

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.

Petitioner

v.

SMITH INTERFACE TECHNOLOGIES, LLC

Patent Owner

Case IPR2024-01087

Patent 10,656,755 B1

PATENT OWNER RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit	Shorthand	Description
2005	Mahon	Declaration of Dr. Mark P. Mahon
2006	Mahon CV	CV of Dr. Mark Mahon
2007	Cockburn Dep.	Transcript of the Deposition of Andrew Cockburn, Ph.D.

I. INTRODUCTION

The '755 Patent discloses inventive techniques for dynamically changing the appearance of a user-interface background, without changing the appearance of foreground objects, in response to user input of sufficient magnitude.

As explained below, the Petition fails to show that any of the challenged claims were obvious over the asserted prior art combinations. Petitioner's obviousness arguments rely on conclusory and legally insufficient assertions, plainly guided by hindsight reasoning. For example, Petitioner overlooks that Hackborn and Westerman address fundamentally different problems with fundamentally different functionalities (aesthetic live wallpaper vs touch typing on a virtual keyboard). Ultimately, a POSITA would not have been motivated to combine these references to arrive at the particular combinations of claimed features, for example, such that Hackborn's live wallpaper moves in response to a swipe but not a tap.

Petitioner's proposed grounds also fail to disclose among other things, "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 without changing an appearance of the one or more foreground objects," or reverting the appearance of the background after contact ends.

The Board should therefore affirm patentability of all Challenged Claims.

II. OVERVIEW OF THE '755 PATENT

The '755 Patent “generally relate[s] to touch screens.” EX1001, 1:37–38. Specifically, it improves user interfaces for increasingly complex touchscreen devices. EX1001, Abstract. By August 2011, touch screen mobile devices were becoming increasingly capable of handling more complex tasks, necessitating more advanced control methods than basic input methods could provide. EX2005, ¶32. Due to limited screen space, input and output techniques that had been used on desktop computers were not feasible for use on these new mobile devices. *Id.* As explained in more detail below, the '755 Patent addressed this issue by enabling users to operate the mobile devices and feature-rich applications through multi-part gestures, allowing for successive user actions and feedback at each stage. *Id.*

A. Gesture-Related Magnitude and Threshold

The claims are directed to dynamically changing the appearance of a background—without changing the appearance of foreground objects—in response to detecting the first input by the first contact, in accordance with a determination that the first contact has a magnitude (e.g., swipe length or contact pressure) is above a threshold. EX1001, cl. 1, 23; EX2005, ¶33. “Gesture magnitude refers to the magnitude of the associated gesture dynamics. For example, in one embodiment, the gesture magnitude of a swipe gesture may include the length of the swipe and/or the contact pressure exerted during the swipe.” EX1001, 67:1–5. “[T]he operations

associated with a gesture may be carried out as a function of the associated gesture dynamics,” which “are aspects of a gesture that may vary without changing the identity of the gesture.” EX1001, 65:18–22. Examples of such aspects include “contact point velocity, contact point acceleration, contact pressure velocity, contact pressure acceleration, time to complete gesture, and/or any other aspect which may be associated with a gesture.” EX1001, 65:22–27.

The magnitude threshold to be satisfied before any dynamic change occurs is an “activation threshold,” which is “a threshold signal below which interaction is ignored” and “may be set for different types of user interaction (e.g., pressure, contact, proximity, etc.).” EX1001, 48:54–58; EX2005, ¶34. “For example, in one embodiment, an interaction surface may have a pressure activation threshold of P, below which all pressure interactions are ignored.” *Id.*, 48:58–60.

B. Dynamic Response to Selection

Once a gesture’s magnitude exceeds the threshold, the resulting dynamic change in the appearance of the background includes sequentially displaying images based at least in part on the magnitude of the gesture. EX1001, cl. 1, 23; EX2005, ¶35. For example, with reference to Figure 4 (inset below), the ’755 Patent describes displaying a selection area using one or more selection functions. “A selection function may determine one or more presentation properties of a selection,” “vary one or more presentation properties as a function of contact pressure,” or “determine

one or more fundamental properties of a selection.” EX1001, 29:30–59. “[P]ossible presentation properties may include, but are not limited to, shading, color, contrast, brightness, line style, animation routine, transparency, pattern, border style, area style, and/or any other visual property that may describe an object on a display.” EX1001, 29:31–36.

