

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS
AMERICA, INC.,
Petitioners,

v.

DARELTECH, LLC INC.,
Patent Owner.

IPR2019-01575
Patent 9,075,612 B2

Before BRIAN J. McNAMARA, KEVIN C. TROCK, and
STACY B. MARGOLIES, *Administrative Patent Judges*.

MARGOLIES, *Administrative Patent Judge*.

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

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. 9,075,612 B2 (Ex. 1026, “the ’612 patent”). Paper 1 (“Pet.”). Dareltech, LLC (“Patent Owner”) did not file a Preliminary Response. Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see* 37 C.F.R. § 42.108(c). Upon consideration of the Petition, we conclude that the information presented shows that there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claims 1–19 of the ’612 patent.

A. *Related Matters*

The parties identify the following judicial proceeding in which the ’612 patent is asserted and which may affect, or be affected by, a decision in this proceeding: *Dareltech, LLC v. Samsung Elecs. Co.*, Case No. 4:18-cv-00702 (E.D. Tex.). Pet. 78; Paper 5, 1; *see* 37 C.F.R. § 42.8(b)(2).

Samsung has also filed petitions requesting *inter partes* review of patents related to the ’612 patent: IPR2019-01528 (challenging claims of U.S. Patent No. 8,717,328 (“the ’328 patent”)) and IPR2019-01529 (challenging claims of U.S. Patent No. 8,593,427 (“the ’427 patent”)). The ’612 patent is a continuation-in-part of the ’328 patent, which is a continuation of the ’427 patent.

B. The '612 Patent

The '612 patent is directed to managing power consumption of displays in multifunction devices. Ex. 1026, 1:23–25, 1:40–44, 1:48–49, 9:58–60. The '612 patent describes as background that “[m]ost, if not all[,] multifunction devices (e.g., smart phones) have a constant screen size” and “the devices are either in a full display state (e.g., the entire display screen is powered on) or in a no display state where the entire display screen is powered-off.” *Id.* at 1:40–44. The '612 patent discloses configuring “the display as well as elements displayed by the display . . . to any user-selected size or position,” resulting in a “battery-saving benefit.” *Id.* at 1:49–55.

Figure 4 of the '612 patent is shown below.

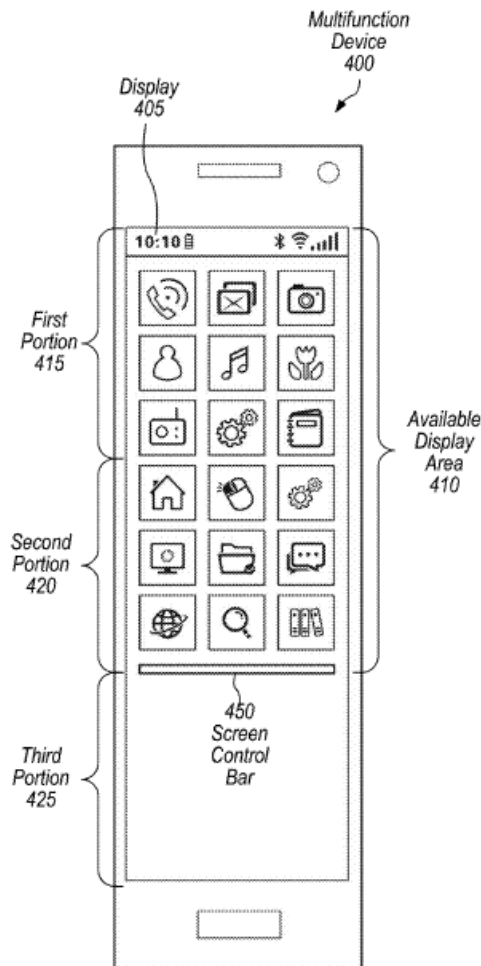


FIG. 4

Figure 4 above illustrates portable multifunction device 400 with display 405, in which first portion 415 and second portion 420 are in a powered-on state and third portion 425 is in a powered-off state. *Id.* at 18:65–19:7. The '612 patent discloses that, through user input, available display area 410 can be expanded by “transitioning the third portion 425 to the powered-on state to perform display functions and receive user input” or be contracted “by transitioning the second portion 420 to the powered-off state.” *Id.* at 19:16–25. The '612 patent discloses that user input can be

provided “by a dragging gesture while touching the location of display screen control bar 450.” *Id.* at 19:16–25.

Figure 33 of the '612 patent is illustrated below.

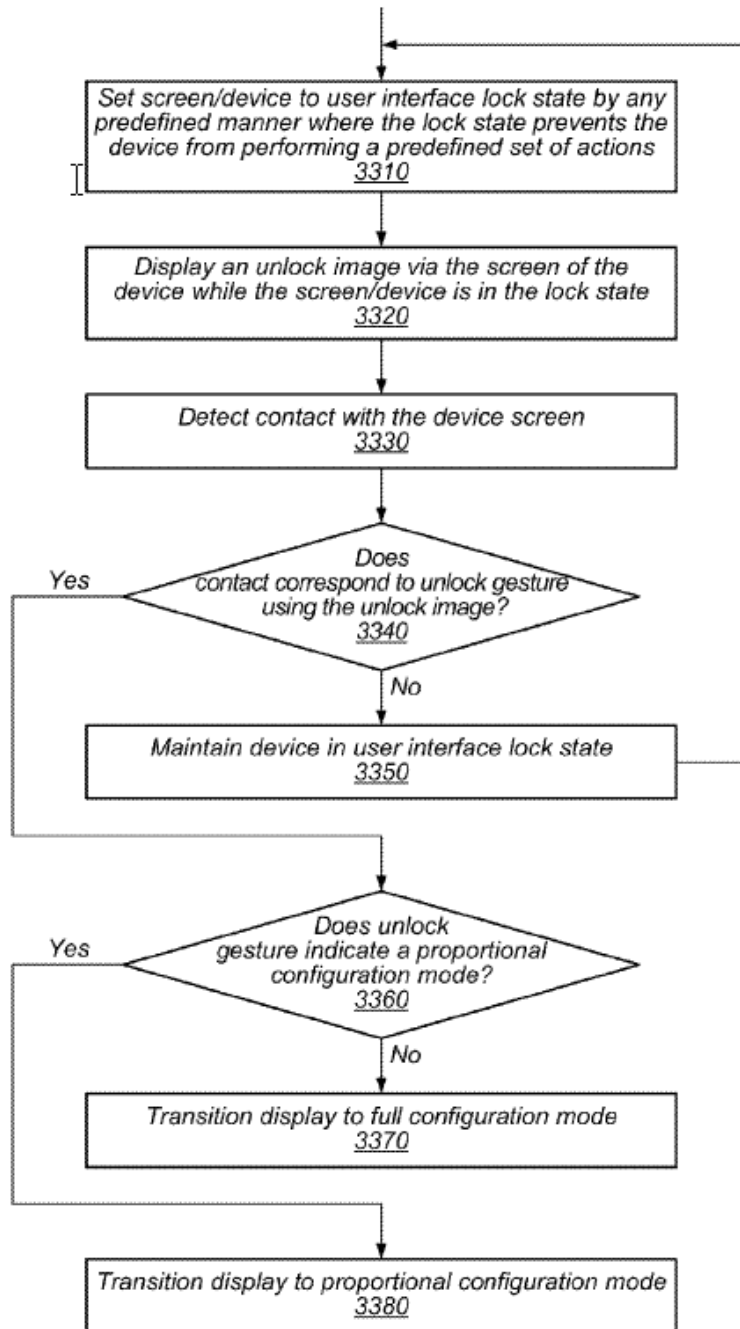


FIG. 33

Figure 33 is a flow diagram illustrating steps for unlocking a display and transitioning the display into either a full configuration mode or a proportional configuration mode. *Id.* at 4:25–28, 29:30–33. According to the '612 patent, in the full configuration mode, the entire available display screen is in a power-on state (*id.* at 2:1–3, 5:49–52) and in the proportional configuration mode, a portion of the display screen is in the powered-on state and another portion of the display is in a powered-off state (*id.* at 2:9–14, 5:58–63).

