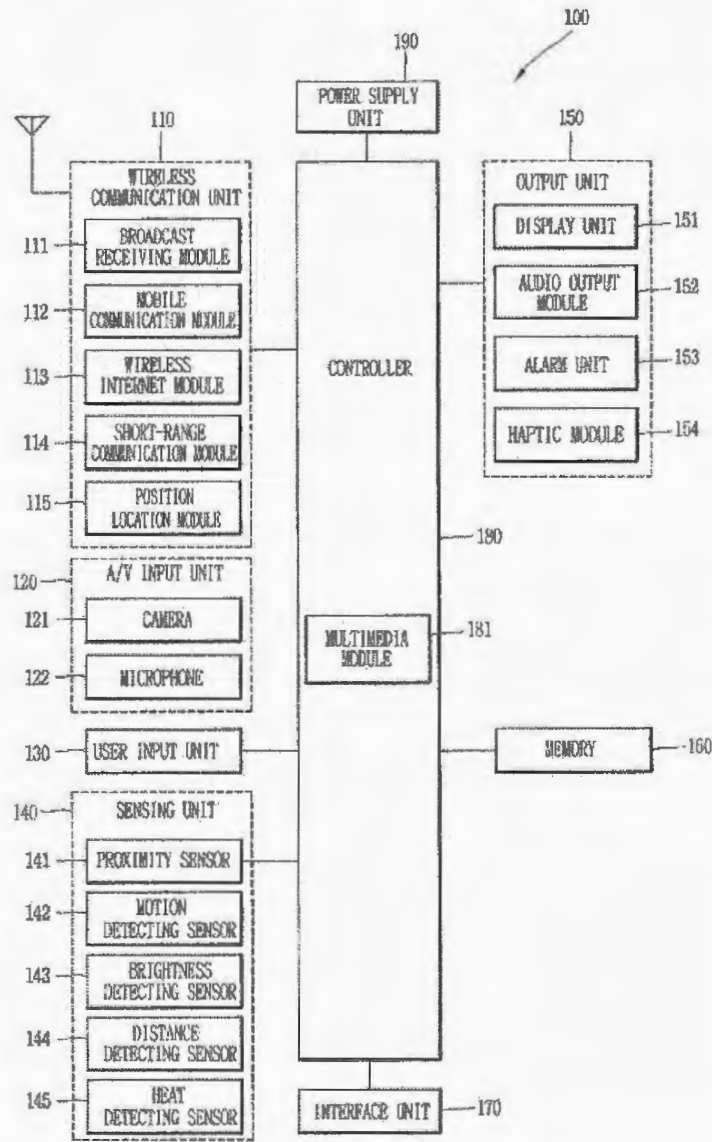


Figure 1 shows a schematic diagram of a mobile terminal. *Id.* ¶ 14. Mobile terminal 100 includes wireless communication unit 110, audio/video (A/V) input unit 120, user input unit 130, sensing unit 140, output unit 150, memory 160, interface unit 170, controller 180, and power supply 190. *Id.* ¶ 72. “More or less components may alternatively be implemented.” *Id.* ¶ 71. A/V input unit 120 may provide audio or video signal input via camera 121 to mobile terminal 100. *Id.* ¶ 84. Sensing unit 140 may detect

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an open/close status or the state of mobile terminal 100. *Id.* ¶ 88. Output 150 may include display 151. *Id.* ¶ 95. Display 151 may have a transparent organic light-emitting diode (TOLED) display. *Id.* ¶¶ 97–98.

“Embodiments may be used singly and/or by being combined together.” *Id.* ¶ 179.

Figure 7 is illustrative and is reproduced below.

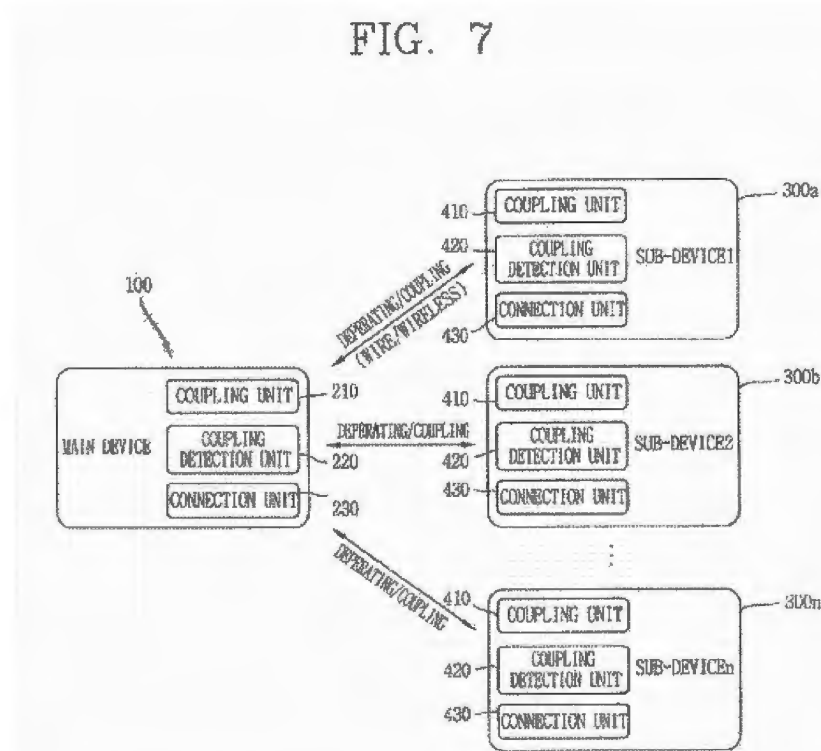


Figure 7 shows a mobile terminal including a main device and a sub-device. *Id.* ¶ 21. Main device 100 can be detachably attached to one or more sub-devices 300a–300n. *Id.* ¶ 181. Main device 100 may include coupling unit 210 for mechanically coupling sub-devices 300a–300n, coupling detection unit 220 that detects whether or not sub-devices 300a–300n are coupled, and connection unit 230 that allows signals or data to be transmitted or received between main device 100 and sub-devices 300a–300n. *Id.* ¶ 182. “Each of the sub-devices 300 may be configured to



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include all the same elements as those of the main device.” *Id.* ¶ 187.

“[W]hen the sub-device 300 is coupled to the main device 100, the main device 100 may automatically change its operation mode or an operation mode of the sub-device.” *Id.* ¶ 195. Sub-device 300 may include frame 303 (shown in Figure 9b). *Id.* ¶ 199. The structures for coupling sub-device 300 are in accordance to the types of main device 100 which include “bar type, slide type, folder type, swing type, swivel type, watch time, and the like.” *Id.* ¶ 210. A “magnet may be respectively attached to one side of the main device 100 and one side of the sub-device 300, to easily couple or separate (i.e., couple or de-couple) the main device 100 and the sub-device.” *Id.* ¶ 203. Main device 100 may have a recess corresponding to the shape and size of sub-device 300, in which a magnet may be installed. *Id.*



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Figure 11B is illustrative and is reproduced below.

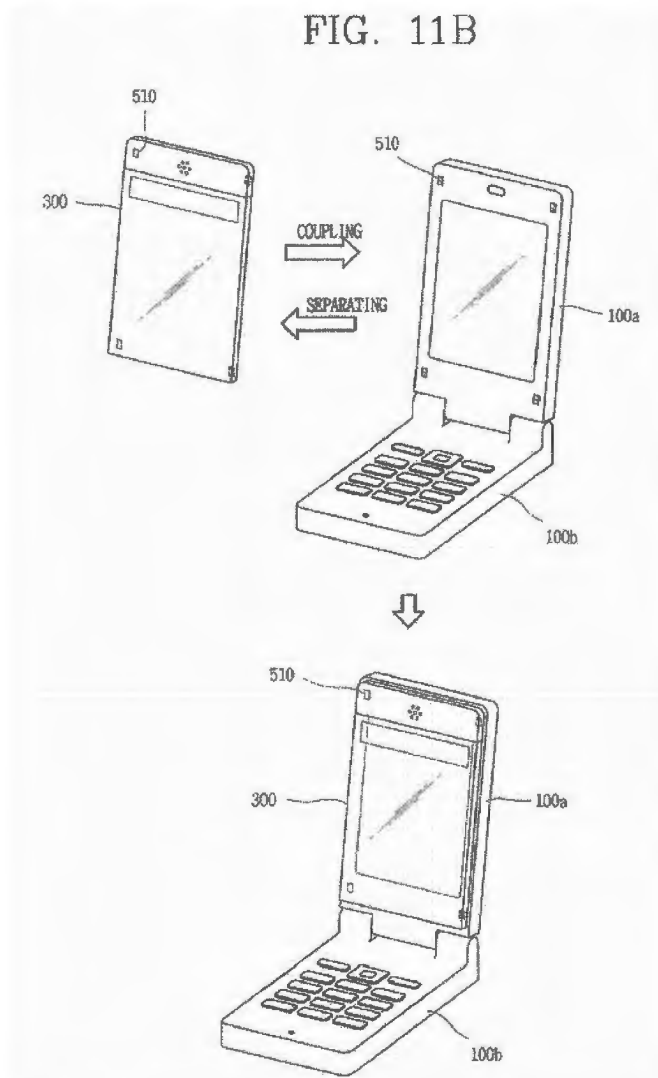


Figure 11B shows a structure for coupling or separating a sub-device to a folder type main device. *Id.* ¶ 25. A sub-device may be coupled to a main device via press-fitting coupling member 510 to position within a recess or hook formed in the main device. *Id.* ¶ 218. Alternatively, a magnet may be provided in the main device such that third body 300 has a member that can be attached to the magnet, may be coupled while allowing “the first body 100a and the second body 100b may be folded or unfolded regardless of the coupling or separating of the sub-device.” *Id.* “Here, the

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third body may be overlapped to be coupled to one of the first and second bodies in a state that the first and second bodies are coupled,” but “the method of coupling the third body to the first body in an overlapping manner” are only “described for the brevity.” *Id.* ¶ 217.

Figure 15A is illustrative and is reproduced below.

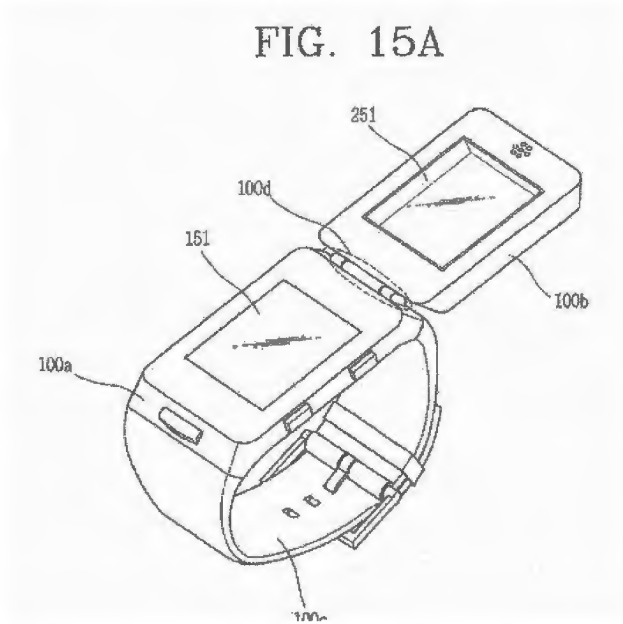


Figure 15A shows a structure for coupling or separating a sub-device to a watch-type main device. *Id.* ¶ 29. Here, first body 100a is connected to second body 100b by hinge 100d. *Id.* ¶ 256.

