

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

SMITH INTERFACE TECHNOLOGIES, LLC,
Patent Owner.

IPR2024-01087
Patent 10,656,755 B1

Before JEFFREY S. SMITH, BARBARA A. BENOIT, and
NATHAN A. ENGELS, *Administrative Patent Judges*.

BENOIT, *Administrative Patent Judge*.

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

I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting institution of *inter partes* review of claims 1–13, 15–35, and 37–43 (“the challenged claims”) of U.S. Patent No. 10,656,755 B1 (Ex. 1001, “the ’755 patent”). Smith Interface Technologies, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

Applying the standard set forth in 35 U.S.C. § 314, which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we institute an *inter partes* review.

A. Real Parties in Interest

Petitioner identifies itself as real party in interest. Pet. 94. Patent Owner identifies itself as a real party in interest. Paper 3 (Patent Owner’s Mandatory Notices), 1.

B. Related Matters

As required by 37 C.F.R. § 42.8(b)(2), each party identifies *Smith Interface Technologies, LLC v. Apple Inc.*, Case No. 3-23-cv-01187 (S. D. Cal.), filed June 27, 2023. Pet. 94; Paper 3, 1. Patent Owner additionally identifies one concluded case: *Smith Interface Technologies, LLC v. Samsung Electronics Co., Ltd. et al.*, 2-22-cv-00290 (E. D. Tex.). Paper 3, 1.

C. The ’755 Patent

The ’755 patent is titled “Gesture-Equipped Touch Screen System, Method, And Computer Program Product.” Ex. 1001, code (54). The patent generally relates to “touch screens.” Ex. 1001 at 1:37–38. According to the

'755 patent, Figure 22, shown below, illustrates “a 3D layered user interface.” Ex. 1001 at 73:66.

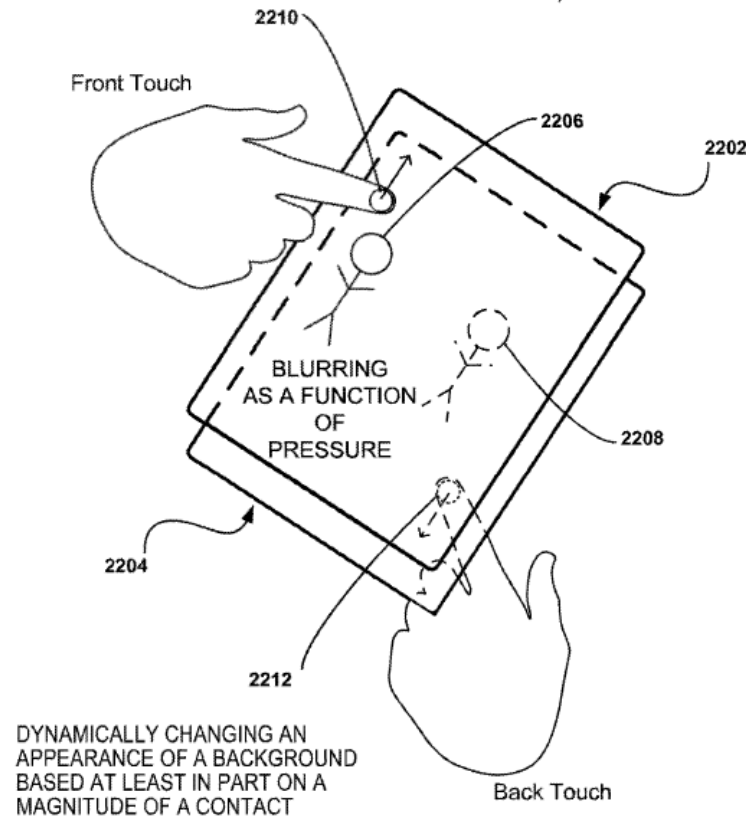


Figure 22 of the '755 Patent

The '755 patent states that Figure 22 shows a 3D layered user interface, including front layer 2202, back layer 2204, display element 2208, and gestures 2210 and 2212. *Id.* at 73:66–67; 76:1–6. Gestures may move elements on a foreground display layer or virtual background display layer. *Id.* at 76:1–14. An appearance of a background may be dynamically changed based at least in part on a magnitude of a contact. *See id.* Fig. 22 (caption). According to the patent, “[g]esture magnitude refers to the magnitude of the associated gesture dynamics” and “in one embodiment, the gesture magnitude of a swipe may include the length of the swipe and/or the contact pressure exerted during the swipe.” *Id.* at 67:1–5. The patent describes examples of the use of layers, such as that “a background layer

may be transformed such that it appears to be below rippling water, while the foreground layer appears to be floating on the surface.” *Id.* at 75:26–29.

D. Challenged Claims

Claims 1–13, 15–35, and 37–43 of the ’755 patent are challenged, of which claims 1 and 23 are independent. Illustrative claim 1 follows, with Petitioner’s identifiers in brackets:

1. An electronic device, comprising:

[1.a] a display;

[1.b] a touch-sensitive surface;

[1.c] one or more processors;

[1.d] memory; and

[1.e] one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including instructions for:

[1.f] displaying a first user interface on the display, wherein the first user interface includes:

[1.g] a background with an appearance, and

[1.h] one or more foreground objects;

[1.i] while displaying the first user interface on the display, detecting a first input by a first contact on the touch-sensitive surface at a location in the first user interface that corresponds to the background of the first user interface; and

[1.j] in response to detecting the first input by the first contact, in accordance with a determination that the first contact has a magnitude that is above a threshold, dynamically changing the appearance of the background of the first user interface without changing an appearance of the one or more foreground objects in the first user interface,

[1.k] wherein the dynamic change in the appearance of the background of the first user interface is based at least in part on the magnitude of the first contact and

[1.l] wherein the dynamic change in the appearance of the background of the first user interface includes displaying in sequence at least some of a plurality of images based at least in part on the magnitude of the first contact.

Ex. 1001, 101:10–42.