At step 3310 of Figure 33, a screen or device is set to a user interface lock state that prevents the device from performing a predefined set of actions. *Id.* at Fig. 33, 29:57–60. An unlock image is displayed while the screen/device is in the lock state, and contact with the device screen is detected. *Id.* at Fig. 33 (steps 3320 and 3330), 29:64–65, 30:5–6. A determination is then made as to whether the contact corresponds to an unlock gesture. *Id.* at Fig. 33 (step 3340), 30:8–20. If the contact does not correspond to an unlock gesture, the device remains in the user-interface lock state. *Id.* at Fig. 33 (steps 3340 and 3350), 30:13–16. If the contact corresponds to an unlock gesture, a determination is made as to whether the unlock gesture indicates a proportional configuration mode. *Id.* at Fig. 33 (steps 3340 and 3360), 30:17–20. The '612 patent discloses an example in which a certain type of swipe (e.g., a swipe to the left) indicates an instruction to transition to a full configuration mode and a different type of swipe (e.g., a swipe to the right) indicates an instruction to transition to a proportional configuration mode. *Id.* at 30:24–35. As a result of the determination of the unlock gesture, the device is transitioned to the indicated mode. *Id.* at 30:35–38.

Figure 5 of the '612 patent is shown below.

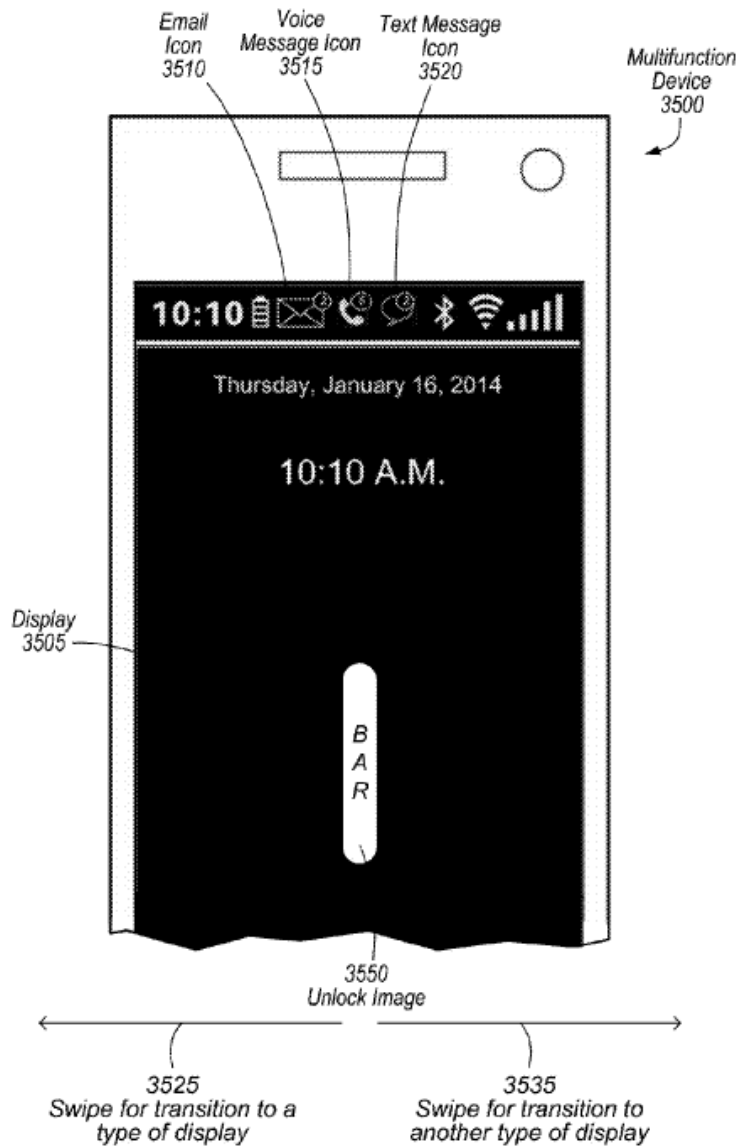


FIG. 35

Figure 35 illustrates multifunction device 3500 in a powered-off state. *Id.* at 30:56–57. The '612 patent discloses that, in the powered-off state, multifunction device 3500 continuously displays the time and indications of

notices of emails (email icon 3510), texts (text message icon 3520), messages (voice message icon 3515), and the like. *Id.* at 30:60–66.

Figures 40–42 of the '612 patent illustrate “a battery level feature that may be used to control the transition into and out of the proportional configuration mode.” *Id.* at 32:41–43. For example, according to the '612 patent, “the device may be configured such that the display transitions from the full configuration mode to the proportional configuration mode when the battery level auto shift value reaches or reaches a point below a certain value (e.g., 35%).” *Id.* at 33:9–13.

Figure 41 of the '612 patent is shown below.

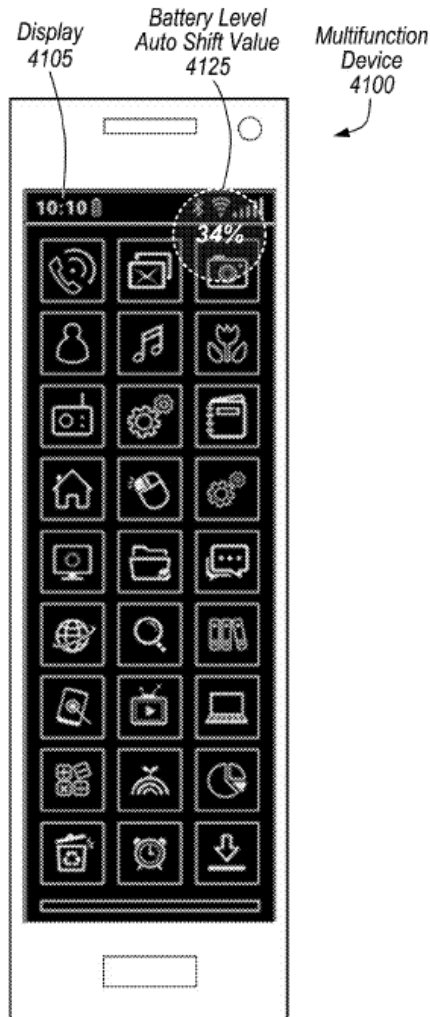


FIG. 41

Figure 41 illustrates “that when the battery level auto shift value 4125 achieves a level less than a predefined level (e.g., 35%),” the display is put into a proportional configuration mode. *Id.* at 33:16–20. The proportional configuration mode illustrated above configures the display with black portions in a powered-off state and white portions in a powered-on state. *Id.* at 33:20–25. Figure 42 illustrates another embodiment of a proportional configuration mode due to battery level, in which the available display area includes a first portion that remains in a powered-on state and a second

portion is directed into a powered-off state. *Id.* at 33:37–44. The ’612 patent also discloses that “a portion of the display that is in a powered-on state may be anywhere in the display.” *Id.* at 33:45–46.