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Figure 15B is illustrative and is reproduced below.

FIG. 15B

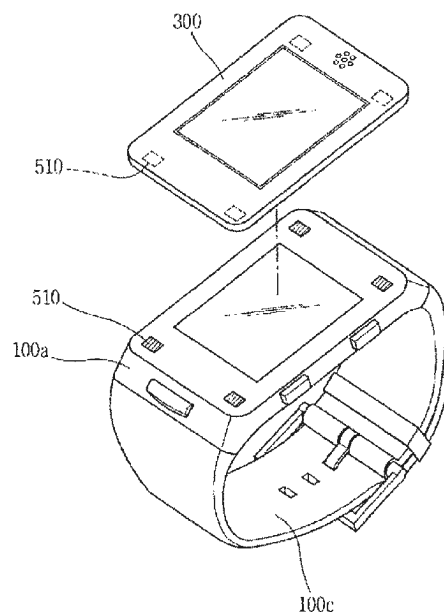


Figure 15B also shows a structure for coupling or separating a sub-device to a watch-type main device. *Id.* ¶ 29. Here, coupling member 510 also fixes a sub-device to a main device. *Id.* ¶ 261.

## 2. Discussion

Petitioner contends claims 1–9, 11–15, and 19 are unpatentable under 35 U.S.C. § 103(a) as obvious over Kim. Pet. 18–55. In support of its showing, Petitioner relies upon the declaration of Dr. Kiaei. *Id.* (citing Ex. 1002). In support of its arguments, Patent Owner relies upon the declaration of Dr. Horenstein. PO Resp. (citing Ex. 2004).

Petitioner contends that Kim describes or renders obvious an embodiment that Petitioner schematically represents as “Figure A.” Pet. 22–23. Petitioner references Figure A when accounting for several of

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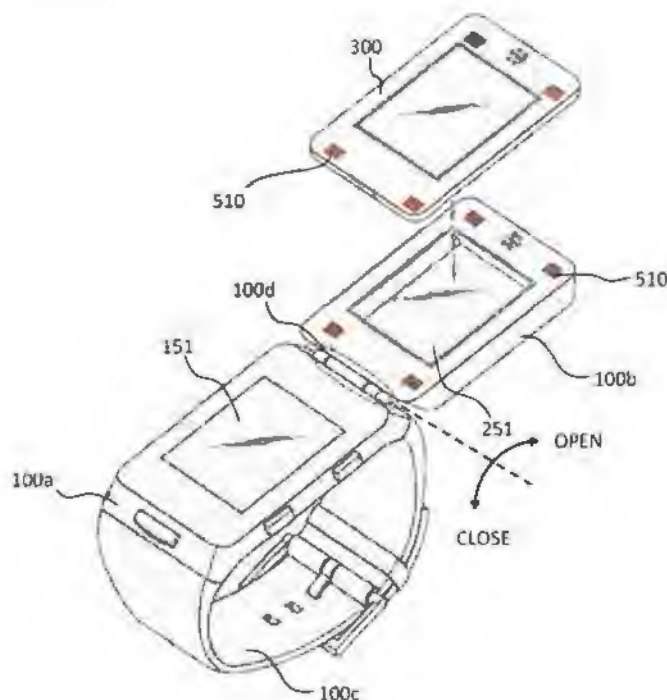
the claim 1 limitations. *Id.* at 26–30, 32, 36–39, 45–48. Patent Owner argues that Petitioner’s Figure A “does not actually appear in Kim nor is it described therein” and “is not obvious.” PO Resp. 5–35. As such, Patent Owner argues that certain claim limitations are not taught or suggested by Kim. *Id.* at 36–55. We first consider whether Kim discloses or renders obvious the representation of the Figure A embodiment and then address the arguments regarding claim limitations.

For the reasons that follow, we conclude that Petitioner has met its burden of proving by a preponderance of the evidence that each of the challenged claims 1–9, 11–15, and 19 would have been obvious in view of the asserted prior art.

*a. Kim Describes or Renders Obvious Figure A*

Petitioner contends that the system of Kim that primarily describes the elements of claim 1 results in an embodiment, depicted by schematic representation, which Petitioner refers to as “Figure A.” Pet. 18–25. Below is Petitioner’s “schematic representation of such a mobile terminal,” labeled “Figure A.” *Id.* at 22 (citing Ex. 1002 ¶ 87).

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“Figure A” is a schematic representation reproduced in the Petition of an embodiment described in Kim. *Id.* at 22. For this rendition, Petitioner argues that a POSITA would have understood that in the above embodiment, sub-device 300 detachably couples to second body 100b through coupling members 510 (brown) and that members 510 can be recesses/hooks or magnets. *Id.* at 22–23 (citing Ex. 1010 ¶¶ 185, 218; Ex. 1002 ¶¶ 86–88).

In particular, Petitioner contends, and we agree, that Kim describes a mobile terminal comprising a main device and sub-devices detachably coupled to the main device. *Id.* at 18–19 (citing Ex. 1010 ¶ 181, Fig. 7, Claim 1; Ex. 1002 ¶ 81). We further agree with Petitioner that the main device can include a folder-type main device or a watch-type main device. *Id.* at 19 (citing Ex. 1010 ¶¶ 210–222, 255–262, Figs. 11A–11E, 15A–15D; Ex. 1002 ¶¶ 82–85). Petitioner asserts, and we find, that for the watch-type main device, Figure 15A (above) shows first body 100a attached to band

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100c, and second body 100b attached to the first body 100a by hinge 100d. *Id.* at 19–20 (citing Ex. 1010 ¶ 256, Fig. 15A).

Petitioner contends, and we agree, that Kim describes an embodiment where a third body (sub-device) is detachably coupled to one of the first and second bodies of the watch-type main device. *Id.* at 20–21 (citing Ex. 1010 ¶¶ 217, 260–261). For that embodiment, Kim describes that “the third body (i.e., the sub-device) is coupled to one of the first and second bodies in a state that the first and second bodies are coupled” and “[t]he method of coupling the sub-device in an overlapping manner to the second body will now be described for the sake of brevity.” Ex. 1010 ¶ 260. Petitioner contends that a POSITA would have understood Kim to describe an embodiment in which the first body 100a is connected to second body 100b by hinge 100d and a sub-device 300 is detachably coupled to the bottom of or underside of the second body 100b. Pet. 21–22 (citing Ex. 1002 ¶¶ 82–85); Pet. Reply 3–4. This is so, Petitioner argues, because Kim describes “a coupling member 510 for fixing the sub-device is provided on at least one side of the second body, and the sub-device may be adjusted to the position where the coupling member is formed, and pressed to be coupled.” Pet. 21–22 (quoting Ex. 1010 ¶ 261).

Patent Owner argues that Petitioner’s Figure A “does not actually appear in Kim nor is it described therein.” PO Resp. 5–9. Patent Owner acknowledges that “Kim does describe a watch-type device in which sub-device 300 is coupled in an overlapping manner to the second body, in a state where the first and second bodies are coupled to one another.” *Id.* at 6–7. Patent Owner asserts, however, that Kim only describes placing sub-device 300 on top of the second body when the first and second bodies are in a closed position. *Id.* at 6–9. Patent Owner further argues that because Kim



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describes, with respect to Figure 15A, that “hinge part 100d for coupling sub-device *must* have a structure allowing coupling and separating,” a person having ordinary skill in the art “would understand that for the sub-device 300 to be attached underneath the ‘lid’ second body 100b, 100b would be unhinged and decoupled, otherwise, the lid would not close.” *Id.* at 5–6 (citing Ex. 1010 ¶¶ 258, 260–261; Ex. 2004 ¶ 37).

For the reasons that follow, we agree with Petitioner that “Kim teaches that the sub-device can be coupled to the top of the second body *or* to the bottom of the second body” and that Kim does not require “that the hinge be separable in embodiments, such as Figure 15A, where the two bodies comprise the main device and a *separate* sub-device is selectively coupled to the main device.” Pet. Reply 4 (citing Pet. 20–22; Ex. 1002 ¶¶ 84–86).

Kim describes a watch-type mobile terminal with a first body, a second body, and a third body (sub-device) as follows:

A method of coupling the third body (i.e., the sub-device) is coupled to one of the first and second bodies in a state that the first and second bodies are coupled will now be described. The method of coupling the sub-device in an overlapping manner to the second body will now be described for the sake of brevity.

As shown in FIG. 15b, a coupling member 510 for fixing the sub-device is provided on at least one side of the second body of the main device, and the sub-device may be adjusted to the position where the coupling member is formed, and pressed to be coupled.

Ex. 1010 ¶¶ 260–261. From the above, we find that Kim describes that the sub-device is coupled to one of the first and second bodies in a state that the first and second bodies are coupled and that the sub-device may be on either side of the second body. Specifically, Kim describes, referencing Figure

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15B, that the coupling member for fixing the sub-device “is provided on at least one side of the second body” which we find to mean that the coupling member may be on either the top or bottom of the second body for fixing the sub-device to the second body. Thus, we agree with Petitioner that how a sub-device is coupled to the watch-type device of Figure 15A is not limited to what is shown in Figure 15B, and that Kim teaches that the sub-device can be coupled to the top of the second body or to the bottom of the second body. Pet. Reply 4.

Patent Owner argues that Petitioner “conflates Kim’s disclosure of coupling member 510 on ‘*at least one side*’ of the second body with Petitioner’s unsupported suggestion of coupling the sub-device to *either* side of the second body.” PO Reply 5. We disagree that Petitioner’s position represents a conflation of the disclosure. Kim’s description that the coupling member for fixing the sub-device “is provided on at least one side of the second body” means precisely what Petitioner contends—that the sub-device may be coupled to either side of the second body. Patent Owner and Dr. Horenstein read Kim too narrowly or imprecisely.<sup>8</sup> Indeed, Dr. Horenstein concludes that from the disputed Kim passage, the sub-device can only be coupled to the top of the second body in a closed position. Ex. 2004 ¶¶ 42–44. Dr. Horenstein, however, fails to explain sufficiently why that is so and we find his testimony lacking and inconsistent with what Kim describes. Thus, we do not give his testimony substantial weight. Dr. Kiaei’s testimony on the matter, however, is deserving of

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<sup>8</sup> During the hearing, counsel for Patent Owner confirmed that it is Patent Owner’s position that Kim does not even contemplate coupling the sub-device to the first body, even though Kim explicitly describes as much. Tr. 42:23–43:14; Ex. 1010 ¶ 260.

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substantial weight, because his testimony is consistent with what Kim describes. Ex. 1002 ¶¶ 81–85.

In addition, we find that in such an arrangement, the first and second bodies are connected by a hinge. Ex. 1010 ¶¶ 255–257. The portion of Kim that Patent Owner relies on in support of the contention that the hinge must have a structure allowing coupling and separating is when one of the first and second bodies operates as a sub-device. *Id.* ¶ 258. Thus, providing coupling member on the bottom of the second body for fixing the sub-device to the second body where the first and second bodies are connected by a hinge is contemplated by Kim’s description and represented by Petitioner’s Figure A. Pet. 20–23; Ex. 1002 ¶¶ 82–85.