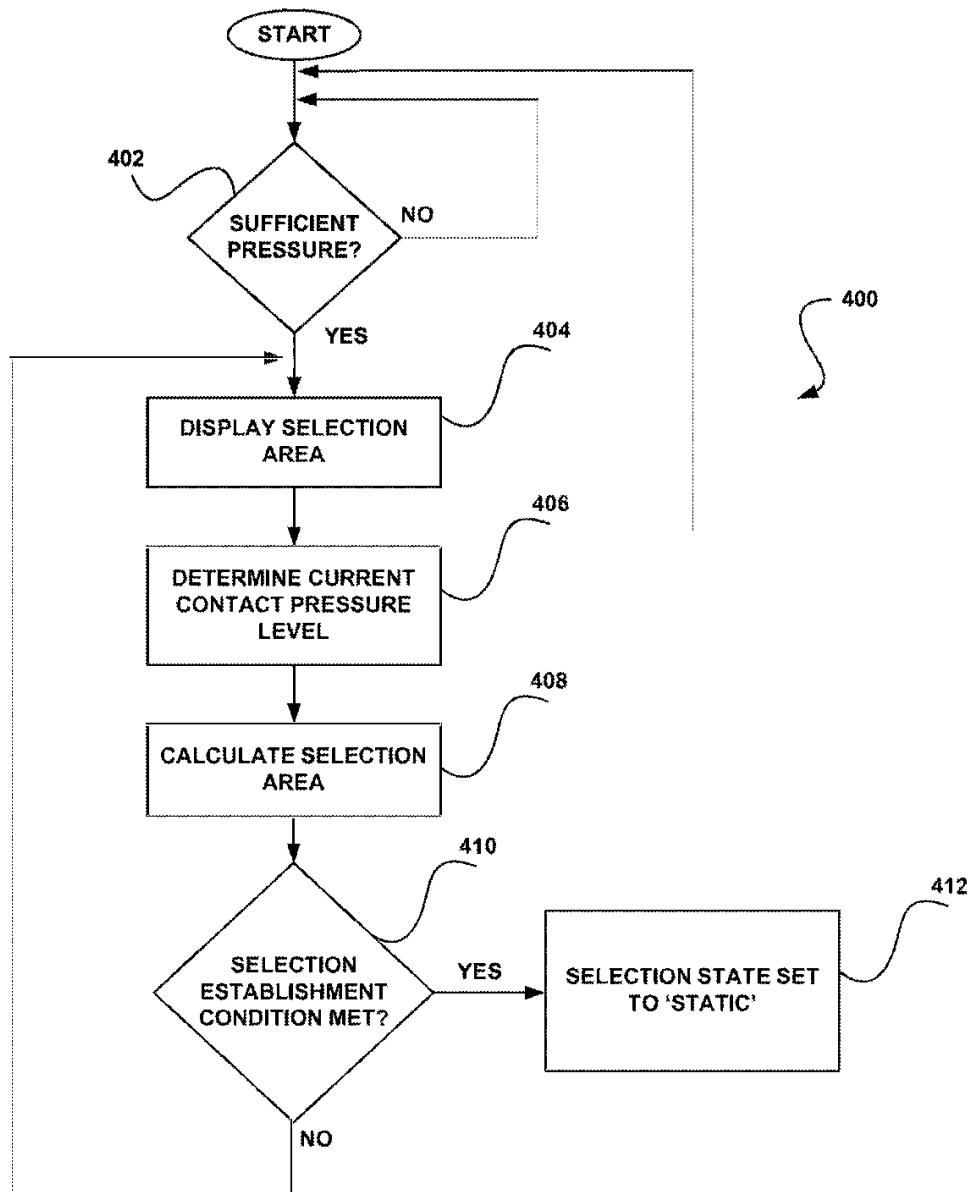
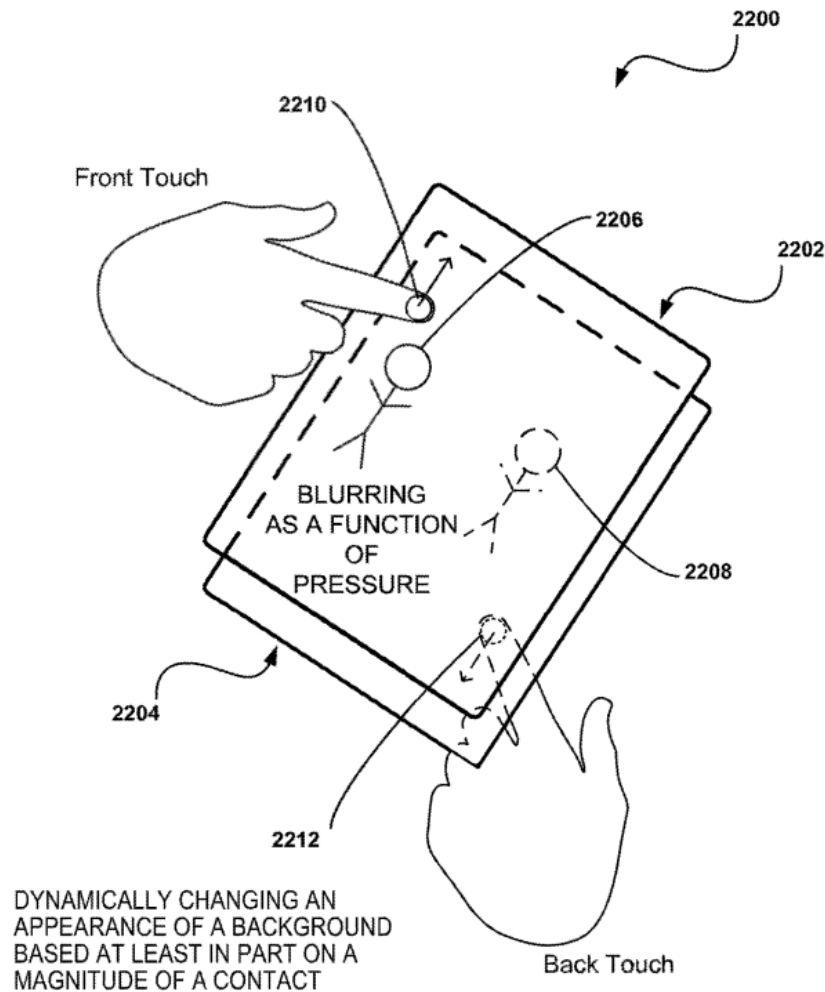