The ’612 patent also discloses that “the color(s) used for the display may be configured based on a corresponding state or mode.” *Id.* at 26:7–9. For example, according to the ’612 patent, a “display that is in a power-saving mode or in a proportional configuration mode may be configured to display in grayscale or in black and white.” *Id.* at 26:9–12.

C. Illustrative Claim

Among the challenged claims (claims 1–19), claims 1, 10, and 14 are independent. Claim 1 is illustrative of the subject matter of the challenged claims and reads as follows:

1. A portable phone comprising:
 - a display comprising a display screen;
 - one or more processors; and
 - a memory comprising program instructions, wherein the program instructions are executed by the one or more processors to implement:
 - a power management module configured to manage power consumption of the display, wherein when the display is not in a sleep mode the power management module directs a display controller to display a set of a plurality of graphical indications in color in a full configuration mode that puts substantially all of the display screen in a powered-on state;
 - wherein when the display is in a sleep mode, the power management module directs the display controller to display a subset of the plurality of graphical indications, the subset comprising an unlock image comprising at least one of, time, date, or an indication of an email, text message, or voice message, and wherein

the subset of the plurality of graphical indications are displayed in a portion of the display screen and are displayed in black, white or grayscale, instead of displayed in color; and

a user interface module configured to respond, when the portable phone is in a locked state, to unlock gestures associated with the unlock image,

wherein a particular unlock gesture of the unlock gestures causes:

the phone to transition to an unlocked state, and

the display controller to enter the full configuration mode; and

wherein another particular unlock gesture of the unlock gestures causes:

the phone to transition to an unlocked state, and

the display controller to enter a proportional configuration mode that puts at least a portion of the display screen in a powered-off state and another portion of the display screen in the powered-on state.

Id. at 37:32–38:2.

D. Asserted Grounds of Unpatentability

Petitioner contends that claims 1–19 of the '612 patent are unpatentable based on the following specific grounds (Pet. 2, 20–77):

Claims Challenged	35 U.S.C. §	References
1, 2, 5, 6, 9–15, 18	103	Park, ¹ Newman ²
1, 2, 5, 6, 9–15, 18	103	Park, Newman, Ording ³
3, 4, 16, 17	103	Park, Newman, Siwinski ⁴
3, 4, 16, 17	103	Park, Newman, Ording, Siwinski
7, 8, 19	103	Park, Newman, Yang ⁵
7, 8, 19	103	Park, Newman, Ording, Yang

In its analysis, Petitioner relies on the declaration testimony of Dr. Andrew Wolfe (Ex. 1010). Pet. 6–77.

II. DISCUSSION

A. Claim Construction

In an *inter partes* review based on a petition filed on or after November 13, 2018, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2019); 83 Fed. Reg. 51,340, 51,340–41, 51,343 (Oct. 11, 2018).

In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of

¹ International Patent Application Publication No. WO 2013/172507 A1, published Nov. 21, 2013 (Ex. 1028).

² U.S. Patent Application Publication No. 2013/0111378 A1, published May 2, 2013 (Ex. 1029).

³ U.S. Patent No. 8,842,074 B2, filed Sept. 5, 2007, issued Sept. 23, 2014 (Ex. 1030).

⁴ U.S. Patent No. 7,012,588, issued Mar. 14, 2006 (Ex. 1031).

⁵ U.S. Patent Application Publication No. 2014/0189583 A1, published July 3, 2014 (Ex. 1002).

ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner asserts that the phrase “locked state,” which appears independent claims 1, 10, and 14 and dependent claim 16, means “a state in which a user is prevented from accessing specific functions or capabilities.” Pet. 8. We determine that no claim terms require express construction in order to determine whether or not to institute *inter partes* review.

B. Level of Ordinary Skill

Relying on the testimony of its declarant, Dr. Wolfe, Petitioner asserts that a person of ordinary skill in the art at the time of the alleged invention would have had a 4-year degree in electrical engineering, computer engineering, or computer science and one year of experience in user interface software or system design. Pet. 8 (citing Ex. 1010 ¶ 70). Petitioner also asserts that a person of ordinary skill in the art “can also obtain similar knowledge and experience through other means.” *Id.*

We determine on the current record that the level of ordinary skill specifically proposed by Petitioner—a 4-year degree in electrical engineering, computer engineering, or computer science and one year of experience in user interface software or system design—is consistent with the challenged patent and the asserted prior art and we therefore adopt that level for the purposes of this decision.

C. Asserted Obviousness Over Park and Newman

Petitioner contends that claims 1, 2, 5, 6, 9–15, and 18 of the '612 patent are unpatentable under 35 U.S.C. § 103 as obvious over Park and Newman. Pet. 2, 20–68. Relying in part on the testimony of Dr. Wolfe, Petitioner explains how the references allegedly teach or suggest the claim limitations and provides reasoning for combining the teachings of the references. *Id.* at 20–68.

1. Summary of Park

Park is an International Patent Application Publication titled “Portable Device and Method for Controlling The Same.” Ex. 1028, [54]. Park was published on November 21, 2013. Based on the filing date of the '612 patent of April 21, 2014, Park is prior art to the claims of the '612 patent under 35 U.S.C. § 102(a)(1).

Park discloses a portable device having two display units—one on the front surface of the device and another on the rear surface of the device. *Id.* ¶¶ 3, 48. Park also discloses that the portable device may have “a flexible display unit that is folded to be provided on both surfaces of the portable device.” *Id.* ¶ 48. Park explains that, “[i]n this case, *a portion* of the folded flexible display that is provided at the user side may be referred to as a first display unit and *a portion* thereof provided at the opposite side may be referred to as a second display unit.” *Id.* (emphases added).

Park discloses “prevent[ing] erroneous operation caused by unintended touch when the user rotates the portable device in order to use the rear display unit.” *Id.* ¶ 27. Park states that “the portable device can prevent unnecessary power consumption by switching at least one of the display units to a ready-to-activate state.” *Id.* ¶ 28; *see also id.* ¶ 25 (“the

portable device can prevent unnecessary power consumption or erroneous operation caused by unintended touch input”).