Patent Owner argues that “a POSITA would not understand Kim to be advocating a Figure A solution that did not allow the cover of the watch-type device to properly close due to sandwiching sub-device 300.” PO Resp. 9 (citing Ex. 2004 ¶ 48). Patent Owner also argues that such a configuration as shown in Figure A would be unattractive, unduly large, and ill-suited for its purpose. *Id.* Patent Owner’s arguments are premised on an overly limited view of the Figure A embodiment as it would be interpreted in the view of one of ordinary skill in the art. Kim broadly states that its embodiments “may be used singly and/or by being combined together.” Ex. 1010 ¶ 179. Consideration of the combination depicted in representative Figure A would reasonably have to “account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *see ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1219 (Fed. Cir. 2016).

For the reasons discussed above, Kim discloses not only general combination of embodiments, but, more specifically, describes that first and

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second bodies are coupled and that the sub-device may be on either side of the second body, which supports the depiction of representative Figure A.

*Representative Figure A Would Have Been Obvious*

In addition to Kim’s description of representative Figure A, Petitioner also provides a showing, which we agree with, that the representative Figure A embodiment would have been obvious. Pet. 23–26. Specifically, Petitioner contends that, to the extent that Patent Owner argues that Kim does not disclose Figure A, such an embodiment would have been obvious to a POSITA in view of Kim’s folder-type embodiments (Figure 11B) which are similar and closely related to the watch-type embodiment (Figure 15A). *Id.* at 23–24 (citing Ex. 1010, Figs. 11B, 15A; Ex. 1002 ¶¶ 89–97).

Petitioner explains how in both embodiments (folder-type and watch-type) the main device comprises a first body and a second body connected to each other by a hinge so that the two bodies can open or close in a folding manner, and that with respect to both embodiments, Kim also describes using coupling members 510 (such as magnets) to detachably couple the sub-device to the main device. *Id.* at 23–25 (citing Ex. 1002 ¶¶ 90–92; Ex. 1010 ¶¶ 212, 218, 220, 261).

Petitioner contends that a “POSITA would have recognized that because of the similarities between Kim’s folder-type and watch-type embodiments, Kim’s disclosure with respect to Figure 11B could have been adapted and applied to detachably couple sub-device 300 to the second body 100b of the watch-type embodiment in the manner shown in Figure A.” *Id.* at 24 (citing Ex. 1002 ¶ 92). Petitioner further contends that doing so is suggested by Kim itself, because Kim states that the embodiments “may be used singly and/or by being combined together.” *Id.* (citing Ex. 1010 ¶ 179). Petitioner argues that a POSITA having reviewed Kim’s Figure 11B

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embodiment would have recognized the feasibility and desirability of modifying the embodiment of Kim's Figure 15 to detachably couple sub-device 300 to the second body 100b using coupling members 510. *Id.* (citing Ex. 1002 ¶¶ 92–97). Petitioner further provides reasons for making the modification. *Id.* at 24–26 (citing Ex. 1002 ¶¶ 94–96).

Patent Owner makes several arguments why Petitioner's Figure A "is not obvious." PO Resp. 10–35. For the reasons that follow, we determine that such arguments do not undermine Petitioner's persuasive showing.

Patent Owner argues that sub-device 300 within the folder-type device of Fig 11B, which has multiple hinge members that are raised above a face of the second body, is not suitable for use with the watch-type embodiment because the single member hinge 100d of the watch-type device would not accommodate a sub-device 300 between the first and second bodies 100a, 100b while still allowing the cover 100b to close properly over the first body. PO Resp. 10–13 (citing Ex. 2004 ¶¶ 50–51). Patent Owner and Dr. Horenstein narrowly focus on the hinge seen in Figure A, reproduced from Kim Figure 15A, as the exact hinge Petitioner allegedly proposes when combining embodiments. *Id.* at 13; PO Reply 8. Petitioner, however, characterizes "Figure A" as a schematic representation based on what is described in Kim. Pet. 22; Ex. 1002 ¶ 87. The Petition does not discuss the particularities of the hinge. Claim 1 of the '020 patent does not recite any hinge at all. The focus of Petitioner's obviousness showing of combining Kim embodiments is with respect to Kim's teaching of detachably coupling sub-device 300 to second body 100b using coupling members 510 such as magnets in the watch-type device. Pet. 23–25; Pet. Reply 5. These features are recited in claim 1 ("the switching device and the electronic device are configured to selectively couple to each other employing magnetic force").



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Moreover, Kim itself does not describe the particulars of the hinge for the watch-type device. Rather, Kim states that “[t]he second body may be configured to be connected by a hinge 100d to one side of the first body so as to be open or closed.” Ex. 1010 ¶ 256. Kim further describes a watch-type embodiment where a sub-device “is coupled to one of the first and second bodies in a state that the first and second bodies are coupled.” *Id.* ¶ 260. Thus, Patent Owner’s view of what is described by the representation Figure A is myopic and not representative of the broad description in Kim of the watch-type embodiment that is the foundation of Petitioner’s showing.

In addition, Patent Owner’s expert, Dr. Horenstein testifies that when choosing a hinge for a design project an individual would apply “common sense as to what type of hinge would work and which would not.” Ex. 1031, 61:10–62:1.<sup>9</sup> We agree with Petitioner that “[t]here is nothing in *Kim* that would suggest to a POSITA, much less require, that the folding watch-type embodiment of Figure A must have a hinge exactly as depicted in Figure 15A” and that “a POSITA would have been able to use routine design skills to select the appropriate hinge, as Dr. Horenstein admits.” Pet. Reply 6 (citing *Intercontinental Great Brands LLC v. Kellogg N. A. Co.*, 869 F.3d 1336, 1341 (Fed. Cir. 2017)); see also *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1343 (Fed. Cir. 2020). Accordingly, Patent Owner’s arguments that the exact hinge of Figure 15A (or Figure A) would not accommodate a sub-device are unavailing.

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<sup>9</sup> As Petitioner points out, Dr. Horenstein also testifies that, like the hinge of the folder-type device, the watch-type device hinge has more than one member. Pet. Reply 6 (citing Ex. 1031, 81:16–82:7). Thus, to the extent relevant, the record before us supports finding that the hinges (in Kim’s Figures 11B and 15A) are similar in that they both have more than one hinge member.



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Patent Owner argues that Petitioner’s Reply arguments discussed immediately above are new and too late. PO Reply 8–9. We disagree. Petitioners are not prohibited from relying on new evidence and arguments in a reply, if the evidence and arguments are responsive to arguments made in a patent owner response. *See* 37 C.F.R. 42.23(b); Consolidated Trial Practice Guide (“Consolidated Practice Guide”)<sup>10</sup> at 73. Here, we determine that Petitioner’s arguments and accompanying evidence (*e.g.*, Ex. 1031) in connection with the Petitioner Reply are responsive to Patent Owner’s arguments.

In particular, Petitioner could not have anticipated that Patent Owner would argue for such a narrow view of Petitioner’s Figure A representation. As explained above, the Petition does not limit the hinge in the Figure A representation in any way. Pet. 23–26. Rather, the Figure A representation is based on what is described in Kim, which also does not limit the hinge in any way. *Id.*; Ex. 1010 ¶ 256 (broadly describing that “[t]he second body may be configured to be connected by a hinge 100d to one side of the first body to be open or closed”), ¶ 260 (describing coupling a third body to one of the first and second bodies *in a state that the first and second bodies are coupled*). Thus, we determine that Petitioner’s argument that “[t]here is nothing in Kim that would suggest to a POSITA, much less require, that the folding watch-type embodiment of Figure A must have a hinge exactly as depicted in Figure 15A” and that “a POSITA would have been able to use routine design skills to select the appropriate hinge, as Dr. Horenstein admits” is permissively responsive to Patent Owner’s arguments, which are based on a myopic view of the Petition and Kim. Patent Owner did not

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<sup>10</sup> Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

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request to submit new testimony in support of its Sur-reply to rebut Dr. Horenstein's testimony. For all of the above reasons, we determine that Patent Owner has not been prejudiced or denied due process, and that we may consider the reply arguments and Dr. Horenstein's testimony in support of the arguments, which we find persuasive.

Patent Owner acknowledges that Kim's folder-type embodiment describes a hinge that would allow a sub-device to be placed between a first and second main body. PO Resp. 10–11 (citing Ex. 1010, Fig. 11B). Nonetheless, Patent Owner argues that a hinge like the one used in the folder-type embodiments could not be used in the watch-type device because it “would not permit such full opening, because Kim only shows the folder-type device with a partially open cover.” *Id.* at 15–16 (citing Ex. 1010, Figs. 11A–E). Patent Owner asserts that full opening of the cover is desired and appropriate for the watch-type embodiment. *Id.* at 16 (citing Ex. 2004 ¶ 57).

We agree with Petitioner, however, that Kim “does not require that bodies 100a and 100b in Figure 15A be ‘fully open’” but only that the hinge 100d allow the first and second bodies “to be open or closed.” Pet. Reply 7 (citing Ex. 1010 ¶ 256). Thus, Patent Owner's fully open arguments do not undermine Petitioner's showing. In any event, Dr. Horenstein provides testimony that the hinge arrangement of Figure 11B could be opened to 180 degrees, which we credit. Ex. 1031, 79:8–81:6.

Next, Patent Owner argues that the Figure 11B hinge is not compatible with the watch-type embodiment of Figure 15A, because Kim requires the hinge in Figure 15A to be located so that the second body can be connected to one side of the first body, whereas in Figure 11B the second body 100b is connected on top of the first body 100a. PO Resp. 16–17. We

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agree with Petitioner that Kim itself does not state that the second body is connected on top of the first body with respect to the Figure 11B embodiment. Pet. Reply 8. We further agree with Petitioner that in Figure 11B, the first and second bodies are connected to each other on one side, just like the arrangement with respect to Kim Figure 15A. *Id.* at 8–9.

Patent Owner also argues that “if hinge 100d were modified with a gap to allow for sub-device 300 to fit between cover 100b and main body 100a with the cover closed, then when sub-device 300 were not present, display 251 of cover 100b would be situated at an angle to the underlying display 151 of the first body 100a” resulting in a misalignment of displays of the first and second bodies. PO Resp. 29–31, 17. Patent Owner, however, admits that Figure 11B shows an arrangement that would accommodate an optional sub-device. *Id.* at 12 (“the folder-type device of Fig. 11B can accommodate the placement of sub-device between the first and second bodies”). Indeed, Kim describes that for the folder-type device “the first body 100a and the second body 100b may be folded or unfolded regardless of the coupling or separating of the sub-device.” Ex. 1010 ¶ 218. Thus, Patent Owner’s argument is contradicted by its own statements made in the Patent Owner Response and the description found in Kim.

We also have considered Patent Owner’s argument that the sub-device in Kim’s Figure 11B embodiment has a “thin, one-or-two line display” and that making such a display small to accommodate Kim’s Figure 15A embodiment would result in the display being “so small as to be virtually unusable.” PO Resp. 14–15 (citing Ex. 2004 ¶ 53; Ex. 2002, 15:18–16:13, 20:3–5, 34:4–7), 17. This argument is not persuasive because, as Petitioner points out, Kim “directly refutes this argument as it shows in Figures 15C

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and 15D watch-type embodiments that include a sub-device with a similar one- or two-line display.” Pet. Reply 9.