FIGURE 4

EX1001, 22:12–14; 28:60–63; FIG. 4.

For example, the selection (e.g., background of the first user interface) can dynamically change as a function of user input based on that input exceeding a threshold (e.g., pressure exerted on the device exceeds a threshold). EX1001, Abstract, 29:43–46. Figure 22 (inset below) depicts such a configuration, in which the user can “dynamically chang[e] an appearance of a background [blurring] based at least in part on a magnitude of a contact [pressure]”:



EX1001, Figure 22.

C. Independent Claims 1 and 23

Independent claims 1 and 23 of the '755 Patent are directed to an electronic device that is programmed to perform certain functions. *See generally* EX1001. Specifically, claims 1 and 23 include “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.” EX1001, cl. 1, 23.¹ Additionally, “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 “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.” EX1001, cl. 1, 23.

D. Claim Construction

The claims are construed “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100; *Phillips v. AWH*

¹ All emphasis added unless otherwise stated.

Corp., 415 F.3d 1303 (Fed. Cir. 2005). Petitioner “submits that no claim terms need to be construed to resolve issues of controversy in the present Petition.” Pet. (Paper 2), 3. Petitioner likewise agrees that no formal constructions of any claim terms are necessary.

III. LEVEL OF ORDINARY SKILL

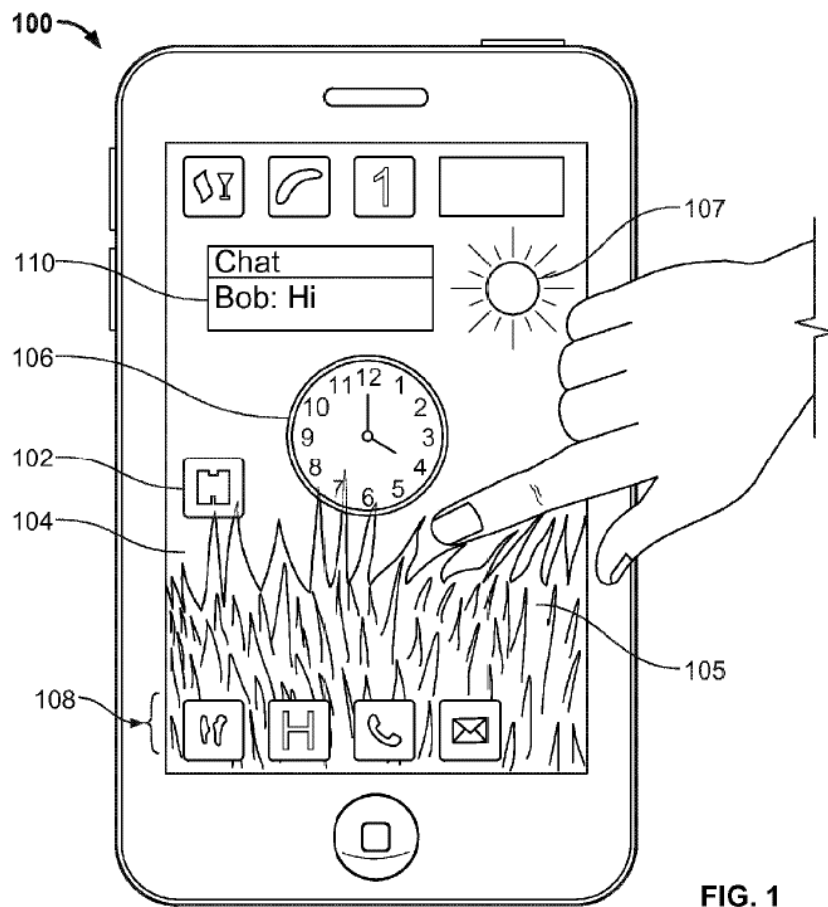
At the time of the invention of the '755 Patent, a POSITA would have had at least a bachelor's degree in computer science, computer engineering, electrical engineering, or a related field, and would have had at least two years of relevant work experience in the design and development of graphical user interfaces (GUIs) or equivalents thereof. Less work experience may be compensated by a higher level of education and vice versa. EX2005, ¶38. Dr. Cockburn's definition of a POSITA is overbroad to the extent it includes work experience in the design and development of human-computer interfaces.² *Id.*, ¶39.