Park discloses that the display unit may be switched from one of three states—a locked state, a ready-to-activate state, and an active state—to another state. *Id.* ¶ 49. According to Park, in the locked state, the display unit is inactive and “at least one of a light emitting element and a touch sensor of the display unit is inactive.” *Id.* ¶ 50. Also in the locked state, the portable device cannot provide an application or content to the user, but the portable device may partially activate the touch sensor or the light emitting element of the display unit in order to detect an unlock command. *Id.*

The ready-to-activate state refers to “a standby state before the display unit switches to an active state.” *Id.* ¶ 51. According to Park, in the ready-to-activate state, “at least one of a light emitting element and a touch sensor of the display unit is inactive.” *Id.* ¶ 52. In the ready-to-activate state, the portable device “is in a state before providing an application or content to the user through the display unit,” but the portable device may partially activate the touch sensor or the light emitting element of the display unit in order to detect an unlock command. *Id.*

Park discloses that when the display unit is switched to the active state, the portable device may activate “at least one of a light emitting element and a touch sensor of the display unit.” *Id.* ¶ 53. In the active state, the portable device “may sense user touch, display content, or execute an application using at least one of the light emitting element and touch sensor which has been activated.” *Id.* ¶ 54.

Figure 4a of Park is shown below.

[Fig. 4a]

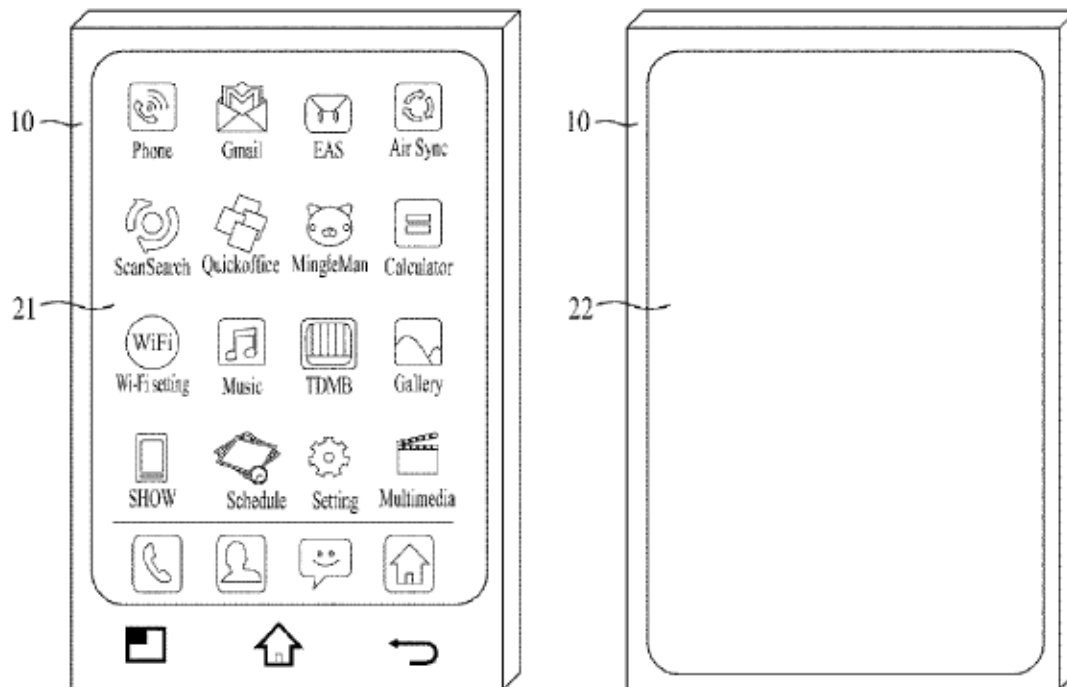


Figure 4a “illustrates when a touch sensor of a first display unit 21 of a portable device 10 senses an unlock command such that the state of the first display unit 21 is switched to an active state and the state of the second display unit 22 is maintained in a locked state or a ready-to-activate state.” *Id.* ¶ 75. Park discloses that when portable device 10 is rotated such that second display unit 22 faces the user, portable device 10 may detect such rotation as an unlock trigger and switch the state of second display unit 22 to an active state. *Id.* ¶ 82. In addition, portable device 10 “may deactivate the first display unit 21 to achieve power saving effects since the first display unit 21 is not exposed to the eyes of the user due to rotation of the portable device.” *Id.* ¶ 84.

Figure 2a of Park is shown below.

[Fig. 2a]

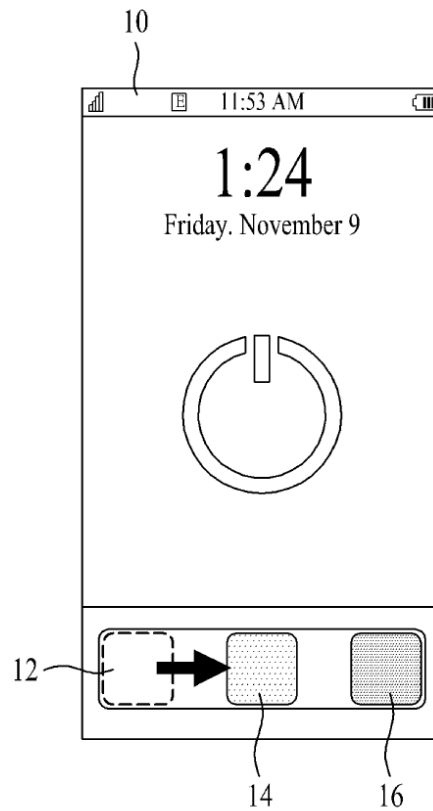


Figure 2a illustrates “a situation in which a command to unlock the first display unit, which is in a locked state, is input through one slide bar located at the first display unit.” *Id.* ¶ 63. Park discloses that “[t]he portable device 10 can discriminate a plurality of unlock commands based on a region where a user touch input is detected.” *Id.* Park discloses that when unlock tab 12 located in a dotted portion in Figure 2a is moved “only to the center of the slide bar through touch input (as denoted by ‘14’ in [Figure] 2a),” the device determines that the input is a first unlock command and switches the first display unit to an active state. *Id.* ¶ 66. When unlock tab 12 is moved “near a right boundary of the slide bar through touch input (as denoted by ‘16’ in [Figure] 2a),” the device determines that the input is a second unlock command and switches the first display unit to an active state

and the second display unit to a ready-to-active state. *Id.* ¶ 67. Park also discloses a third unlock command to switch the states of the first and second display units to an active state. *Id.* ¶ 64.

2. *Summary of Newman*

Newman is a U.S. Patent Application Publication titled “Portable Electronic Device, Associated Apparatus and Methods.” Ex. 1029, [54]. Newman was filed on October 31, 2011 and published on May 2, 2013. Newman is prior art to the claims of the ’612 patent at least under 35 U.S.C. § 102(a)(2).

Newman discloses that when a portable electronic device is in a “fully active mode,” the full range of functionality and information provided by applications are generally available to the user. *Id.* ¶ 3. Newman notes that “[i]f multiple applications are used, a significant amount of processor activity and/or power would be required.” *Id.* Newman discloses that, in order to “lower . . . power consumption (e.g.,] to extend battery life),” the user may “enter a mode wherein user interaction with the portable electronic device is prevented and functionality is disabled (other than allowing the user to enter the portable electronic device to the active mode).” *Id.* ¶ 4.

Figure 3c of Newman is shown below.