E. The Asserted Grounds of Unpatentability

In its asserted grounds, Petitioner relies on the following references:

Name	Patent Document	Exhibit
Hackborn	US 2011/0119610 A1 (May 19, 2011)	1004
Westerman	US 2008/0316183 A1 (Dec. 25, 2008)	1005
Townsend	US 2010/0103118 A1 (Apr. 29, 2010)	1006
Jablonski	US 6,920,606 B1 (July 19, 2005)	1008
Jobs	US 2008/0122796 A1 (May 29, 2008)	1009

Pet. 2. Petitioner asserts Hackborn is prior art under pre-AIA 35 U.S.C. § 102(a) and (e), and Westerman, Townsend, Jablonski, and Jobs are prior art under pre-AIA 35 U.S.C. § 102(a), (b), and (e). *Id.* Petitioner also relies on declaration testimony of Dr. Andrew Cockburn. (Ex. 1003). Patent Owner relies on declaration testimony of Dr. Rajeev Surati (Ex. 2001).

Petitioner challenges the patentability of the challenged claims on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 7, 10, 11, 13, 15, 17, 20, 22–25, 29, 32, 33, 35, 37, 38, 41, 42	103(a)	Hackborn, Westerman
4, 5, 8, 9, 21, 26, 27, 30, 31, 43	103(a)	Hackborn, Westerman, Townsend
16	103(a)	Hackborn, Westerman,

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
		Jablonski
18, 19, 39, 40	103(a)	Hackborn, Westerman, Jobs
1, 4–8, 10–12, 15, 17–20, 22, 23, 26–30, 32, 34, 37–42	103(a)	Hackborn, Westerman, Jobs ¹

Pet. 2.

II. ANALYSIS

A. Principles of Law

Petitioner bears the burden to demonstrate unpatentability. “*Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). At this preliminary stage, we determine whether the information in the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. *See* 35 U.S.C. § 314(a).

As relevant here, a patent claim is unpatentable under 35 U.S.C. § 103 “if the differences between the subject matter sought to be patented 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.” 35 U.S.C. § 103 (2011); *accord KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103). The question of obviousness involves resolving 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

¹ Petitioner distinguishes this ground from another ground relying on the same prior art references as “focus[ing] on a specific embodiment of live wallpaper in Hackborn” that includes “information fetched or received from one or more social services on the Internet.” Pet. 63–64 (citing Ex. 1004 ¶ 46, Fig. 6).

prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the challenges of the Petition.

B. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention (“POSITA”). 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) (quotation marks omitted).

Petitioner relies on declaration testimony from Dr. Cockburn, who asserts that a person of ordinary skill in the art “would have had at least a bachelor’s degree in computer science, computer engineering, electrical engineering, human-computer interaction, or a related field, and would have had at least two years of relevant work experience in the design and development of graphical user interfaces (GUIs), human-computer interfaces, or equivalents thereof.” Pet. 9 n.2 (citing Ex. 1003 ¶ 26); Ex. 1003 ¶ 26. Dr. Cockburn also indicates that “[l]ess work experience may be compensated by a higher level of education and vice versa.” Ex. 1003 ¶ 26.

Patent Owner indicates it “does not necessarily agree with all aspects of Petitioner’s proposed level of ordinary skill, but does not believe that resolving that level is necessary to resolve the issues raised in this

preliminary response.” Prelim. Resp. 5. Dr. Surati indicates that his opinions provided in his declaration in support of Patent Owner’s Preliminary Response are “provided from the perspective of the POSITA” proposed by Dr. Cockburn. Ex. 2001 ¶ 36 (citing Ex. 1003 ¶ 26).

We are persuaded, on the present record, that Petitioner’s proposal is consistent with the level reflected by the ’755 patent and the prior art of record. Accordingly, we adopt Petitioner’s definition of the level of ordinary skill for purposes of this Decision.

C. Claim Construction

In *inter partes* reviews, the Board construes a claim using the same claim construction standard employed in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2020). Accordingly, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would have been understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “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). Additionally, we construe claim terms only as relevant to the parties’ contentions and only to the extent necessary to resolve the issues in dispute. See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Petitioner contends “no claim terms need be construed to resolve issues of controversy in the present Petition.” Pet. 3. Similarly, Patent Owner contends the “plain and ordinary meaning of the term is readily understandable, and Patent Owner believes no formal constructions are necessary.” Prelim. Resp. 5.

At this stage, we agree with the parties that no terms need to be construed expressly. We discuss claim interpretation to the extent necessary in the context of analyzing the asserted grounds.

D. Summary of Prior Art Disclosures

1. Disclosure of Hackborn

Hackborn discloses it “relates to components of computer operating systems, including background desktop components commonly referred to as computer wallpaper.” Ex. 1004 ¶ 2. Hackborn describes “techniques that may be used for managing objects on a home screen for a computer operating system.” *Id.* ¶ 6.

Figure 1, shown below, shows a computing device with home screen which includes “live wallpaper.” *Id.* ¶ 15.

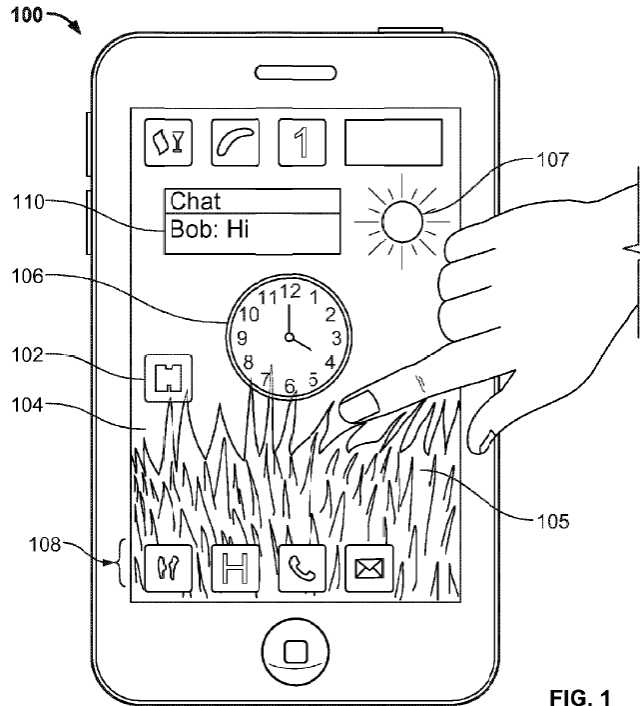


Figure 1 illustrates computing device 100, wallpaper 104, with grass 105 and sunny sky 107. *Id.* ¶ 26. Hackborn describes that “[i]n the example shown in FIG. 1, a user is swiping her finger across a touch-sensitive display screen of the computing device” and, “[i]n response, the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user's finger during the swipe.” *Id.* ¶ 28.