² Patent Owner's expert, Dr. Mark Mahon, satisfies both parties' definition of a POSITA and can opine on the perspective of a POSITA. EX2005, ¶39.

IV. OVERVIEW OF THE PRIOR ART

A. Hackborn (EX1004)

Hackborn is titled “Live Wallpaper” and “relates to components of computer operating systems, including background desktop components commonly referred to as computer wallpaper.” EX1004, [0002]. Hackborn discloses systems and methods for “animating” a traditional wallpaper on the home screen of a mobile computer device to produce a “live wallpaper.” *See, e.g.*, EX1004, [0009] (“producing an animated moving display of the graphical wallpaper”).



Hackborn accomplishes this by making traditional wallpaper “an object that includes executable code” which is executed in response to input and “cause[s] the wallpaper 104 to change in appearance.” EX1004, [0026]. Hackborn’s Figure 1 (inset above) shows a “general home screen layout,” that includes “icon 102,” “wallpaper 104,” “gadget 106,” and “icons 108.” *See, e.g.*, EX1004, [0026], [0029], [0030], FIG. 1.

Hackborn explains that “the wallpaper shows grass 105” and “may ordinarily look like a traditional wallpaper in the form of a static image.” EX1004, [0026]. However, this “wallpaper may be active, and in this example may *respond to inputs* from a user of the computing device.” *Id.* “In the *example* [of such an input] 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.*, [0028]. Hackborn specifies that whether to move the grass is based on a *spatial* determination “that the user’s finger *contacted items* on the wallpaper—here, the grass 105.” *Id.*, [0033].³

³ Importantly, Hackborn already receives swipes and taps (EX1004, [0028]), but does not disclose or suggest animating or not animating its wallpaper based on whether a particular input is a tap or a swipe. EX2005, ¶42.

Hackborn also offers details of the “touch-sensitive display screen,” in that “[a] touch interface 706 may take a familiar form and may interpret input by a user on a touchscreen” by “coordinat[ing] with the display controller 704 to *identify what item or items on a display a user is selecting by touching at a particular location.*” EX1004, [0054]. Thus, the location of the user input on the screen determines what the Hackborn’s display controller recognizes as the target of the user’s selection or touch. EX2005, ¶43.

Hackborn does not disclose two different functions being initiated by two different inputs in the same place. *Id.* To the contrary, to address the possibility of neglecting inputs on its background, Hackborn includes an alternate embodiment in which its device must enter a specific mode before any inputs animate its grass. EX1004, [0028].

B. Westerman (EX1005)

Westerman is titled “Swipe Gestures For Touch Screen Keyboards” and “relates generally to input systems, methods, and devices, and more particularly, to systems, methods, and devices for interpreting manual swipe gestures as input in connection with touch-screen keyboards.” EX1005, [0011]. “These allow for a user entering text using the virtual keyboard to perform certain functions using swipes *across the key area* rather than tapping particular keys.” EX1005, Abstract. Westerman developed its “textual input on virtual keyboards” techniques to address

challenges with “[c]onventional touch-typing techniques” that are “difficult to use on touch-screen based small form factor devices” and force users to resort to “‘hunt and peck’ typing techniques.” EX1005, [0017]. Westerman discloses “a method for interpreting swipe gesture input to a device” using “a virtual keyboard area, in which taps of a touch object generate text input.” EX1005, [0018].

Westerman’s focus is virtual keyboards, for which taps were already conventionally detected; as such, Westerman’s approach to swipe detection (and distinguishing taps) is specific to the context of virtual keyboards where swipes occur across the *same virtual keys* that also receive taps. EX2005, ¶46. In particular, Westerman describes that “[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.” EX1005, [0019]. Westerman further discloses that the performance of its predetermined functions is “determined by the direction of the swipe gesture.” EX1005, [0018], [0020]. Indeed, Dr. Cockburn conceded that Westerman never applies a threshold to distinguish between a tap and swipe without also determining direction of the swipe. EX2007, 78:16–18 (“In addition to identifying when a swipe occurs, Westerman’s process will identify the direction of the swipe”).