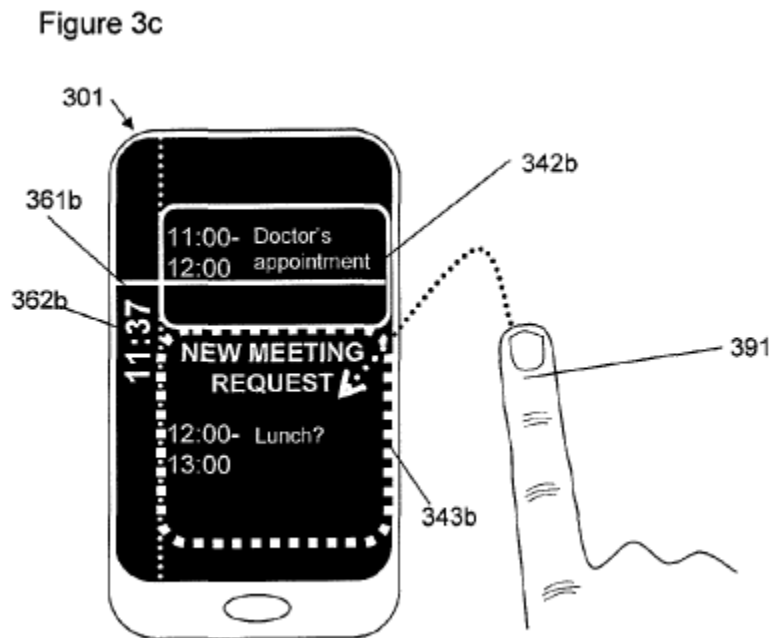


Figure 3c above “shows the situation when the portable electronic device is in the second mode of operation when the calendar application has been selected.” *Id.* ¶ 136. In this embodiment, “the screen is placed in a low power mode by configuring the pixels corresponding to the background to be turned off (making them black) and configuring the pixels corresponding to the text and user interface elements to be white.” *Id.* Newman discloses that “[t]his reduces the power consumption of the screen whilst the portable electronic device is on the second mode.” *Id.* Newman also states that other embodiments “may be configured to turn all or portions of the screen into a low power mode (e.g., by turning off a backlight, reducing the contrast, selecting colour schemes which reduce power).” *Id.* Newman further discloses that other embodiments “may be configured to have different color schemes in different modes of operation.” *Id.* ¶ 147. For example, according to Newman, “a portable electronic device may be configured to, in

a first mode, display (e.g., information such as text, map or image) in colour, and, in the second mode, display in black and white.” *Id.*

Newman also discloses a third mode of operation associated with a third level of power consumption. *Id.* ¶ 64. The third mode provides for “a sleep mode in which user input in response to associated output cannot be provided without entering at least one of the first or second modes.” *Id.*

¶ 65. Newman discloses that, when in the third mode, user interaction with one or more applications is disabled, but the user is allowed to unlock the portable electronic device to enter the first mode of operation. *Id.* ¶ 67.

3. Analysis

a. Independent claim 1

Petitioner contends that the combination of Park and Newman teaches the subject matter of claim 1 of the ’612 patent. Pet. 20–36, 40–55. In general, Petitioner contends that Park teaches a flexible display that corresponds to the claimed “display comprising a display screen,” and that Park teaches that the flexible display has a first portion called a “first display unit” and a second portion called a “second display unit.” *Id.* at 21–22 (citing Ex. 1028 ¶ 48). Petitioner also contends that Park teaches that when both portions of the display are in an active state (“not in a sleep mode,” as claimed), the display is in a full configuration mode that puts substantially all of the displayed screen in a powered-on state. *Id.* at 26–29.

Petitioner argues that a person of ordinary skill in the art would have found it obvious to display information in color when in the active state. *Id.* at 30 (citing Ex. 1028 ¶ 114). Petitioner also argues that Newman discloses displaying a set of a plurality of graphical indications in color in a full configuration mode. *Id.* at 30–32. Petitioner asserts that it would have been

obvious to combine Park's and Newman's teachings so that Park's graphical indications were displayed in color because "virtually every touchscreen display manufactured as of the effective filing date were color displays" and "users of such devices would have expected and desired that devices like those in Park should normally display information in color." *Id.* at 32 (emphasis omitted).

Petitioner also contends that Park discloses a sleep mode when both portions of the flexible display are in a locked state and discloses displaying an unlock screen that includes time (as shown in Figure 2a) on the first portion of the display screen when it is in the sleep mode. *Id.* at 32–34. Petitioner further relies on Newman for its teaching that graphical indications can be displayed in black or white instead of color and that this is done to reduce power consumption. *Id.* at 41–42 (citing Ex. 1029 ¶¶ 94, 136, 147). Petitioner contends that a person of ordinary skill in the art would have found it obvious to use a black and white display mode in Newman's third mode to help achieve lower power consumption than Newman's second mode. *Id.* at 42–43. Petitioner further contends that a person of ordinary skill in the art "would have been motivated to incorporate Newman's use of black and white graphical indications when in the 'sleep mode' into Park's device to further reduce power consumption in Park." *Id.* at 44 (citing Ex. 1010 ¶¶ 137–138) (emphases omitted). Petitioner adds that this modification would have been the result of combining prior art elements according to known methods to yield a predictable result (reduced power consumption). *Id.* (citing Ex. 1010 ¶ 139).

Petitioner also contends that Park's third unlock command, which causes both portions of the display to enter the active state, corresponds to

the claimed “a particular unlock gesture,” and Park’s second unlock command, which causes the first portion of the display to switch to an active state while the second portion of the display switches to a ready-to-active state, corresponds to the claimed “another particular unlock gesture.” *Id.* at 48–54.

Petitioner also asserts that while the language of claim 1 recites directing “a display controller to display,” a person of ordinary skill in the art would have understood that, “technically, a display controller is incapable of displaying content, but that the controller may cause a display to display content.” *Id.* at 29 n.4 (emphasis omitted). Petitioner thus asserts that an ordinarily skilled artisan would understand the phrase “directs a display controller to display” to mean “directs a display controller to cause a display to display.” *Id.* (emphasis omitted).

Having reviewed the record, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that claim 1 is unpatentable under 35 U.S.C. § 103(a) as obvious over Park and Newman. Petitioner makes a sufficient showing that the combination of Park and Newman teaches the subject matter of claim 1. For example, as Petitioner explains, Park discloses a portable device (phone) with a display unit that “displays content, an application, or the like to the user.” Ex. 1028, Figs. 4a (showing a Phone icon), ¶ 48; Pet. 20–22. Park discloses that the portable device may include “a flexible device unit that is folded” and that “a portion of the folded flexible display that is provided at the user side may be referred to as a first display unit” and “a portion thereof provided at the opposite side may be referred to as a second display unit.” *Id.* ¶ 48. Thus, on the current record, Petitioner sufficiently shows that Park

discloses a single flexible display with two portions. Pet. 10–13, 21–22. Petitioner also sufficiently shows that the disclosures in Park regarding the states of the different display units apply to the flexible display example. *See* Pet. 21–22, 25–29, 32–34, 41. Petitioner also sufficiently shows that Park discloses the claimed unlock gestures. Pet. 45–55.

Petitioner also provides sufficient reasoning with rational underpinning for combining the teachings as claimed. *See, e.g.*, Pet. 23–24 (citing Ex. 1010 ¶ 103), 30 (citing Ex. 1010 ¶ 114), 31–32 (citing Ex. 1010 ¶ 117), 42–44 (citing Ex. 1010 ¶¶ 133–139).