Next, Patent Owner argues that Figure A would not have been obvious because the sub-device would have interfered with the proper operation and viewing of the TOLED screen in the second body 100b. PO Resp. 15 (explaining that 100b allows a wearer to “look through the TOLED cover 100b” to see the underlying display on 100a), 26–31. We agree with Petitioner that such arguments are premised on a narrow view of Kim. Pet. Reply 9–10. Kim does not require the second body 100b of the watch-type device to be a TOLED screen. Ex. 1010 ¶ 257 (“[a]t least one of the displays of the first body 100a and the second body 100b *may be configured as a transparent display (TOLED)*”). Dr. Horenstein’s declaration is based on the assumption that Kim requires the second body 100b of the watch-type device to be a TOLED. Ex. 2004 ¶¶ 54, 61. During cross-examination, however, Dr. Horenstein acknowledged that for the watch-type embodiment, Kim does not require the second body 100b to be a TOLED. Ex. 1031, 65:3–16.

In its Sur-reply, Patent Owner argues that Dr. Horenstein’s statement during cross-examination that Kim does not require “use of TOLED screens is irrelevant because the device and ground relied upon in Petitioner’s Petition, e.g., pp. 20–21, *has* a TOLED display 251 in main device 100b.” PO Reply 11. Patent Owner contends that “Petitioner’s revisionism in its Reply is improper and should be rejected and disregarded.” *Id.* We disagree that Petitioner has revised the Petition. Noticeably, the Petition does not use the term “TOLED” or describe that 100b is a look through display in explaining why it would have been obvious to modify Kim’s watch-type device in light of the teachings of Kim’s folder-type embodiment. Pet. 23–

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26. Consistent with how the Petition presents Figure A, it is clear that the Figure A *is based on what Kim describes* and is not presented in isolation. *Id.* Kim describes that the second body 100b may be a TOLED, but there is no requirement that it has to be a TOLED. Ex. 1010 ¶ 257. For all of these reasons, Patent Owner’s TOLED arguments are not persuasive.

As explained above, Petitioner contends that a POSITA would have been motivated to adapt and apply the folder-type embodiment teachings to the watch-type embodiment. Pet. 24. One reason this is so, Petitioner argues, is Kim states that the embodiments it describes “may be used singly and/or by being combined together.” *Id.* (citing Ex. 1010 ¶ 179). Patent Owner argues that the different embodiments of Kim are not interrelated and that “a POSITA would recognize that the different device types have inherent distinctions, and that the manner in which sub-devices may be coupled in the context of each device-type is likewise distinct.” PO Resp. 18–19. The parties’ arguments focus on the following paragraph of Kim:

Embodiments for a control method in the mobile terminal 100 may now be described with reference to the accompanying drawings. Embodiments may be used singly and/or by being combined together. Embodiments may be implemented more easily when the display 151 includes the touchscreen.

Ex. 1010 ¶ 179. Patent Owner argues that the “comment in Kim is limited to ‘control methods’” such that “various ‘control methods’ for the different mobile terminals ‘may be used singly, or by being combined together.’” PO Resp. 19 (citing Ex. 2004 ¶ 39). Dr. Horenstein’s testimony is similar. Ex. 2004 ¶ 39. We find that the second sentence of the paragraph does not limit the combination of embodiments to just the aspect of “a control method” as Patent Owner and Dr. Horenstein assert. Nor has Patent Owner shown that there is a connection between the first and second sentences such



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that the second sentence could only be interpreted to mean that the second sentence is limited to control methods. Thus, we do not give substantial weight to Dr. Horenstein’s testimony because it is not based on a reasonable reading of the passage. Based on the record before us, we give substantial weight to Dr. Kiaei’s testimony that Kim “expressly notes that its embodiments can be combined together,” because his testimony is consistent with what Kim describes. Ex. 1002 ¶ 41 (citing Ex. 1010 ¶ 179), ¶¶ 47–48, 94; Ex. 1010 ¶ 69 (describing that “[e]mbodiments of the present invention may be applicable to various types of terminals”), ¶ 70 (describing that descriptions may be provided with regard to a mobile terminal, but that “such teachings may apply equally to other types of terminals”).

We also agree with Petitioner that even if Kim “did not include an express statement that its various embodiments may be combined together, *Kim* can still be used for everything it reasonably teaches to a POSITA.” Pet. Reply 11. We afford substantial weight to Dr. Kiaei’s thorough and reliable assessment that Kim’s folder-type and watch-type embodiments are similar and closely related, such that “a person of ordinary skill in the art would have recognized that Kim’s disclosure with respect to Figure 11B could have been adapted and applied to detachably couple sub-device 300 to the second body 100b of the watch-type embodiment in the manner shown in Figure A.” Ex. 1002 ¶¶ 47–48, 90–92.

Lastly, Patent Owner argues that “Petitioner’s Figure A embodiment would be exceedingly difficult for a wearer to use or operate” and that “[i]t would be so difficult that a POSITA would not have been motivated to so



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modify Kim.” PO Resp. 32–35 (citing Ex. 2004 ¶ 66).<sup>11</sup> In support of these assertions, Dr. Horenstein testifies that when wearing the watch, “pressing the sub-device onto the cover so as to effect such a coupling, as instructed by Kim, would invite damage to the watch-type device, because the added force might cause the unsupported hinge 100d to break.” Ex. 2004 ¶ 67.

Dr. Horenstein further testifies that decoupling the sub-device from cover 100b “would be even more difficult, because only one free hand could [sic] used” and that when “the wearer tried to pull the sub-device away from the cover 100b” the sub-device would not come off due to the strength of the magnets or would cause the cover to shut. *Id.* We give little weight to Dr. Horenstein’s testimony because it is conclusory and lacks factual basis. *See* 37 C.F.R. § 42.65(a). For instance, Dr. Horenstein fails to explain why the watch-type hinge would be so weak as to break when magnetically attaching sub-device 300 onto the second body 100b or why a POSITA would have used such strong magnets that would not afford dislodging the sub-device from the second body.

For all of the above reasons, we determine that Petitioner has shown sufficiently that representative Figure A embodiment would have been obvious in view of Kim.

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<sup>11</sup> Patent Owner’s arguments regarding operability assume that a person is wearing the watch and has only one free hand to place or remove, for example, a sub-device to the main body of the watch. PO Resp. 32–35. There is no explanation why the sub-device may not be placed or removed while the watch is not being worn. Nothing in the claims requires a user to wear the claimed “system.”

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*b. Claim 1: “[a] system comprising” (preamble)<sup>12</sup>*

For the preamble, Petitioner contends, and we agree, that the “system” of Kim that primarily describes the elements of claim 1 is based on its representative Figure A. Pet. 18–25. Patent Owner does not dispute that Kim describes a “system.” *See generally* PO Resp.

*c. Claim 1: “a portable switching device coupled to a portable electronic device”*

For the above limitation, Petitioner contends, and we agree, that in the watch-type embodiment (Figure A), both the watch-type main device 100 and the associated sub-device 300 are portable. Pet. 25–28 (citing Ex. 1002 ¶¶ 98). Petitioner further contends that the main device is a “portable electronic device” and that the sub-device is a “switching device” as claimed. *Id.* at 26–28 (citing Ex. 1002 ¶¶ 100–105, 121, 182, 195, 270). Petitioner argues, and we find, that Kim describes that when the switching device (sub-device) is coupled to the main device, the main device automatically changes its operation mode. *Id.* at 27–28 (citing Ex. 1010 ¶¶ 195, 270; Ex. 1002 ¶¶ 104–105). Petitioner contends that “a POSITA would have understood that the sub-device changes (‘switches’) the state and/or operation of the main device based on whether the two are coupled.” *Id.*

Patent Owner argues that “Petitioner merely assumes that effecting an unspecified ‘change’ to the state and/or operation mode of sub-device 300 must equate with the main device being a switching device.” PO Resp. 44–45. Patent Owner further argues that Petitioner fails to “show or explain, with details, how main device 100a/100b of its fictional watch embodiment

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<sup>12</sup> We need not determine whether the preamble is limiting because, regardless, Petitioner shows that Kim meets the preamble.



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is actually a ‘switching device,’ including relative to sub-device 300.” *Id.* at 45.

Kim describes that “when the sub-device 300 is coupled to the main device 100, *the main device 100 may automatically change its operation mode or an operation mode of the sub-device.*” Ex. 1010 ¶ 195. We afford substantial weight to Dr. Kiaei’s testimony that “*Kim discloses the main device changing its state and/or operation when coupling to or separating from the sub-device.*” Ex. 1002 ¶ 127. On the other hand, Patent Owner’s attorney arguments do not undermine Petitioner’s showing.<sup>13</sup>

*d. Claim 1: “the switching device and the electronic device are configured to selectively couple to each other employing magnetic force from a first magnet disposed within the switching device”*

For this limitation, Petitioner contends, and we agree, that Kim’s main device (“electronic device”) and the sub-device (“switching device”) detachably couple by way of coupling members 510 which can be magnets. Pet. 28 (citing Ex. 1010 ¶ 203; Ex. 1002 ¶ 106). We further agree with Petitioner’s contentions that a POSITA would have recognized that Kim discloses that coupling members 510 are magnets or complementary recesses/hooks, or that it would have been obvious to use magnets as coupling members 510 in the embodiment shown in Figure A instead of or

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<sup>13</sup> Claim 1 further recites that “the portable switching device is configured to activate, deactivate or send into hibernation the portable electronic device.” For the reasons articulated below, we are persuaded by Petitioner’s showing that Kim teaches or suggests the sub-device (switching device) turning on or turning off the main device (electronic device). During oral argument, counsel for Patent Owner stated that “a change from on to off I think would be a switching device” and that “[c]ausing another device to go from on to off . . . that would be a switching.” Tr. 53:18–19, 54:6–7.

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in addition to recesses/hooks. *Id.* at 29 (citing Ex. 1010 ¶¶ 203, 218, 220, 233, 261; Ex. 1002 ¶¶ 108–109). Patent Owner does not dispute that Kim discloses these features.

Petitioner asserts that Kim discloses using magnets as the coupling members 510 to detachably couple the sub-device to the watch-type main device, and that a POSITA would have recognized that the magnets would have been disposed within the sub-device. Pet. 30–33 (citing Petitioner’s modified Figure A; Ex. 1002 ¶¶ 114–120). Petitioner further asserts that to the extent Kim does not describe that the magnets are fully disposed within sub-device 300, a “POSITA would have found it obvious to dispose the magnets ‘within’ the sub-device 300 and the second body 100b to conveniently attach the sub-device to the main device.” *Id.* at 31–33 (citing Ex. 1002 ¶¶ 115–120; Ex. 1015 ¶ 307).

Patent Owner argues that “Kim does not disclose or render obvious ‘a first magnet is disposed within the switching device.’” PO Resp. 40–44. Patent Owner argues that a person having ordinary skill in the art examining Kim’s figures could not have determined whether coupling members 510 are shown flush with the surface and that the only detailed figure is Figure 10A, which shows coupling members being surface mounted, not flush with the surface. *Id.* at 41 (citing Ex. 2004 ¶ 74).