Westerman must determine swipe direction for its teachings to be usable precisely because Westerman distinguishes between taps and swipes in the *same screen area*. EX2005, ¶46. If Westerman did not both identify a swipe and a direction, then it could have only a single function for a single alternate gesture (directionless swipe). *Id.* Thus, Westerman teaches determining the direction—not the location—of a swipe to determine which predetermined function (e.g., inserting a space, backspacing, shifting, or inserting a new line) to initiate. *Id.*

That Westerman distinguishes between taps and swipes in the *same area* is emphasized by the fact that some long swipes in Westerman are considered as taps. EX2005, ¶47. Even if displacement exceeds a threshold, the gesture may still be interpreted as a “tap” if the duration of the gesture exceeds “a maximum swipe gesture timeout threshold.” *Id.*; EX1005, [0062]. This timeout threshold “can be used to allow slower motions to permit a user to fine tune key selection e.g., using the displayed top hats [corresponding to letter ‘keys’].” EX1005, [0062]. Specifically, “[i]f the time of the motion is greater than the swipe gesture timeout threshold, i.e., took too long to be a swipe gesture, the event is interpreted as a key tap, and the system updates the key choice that corresponds to the location of the finger (block 1008).” *Id.* Westerman does not address using its input determination in any other context other than virtual keyboards. EX2005, ¶47.

Westerman also does not suggest distinguishing between taps and swipes where gestures are instead distinguished spatially—i.e., where Westerman’s approach is unnecessary to determine a user’s intended input. EX2005, ¶48. Rather, Westerman differentiates between swipe and taps occurring in the *same area* (the virtual keyboard crowded with virtual keys), where different targets of different gestures cannot be distinguished based on their respective locations. EX2005, ¶48.

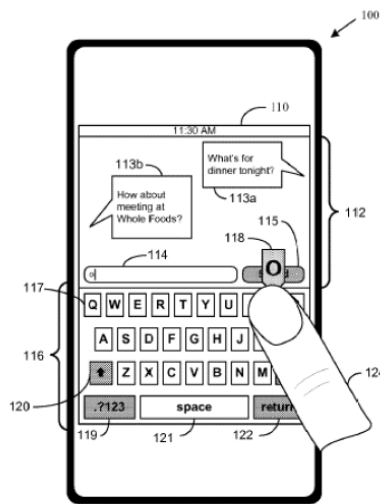


FIG. 1A

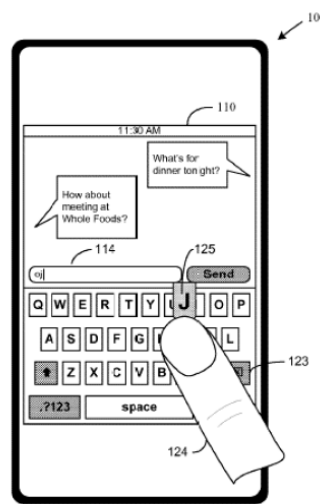


FIG. 1B

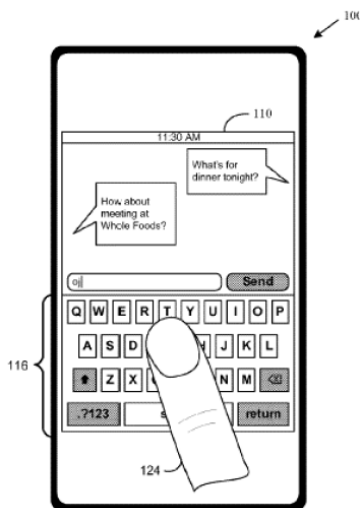


FIG. 2A

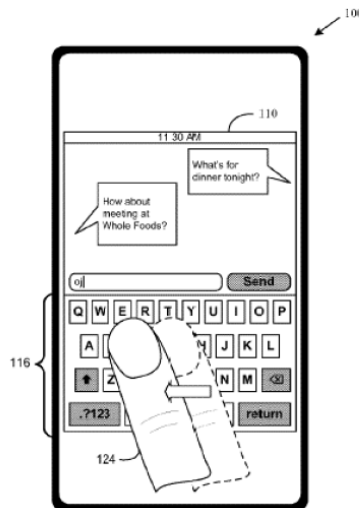


FIG. 2B

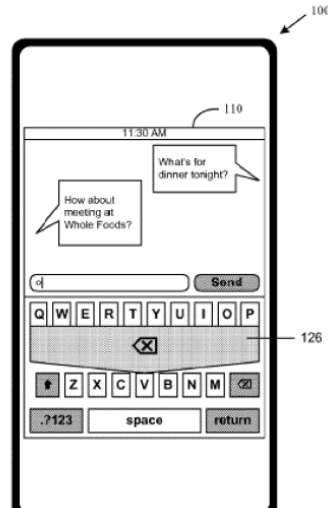


FIG. 2C

For example, Westerman’s Figure 1A shows “a user typing” using a “virtual keyboard 116” by employing “directional swipes (also referred to herein as ‘swipe gestures’) over the alphabetic keys” “as an alternative to striking certain key.” EX1005, [0028], [0043], [0045], FIG. 1A. “[T]he user is entering the text ‘ok’ in response to a query received through a chat application. By tapping finger 124 on the area corresponding to the letter ‘o’ on virtual keyboard 116 the letter ‘o’ is entered in text field 114. A tophat 118 with a representation of the letter ‘o’ is displayed providing feedback to the user. As shown in FIG. 1B, the user then attempts to tap the letter ‘k’ using finger 124. *Id.*, FIG. 1B. However, the user inadvertently taps the letter ‘j’ as indicated by top hat 125. Although this typographical error could be corrected through the use of virtual backspace key 123, the backspace function can also be invoked by the rightward [sic] swipe illustrated in FIGS. 2A through 2C.” *Id.*, [0047], FIGS. 2A–2C.