With respect to the “directs a display controller to display” language of claim 1, for purposes of this decision, we are persuaded by Petitioner’s argument that a person of ordinary skill in the art would understand the phrase to mean “directs a display controller to cause a display to display.” *See* Pet. 29 n.4 (citing Ex. 1010 ¶ 113).

b. Independent claim 10 and 14

Claim 10 recites a method of managing a display of a portable phone rather than reciting the portable phone as in claim 1. The limitations of claims 1 and 10 are nearly identical, except that claim 1 recites that a display controller displays graphical indications and claim 10 recites that the display is the structure that displays graphical indications. Claim 14, which recites a portable phone, is nearly identical to claim 1, but (like claim 10) recites that the display displays graphical indications.

In its analysis of claims 10 and 14, Petitioner relies on its analysis of claim 1 and also asserts that the combination of Park and Newman teaches the method aspects of claim 10. Pet. 61–65, 67–68. For the reasons set forth in pages 61–65 and 67–68 of the Petition and for the reasons explained

above in connection with claim 1, Petitioner sufficiently shows that the combination of Park and Newman teaches the subject matter of claims 10 and 14 and provides sufficient reasoning with rational underpinning for combining the teachings as claimed.

c. Dependent claims 2, 5, 6, 9, 11–13, 15, and 18

Petitioner contends that the combination of Park and Newman teaches the subject matter of dependent claims 2, 5, 6, 9, 11–13, 15, and 18. Pet. 55–68. For example, Petitioner contends that Park discloses that when the first portion of the display is in the active state, the first portion displays information and receives user input, as required by claims 2 and 15, and when both portions are in the active state, as shown in Figure 4b, all of the available area of the display screen is in a powered-on state, as required by claims 5 and 18. *Id.* at 55–56 (citing Ex. 1028, Fig. 2a, ¶¶ 53, 63, 64, 75, 78, 79). Petitioner also contends that Park discloses the time when the display is in a powered-off mode (a locked state), as required by claim 6. *Id.* at 57 (citing Ex. 1028, Fig. 2a, ¶ 63). Petitioner further contends that Park discloses detecting a contact with the touch-sensitive display at a predefined location (unlock tab 12 in Figure 2a) corresponding to an unlock image, and continuously moving (sliding) that unlock tab to the center or the right boundary of the slide bar (elements 14 and 16, respectively, in Figure 2a) as required by claim 9. *Id.* at 58–60 (citing Ex. 1028, Fig. 2a, ¶¶ 66–72).

On the current record, Petitioner sufficiently shows that the combination of Park and Newman teaches the subject matter of dependent claims 2, 5, 6, 9, 11–13, 15, and 18 and provides sufficient reasoning with rational underpinning for combining the teachings as claimed.

d. Summary

Having reviewed the record, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that claims 1, 2, 5, 6, 9–15 and 18 are unpatentable under 35 U.S.C. § 103(a) as obvious over Park and Newman.

D. Asserted Obviousness over Park, Newman, and Ording

Petitioner also contends that claims 1, 2, 5, 6, 9–15, and 18 of the '612 patent are unpatentable under 35 U.S.C. § 103 as obvious over Park, Newman, and Ording. Pet. 2, 20–68. For this ground, Petitioner relies on the same analysis that Petitioner uses for the ground based on Park and Newman, except that Petitioner relies on Ording for teaching a time graphical indication. Pet. 36–41.

Petitioner explains that Park discloses displaying a time graphical indication on a lock screen when the device is in a locked state (sleep mode) (Pet. 39 (citing Ex. 1028, Figs. 2a, 2b, 3a, 3b)) and that Figure 10a of Park shows displaying a time graphical indication in the first portion of the display when in the full-configuration mode. *Id.* at 35–36. Petitioner asserts that to the extent Park does not teach displaying a time graphical indication when both portions of the flexible display are in the active state, “it would have been obvious to do so, since displaying the time on unlocked mobile device screens was well-known as of the effective filing date, as demonstrated, for example, by Ording.” *Id.* at 36 (emphasis omitted).

1. Summary of Ording

Ording is a U.S. patent titled “Portable Electronic Device Performing Similar Operations for Different Gestures.” Ex. 1030, [54]. Figures 3 and 4 of Ording are shown below.

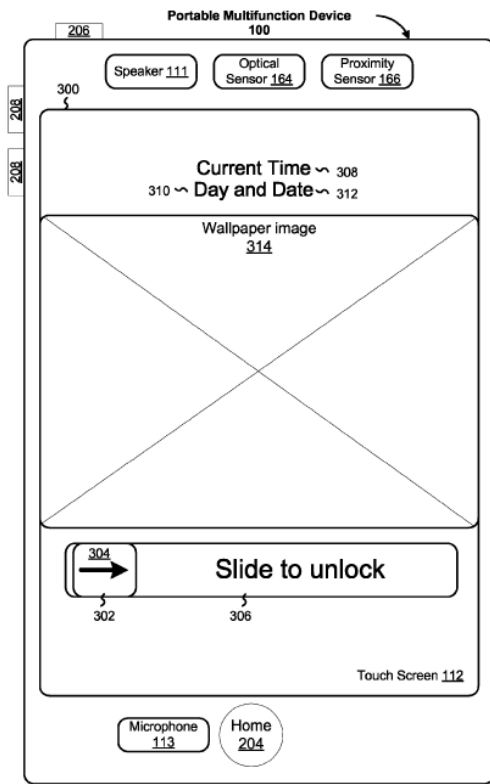


Figure 3

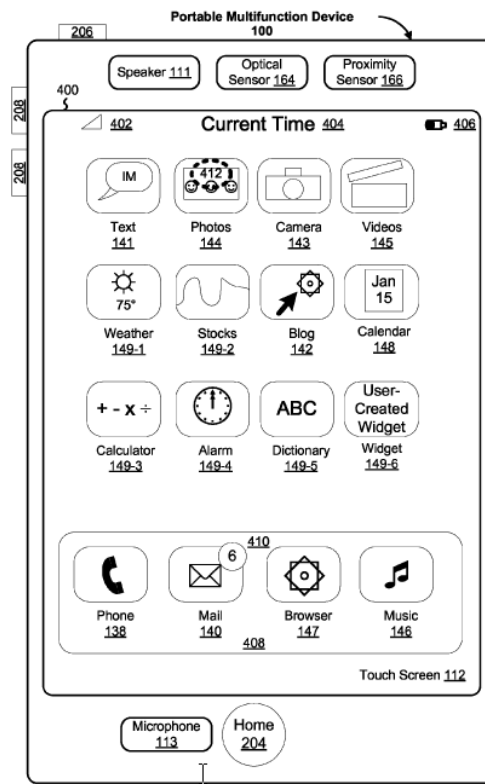


Figure 4

Figure 3 above illustrates a user interface for unlocking a portable electronic device; the user interface includes a number of elements such as unlock image 302 and time 308. *Id.* at 12:8–24. Figure 4 above illustrates a user interface for a menu of applications on a portable electronic device, including a number of elements such as time 404. *Id.* at 12:36–63. Ording discloses that “[t]he device transitions to a user-interface unlock state if [a] detected contact corresponds to a predefined gesture, such as moving the unlock image across channel 306.” *Id.* at 12:25–28. Ording also discloses that “[t]he device maintains the user-interface lock state if the detected contact does not correspond to the predefined gesture.” *Id.* at 12:28–30.