We agree with Petitioner whether Kim Figure 10A shows “an embodiment with raised magnets does not negate what Figures 15A and 15B would have taught a POSITA.” Pet. Reply 14. Petitioner further argues, and we agree, that the watch-type embodiment figures “are perspective views which would also serve to illustrate three dimensional depths.” *Id.* Figure 15B reasonably shows a three-dimensional view of sub-device 300 with magnets flush to the surface. Although Dr. Horenstein testifies that the

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illustrations in Kim are not sufficiently detailed for a person of ordinary skill in the art to arrive at the conclusion that the members are flush with the surface of the sub-device, he fails to explain in any detail why that is so. Ex. 2004 ¶ 75. We afford greater weight to Dr. Kiaei’s testimony that the coupling members are shown disposed within the sub-device “because they are shown to be in the sub-device and flush with the surface of the sub-device.” Ex. 1002 ¶ 114.

Patent Owner further argues that to the extent a person having ordinary skill in the art would have considered Kim to describe magnets flush to the surface, such magnets would not be “disposed,” “because one outer face of the magnet would be exposed.” PO Resp. 40–41 (citing Ex. 2004 ¶ 75). Petitioner counters that “PO does not provide any evidence or reasoned explanation in support of” the argument, “nor does PO seek a construction consistent with this supposed understanding.” Pet. Reply 14. We agree with Petitioner. As explained above, Dr. Kiaei’s testimony that Kim shows that coupling members 510 are in the sub-device and flush with the surface of the sub-device is given substantial weight because it is consistent with Figure 15B. Ex. 1002 ¶ 114. Patent Owner fails to explain why magnets that are in a body and flush at the surface would not be “disposed within.” No analysis is made by Patent Owner in that regard despite being given the opportunity to so explain. Dec. 27–28. For example, we have not been directed to where in the Specification of the ’020 patent there is support for Patent Owner’s implicitly narrow construction of “disposed within” to mean completely covered on all sides.

Alternatively, Petitioner sufficiently shows with supporting evidence that it was known at the time of the invention to dispose magnets, and that disposing magnets in the sub-device would have been obvious. *See* Pet. 32–



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33 (citing Ex. 1002 ¶¶ 115–120; Ex. 1015 ¶ 307). Patent Owner fails to direct us to contrary evidence. Rather, Patent Owner argues that “Petitioner does not adequately explain why the ‘disposed’ option would be the one preferred by a POSITA, especially in light of Kim’s teaching to the contrary.” PO Resp. 42–43 (citing Ex. 2004 ¶ 78). We agree with Petitioner, however, that the obviousness determination does not turn on whether the proposed combination is the preferred or most desirable combination. Pet. Reply 14 (citing *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004)); *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014).

Patent Owner also argues embedding magnets as Petitioner proposes would have caused problems, such as scratching the displays, displays adhering to one another, and forces of magnetic attraction diminishing with distance apart. PO Resp. 42–44 (citing Ex. 2004 ¶¶ 78–80). Dr. Horenstein testifies that embedding magnets would result in placing them further away from “their complementary coupling members” such that “the chosen magnets would need to be stronger and/or larger than would be the case if magnets were surface mounted.” Ex. 2004 ¶ 79. Dr. Horenstein further explains that “a POSITA would have recognized that, given the limited space and weight constraints of a watch-type device, and the desire to achieve adequate coupling, adopting a solution that demanded larger, embedded magnets would not have been a sensible choice.” *Id.* We give little weight to Dr. Horenstein’s testimony because it is conclusory and not supported on a factual basis. For instance, Dr. Horenstein fails to explain why a person having ordinary skill in the art would have selected, for the watch-type sub-device, magnets that would have been so strong as to require large magnets or even how large the magnets need be to operate sufficiently.

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His testimony does not outweigh Dr. Kiaei's testimony, which is supported by record evidence. Ex. 1002 ¶¶ 115–120; Ex. 1015 ¶ 307. For the reasons provided, we are persuaded by Petitioner's showing with respect to the above limitation.

*e. Claim 1: "the switching device comprises a first case"*

For the above limitation, Petitioner contends, and we find, that Kim discloses the sub-device 300 includes a frame 303 ("first case") surrounding the outer edges of the body 302 and display unit 251 to improve firmness. Pet. 33 (citing Ex. 1002 ¶¶ 121–124; Ex. 1010 ¶ 199). Petitioner contends that a "POSITA would have understood the "frame" to be a case because, just like a case, a frame also protects the components of the device." *Id.* at 34 (citing Ex. 1002 ¶¶ 121–122; Ex. 1001, 5:65–6:3). Patent Owner does not contest Petitioner's showing as to the above limitation. *See generally* PO Resp.

*f. Claim 1: "the electronic device comprises a second case and an electronic circuit that is responsive to the switching device"*

For this limitation, Petitioner contends that in the watch-type embodiment shown in Figure A, the mobile terminal comprises a watch-type main device ("electronic device") having a first body 100a and a second body 100b. Pet. 34–35 (citing Ex. 1002 ¶¶ 125–127). Petitioner contends that "a POSITA would have understood Kim to disclose that the first body 100a and the second body 100b of the watch-type embodiment shown in Figure A comprise a case." *Id.* at 34–35 (citing Ex. 1010 ¶¶ 124–125; Ex. 1002 ¶ 125).

Petitioner further contends that Kim discloses that the main device ("electronic device") comprises an electronic circuit that is "responsive" to

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the sub-device (“switching device”). Pet. 35 (citing Ex. 1002 ¶ 126). Petitioner asserts Kim discloses the same components as in Figure 1, including a display, a controller, a power supply, and that they can be implemented in hardware, and that a POSITA would have understood that these components comprise electronic circuits. *Id.*

Petitioner further contends that Kim discloses that in operation the sub-device controls the electronic circuits of the main device. *Id.* (citing Ex. 1002 ¶ 127). For example, Petitioner contends that “*Kim* discloses the main device changing its state and/or operation based on whether the sub-device is coupled to the main device (e.g., turning the main device’s display on or off).” *Id.* (citing Ex. 1010 ¶¶ 299–302, Fig. 24). According to Petitioner, “*Kim* also discloses that the sub-device turning the main device on or off through user interaction with the sub-device.” *Id.* at 35–36 (citing Ex. 1010 ¶¶ 316–319, 417–418, Figs. 27, 42). Accordingly, Petitioner contends that “*Kim* discloses that its main device (‘electronic device’) having electronic circuit components such as a display, controller, power supply, etc. (‘comprises . . . an electronic circuit’) whose state and/or operation are changed by (“responsive to”) the sub-device (‘switching device’).” *Id.* at 36 (citing Ex. 1002 ¶ 127). Patent Owner does not contest Petitioner’s showing as to the above limitation. *See generally* PO Resp.

*g. Claim 1: “the electronic device comprises at least one element selected from the group consisting of beveled edges, ridges, recessed areas, grooves, slots, indented shapes, bumps, raised shapes, and combinations thereof; configured to correspond to complementary surface elements on the switching device”*

For the above limitation, Petitioner contends that Kim describes, with respect to the folder-type embodiment (Figure 11B), using complementary

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recesses and hooks (“raised shapes”) on the main device and sub-device and that a POSITA would have recognized that such recesses and hooks could be adapted and applied to the watch-type embodiment shown in Figure A.

Pet. 36–40 (citing Ex. 1010 ¶¶ 183, 185–186, 218; Ex. 1002 ¶¶ 128–143).

Petitioner further asserts that a “POSITA would have been motivated to incorporate both magnetic and mechanical (*e.g.*, recesses/hooks) techniques for detachably coupling the sub-device and the main device of the embodiment shown in Figure A because it would have provided more secure coupling between the two components with less propensity for accidental or unintentional detachment of the sub-device from the main device.” *Id.* at 37–38 (citing Ex. 1002 ¶¶ 132–139; Ex. 1018, 10:26–11:2; Ex. 1012 ¶¶ 19, 46–48). Petitioner further contends that “Kim itself suggests incorporating multiple coupling techniques to connect a sub-device to a main device” that could be adapted and applied to the watch-type embodiment of Figure A. *Id.* at 378 (citing Ex. 1010 ¶ 220, Fig. 11E; Ex. 1002 ¶¶ 140–142).

Patent Owner argues that Kim teaches the use of magnets or hooks, but not both to secure a sub-device to a main device. PO Resp. 45. Patent Owner further argues that “a POSITA would not have adopted the use of both hooks+recesses *and* magnets” because doing so would be unnecessary, costly, and cause several problems. *Id.* at 46–49 (citing Ex. 2004 ¶¶ 83–89). Dr. Horenstein’s testimony regarding the disputed limitation is similar to portions of his declaration discussed above. For example, Dr. Horenstein testifies that “when pressing the sub-device of Figure A against the cover while attempting to release the hook out of the recess, the cover would rotate on the hinge” and that “the torque exerted on the hinge would be significant in such circumstances and could cause the hinge to break.” Ex. 2004 ¶ 86.

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We afford little weight to Dr. Horenstein’s testimony because it is conclusory and not supported on a factual basis. For instance, Dr. Horenstein fails to explain why the watch-type hinge would be so weak as to break when attempting to release the hook out of the recess or why a POSITA would have made such a design that would not afford dislodging the sub-device from the second body. We have considered Patent Owner’s arguments and Dr. Horenstein’s testimony on the matter, but they do not undermine Petitioner’s showing which we determine is persuasive.

Petitioner contends that it was known to use both magnetic and mechanical attachments to achieve a more secure connection. Pet. 37–38 (citing Ex. 1002 ¶¶ 132–139). Kim itself describes using both magnetic and mechanical attachments to achieve a more secure connection in the folder type embodiment seen in Figure 11E. Kim describes that “the third body 300 may be coupled by using the hinge part 550 and 551. The position of the hinge parts may be changed, and the coupling member 510 [magnet] may be additionally provided to prevent the third body from being moved after it is folded.” Ex. 1010 ¶ 220. Kim also teaches that hooks and recesses may be used. *Id.* ¶ 218.

We determine that it would have been obvious to use both hooks and recesses along with magnets to securely attach Kim’s sub-device to the second body of the watch-type main body for the reasons provided by Petitioner. In particular, we give substantial weight to Dr. Kiaei’s testimony that a person of ordinary skill in the art would have been motivated “to incorporate both magnetic and mechanical (*e.g.*, recesses/hooks) techniques for detachably coupling the sub-device and the main device of the embodiment shown in Figure A because *it would have provided a more secure coupling between the two components* with less propensity for



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accidental or unintentional detachment of the sub-device from the main device.” Ex. 1002 ¶ 132. Dr. Kiaei’s testimony is supported by record evidence. *Id.* ¶¶ 133–139 (explaining how both Birger (Ex. 1018) and Koh (Ex. 1012) teach that it was known at the time of the invention to use both magnetic and mechanical attachment techniques to achieve a more secure, yet detachable, coupling between two devices in an electronic system).