C. Townsend (EX1006)

Titled “Multi-Touch Object Inertia Simulation,” Townsend describes an “inertia systems ... [with] a common platform and application-programming interface (API) ... to extend the input received from various multi-touch hardware devices to simulate real-world behavior of application objects.” EX1006, [0005].

Townsend explains that the inertia system receives manipulations that “only describe the movement of an object based on the movement of contacts with the

multi-touch hardware.” EX1006, [0016]. In Townsend’s inertia system, “when a user lifts all contacts from an object, the inertia system provides additional manipulation events to the application so that the application can handle the events as if the user was still moving the object with touch.” *Id.* For example, “if the user lifted the contacts while the object had a velocity in a particular direction, then inertia system continues sending events that indicate that the object is moving in that direction, slowing down over time as the object decelerates.” *Id.* This is illustrated in Figure 3, where a “document object 320” is touched at a “first manipulation location 340” and the contact is maintained until “third manipulation location 360,” at which point the user lifts his/her fingers from the screen:

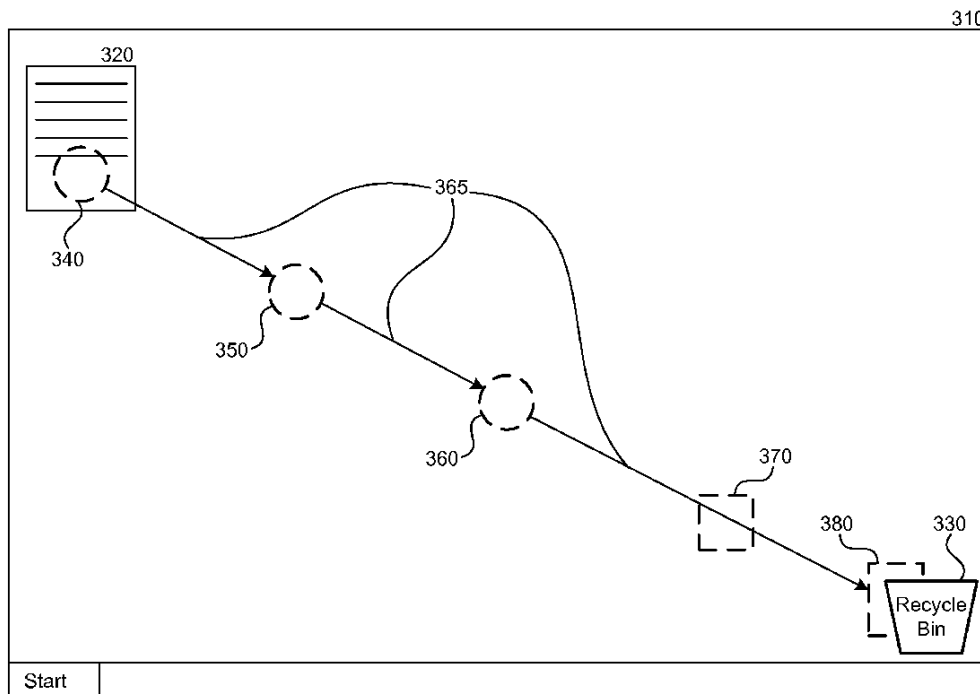


Figure 3

Id., [0029]–[0030], FIG. 3; EX2005, ¶51. Townsend’s inertia system “provides additional manipulation locations to the application as if the user was still touching and moving document object 320 based on the document object’s 320 velocity when the user releases the document object 320,” slowing the object down as the object decelerates based on a friction coefficient. EX1006, [0030], [0041]; EX2005, ¶51.

Furthermore, Townsend explains that “[i]f the user moves an object into another object, the inertia system sends manipulation events based on the boundary characteristics of the objects.” EX1006, [0016]. For example, in the context of Figure 3, this detected contact between two objects, the document object 320 and recycle bin 33, results in “placing the document object 320 in the recycle bin 330.” *Id.*, [0030], FIG. 3. In some instances, “if an application author defines two objects as being elastic, then the two objects may bounce off each other when a user moves the objects into each other.” *Id.*

Townsend discloses an inertia system that addresses the movement of objects across a screen and colliding into each other after a user removes contact from the object. EX2005, ¶53. Townsend does not describe its inertia system as simulating the movement, flexibility, or internal and external friction of an object that is fixed in position, like grass. *Id.*

D. Jobs (EX1009)

Jobs is titled “Touch Screen Device, Method, and Graphical User Interface for Determining Commands by Applying Heuristics” and broadly relates “to electronic devices that apply heuristics to detected user gestures on a touch screen display to determine commands.” EX1009, [0003]. 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.*, [0007].