2. Analysis

Petitioner relies on Ording in connection with the following limitation of claim 1: “wherein when the display is in a sleep mode, the power

management module directs the display controller to display *a subset of the plurality of graphical indications, the subset comprising* an unlock image *comprising at least one of, time, date, or an indication of an email, text message, or voice message.*” Pet. 32–34, 36–41. Under Petitioner’s theory, the claimed subset must be one of the plurality of graphical indications referred to in the earlier-recited limitation of “wherein when the display is not in a sleep mode[,] the power management module directs a display controller to display a set of *a plurality of graphical indications.*” Thus, Petitioner asserts that a particular graphical indication such as time must be displayed in both modes—“a sleep mode” and “not in a sleep mode.” Petitioner relies on Ording for teaching displaying a graphical indication of time in both modes.

To the extent the claim could be read as requiring at least one particular graphical indication such as time in both modes, Petitioner sufficiently shows that Ording teaches a graphical indication of time in both an unlocked state and a locked state, as illustrated in Figures 3 and 4 above. Pet. 36–38 (citing Ex. 1030, Figs. 3, 4, 12:8–13:12; Ex. 1010 ¶¶ 123–124). Petitioner also provides sufficient reasoning with rational underpinning for combining the teachings of Ording with the teachings of Park and Newman as claimed, including allowing a user to view the current time, regardless of which mode the device was in. *Id.* at 38–40 (citing Ex. 1028, Figs. 2a, 2b, 3a, 3b; Ex. 1030, Figs. 3, 4, 12:5–13:12; Ex. 1010 ¶¶ 126–128).

For these reasons, and for the reasons explained above in connection with the ground based on Park and Newman, the information presented establishes a reasonable likelihood that Petitioner would prevail in showing

that claims 1, 2, 5, 6, 9–15, and 18 are unpatentable under 35 U.S.C. § 103(a) as obvious over Park, Newman, and Ording.

*E. Asserted Obviousness over (1) Park, Newman, and Siwinski; and
(2) Park, Newman, Ording, and Siwinski*

Petitioner contends that dependent claims 3, 4, 16, and 17 of the '612 patent are unpatentable under 35 U.S.C. § 103 as obvious over Park, Newman, and Siwinski and obvious over Park, Newman, Ording, and Siwinski. Pet. 2, 68–73. These dependent claims include a requirement of functioning in a “grayscale color mode,” which Petitioner asserts Siwinski teaches. *Id.* at 69–72. Relying in part on the testimony of Dr. Wolfe, Petitioner explains how the combination of references allegedly teaches the claimed subject matter and provides reasoning for combining the teachings of the references as claimed. *Id.* at 68–73.

1. Summary of Siwinski

Siwinski is a U.S. patent titled “Method for Saving Power in an Organic Electroluminescent Display Using White Light Emitting Elements.” Ex. 1031, [54]. Siwinski describes as background that “[f]ull color organic electroluminescent flat panel displays such as organic light emitting diodes (OLEDs) consist of two dimensional arrays of discrete light emitting diodes.” *Id.* at 1:15–17. Siwinski states that “[c]olor organic electroluminescent flat panel displays are presently planned for wide use in battery powered portable electronic devices such as . . . cellular telephones” and that a common problem “is the limited time of operation before the battery must be replaced or recharged.” *Id.* at 1:23–28.

Siwinski discloses “a method for displaying white and shades of gray on an OLED display device,” which “will save power by using efficient

white light emitting elements to display white and shades of gray, instead of fabricating white light using the less efficient red and blue light emitting elements.” *Id.* at 2:17–22. Siwinski discloses that “[w]hen the battery is low on stored power, it may be more important to use the remaining power to receive and transmit, than to display full color on the OLED display.” *Id.* at 3:43–45 (reference numerals omitted). According to Siwinski, “[t]his low power monochrome mode can be achieved by converting the full color RGB color image to a luminance only gray scale image . . . and displaying that monochrome image on the white light emitting elements (only) of the OLED display.” *Id.* at 3:46–51.

2. Analysis

Claim 3 depends from claim 2 and adds “wherein the powered-on state configures the other portion of the display screen to function in a grayscale color mode.” Claim 4 depends from claim 3 and adds “wherein the powered-off state configures the portion of the display screen to not perform display functions and to not receiver user input.” Claim 16 depends from claim 15 and adds “wherein the locked state of the portable phone configures the display to function in a grayscale color mode.” Claim 17 depends from claim 16 and adds the same limitation added by claim 4.

With respect to claim 3, Petitioner notes that Newman discloses displaying information “in black and white” in a low power mode and asserts that a person of ordinary skill in the art “would have understood that any standard color mobile display screen such as OLED screens used by Park and Newman could display black, white and grayscale images, in addition to images having other colors.” Pet. 69 (citing Ex. 1029 ¶ 147; Ex. 1010 ¶ 193) (emphases omitted). Petitioner adds that Siwinski “discloses an

OLED display that can switch to grayscale mode to reduce power consumption” (Pet. 69 (citing Ex. 1031, 2:15–22, 3:43–50)) and a person of ordinary skill in the art would have been motivated to use Siwinski’s teachings to “enable Park-Newman/Park-Newman-Ording devices to switch from a color display mode to a grayscale display mode.” *Id.* at 70 (emphasis omitted).

With respect to claim 6, Petitioner relies on the same Newman and Siwinski disclosures that it relies on for claim 3 and argues that it would have been obvious “to combine Siwinski’s teachings into the Park-Newman/Park-Newman-Ording device, such that the locked state of the Park device functioned in a grayscale color mode to reduce power consumption, for the same reasons discussed regarding claim 3.” *Id.* at 72 (emphases omitted).

With respect to claims 4 and 17, Petitioner asserts that Park discloses that when the second portion of the display is in the ready-to-activate state, the display does not perform display functions and does not receive user input. *Id.* at 71–72 (citing Ex. 1028 ¶¶ 52, 76), 73.

Having reviewed the record, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that claims 3, 4, 16, and 17 of the ’612 patent are unpatentable under 35 U.S.C. § 103 as obvious over Park, Newman, and Siwinski and obvious over Park, Newman, Ording, and Siwinski. As explained above, Petitioner sufficiently shows that Park and Newman (and Park, Newman, and Ording) teach the subject matter of claims 1, 2, 14, and 15 and provides sufficient reasoning for combining the teachings of the references. In addition, Petitioner makes a sufficient showing that the combination teaches

the limitations added by claims 3 and 16. Siwinski discloses displaying “a luminance only gray scale image” in a “low power monochrome mode.” Ex. 1031, 3:46–51; *see also id.* at 2:64–3:1 (referring to displaying “white and gray scale colors”). Park discloses a mode in which the first portion of the display is switched to active and the second portion of the display is switched to ready-to-activate to reduce power consumption. Ex. 1028 ¶¶ 140, 145. Newman teaches displaying information in black and white in a low power mode. Ex. 1029 ¶¶ 94, 147. Petitioner thus sufficiently shows that the combination of these teachings teaches the subject matter of claims 3 and 16. Petitioner also sufficiently shows that Park teaches that when the second portion of the display is in the ready-to-activate state, the display does not perform display functions or receive user input, as recited in claims 4 and 17. *See* Ex. 1028 ¶¶ 52, 76.