2. Disclosure of Westerman

Westerman describes ways for “interpreting manual swipe gestures as input in connection with touch-sensitive user interfaces that include virtual keyboards.” Ex. 1005, code (57).

Westerman describes its method includes “detecting a swipe gesture across the virtual keyboard, determining a direction of the swipe gesture, and performing a predetermined function determined by the direction of the swipe gesture.” *Id.* ¶ 18. Westerman’s “[d]etecting a swipe gesture can

include acquiring touch image data from the touch-sensitive device, processing the image to generate one or more finger path events, determining a displacement of the one or more finger path events, and detecting a swipe gesture if the displacement exceeds a predetermined threshold.” *Id.* ¶ 19. Westerman notes that “[i]f the displacement does not exceed the threshold, the input can be interpreted as a conventional tap.” *Id.* In addition, the “time of the motion associated with the input can also be compared to a maximum swipe gesture timeout threshold” where, “[i]f the timeout threshold is exceeded, the input can be interpreted as a conventional tap.” *Id.*

3. Disclosure of Townsend

Townsend describes an “application-programming interface (API) for applications to extend the input received from various multi-touch hardware devices to simulate real-world behavior of application objects.” Ex. 1006, code (57). Townsend describes that its “inertia system provides more realistic movement for application objects manipulated using multi-touch hardware and the API provides a consistent feel to manipulations across applications.” *Id.* Townsend describes accomplishing this because “the inertia system actually generates the events based on a simulation of the behavior of the objects.” *Id.* ¶ 5.

Townsend explains that “real world objects do not typically stop moving when a user stops pushing them, but rather exhibit some inertia and keep moving until friction slows them finally to a stop.” *Id.* ¶ 14. In Townsend, “touch input first goes through a process to interpret the movement of one or more contacts as manipulations” and “[m]anipulations map more directly to user intentions than do individual touch inputs and add

support for basic transformation of objects using multiple touch contacts.”
Id. Townsend describes its system “simulates the continued movement of an application object after the user stops touching the object based on initialization parameters and constraints defined for the object.” *Id.* ¶ 21.

4. Disclosure of Jablonski

Jablonski relates to “obtaining and displaying images as wallpaper or screen saver images on the desktop of a personal computer or similar environment.” Ex. 1008, 1:12–15. Jablonski “provides a simple and convenient method for a consumer to obtain image files for use as wallpaper or screen saver images on a personal computer (‘PC’) desktop, or similar environments.” *Id.* at 2:14–19.

Jablonski discloses that “[w]allpaper images are usually included as part of the computer’s operating system, or are added later by the user with the addition of a designated wallpaper program or other software, or by downloading images from various sources on the Internet.” *Id.* at 1:33–38. In using Jablonski’s system, “the consumer accesses the wallpaper web site using his or her web browser, and identifies one or more desired wallpaper images,” then “the consumer provides personal information about himself or herself which may be useful to marketers of goods or services.” *Id.* at 3:8–24. Ultimately, “the wallpaper image file or files are downloaded to the consumer’s PC along with the wallpaper desktop program which manages and displays the wallpaper images on the desktop of the consumer’s PC.” *Id.* at 3:24–29.

5. Disclosure of Jobs

Jobs relates “to electronic devices that apply heuristics to detected user gestures on a touch screen display to determine commands.” Ex. 1009

¶ 3. Jobs describes that “there is a need for touch-screen-display electronic devices with more transparent and intuitive user interfaces for translating imprecise user gestures into precise, intended commands that are easy to use, configure, and/or adapt.” *Id.* ¶ 7. Jobs thus describes a device, which “has a touch-sensitive display (also known as a "touch screen") with a graphical user interface (GUI), one or more processors, memory and one or more modules, programs or sets of instructions stored in the memory for performing multiple functions.” *Id.* ¶ 8.

Jobs describes there may be buttons on the user interface which “may disengage a lock of the touch screen 112 or begin a process that uses gestures on the touch screen to unlock the device.” *Id.* ¶ 102; *see also id.* ¶ 166 (lock and unlock the device using a button). Figure 3A, shown below, portrays an example user interface for unlocking the device.

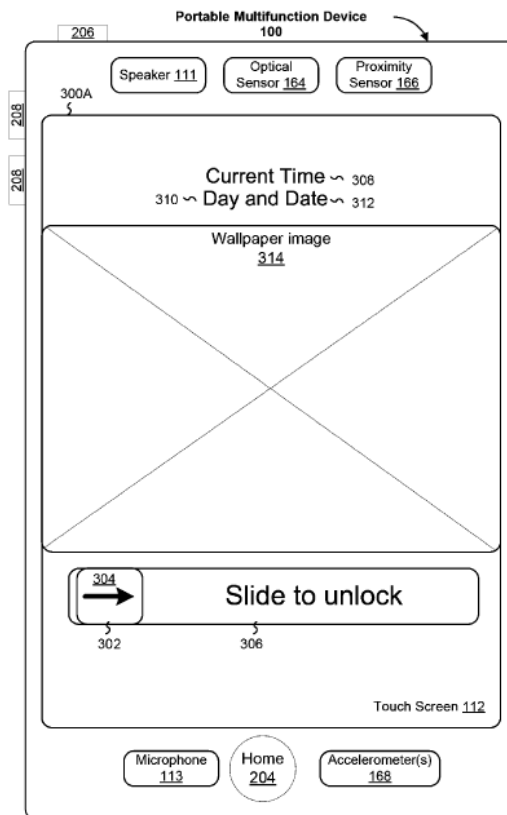


Figure 3A illustrates an exemplary user interface for unlocking a portable electronic device. *Id.* ¶ 21. Figure 3A illustrates user interface 300A, unlock image 302, arrow 304, channel 306 “that provides additional clues to the unlock gesture,” and wallpaper image 314. *Id.* ¶¶ 168–175.

E. Asserted Obviousness of Claims 1–3, 7, 10, 11, 13, 15, 17, 20, 22–25, 29, 32, 33, 35, 37, 38, 41, 42 over Hackborn and Westerman

Petitioner asserts that claims 1–3, 7, 10, 11, 13, 15, 17, 20, 22–25, 29, 32, 33, 35, 37, 38, 41, 42 are unpatentable as obvious over the combination of Hackborn and Westerman. Pet. 4–44.