In one aspect, Jobs describes the user interface for a lock screen 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.*, [0102]. Figure 3A illustrates an exemplary user interface for unlocking a portable electronic device, which includes interface 300A, unlock image 302, arrow 304, channel 306 “that provides additional clues to the unlock gesture,” and wallpaper image 314:

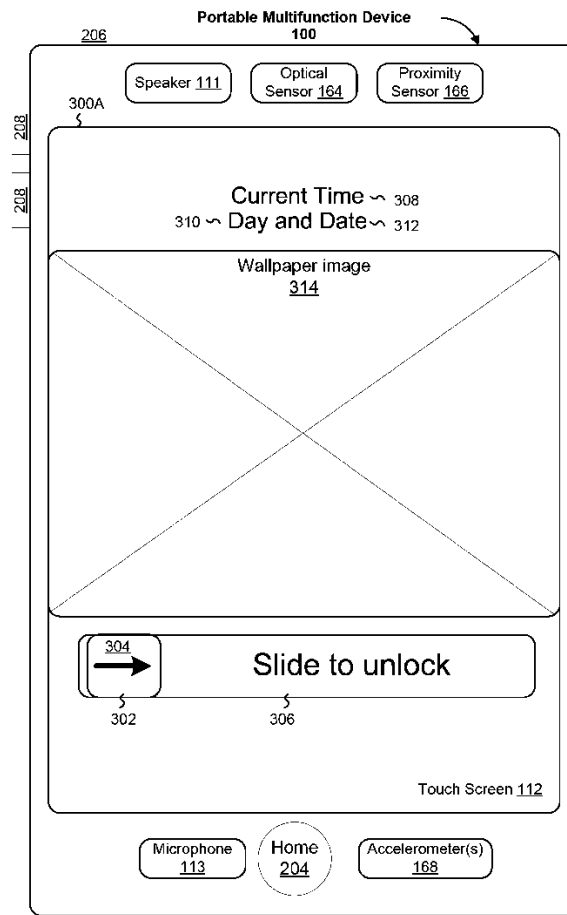


Figure 3A

Id., [0168], FIG. 3A.

Jobs explains that “the device maintains the user-interface lock state if the detected contact does not correspond to the predefined gesture,” “such as moving the unlock image across channel 306. EX1009, [0177]. Jobs further explains that maintaining the lock state unless the predefined unlock gesture is performed “saves battery power by ensuring that the device is not accidentally awakened.” *Id.* Jobs does not discuss or describe performing other gestures for other functions on its lock screen beyond the predefined unlock gesture. EX2005, ¶56.

In another aspect, Jobs describes a user interface for inputting text in an instant messaging application, which includes instant messages 604 and 606, a letter keyboard 616 for entering text in box 612, and a send icon 614. EX1009, [0228]–[0242]. Jobs explains that “a user can scroll through the message conversation (comprised of messages 604 and 606) by applying a vertical swipe gesture 610 to the area displaying the conversation. *Id.*, [0243]. In some embodiments, “scrolling the list is in accordance with a simulation of an equation of motion having friction.” *Id.*, [1138].

V. THE CHALLENGED CLAIMS ARE PATENTABLE

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity ... the evidence that supports the grounds for the challenge to each claim”)). Under the obviousness standard, the demonstration that portions of the claims were independently disclosed in the prior art is not sufficient to establish obviousness. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art”); *see also In re Enhanced Sec.*, 739 F.3d at 1355 (holding that it is insufficient to satisfy 103 by selecting “bits and

pieces” from references in an attempt “to stitch together an obviousness finding from discrete portions of prior art references without considering the references as a whole.”) (discussing *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1582 (Fed. Cir. 1987)). Instead, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *See KSR*, 550 U.S. 398, 418; *see also Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011); *Bayer Schering Pharm. AG v. Barr Labs., Inc.*, 575 F.3d 1341, 1350 (Fed. Cir. 2009) (Newman, J., dissenting) (“The statutory criterion is whether the invention would have been obvious to persons of ordinary skill at the time of the invention, not whether it is sufficiently simple to appear obvious to judges after the discovery is finally made....”).

A. Ground 1A: Hackborn-Westerman Does Not Render Obvious Claims 1–3, 7, 10, 11, 13, 15, 17, 20, 22–25, 29, 32, 33, 35, 37, 38, 41, or 42

1. A POSITA Would Not Have Been Motivated To Combine Hackborn and Westerman

a) Hackborn’s purported need is a mask for hindsight

The Petition fails to explain why a POSITA would have been motivated to combine Hackborn and Westerman. As the Federal Circuit has reiterated, “there must exist a motivation to combine various prior art references in order for a skilled artisan to make the claimed invention.” *Virtek Vision Int’l ULC v. Assembly*

Guidance Sys., Inc., 97 F.4th 882, 887 (Fed. Cir. 2024). Petitioner asserts “[t]o the extent Hackborn lacks details on how to distinguish tap from swipe inputs [for its live wallpaper], a POSITA would have naturally looked to other prior art teachings that discuss ‘interpreting manual swipe gestures as input in connection with touch-screen keyboards,’ such as *Westerman*.” Pet., 11–12. But entirely absent from the Petition is any identification of an actual problem in Hackborn’s live grass wallpaper that would cause a POSITA to look to other prior art teachings to address—particularly a reference directed towards virtual keyboards. For example, the Petition fails to point to anywhere that Hackborn discloses or suggests distinguishing between taps and swipes on its wallpaper.