*h. Claim 1: “the portable switching device is configured to activate, deactivate or send into hibernation the portable electronic device”*

For this limitation, and as explained above with respect to the “switching device” limitation, we agree with Petitioner that Kim discloses the sub-device (“portable switching device”) changing the state and/or operation of the main device (“portable electronic device”). Pet. 40–41 (citing Ex. 1010 ¶¶ 300–302, 316–319, 416–418, Figs. 27, 42; Ex. 1002 ¶¶ 144–151). For example, Petitioner contends that “*Kim* discloses the main device ‘detect[ing] the coupling and separating (i.e., coupling or decoupling) of the two devices 100 and 300 and control[ing] the power supply to the display of the main device 100 to turn it on or off.’” *Id.* at 40–41 (Ex. 1010 ¶ 300). Petitioner also contends, and we agree, that “*Kim* discloses that when the two devices are separated, power to the main device display is turned off, and when they are coupled, power is turned on.” *Id.* at 41 (citing Ex. 1010 ¶¶ 301–302, Fig. 24; Ex. 1002 ¶¶ 145–147). Petitioner further contends, and we agree, that Kim “discloses the sub-device controlling the main device’s power (e.g., turning the main device on or off) through user interaction with the sub-device.” *Id.* at 41 (citing Ex. 1010 ¶¶ 316–319, 416–418, Figs. 27, 42; Ex. 1002 ¶¶ 148–149). We agree with Petitioner that “a POSITA would have understood *Kim* to disclose or suggest

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the sub-device (‘the portable switching device’) powering or turning off (e.g., its display or power supply) (‘is configured to activate, deactivate . . .’) the main device (‘the portable electronic device’).” *Id.* (citing Ex. 1002 ¶¶ 150–151).

Patent Owner argues that “Petitioner fails to explain any disclosure or suggestion in Kim of the watch shaped main device 100a/100b in Fig. 15A (relied upon by Petitioner’s fictional Fig. A to be the ‘switching device’ of claim 1) being configured to activate, deactivate or hibernate a sub-device 300.” PO Resp. 49. Patent Owner’s argument is not responsive to the Petition, which relies on Kim’s sub-device as the “switching device.” In any event, Patent Owner’s argument fails to consider Kim’s disclosure relating to how main devices and sub-devices operate in combination (Ex. 1010 ¶¶ 195, 259, 270, 317–319, 416–418), and instead myopically considers only what is described with respect to the watch-type embodiment. Pet. 37–39.

Patent Owner further argues that “Petitioner’s contention that Kim’s disclosure for ‘automatic controlling of a terminal operation (menu display)’ by a ‘bar-type mobile terminal,’ is ‘equally applicable’ to watch-type devices . . . is unwarranted” and not applicable. PO Resp. 50. Patent Owner also argues that Petitioner has not shown why it would have been obvious to import the functionality from the bar-type mobile terminal to a watch-type device. *Id.* at 50–51. Patent Owner’s attorney arguments do not undermine Petitioner’s showing. Kim describes that “FIGS 17a and 17b illustrate an example of *automatic controlling of a terminal operation (menu display)*. *A bar type mobile terminal will be described as an example for the sake of brevity.*” Ex. 1010 ¶ 273. We give substantial weight to Dr. Kiaei’s un rebutted testimony that based on this disclosure in Kim, “[a] person of ordinary skill in the art would have understood that the functionality

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described with respect to Figures 17A–17B are equally applicable to the other embodiments disclosed in Kim (*e.g.*, the watch-type embodiment).” Ex. 1002 ¶¶ 147, 179.

Next, Patent Owner argues that under the heading “Automatic Controlling of Terminal Operation,” Kim discloses in Figures 17A–17B the view of a main device menu as seen through a transparent sub-device. PO Resp. 50. Patent Owner fails to direct us to sufficient evidence to support this assertion, such as where in the paragraphs following the heading “Automatic Controlling of Terminal Operation,” there is a description that the sub-device is limited to a transparent display, or a TOLED, as Patent Owner asserts. We also are not persuaded by Patent Owner’s arguments that Kim only describes changing the orientation of what is displayed (and not also turning on a display), and that it would not have been obvious to incorporate the orientation teaching into the watch-type device, because such arguments are misplaced and not supported by record evidence. *Id.* at 50–51. Petitioner does not rely on Kim’s teachings disclosed and described with respect to Figures 17A–17B to propose changing orientation of the sub-device display, but to show that the sub-device controls the main device’s power to turn on once coupled to the main device. Pet. 40–41. Patent Owner’s attorney arguments are premised on bodily incorporating Kim’s Figures 17A–17B embodiments into Kim’s watch-type embodiment without considering what the combined teachings of the Kim embodiments would have suggested to a person having ordinary skill in the art. *See In re Keller*, 642 F.2d 413, 425 (Fed. Cir. 1981). Moreover, Patent Owner fails to direct us to evidence to support the argument that Kim only teaches changing the orientation of the sub-device. PO Resp. 50–51.

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Rather, we afford substantial weight to Dr. Kiaei’s testimony, with respect to the Figure 17A–17B bar-type embodiment, that a person having ordinary skill in the art would have understood Kim “discloses the sub-device controlling power to the main device in the coupled and uncoupled states, such that the main device powers on or off.” Ex. 1002 ¶ 150. A POSITA would have further “understood *Kim* to disclose or suggest the sub-device (‘the portable switching device’) powering or turning off (e.g., its display or power supply) (‘is configured to activate, deactivate . . .’) the main device (‘the portable electronic device’).” *Id.* ¶ 151. Dr. Kiaei’s testimony is supported by what is described in Kim. *Id.* ¶¶ 145–149 (citing Ex. 1010 ¶¶ 179, 299–302, 317–319, 416–418, Figs. 24, 27).

For the above reasons, we determine that Petitioner has sufficiently shown that a person having ordinary skill in the art would have understood Kim to teach or suggest that the sub-device controls power to the main device by turning on or off the power when the main device and sub-device are coupled, and that this teaching applies to the bar-type embodiment as well as the watch-type embodiment. Thus, Petitioner has shown sufficiently that Kim teaches or suggests “the portable switching device is configured to activate, deactivate or send into hibernation the portable electronic device.”

For completeness, we address Petitioner’s alternative showing that Kim discloses the sub-device remotely changing the state and/or operation of the main device when coupled or separated or through user interaction with the sub-device. Pet. 41 (citing Ex. 1010 ¶¶ 316–319, 416–418, Figs. 27, 42; Ex. 1002 ¶¶ 148–151). For the reasons provided in the Petition, we agree with Petitioner’s showing and adopt it as our own.

We have considered Patent Owner’s arguments, but determine that they are misplaced and do not undermine Petitioner’s showing for similar

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reasons already articulated throughout this Decision. PO Resp. 51–52. For example, Patent Owner argues that Kim’s sub-device remains on even when disconnected such that “a POSITA would have no rational [sic] for turning off a sub-device upon being de-coupled, or for redundantly turning on an already activated sub-device when coupled with a main device.” *Id.* at 52. Patent Owner’s argument is not responsive to the Petition, which is directed to the sub-device changing the state or operation of the main device. More specifically, Patent Owner’s argument is directed to an issue not related to Dr. Kiaei’s well supported testimony, explaining that a POSITA would have wanted to turn off, for example, the main device from the portable sub-device to conserve power. Ex. 1002 ¶¶ 145–151; Ex. 1010 ¶¶ 298–302, 316–319, Figs. 24, 27, 42. We afford substantial weight to his testimony, which stands un rebutted.

*i. Claim 1: “when coupled, the second case functions to protect the first case.”*

For the above limitation, Petitioner contends, and we agree, that Kim discloses or suggests this feature. Pet. 41 (citing Ex. 1002 ¶¶ 152–155). Petitioner argues that, in the embodiment shown in Figure A, the first body 100a and second body 100b comprises the “second case,” and the sub-device 300 comprises a first case. Pet. 41–43 (citing Ex. 1002 ¶¶ 147, 152–155, Fig. 24; Ex. 1010 ¶¶ 185, 193, 218, 256). We agree with Petitioner that the first body 100a and second body 100b may be folded over to protect the sub-device’s case. Patent Owner does not dispute Petitioner’s contention that Kim discloses this limitation.

*j. Conclusion for Claim 1*

Petitioner has shown each limitation of claim 1 is taught or suggested by Kim, and that a POSITA would have been motivated to modify Kim as



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proposed by Petitioner, with a reasonable expectation of success. Patent Owner's arguments do not expose any deficiency in Petitioner's showing. Accordingly, Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable as obvious over Kim.

*k. Dependent Claims 2–9, 11–15, and 19*

Claim 2 depends from claim 1 and recites, “wherein the electronic device has a lens.” Claim 3 depends from claim 1 and recites “wherein the electronic device has a view screen.” Claim 4 depends from claim 1 and recites “wherein the switching device has a lens.” Claim 5 depends from claim 1 and recites “wherein the switching device has a view screen.”

Petitioner contends, and we agree, that Kim discloses that the sub-device (switching device) and the main device (electronic device) include cameras, and that a person having ordinary skill in the art would have understood cameras suitable for incorporating into portable consumer electronic devices of the type disclosed in Kim to include a lens. Pet. 43–45 (citing Ex. 1010 ¶¶ 72, 84, 96, 127–128, 182, 198, 200, 256–257, Figs. 9A–9C; Ex. 1002 ¶¶ 156–168). Patent Owner does not separately argue claims 2 to 5. *See generally* PO Resp. We determine that Petitioner has shown by a preponderance of the evidence that claims 2 to 5 of the '020 patent are unpatentable as obvious over Kim.

Claim 6 depends from claim 1 and recites “wherein the electronic device includes a lid and hinge attaching the lid to the electronic device.” Petitioner refers to the showing made for claim 1 (including Figure A) to explain that Kim discloses or suggests a watch-type main device having a second body 100b (“lid”) attached to the first body 100a with a hinge 100d. Pet. 50 (citing Section VIII.A.1.a). We find that Petitioner's showing demonstrates that Kim teaches or suggests the limitation of claim 6. Patent

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Owner provides no separate argument for claim 6. *See generally* PO Resp. We determine that Petitioner has shown by a preponderance of the evidence that claim 6 of the '020 patent is unpatentable as obvious over Kim.

Claim 7 depends from claim 6 and recites “wherein the lid is recessed to configure to the switching device.” Petitioner contends that Kim discloses or suggests this feature. Pet. 47–48 (citing Section VIII.A.1.a, VIII.A.1.f, VIII.A.6; Ex. 1002 ¶¶ 176–180; Ex. 1010 ¶ 203, Fig. 10A). Patent Owner submits the same arguments addressed and rejected earlier in this Decision (*see* Section II.D.2.d). We agree with Petitioner that Kim’s Figure 10A shows that the main device 100 can be provided with recess 520 to receive sub-device 300. Armed with this teaching, we do not agree with Patent Owner that it would have been beyond a person of ordinary skill in the art’s ability to provide a recess in lid 100b of Figure 15A to receive the sub-device 300 so that it is protected between the bodies 100a, 100b when the lid is closed. We determine that Petitioner has shown by a preponderance of the evidence that claim 7 of the '020 patent is unpatentable as obvious over Kim.

Claim 8 depends from claim 6 and recites “wherein the lid has a second magnet disposed within it.” Petitioner refers to its showings for claims 1 and 6 to support its contention that claim 8 is obvious over Kim. Pet. 48 (citing Sections VIII.A.1.a, VIII.A.1.c, VIII.A.6.a). Petitioner contends that Kim discloses or suggests a watch-type main device having a second body 100b (“lid”) having magnets (“a second magnet disposed within it.”). *Id.* (citing Ex. 1002 ¶ 181). We find that Petitioner’s showing demonstrates that Kim teaches or suggests the limitation of claim 8. Patent Owner presents no arguments specific to claim 8. *See generally* PO Resp.

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We determine that Petitioner has shown by a preponderance of the evidence that claim 8 of the '020 patent is unpatentable as obvious over Kim.