1. Reasons to Combine Hackborn and Westerman

Petitioner contends a person of ordinary skill would have combined Hackborn’s mobile device with a touch screen able to display “live” wallpaper and Westerman’s techniques for interpreting swipe gesture inputs, including distinguishing between tap and swipe gestures using predetermined thresholds. Pet. 9–11, 12–13; *see* Pet. 9–14 (describing Petitioner’s “Hackborn-Westerman Combination”). Petitioner contends that “[a] POSITA reviewing Hackborn would have naturally looked to Westerman to better understand how to implement Hackborn’s teachings, for example, how to discern between different user inputs (e.g., tap or swipe).” Pet. 12–13 (citing Ex. 1003 ¶ 52).

Petitioner contends that one of ordinary skill would have had a reasonable expectation of success in combining the references in the manner Petitioner proposes. Pet. 13–14. Specifically, Petitioner asserts that, because “recognizing predetermined touch inputs was known, and Hackborn and Westerman both describe the use of touchscreen devices and

predetermined criteria for registering touches on the devices, a POSITA would have reasonably understood the combination of Hackborn and Westerman to be successful with no unexpected results.” Pet. 14 (citing Ex. 1003 ¶ 53; Ex. 1004 ¶ 28, Ex. 1005 ¶¶ 18, 19, 25, 41, 59, 61–64).

Petitioner’s support for its arguments regarding the reasons one of ordinary skill would have made the proposed combination is sufficient at this preliminary juncture.

2. Independent Claim 1

Device elements (Preamble and Limitations [1.a–1.e])

Petitioner points to Hackborn’s “computing device 100 (e.g., a smart phone, tablet device, laptop device, pad device, personal digital assistant, electronic reading device, or the like)” for the electronic device recited in the preamble. Pet. 14 (citing Ex. 1004 ¶¶ 26, 27, 51, 61, 62, Figs. 1, 7, 8; Ex. 1003 ¶ 54). For the recited “a display” and “a touch-sensitive surface” recited in Limitations [1.a and 1.b], Petitioner relies on Hackborn’s “touch-sensitive display screen.” Pet. 15 (citing Ex. 1004 ¶¶ 26, 27, 51–54, 61, 62, Figs. 1, 3A, 3B, 4, 5A, 5B, 6–8; Ex. 1003 ¶¶ 55–56). For the “one or more processors” and “memory” recited in Limitations [1.c and 1.d], Petitioner points to Hackborn’s “generic mobile computer device 850,” with “processor 852, memory 864, [and] an input/output device.” Pet. 16 (citing Ex. 1004 ¶¶ 22, 60–62, 64, 67–71, Fig. 8; Ex. 1003 ¶¶ 57, 58) (alteration in original).

For the “one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including instructions for” recited in Limitation [1.e], Petitioner relies on Hackborn’s description of Hackborn’s

processor 852 and memory 864. Pet. 16 ((citing Ex. 1004 ¶¶ 22, 60, 62, 64, 67, 68, 70, 71, Fig. 8; Ex. 1003 ¶ 59). Specifically, Petitioner relies on Hackborn’s description that “[t]he processor 852 can execute instructions within the computing device 850, including instructions stored in the memory 864.” Pet. 16 (quoting Ex. 1004 ¶ 68). Petitioner additionally relies on Hackborn’s description that the memory of the device may include a “computer program product that contains instructions that, when executed, perform one or more methods, such as those described” in Hackborn. Pet. 16 (quoting Ex. 1004 ¶ 71).

Regardless of whether the preamble (“[a]n electronic device, comprising”) is limiting, Petitioner’s showing for the preamble and Limitations [1a–1.e] is sufficient for purposes of institution because Petitioner relies on express teachings of the cited passages discussed above with respect to Hackborn’s disclosure. At this preliminary stage, Patent Owner does not address Petitioner’s showing for these limitations. *See generally* Prelim. Resp.

Displaying a user interface including a background and foreground objects (Limitations [1.f–1.g])

Regarding “displaying a first user interface on the display, wherein the first user interface includes a background with an appearance and one or more foreground objects” (Limitations [1.f–1.h]), Petitioner generally relies on Hackborn’s “method for generating a graphical user interface on a display of a computer device” depicted in Figure 9 and Hackborn’s “computing device displaying a home screen layout that includes live wallpaper” shown in Figure 1. Pet. 17 (citing Ex. 1004 ¶¶ 9, 23, 26, 36, 51, 54, 58, 26, Figs. 1, 7, 9; Ex. 1003 ¶ 60). For the recited “background with an appearance” (Limitation [1.g]), Petitioner relies on Hackborn’s

background wallpaper, including live wallpaper 104 in Figure 1 that shows “grass 105 below a sunny sky 107.” Pet. 17–18 (citing Ex. 1004 ¶¶ 9, 11, 12, 15, 23, 25, 26, 30, 31, 36, 51, 54, 58, Figs. 1, 2, 7, 9; Ex. 1003 ¶ 61).

For “one or more foreground objects” (Limitation [1.h]), Petitioner identifies icon 102, gadget 106, and application 110 in Figure 1. Pet. 18. Petitioner also notes that these objects, as shown in Figure 2, exist on a layer in front of the wallpaper 104. Pet 18 (citing Ex. 1004 ¶¶ 9, 23, 26, 30, 31, 36, 41, 43, 51, 54, 58, Figs. 1, 2, 4, 5A–5B, 7, 9; Ex. 1003 ¶ 62); *see* Ex. 1004 ¶ 31 (describing the effects of the visual layers of Figure 2 as “the wallpaper 404² tends to appear to the user as though it were behind all icons, gadgets, images or other items that appear on the screen”).

Petitioner’s showing for Limitations [1f–1.h] is sufficient for purposes of institution because Petitioner relies on express teachings of the cited passages discussed above with respect to Hackborn’s disclosure. At this preliminary stage, Patent Owner does not address Petitioner’s showing for these limitations. *See generally* Prelim. Resp.