In addition, Petitioner provides sufficient reasoning with rational underpinning for combining the teachings of references in the manner claimed. *See* Pet. 69–71 (describing reasons to combine).

*F. Asserted Obviousness over (1) Park, Newman, and Yang; and
(2) Park, Newman, Ording, and Yang*

Petitioner contends that claims 7, 8, and 19 of the ’612 patent are unpatentable under 35 U.S.C. § 103 as obvious over Park, Newman, and Yang and obvious over Park, Newman, Ording, and Yang. Pet. 2, 73–77. Claims 7, 8, and 19 recite features related to a battery power threshold, which Petitioner asserts Yang teaches. *Id.* at 73–76. Relying in part on the testimony of Dr. Wolfe, Petitioner explains how the combination of references allegedly teaches the claimed subject matter and provides

reasoning for combining the teachings of the references as claimed. *Id.* at 73–77.

1. Summary of Yang

Yang is a U.S. patent application publication titled “Displaying Area Adjustment.” Ex. 1002, [54]. Yang discloses that the display of a portable electronic device “is a big consumer of battery charge.” *Id.* ¶ 1. Figure 1A of Yang is shown below.

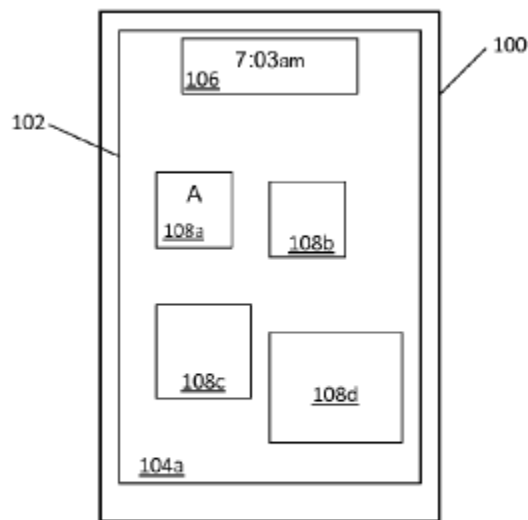


FIG.1A

Figure 1A of Yang shows portable electronic device 100, such as a smartphone, having display 102. *Id.* ¶ 19. Figure 1A shows portable electronic device as it may appear when it is in a standard operating mode. *Id.* ¶ 20. According to Yang, in this operating mode, the device is “in an active power state to enable normal usage (e.g., not in a sleep or a hibernate mode), and display 102 may be on and in an original screen mode (OSM).” *Id.* In OSM, original displaying area 104a “can be in a default configuration such as occupying all or almost all of display 102 screen.” *Id.*

Figures 1B through 1E of Yang illustrate four different examples of display 102 in “adjusted screen mode (ASM),” in which all or part of original size displaying area 104a may be cut and displayed in reduced size displaying area 104b, 104c, 104d, or 104e. *Id.* ¶ 21. Yang discloses that “display 102 may use less power, including battery power, when in ASM than when in OSM.” *Id.* ¶ 29. Yang further discloses that the display may be “automatically switched from OSM to ASM . . . in response to detecting that the battery . . . has reached a predetermined threshold.” *Id.* ¶ 33. For example, according to Yang, “if the battery reaches a capacity that is at or below a certain percentage of total battery capacity (e.g., 30%, 25%, 20%, 10%, 5%)[,] display 102 may be automatically switched from OSM to ASM to conserve the remainder of the battery power.” *Id.*

2. Analysis

Claim 7 of the ’612 patent reads as follows:

The portable phone of claim 1, wherein the power management module is further configured to direct the display controller to transition between modes based on a configurable battery power threshold, wherein the power management module is further configured to:

determine that a battery power of the portable phone reaches the configurable battery power threshold; and

subsequent to said determine, instruct the display controller to change from a full configuration mode to the proportional configuration mode.

Ex. 1026, 38:26–35.

Claim 19 depends from claim 14 and recites limitations similar to those recited in claim 7. Claim 8 depends from claim 7 and adds “wherein

the configurable battery power threshold is a configurable setting in a user interface of the portable phone.”

Petitioner asserts that Yang discloses a mobile telephone that switches between an original screen mode (OSM), which Petitioner asserts is analogous to the claimed full configuration mode, and an adjusted screen mode (ASM), which Petitioner asserts is analogous to the claimed proportional configuration mode. Pet. 73 (citing Ex. 1002 ¶¶ 20, 21). Petitioner also asserts that Yang discloses switching between the modes based on a battery-power threshold, which is configurable. *Id.* at 74 (citing Ex. 1002 ¶¶ 33, 90). Petitioner also asserts that Yang discloses that, upon detecting that the battery power is less than a battery power threshold, changing from OSM to ASM. *Id.* at 76 (citing Ex. 1002 ¶¶ 33, 90).

Petitioner further asserts that a person of ordinary skill in the art would have understood that Yang’s user interface would have been used to allow a user to configure the battery power threshold. *Id.* (citing Ex. 1002 ¶ 1; Ex. 1010 ¶ 212).

Petitioner asserts that an ordinarily skilled artisan would have been motivated “to use Yang’s teachings to enable the Park device to switch to a reduced-power display mode upon detecting that [the] battery power of the device is less” than a threshold “because such a feature would further reduce power consumption.” *Id.* (citing Ex. 1010 ¶ 208) (emphases omitted).

Having reviewed the record, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that claims 7, 8, and 19 of the ’612 patent are unpatentable under 35 U.S.C. § 103 as obvious over Park, Newman, and Yang and obvious over Park, Newman, Ording, and Yang. As explained above, Petitioner

sufficiently shows that Park and Newman (and Park, Newman, and Ording) teach the subject matter of claims 1 and 14 and provides sufficient reasoning for combining the teachings of the references. In addition, Petitioner makes a sufficient showing that the combinations teach the limitations added by claims 7 and 19. For example, as stated above, Yang discloses that the display may be “automatically switched from OSM to ASM . . . in response to detecting that the battery . . . has reached a predetermined threshold.” Ex. 1002 ¶ 33. Petitioner also sufficiently shows that Yang teaches that the configurable battery power threshold is a configurable setting in a user interface of the portable phone, as recited in claim 8. Pet. 76 (citing Ex. 1002 ¶¶ 1, 33, 83, 84; Ex. 1010 ¶ 212). Further, Petitioner provides sufficient reasoning with rational underpinning for combining the teachings of references in the manner claimed. *See* Pet. 74–75 (describing reasons to combine).

III. CONCLUSION

For the above reasons, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that claims 1–19 of the ’612 patent are unpatentable on the grounds asserted in the Petition. At this preliminary stage, the Board has not made a final determination with respect to the patentability of the challenged claims or any underlying factual and legal issues.

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to all of the grounds identified in the Petition; and

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

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