Claim 9 depends from claim 6 and recites “wherein the lid is configured to employ the second magnet to secure the lid in a closed position.” Petitioner contends that Kim discloses or suggests this feature. Pet. 48–51 (citing Ex. 1002 ¶¶ 182–192). Petitioner refers to its showings for claims 1, 6, and 8 to support its contention that claim 9 is obvious over Kim. *Id.* at 48 (citing Sections VIII.A.1.a, VIII.A.6.a, VIII.A.8.a). Petitioner further explains that Kim describes that the first and second bodies of the watch-type main device can be in an open or closed position with respect to each other. *Id.* at 48–49 (citing Ex. 1010 ¶¶ 218, 256; Ex. 1002 ¶ 183). Petitioner contends, and we agree, that it would have been obvious to use one or more of the magnets in the second body 100b to secure the second body 100b (“lid”) in a closed position with respect to the first body 100a to prevent the lid from unintentionally opening. *Id.* at 49 (citing Ex. 1002 ¶ 184). Petitioner further argues that using one or more magnets in the lid of a folder-type portable electronic device to secure the lid in a closed position was “well-known to a POSITA.” *Id.* (citing Ex. 1002 ¶¶ 184–185; Ex. 1021 ¶¶ 82, 88). Petitioner further looks to Kim itself to teach securing a first body to a second body in a folding-type relationship using magnets and asserts that such teaching could be adapted and applied to secure the second body 100b to the first body 100a when the two are in a closed position and provides reasons for making the modification. *Id.* at 49–51 (citing Ex. 1010 ¶ 220; Ex. 1002 ¶¶ 184–190). Petitioner further argues that claim 9 does not require that the sub-device (electronic device) be coupled to the main device when the lid is secured in the closed position, and that a POSITA would have understood that the main device of the watch-type

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embodiment can close or open regardless of whether the sub-device 300 is coupled to the main device. *Id.* at 51 (citing Ex. 1002 ¶¶ 191–192). Lastly, Petitioner explains that when the sub-device 300 is not coupled to the main device a magnet in the lid interacts with the first body 100a to secure the body 100b (lid) in a closed position. *Id.* (citing Ex. 1002 ¶ 192).

For reasons already provided, Patent Owner’s argument that Kim neither teaches nor suggests Figure A and that “sandwiching sub-device 300 between the hinged first and second bodies 100a and 100b” would prohibit the cover from closing do not negate Petitioner’s showing of obviousness. PO Resp. 56 (citing Ex. 2004 ¶ 97). Patent Owner also argues that Kim does not teach or suggest magnetically coupling the first body to the second body. *Id.* Patent Owner’s argument and Dr. Horenstein’s testimony are conclusory and do not explain in any way why Petitioner’s showing, which we determine is sufficient to meet the limitation, is without merit. Patent Owner further argues that claim 9 requires that the lid of the switching device 100b be configured to magnetically couple to the first body 100a when the lid 100b is also coupled to sub-device 300 and that “the claims demand the second case to function to protect the first case.” *Id.* at 57–58. In other words, Patent Owner argues that claim 9 requires that the electronic device and the switching device remain coupled at all times. Patent Owner’s arguments are not commensurate in scope with the claim language. Claim 1 recites “the switching device and the electronic device are configured *to selectively couple to each other*” and that “*when coupled*, the first case functions to protect the second case.” Patent Owner fails to explain in any way why, in view of this language, claim 9 requires the electronic device and the switching device always to remain coupled. We determine that

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Petitioner has shown by a preponderance of the evidence that claim 9 of the '020 patent is unpatentable as obvious over Kim.

Claim 11 depends directly from claim 1 and recites “wherein the switching device has a tab or knob configured to be manipulated by an external force.” Petitioner contends, and we agree, that Kim discloses that sub-device 300 may include function keys on its front side or side portion that a user may manipulate to perform certain functions. Pet. 51–52 (citing Ex. 1010 ¶ 200, Fig. 9C; Ex. 1002 ¶ 193). Petitioner further contends, and we agree, that Kim “discloses that a user input unit (*e.g.*, function keys KEY0 through KEY4) ‘may adopt any mechanism of a tactile manner that enables a user to perform a manipulation action by experiencing a tactile feeling.’” *Id.* at 52 (citing Ex. 1010 ¶ 129; Ex. 1002 ¶ 194). Petitioner further asserts, and we agree, that Kim describes that the mobile terminal includes a jog wheel and/or jog switch. *Id.* (citing Ex. 1010 ¶ 87). Patent Owner does not separately argue claim 11. *See generally* PO Resp. We determine that Petitioner shows by a preponderance of the evidence that claim 11 is unpatentable as obvious over Kim.

Claim 12 depends from claim 2 and recites “wherein a surface of the first case is composed of a material nonabrasive to the lens.” Claim 13 depends from claim 3 and recites “wherein a surface of the first case is composed of a material nonabrasive to the view screen.” Claim 14 depends from claim 4 and recites “wherein a surface of the first case is composed of a material nonabrasive to the lens.” Claim 15 depends from claim 5 and recites “wherein a surface of the first case is composed of a material nonabrasive to the view screen.” Petitioner argues that Kim discloses or suggests each of claims 12 to 15. Pet. 53 (citing Ex. 1002 ¶¶ 196–201). Petitioner refers to its showings for claim 1 to support its contention that



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claims 12–15 are obvious over Kim. *Id.* at 53 (citing Sections VIII.A.1.d, VIII.A.1.e). In particular, Petitioner explains, and we agree, that Kim describes that each of the main device and the sub-device comprise a case and that such cases “may be formed by injection molding of synthetic resin or may be formed of metal substance such as stainless steel (STS), titanium (ti) or the like.” *Id.* at 53–54 (quoting Ex. 1010 ¶ 126). Petitioner contends, and we agree, that a “POSITA would have understood synthetic resin to be used to make various forms of plastics” and that plastic and metal substances are materials that can be used to form non-abrasive surfaces. *Id.* at 54 (citing Ex. 1010 ¶ 126; Ex. 1002 ¶¶ 197–198; Ex. 1023, 3, 5). Patent Owner does not separately argue claims 12 to 15. *See generally* PO Resp. We determine that Petitioner has shown by a preponderance of the evidence that claims 12 to 15 of the ’020 patent are unpatentable as obvious over Kim.

Claim 19 depends from claim 1 and recites “wherein the switching device can be employed to perform at least one function selected from the group consisting of: control volume, pause, play, next slide, switch on, switch off, and combinations thereof; to an electronic device.” Petitioner contends that Kim discloses this feature. Ex. 1002 ¶ 202. Petitioner refers to its showings for claim 1 to support its contention that claim 19 is obvious over Kim. Pet. 54–55 (citing Sections VIII.A.1.e and VIII.A.1.g). Petitioner contends that Kim “discloses a system in which the sub-device (“switching device”) turns on and off the main device (“electronic device”) based on the two devices’ coupling status or based on a user manipulating the sub-device.” *Id.* at 55. Accordingly, Petitioner contends that Kim discloses “the sub-device (“switching device”) turning on or off (“can be employed to perform at least on function selected from the group consisting of . . . switch

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on, switch off”) the main device (“electronic device”). *Id.* (citing Ex. 1002 ¶ 202). We agree with Petitioner.

Patent Owner contends that Kim does not disclose or suggest that the watch-type device in Figures 15A–15D meets the limitation of claim 19 due to its reliance on “fictional Figure A.” PO Resp. 75. Patent Owner further argues that Kim’s disclosure at paragraphs 342–344 of Kim, which the Petition relies on, has nothing to do with the watch-type embodiment. *Id.* As we explain above, we determine that Kim discloses combining embodiments. Ex. 1010 ¶¶ 69, 70, 179. Based on the record before us, we determine that it would have been obvious to combine Kim’s teachings of the watch-type sub-device (“the switching device”) turning on or off a remote device (“electronic device”). Pet. 40–41 (citing Ex. 1002 ¶¶ 150–151).

Accordingly, we determine that Petitioner shows by a preponderance of the evidence that claim 19 of the ’020 patent is unpatentable as obvious over Kim.

#### *E. Asserted Obviousness of Claim 10 over Kim and Koh*

Petitioner contends claim 10 is unpatentable under 35 U.S.C. § 103(a) as obvious over Kim and Koh. Pet. 55–64.

##### *1. Koh*

Koh describes a portable electronic device module that is easy to couple and convenient to store by sliding and coupling a portable electronic device to an electronic device storage unit. Ex. 1012 ¶ 12. In one embodiment, the portable electronic device includes a portable terminal capable of communicating with a wireless headset. *Id.* ¶ 27; Fig. 4A.

Figure 4A is illustrative and is reproduced below.

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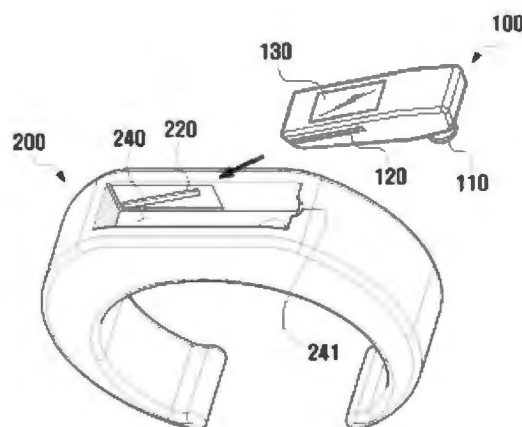


Figure 4A shows wireless headset 100 coupling to electronic device storage unit 200. *Id.* ¶ 45–46. Coupling can be in a sliding manner by inserting coupling protrusion 220 of electronic device storage unit 200 into guide groove 120 of wireless headset 100. *Id.* at 46. Wireless headset 100 may mount a magnet on the insertion surface (a surface indicated by an arrow in Figure 4A) and electronic device storage unit 200 may mount a magnet on the inner surface (a hatched surface in Figure 4A) of storage unit 240. *Id.* ¶ 48. Each of the magnets has a different polarity and thus attracts the other magnet when wireless headset 100 is coupled to electronic device storage unit 200. *Id.*

## 2. Discussion

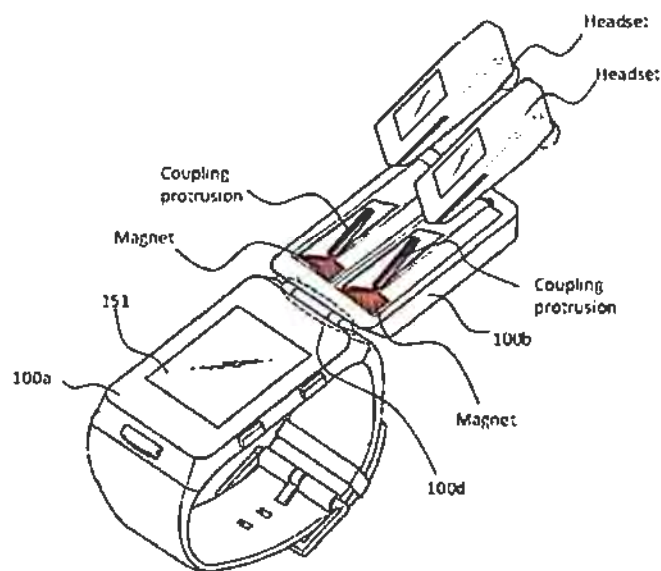
Claim 10 depends directly from claim 1 and recites “wherein the switching device is wireless earplugs.” Petitioner argues that Kim describes configuring sub-device 300 (“switching device”) in one of various forms such as an ear phone and that “in this case, the coupling unit 210 of the main device may be configured to have a structure (or shape) that can attach the sub-device 300 to the interior of [sic] the exterior of the main device.” Pet. 55–56 (citing Ex. 1010 ¶¶ 194, 266, 445 (describing that the second body 300 may be used as a Bluetooth headset); Ex. 1002 ¶¶ 209–211).