Detecting a contact and dynamically changing the background appearance (Limitations [1.i–1.l])

As recited in Limitations [1.i–1.l], claim 1 generally requires detecting a contact on the touch-sensitive surface that corresponds to the background having an appearance (*see* Limitation [1.i]) and, responsive to the magnitude of the contact exceeding a threshold, dynamically changing the appearance of the background—without changing the appearance of foreground objects—where the dynamic change (i) is based on the magnitude of the contact and (ii) includes displaying in sequence multiple images based on

² The reference numeral 404 in paragraph 31 appears to be a minor typographical error and refers to “wallpaper 104.”

the magnitude of the contact (*see* Limitations [1.j–1.l]). *See* Prelim. Resp. 1 (characterizing claim 1).

For these limitations, Petitioner generally relies on Hackborn’s example of a user swiping her finger across the touch-sensitive display screen:

In the example shown in FIG. 1, a user is swiping her finger across a touch-sensitive display screen of the computing device. In response, the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user's finger during the swipe.

Ex. 1004 ¶ 28; *see, e.g.*, Pet. 20–27 (discussing the bending grass example of Fig. 1). In this example, Hackborn describes a user contacting the touch-screen by swiping her finger across the blades of grass area of the wallpaper background. In response to the finger swipe, the appearance of the grass in the wallpaper background area swiped by the user changes to appear to bend or sway.

Petitioner contends the finger swipe is the “a first input by a first contact on the touch-sensitive surface at a location in the first user interface that corresponds to the background of the first user interface” required by Limitation [1.i]. Pet. 19–20. According to Petitioner, Hackborn’s description that the displayed blades of grass “are caused to bend or sway as if contacted by the user’s finger during the swipe” shows that the finger swipe is detected, as also required by Limitation [1.i]. Pet. 20 (quoting Ex. 1004 ¶ 28; citing Ex. 1004 ¶ 28, Fig. 1; Ex. 1003 ¶ 64).

Regarding “dynamically changing the appearance of the background of the first user interface” (Limitation [1.j]), Petitioner again relies on Hackborn’s description that the displayed blades of grass “are caused to bend or sway as if contacted by the user’s finger during the swipe.” Pet. 20–

21 (citing Ex. 1004 ¶¶ 25, 28, 33, 43, 54, Figs. 1, 5A, 5B, claim 18). For the required “dynamically changing . . . without changing an appearance of the one or more foreground objects in the first user interface” (Limitation [1.j]), Petitioner contends that Hackborn’s description that the blades of grass are caused to bend or sway responsive to user touch would have been understood by a POSITA as indicating that icons do not move. Pet. 21–22.

Also, Petitioner contends that, based on Hackborn’s discussion of different layers of appearance of the interface, “a POSITA would have understood that a user swipe on grass would affect only the appearance of the wallpaper and not the appearance of any of the objects on layers above the wallpaper layer.” Pet. 22 (citing Ex. 1003 ¶ 66; Ex. 1004 ¶¶ 29–36, Fig. 2). For further support, Petitioner also points to Hackborn’s description that “wallpaper 104 may be updated independently of other displayed graphics that are associated with other objects, constructs, or applications,” among other descriptions in Hackborn. Pet. 21–22 (citing Ex. 1004 ¶¶ 27, 25, 28, 29–36; Ex. 1003 ¶ 66).

Addressing the requirement that the dynamically changing the appearance of the background be “in response to detecting the first input by the first contact, in accordance with a determination that the first contact has a magnitude that is above a threshold” (Limitation [1.j]), Petitioner points to Westerman’s description regarding interpreting user inputs that exceed various thresholds as “a swipe event.” Pet. 22 (citing Ex. 1005 ¶¶ 18, 19, 60–64; Ex. 1003 ¶ 67).

Regarding “wherein the dynamic change in the appearance of the background of the first user interface is based at least in part on the magnitude of the first contact” (Limitation [1.k]), based on Hackborn’s description that “the grass blades look as if the finger is actually contacting

them as it drags across the screen of the device,” Petitioner asserts “the farther the swipe, the more extreme the grass movement expected from Hackborn.” Pet. 23 (quoting Ex. 1004 ¶ 33). Petitioner’s position is that “[t]he dynamic change in appearance of the background (e.g., grass moving) is based at least in part on the magnitude of the gesture because the grass movement effect only occurs in [Petitioner’s combination] if the input is determined to be a swipe, in accordance with the magnitude (e.g., path length) of input, per Westerman.” Pet. 23 (citing Ex. 1003 ¶ 68; Ex. 1004 ¶ 28; Ex. 1005 ¶¶ 18, 19, 60–64).

Regarding “wherein the dynamic change in the appearance of the background of the first user interface includes displaying in sequence at least some of a plurality of images based at least in part on the magnitude of the first contact” (Limitation [1.i]), Petitioner contends, relying on Dr. Cockburn’s declaration testimony, “a POSITA would have understood or found obvious that such an ‘animation’ showing the movement of grass would comprise a plurality of images shown in succession that cause the user to see what appears to be the movement of grass, where each of the images are slightly different from one another but displayed in sequence to suggest movement as the images change.” Pet. 23–24 (citing Ex. 1003 ¶ 69; Ex. 1026; Ex. 1027; Ex. 1004 ¶¶ 8, 28, 33, 40, 46, 50, Figs. 1, 4, 6, claims 32, 33; Ex. 1005 ¶¶ 18, 19, 60–64). Dr. Cockburn supports his declaration testimony with evidence that an animation refers to displaying a sequence of images that gives the appearance of movement. Ex. 1003 ¶ 69 (citing Ex. 1026, 1:57–59; Ex. 1027, [0296]).

Patent Owner’s Contentions

Regarding Limitation [1.j], Patent Owner asserts that “the Petition simply *assumes* that the grass only moves if the user has swiped instead of

tapped” and so fails to demonstrate that Petitioner’s prior art combination “would not change Hackborn’s background in accordance with a determination that the user input has a magnitude that is above a threshold.” Prelim. Resp. 12, 13–14 (citing Pet. 20–21) (emphasis in original).

More particularly, Patent Owner contends “Hackborn neither discloses nor suggests whether its wallpaper ‘grass’ moves depends at all on the type of user input received.” Prelim. Resp. 15 (citing Ex. 2001 ¶ 96). Patent Owner contends “Hackborn’s ‘grass’ will move responsive to any user input, regardless of whether a swipe or tap.” *Id.* (citing Ex. 2001 ¶ 100). Patent Owner further contends “Hackborn does not disclose or suggest that its wallpaper ‘grass’ moves in response to a swipe, but would not move in response to a tap.” *Id.* at 16 (citing Ex. 2001 ¶ 103). Therefore, according to Patent Owner, “even if Westerman’s teachings are incorporated, an input crossing a threshold to become a swipe would not impact whether or not Hackborn’s grass moves.” *Id.* (citing Ex. 2001 ¶ 104).