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Petitioner further explains that Kim discloses detachably coupling one or more sub-devices to the main device. *Id.* at 56 (citing Ex. 1010 ¶ 181). Petitioner explains that from these Kim disclosures, a person having ordinary skill in the art would have understood Kim to disclose or suggest a watch-type embodiment with a first body 100a and second body 100b connected by hinge 100d and “wherein the mobile terminal further comprises one or more wireless earphones or headsets (*i.e.*, sub-devices) detachably coupled to the first body 100a or the second body 100b.” *Id.* at 57 (citing Ex. 1002 ¶¶ 212–213).

Petitioner argues that Kim “does not include a discussion of example techniques for coupling wireless earphone/headset sub-devices with a watch-type device.” *Id.* Petitioner relies on Koh’s teachings of a wireless headset with a display unit 130 that may be detachably connected using protrusions, guide grooves and magnets to a storage unit 200 that may be a fastening unit to be worn on a user’s wrist. *Id.* at 57–59 (citing Ex. 1012 ¶¶ 12, 19, 27, 29, 30, 33, 36–46, 48, Fig. 4A). Petitioner argues that a “POSITA would have understood that the coupling techniques disclosed by *Koh* were compatible with and could be adapted and applied to the second body 100b of Kim’s watch-type main device in place of the coupling members 510 when sub-device is a wireless earphone and/or Bluetooth headset.” *Id.* at 59 (citing Ex. 1002 ¶ 219). Below is a representation in the Petition “of an example mobile terminal as a POSITA would have understood is disclosed or suggested by *Kim* in view of *Koh*.” *Id.* at 60.

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The above shows a representation of the combination of Kim and Koh. *Id.* Petitioner explains that the manner in which Kim’s sub-device controls the state and/or operation of the main device is not dependent on the specific form factor of the main device or the sub-device and, in the Kim-Koh system, the wireless earphone/headset sub-device would continue to control the state and/or operation of the watch-type main device in the same way as discussed with respect to claim 1. *Id.* at 60–61 (citing Ex. 1002 ¶ 221); *see* Pet. Sections VIII.A.1.f and VIII.A.1.h.

Petitioner contends that Kim discloses detachably coupling wireless earphones/headsets to the watch-type main device and configuring the main device to have a structure that would attach the earphones to the interior of the main device. *Id.* at 61 (citing Ex. 1010 ¶ 194). Petitioner explains that since Kim does not provide details regarding how to implement these features, a “POSITA would have been motivated to identify a compatible device and to locate additional detail regarding techniques for detachably coupling earphone(s) to Kim’s watch-type main device.” *Id.* at 61–62 (citing Ex. 1002 ¶ 229).



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Petitioner contends that a person having ordinary skill in the art would have looked to Koh for such details and would have been motivated to combine Koh's disclosure with Kim's disclosure. *Id.* at 62–64 (citing Ex. 1002 ¶¶ 229–233). Petitioner further contends that the combination of Kim and Koh would have amounted to no more than combining known prior art elements according to known methods to yield predictable results. *Id.* at 62–63 (citing Ex. 1002 ¶ 232). Petitioner explains that even though Koh discloses detachably coupling one wireless headset to the watch-type device, it would have been obvious to detachably couple two wireless headsets to Kim's watch-type main device because Kim discloses coupling more than one sub-device to the main device. *Id.* at 63–64 (citing Ex. 1002 ¶ 234; Ex. 1010 ¶ 181, Fig. 7). Petitioner asserts that because Kim describes that the mobile terminal may be a portable multimedia player that it would have been obvious to detachably couple two wireless earphones/headsets to Kim's watch-type device because doing so would permit a user to listen to stereo audio as opposed to mono audio. *Id.* at 64 (citing Ex. 1002 ¶ 234).

Patent Owner argues that a person having ordinary skill in the art would not have been motivated to combine Kim and Koh. PO Resp. 58–61. First, Patent Owner argues that Kim's ear phone embodiment “has no reasonable analogy or applicability to the simple ear phones of Koh.” *Id.* at 59–60 (citing Ex. 2004 ¶ 102 (stating the same)). Patent Owner's argument is conclusory and does not undermine Petitioner's showing as Patent Owner does not explain why Kim's ear phone has no analogy to the ear phones of Koh.

Patent Owner further argues that the proposed combination requires a specialized lid designed to hold two earpieces and that that arrangement would sacrifice modularity, defeat the look through functionality, and

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eliminate the desired dual-display capability of the watch-type device advocated by Kim. *Id.* at 60 (citing Ex. 2004 ¶ 103 (stating the same)). As discussed above, Kim describes that the transparent or TOLED display is optional, thus we are not persuaded by Patent Owner’s argument that the combination would defeat the look through functionality. Patent Owner does not explain what it means by “sacrifice modularity” and we, therefore, are not persuaded by the argument. As to the “desired dual-display” argument, Kim describes that the sub-device can take on many form factors and is not limited to a “dual-display.” Pet. 55–56 (citing Ex. 1010 ¶¶ 194, 266, 445).

Patent Owner argues that there is “no suggestion in Kim and/or Koh that using both magnets and hooks as coupling members would be workable or beneficial.” PO Resp. 60–61. The argument is misplaced as Petitioner does not propose using hooks in the Kim-Koh combination. Rather, as Petitioner points out the Kim-Koh combination meets claim 1 because the headset sub-devices comprise grooves configured to engage with coupling protrusions on the main device’s second body. Pet. Reply 22 (citing Pet. 59–60; Ex. 1002 ¶ 220).

Patent Owner argues that the combination of Kim and Koh does not disclose or render obvious “when coupled, the second case functions to protect the first case.” PO Resp. 61–69. Patent Owner’s arguments are premised on the misplaced notion that Kim only describes placing sub-device 300 on top of the second body when the first and second bodies are in a closed position. *Id.* at 61–62. For reasons discussed above, such arguments are unavailing. We further agree with Petitioner that to the extent Patent Owner proposes another way to combine Kim and Koh (PO Resp. 62, “Horenstein Figure 25”) is of no moment to show that the combination

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proposed by Petitioner is not sufficient. Pet. Reply 22–23. Indeed, Patent Owner’s arguments that the second case does not protect the first case are based on Patent Owner’s proposed combination, not on Petitioner’s proposed combination. PO Resp. 62–63. With respect to Petitioner’s proposed combination, Patent Owner argues that such combination “would be exceedingly difficult to use” because the wearer would likely damage the watch when removing the “wireless headset(s).” *Id.* at 65–69. These arguments do not undermine Petitioner’s showing for similar reasons provided above. In any event, we agree with Petitioner that Koh “teaches using one hand to remove the headset from the housing using either a lifting action (using a groove) or a pressing action (using the elasticity of the spring connected to the coupling protrusion).” Pet. Reply 23 (citing Ex. 1012 ¶ 47; Pet. 59–60; Ex. 1002 ¶¶ 219–220).

Patent Owner argues that the Petition fails to explain how the combined Koh portable “switching device” is configured to activate, deactivate, or send into hibernation the portable electronic device. PO Resp. 69–71. We disagree, as the Petition clearly sets forth that Kim discloses or suggests the watch-type main device (“electronic device”) being activated, deactivated or sent into hibernation by a sub-device, which in the proposed combination would be an earphone sub-device (“switching device”). Pet. 61–62 (“A POSITA would have understood that in the Kim-Koh system, the wireless earphone/headset sub-device would continue to control the state and/or operation of the watch-type main device in the same manner as discussed above”); Ex. 1002 ¶ 221.

For the above reasons, having considered Petitioner’s and Patent Owner’s arguments and evidence, we determine that Petitioner has shown by

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a preponderance of the evidence that claim 10 of the '020 patent is unpatentable as obvious over the combination of Kim and Koh.

*F. Asserted Obviousness of Claims 16 and 17 over Kim and Lee*

Petitioner contends claims 16 and 17 are unpatentable under 35 U.S.C. § 103(a) as obvious over Kim and Lee. Pet. 64–68.

*1. Lee*

Lee describes a mobile terminal that can include a cellular phone or a smart phone. Ex. 1013 ¶ 27. A sensing unit senses the current state of the mobile terminal, such as an open/close state of the mobile terminal, senses whether a power supply is supplying power, and senses whether an interface is connected to an external device. *Id.* ¶ 44. The sensor unit can include a Hall sensor as a sensing element and a magnet for the sensed element, in which the Hall sensor outputs a voltage varying the magnetic field using the Hall effect. *Id.* ¶ 119.

*2. Discussion*

Claim 16 depends from claim 1 and recites “wherein the first magnet is employed in actuating the electronic circuit.” Petitioner refers back to the earlier showing for claim 1 that Kim includes a sub-device having magnets (“first magnet”) detachably coupled to the second body 100b of the watch-type device. Pet. 64 (citing Sections VIII.A.1.a and VIII.A.1.c). Petitioner also refers back to its showing for claim 1 that Kim further discloses or suggests that the mobile terminal detecting coupling of the sub-device and main device and changing a state and/or operation of the main device based on the detected coupling status. *Id.* at 64–65 (citing Sections VIII.A.1.e and VIII.A.1.g).

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Petitioner contends, and we agree, that Lee discloses a mobile terminal having a folder-type form factor with sensing unit 140 (including a Hall sensor and magnet) that senses whether the mobile terminal is open or closed. *Id.* at 65 (citing Ex. 1013 ¶¶ 27, 28, 44, 71, 79, 119; Ex. 1002 ¶¶ 239–241). Petitioner proposes using Lee’s Hall sensor in Kim’s second body 100b “to detect the coupling status of the sub-device to the main device by detecting changes in a magnetic field created by the magnet in the sub-device 300.” *Id.* (citing Ex. 1002 ¶ 242). Petitioner provides reasons to combine Kim and Lee, explaining, for example, that Lee provides details regarding how to use a Hall sensor and a magnet to detect the coupling status of two bodies. *Id.* at 66 (citing Ex. 1002 ¶¶ 243–245).

Patent Owner argues that a person having ordinary skill in the art would not have been motivated to combine Kim and Lee, “specifically to use a Hall effect sensor (as taught by Lee) in a watch-type device (as taught by Kim).” PO Resp. 71–72. Patent Owner contends that Kim already has a coupling detection unit 220 that detects whether a main device is connected to a sub-device and, therefore, there would be no need for a Hall effect sensor. *Id.* (citing Ex. 1010 ¶¶ 182–184; Ex. 2004 ¶ 115). That argument is misplaced because it is based on a misunderstanding of Petitioner’s showing. We afford substantial weight to Dr. Kiaei’s testimony that although Kim teaches detecting the coupling status of the sub-device to the main device, it does so “without providing significant detail how to do this” and that a POSITA “would have been motivated to identify a system that is comparable to *Kim*’s and to locate additional detail regarding components that can be used to detect the coupling status of the sub-device to the main device.” Ex. 1002 ¶ 243. Patent Owner fails to rebut sufficiently Dr. Kiaei’s testimony. For example, Patent Owner does not show that Kim’s