As such, we understand Patent Owner’s position to be that, because (i) Hackborn discloses or suggests (in Patent Owner’s view) that both a tap and a swipe would have the same effect—namely, showing bending or swaying grass—and (ii) because a tap would be a user input with a magnitude below a threshold, Petitioner’s combination of Hackborn and Westerman would not change Hackborn’s background in accordance with a determination that the user input has a magnitude that is above a threshold, as required by Limitation [1.j].

On the preliminary record, we disagree with Patent Owner’s position that Hackborn discloses or suggests both a tap and a swipe would have the same effect—namely, showing bending or swaying grass. Hackborn’s example relied on by Petitioner expressly describes *a finger swipe* causing

the effect of the grass “to bend or sway *as if contacted by the user’s finger during the swipe.*” Ex. 1004 ¶ 28 (emphasis added). As such, Hackborn’s grass-bending example relied on by Petitioner is expressly caused by a finger swipe.

Patent Owner and Dr. Surati observe correctly that Hackborn describes “[o]ther examples of live wallpaper” in paragraph 28 that involve user inputs other than swiping, including one example of tapping on the display screen a predetermined number of times. Ex. 1004 ¶ 28; Prelim. Resp. 14–15 (discussing Ex. 1004 ¶ 28); Ex. 2001 ¶¶ 93–100. None of these other examples, however, are described as having the same grass-bending effect. Ex. 1004 ¶ 28; Prelim. Resp. 14–15; Ex. 2001 ¶¶ 93–100.

Patent Owner also contends that Petitioner’s proposed combination “does not disclose or suggest that a background is dynamically changed based on the magnitude of a contact,” as required by Limitation [1.k]. Prelim. Resp. 12–13. Rather, Patent Owner asserts that “Hackborn only states that its background ‘grass’ changes its appearance in response to user input, not that the changes vary based at all on the magnitude of user input.” *Id.* Patent Owner’s argument does not address Petitioner’s argument that, in Petitioner’s proposed prior art combination, the longer the swipe, the more grass is changed “in accordance with the magnitude (e.g., path length) of input, per Westerman.” Pet. 23 (citing Ex. 1003 ¶ 68; Ex. 1004 ¶ 28; Ex. 1005 ¶¶ 18, 19, 60–64). Patent Owner’s contention also does not address Petitioner’s argument that “Hackborn explains that . . . ‘the grass blades look as if the finger is actually contacting them as it drags across the screen of the device’. . . . Thus, the farther the swipe, the more extreme the grass movement expected from Hackborn.” Pet. 23 (quoting Ex. 1004 ¶ 33).

Conclusion regarding Limitations [1.i–1.l]

We determine Petitioner’s showing discussed above regarding Limitations [1.i–1.l] to be sufficient for institution. Petitioner’s showing in large measure relies on Hackborn’s straightforward description of changing the appearance of grass displayed in “live” wallpaper in response to a finger swipe in combination with Westerman’s disclosures of interpreting user input on touch screens as swipes. *See, e.g.*, Pet. 22–23; Ex. 1004 ¶¶ 28, 33; Ex. 1005 ¶¶ 18–19. With regard to the contested Limitations [1.i and 1.k], we note particularly that Petitioner’s combination relies on Westerman’s disclosure of interpreting user inputs that exceed various thresholds as “a swipe event.” This showing is sufficient for institution to show the threshold determination required by Limitation [1.j]. *See, e.g.*, Ex. 1005 ¶¶ 19; Pet. 22 (citing Ex. 1005 ¶ 19). Petitioner’s combination relies on Hackborn’s animation of the grass on the wallpaper “that makes the grass blades look as if the finger is actually contacting them as it drags across the screen of the device.” Ex. 1004 ¶ 33; *see* Pet. 23 (quoting Ex. 1004 ¶ 33). On this preliminary record, Petitioner’s position that “the farther the swipe, the more extreme the grass movement expected from Hackborn” naturally follows from Hackborn’s description. Pet. 23. As such, we determine Petitioner’s showing that the proposed combination of Hackborn and Westerman changes the grass appearance based at least in part of the magnitude of the swipe to be sufficient for institution for Limitation [1.k].

Conclusion Regarding Claim 1

In sum, for the reasons discussed above, Petitioner’s showing regarding claim 1 is sufficient for institution. Accordingly, having reviewed the Petition, Preliminary Response, and evidence cited therein, we determine that Petitioner has established a reasonable likelihood that it will prevail in

showing that the combination of Hackborn and Westerman renders obvious claim 1.

This showing is sufficient to institute an *inter partes* review on all challenged claims on all asserted grounds. 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”); *see SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

3. *Independent Claim 23*

Independent method claim 23 is directed to a method reciting steps “at an electronic device” and is substantially similar to limitations recited in claim 1. *Compare* Ex. 1001, 101:11–42, *with id.* at 104:51–105:9. Petitioner relies on substantially similar contentions as those discussed above with respect to claim 1. Pet. 42–43. Patent Owner argues claims 1 and 23 together. Prelim. Resp. 1–2, 12–16.

Accordingly, we reach a similar conclusion for Petitioner’s contentions regarding claim 23 as we did above for claim 1.

4. *Dependent Claims*

Petitioner presents claim-by-claim, limitation-by-limitation analyses regarding dependent claims 2, 3, 7, 10, 11, 13, 15, 17, 20, 22, 24, 25, 29, 32, 33, 35, 37, 38, 41, 42. *See* Pet. 27–44. Patent Owner does not separately present arguments regarding Petitioner’s showing with respect to the dependent claims. *See* Prelim. Resp. As noted above, Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenge of the independent claims, which is sufficient for institution.

We note that claim 22 recites “wherein the electronic device is configured such that at least one of” followed by a list of ways in which the electronic device could be configured. Ex. 1001, 103:13–104:50. Petitioner identifies three ways in which the proposed combination of Hackborn and Westerman meets claim 22. Pet. 42. Specifically, Petitioner identifies Hackborn’s “wallpaper shows grass 105 below a sunny sky” as meeting both “the background includes a background image” and “the background is a background image,” recited in claim 22. Pet. 42 (quoting Ex. 1004 ¶ 26); Ex. 1001, 103:14–15. Petitioner also points to Hackborn’s Figure 1 showing phone application icon and mail application icon as meeting the limitation “the one or more foreground objects includes one or more application icons.” Pet. 42 (quoting Ex. 1004 Fig. 1); Ex. 1001, 103:20–21. Because claim 22 recites “at least one of,” we find Petitioner’s showing with regard to claim 22 sufficient for institution.

F. Other Asserted Grounds of Obviousness Relying on Petitioner’s Combination of Hackborn and Westerman

For other challenged dependent claims, Petitioner relies on its combination of Hackborn and Westerman discussed above with respect to claim 1 along with additional prior art references. At this preliminary juncture, Patent Owner does not separately present arguments regarding Petitioner’s showing with respect to these dependent claims. *See* Prelim. Resp.

1. Asserted Obviousness over Hackborn, Westerman, and Townsend

More specifically, Petitioner asserts that claims 4, 5, 8, 9, 21, 26, 27, 30, 31, and 43 are unpatentable as obvious over the combination of Hackborn, Westerman, and Townsend (Ground 1B). Pet. 2, 44–52. In its

combination of Hackborn, Westerman, and Townsend, Petitioner contends that “a POSITA would have naturally looked to” Townsend for “specific techniques and implementation details for animating grass.” Pet. 46.

In this regard, Petitioner relies on Townsend’s disclosure of “an API [application programming interface] and simulation engine that enable applications ‘to simulate real-world behavior of objects’ using ‘techniques based on physics to simulate the behavior of the object’ in response to touch gestures” such as Hackborn’s animating the movement of blades of grass. Pet. 46 (citing Ex. 1006 ¶¶ 14, 21, 39; Ex. 1004 ¶ 28; Ex. 1003 ¶ 117).

As noted above, Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenge of the independent claims, which is sufficient for institution.

2. Asserted Obviousness over Hackborn, Westerman, and Jablonski

Petitioner asserts that claim 16 is unpatentable as obvious over the combination of Hackborn, Westerman, and Jablonski (Ground 1C). Pet. 2, 52–55. Claim 16 depends from claim 1 and additionally recites “wherein the electronic device is configured such that the background is one of a plurality of pre-installed backgrounds stored in the memory and the background is capable of being selected by a user.” Ex. 1001, 102:55–59.

In its combination of Hackborn, Westerman, and Jablonski, Petitioner relies on Hackborn’s description of custom operating system theme elements are capable of being selected by a user. Pet. 53 (citing Ex. 1004 ¶ 57). Petitioner also relies on Jablonski’s additional disclosures concerning wallpaper. Pet. 52–55. Specifically, Petitioner contends that “a POSITA would have understood . . . that the background can be pre-installed in memory” based on Jablonski’s disclosure that “[w]allpaper images are

usually included as part of the computer’s operation system.” Pet. 53–54 (citing Ex. 1008, 1:34–40).

Petitioner also contends that “a POSITA would have reasonably understood the combination of Hackborn and Jablonski to be successful with no unexpected results” and would require “nothing more than routine programming knowledge well within the skill of a POSITA.” Pet. 54.

Petitioner seems to assert that one of ordinary skill could have combined Jablonski with Hackborn and Westerman without providing a reason why one of ordinary skill would have done so. *See, e.g.*, Pet. 54 (indicating “[b]ecause the use of background wallpaper and computer operating systems was known, and Hackborn and Jablonski both describe the use of them, a POSITA would have reasonably understood the combination of Hackborn and Jablonski to be successful with no unexpected results.”).

As noted above, Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenge of the independent claims, which is sufficient for institution.

3. Asserted Obviousness over Hackborn, Westerman, and Jobs

Petitioner asserts that claims 18, 19, 39, and 40 are unpatentable as obvious over the combination of Hackborn, Westerman, and Jobs (Ground 1D). Pet. 2, 55–55. In its combination of Hackborn, Westerman, and Jablonski, Petitioner relies on Job’s disclosures of wallpapers and ability to lock and unlock the touch screen. *See, e.g.*, Pet. 57 (citing Ex. 1009 ¶ 102). Petitioner proposes a combination of Hackborn, Westerman, and Jobs in which the device would “include a lock screen with a wallpaper, per Jobs,

such that the lock screen wallpaper is ‘live’ like the unlocked screen, per Hackborn.” Pet. 59 (citing Ex. 1003 ¶ 140).

Petitioner contends that one of ordinary skill would have combined Jobs with Hackborn and Westerman in this manner “to provide means by which ‘unintentional activation or deactivation of functions’ can be avoided, such [as] Jobs’ lock screen with a wallpaper image.” Pet. 58 (citing Ex. 1003 ¶ 139). Petitioner also asserts that one of ordinary skill “would have readily understood the combination of Hackborn, Westerman, and Jobs to be successful with no unexpected results” because swiping inputs, lock screens, and interacting with live backgrounds all were known, as shown by the various prior art references. Pet. 59–60 (citing Ex. 1003 ¶ 140).

As noted above, Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenge of the independent claims, which is sufficient for institution.

G. Asserted Obviousness of Claims 1, 4–8, 10–12, 15, 17–20, 22, 23, 26–30, 32, 34, and 37–42 over Hackborn, Westerman, and Jobs

Petitioner asserts that claims 1, 4–8, 10–12, 15, 17–20, 22, 23, 26–30, 32, 34, and 37–42 also are unpatentable as obvious Hackborn, Westerman, and Jobs (Ground 2). Pet. 2, 63–91. Petitioner characterizes this ground as presenting an alternative combination of Hackborn, Westerman, and Jobs that focuses on a different embodiment of live wallpaper in Hackborn than the grass-bending embodiment described in paragraph 28 with respect to Figure 1. Pet. 63 n.4; see Prelim. Resp. 17 (“Petitioner’s Ground 1 starts from a similar premise as Ground 1, with the exception that Ground 2 focuses on wallpaper 604 of Hackborn’s Figure 6 (rather than wallpaper 104 of Hackborn’s Figure 1).” (citing Pet. 63–65)).

Hackborn's Figure 6, shown below, presents "another example of active content being produced as live wallpaper on a computing device 600." Ex. 1004 ¶ 46.

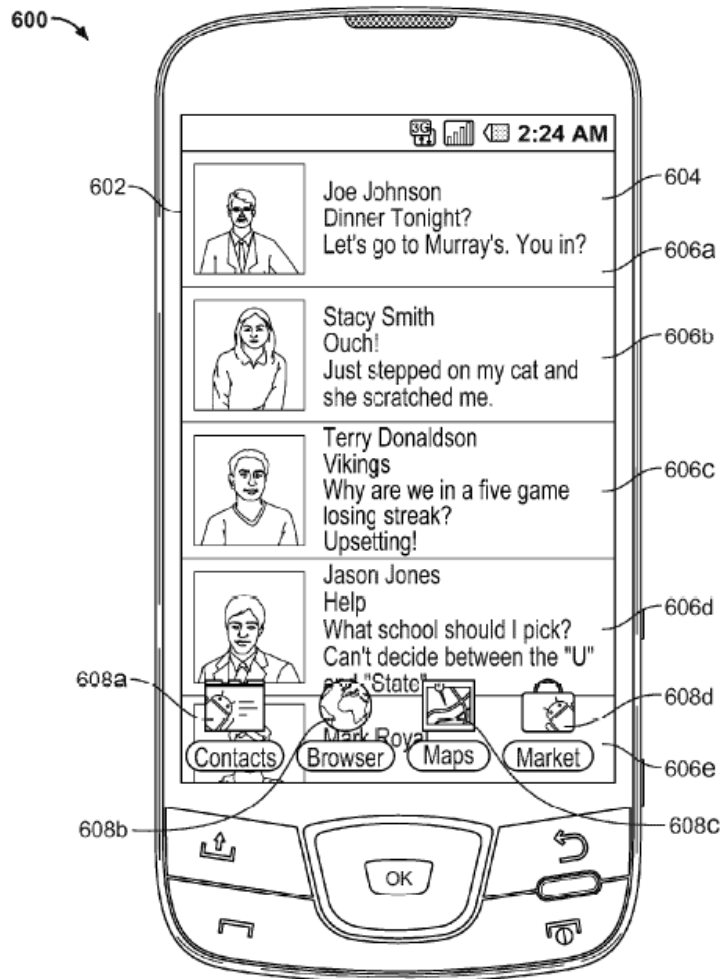


FIG. 6

In Hackborn's Figure 6, "display 602 of the device 600 displays the live wallpaper 604, which includes information" from a social networking site on the Internet. *Id.* ¶ 46. The displayed information includes posts 606a–e by the user's friends and others. *Id.* The posts may include textual information, an image, and an indication of the poster's identity. *Id.* Hackborn indicates "posts 606a–e may be displayed in various manners," including "as new information is received, already displayed posts may be

scrolled (e.g., downward) and the new post may be displayed in a predetermined position.” *Id.* ¶ 47.

Petitioner proposes to combine Jobs’ vertical swipe gesture to scroll through a message conversation with Hackborn’s live wallpaper that would allow a user to scroll through the posts. Pet. 67, 70–71 (citing Ex. 1009 ¶ 243, Fig. 6A); *see* Pet. 67–71. Petitioner summarizes the proposed combination of implementing a device “such that a swiping gesture, as determined using the methods of Westerman, on the wallpaper 604 of Hackborn would cause the images/posts of the wallpaper 604 to scroll, per Jobs.” Pet. 74 (citing Ex. 1003 ¶ 168; Ex. 1004 ¶¶ 40, 41, 46–48, Figs. 4, 6; Ex. 1005 ¶¶ 59–64; Ex. 1009 ¶¶ 243, 401, Figs. 6A, 15).

Petitioner indicates one of ordinary skill would have done so to provide “an intuitive method for allowing a user to interact with the live wallpaper and view new images when the user wishes to see them, or view older posts that may have been automatically scrolled out of view.” Pet. 71 (citing Ex. 1003 ¶ 155; Ex. 1009 ¶¶ 53, 401, Figs. 6A, 15). Petitioner also contends that one of ordinary skill would have had a reasonable expectation of success. Pet. 71–72.

Patent Owner argues that “Petitioner does not articulate a rationale for changing Hackborn’s foundation in which any user input on wallpaper 604 will cause the appearance of the wallpaper to change (by scrolling).” Prelim. Resp. 17. Petitioner provides a rationale—one of ordinary skill would have done so to provide an intuitive method to interact with the wallpaper by incorporating Jobs’ vertical swipe gesture used to scroll through a message conversation. Pet. 71.

Patent Owner also argues that Petitioner’s Hackborn-Westerman-Jobs combination fails because Petitioner does not adequately explain why the

combination of Hackborn-Westerman-Jobs would change the wallpaper in response to a swipe but not a tap. Prelim. Resp. 18. As a result, according to Patent Owner, the Petition fails to show “in accordance with a determination that the first contact has a magnitude that is above a threshold,” required by Limitation [1.j and 23.i].

We do not agree at this preliminary juncture. Notably, Petitioner’s combination relies on Jobs’ express disclosure of vertical swipe gesture to scroll through a message conversation. Ex. 1009 ¶ 243; *see* Pet. 67. That description in Jobs’ is not related to a tap but rather is directed only to a “vertical swipe gesture” being used to scroll through a message conversation.

Additionally, for the requirement that dynamically changing the appearance of the background be made “in accordance with a determination that the first contact has a magnitude that is above a threshold” (Limitation [1.i]), Petitioner relies at least in part on Westerman’s techniques for detecting swipe events based on user input that exceeds a minimum swipe length threshold. Pet. 76 (citing Ex. 1005 ¶¶ 18, 19, 60–64; Ex. 1003 ¶ 170); *see* Ex. 1005 ¶ 19 (indicating “detecting a swipe gesture if the displacement exceeds a predetermined threshold”).

For these reasons, we view Petitioner’s showing for Limitation [1.j] to be sufficient for institution. As noted above, Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenge of the independent claims as obvious over Hackborn and Westerman (Ground 1A), which is sufficient for institution.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail in showing at least one of claims 1–13, 15–35, and 37–43 of the ’755 patent is unpatentable. We institute an *inter partes* review of all challenged claims on all asserted grounds. 37 C.F.R. § 42.108(a); *see SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1–13, 15–35, and 37–43 of the ’755 patent on all the grounds set forth in the Petition; and,

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

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Patent 10,656,755 B1

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