Instead, the Petitioner uses the Challenged Claims as a roadmap, engaging in impermissible hindsight by manufacturing a problem in Hackborn to be solved with unnecessary prior art so as to reconstruct the claimed inventions. *Scientific Plastic Products, Inc. v. Biotage AB*, 766 F.3d 1355, 1359 (Fed. Cir. 2014) (“The pertinence of the reference as a source of solution to the inventor's problem must be recognizable with the foresight of a person of ordinary skill, not with the hindsight of the inventor's successful achievement.”). *Westerman* is directed to using swipes over virtual keyboard keys that can also be tapped, and distinguishes between taps and directional swipes to determine which discrete function should result from a given input. EX2005, ¶59. In contrast, Hackborn is directed towards live wallpapers

that broadly respond to user contact, and distinguishes between the intended result of different inputs by determining whether a given input contacts the wallpaper or an icon displayed above the wallpaper. Petitioner fails to identify any shortcoming in Hackborn that would have led a POSITA to Westerman’s keyboard input system to distinguish tap from swipe *on Hackborn’s live wallpaper* when Hackborn’s system could already spatially distinguish inputs. *Id.*; see also *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but **would have been motivated to make** the combinations or modifications of prior art to arrive at the claimed invention.”).

Hackborn and Westerman address substantially different technical problems, and their respective teachings do not complement each other. EX2005, ¶60. Hackborn describes making a device’s wallpaper “live” by responding visually to “a user’s input” to “provide updated information, altered aesthetics, a change of theme, environment or pace, or a diversion from the status quo.” EX1004, [0026]. Hackborn never indicates that its wallpaper animation faces problems with erroneously interpreting input types on its background wallpaper necessitating specific distinctions between gestures. EX2005, ¶60. Nor does Hackborn suggest any need to perform additional, different functions based on directional swipes. *Id.*; *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1337 (Fed. Cir. 2016) (“Whether a skilled

artisan would be motivated to make a combination includes whether he would select particular references in order to combine their elements.”).

In contrast, Westerman focuses on differentiating “tap” versus “swipe” inputs solely on a virtual keyboard—precisely because swipes necessarily spatially overlap the keys in that virtual keyboard—for functional command triggers (*e.g.*, insertion of special characters or text deletion). EX1005, [0018]–[0019], [0060]–[0064]. Nothing in Hackborn suggests a need to classify gestures, nor does Westerman claim to solve any aesthetic display challenge. EX2005, ¶61. The disclosures of each are aimed at completely unrelated functionality, and a POSITA reading Hackborn would not have organically sought out Westerman to “solve” a *non-existent* problem. *Id.*

b) Hackborn has no need to distinguish between swipes and taps in the context of animating its grass

Petitioner argues 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)” and that “a POSITA would have found it obvious to implement Hackborn with methods such as those disclosed or rendered obvious by Westerman for distinguishing between tap and swipe gestures (*e.g.*, using ‘predetermined thresholds’).” Pet. 12–13. However, Petitioner’s pretext for looking outside of Hackborn—a need to distinguish between taps and swipes—is false as a premise.

Hackborn broadly discloses that its live wallpaper “responds to inputs from a user.” EX1004, [0026]. As one *example* of such a user input and response, Hackborn describes grass “bend[ing] or sway[ing] as if contacted by the user’s finger during [a] swipe.” *Id.*, [0028]. Petitioner misleadingly runs with that *example*, asserting, without further support, that Hackborn’s live grass wallpaper needs to determine whether a tap or a swipe has been performed. EX2005, ¶63. Yet, Petitioner identifies no disclosure from Hackborn suggesting that the live wallpaper treats inputs on the grass differently depending on the type of contact, let alone prevents the grass from moving in response to a tap. *Id.*

Hackborn repeatedly states that it is the “contact” of a user’s finger with the grass that determines movement. *See* EX1004, [0028], [0033]. Dr. Cockburn contends that a POSITA would have been motivated to implement Hackborn’s animation in a way that would “simulate real-world behavior.” *See, e.g., Pet.*, 46; EX1003, ¶117. And Dr. Cockburn concedes that real-world grass moves whether poked or swiped: “[i]n the physical real world,” “if you poke a blade of grass ..., it’s going to bend away from you.” EX2007, 63:21–64:2. Indeed, Hackborn’s disclosure that “tapping on the display screen a predetermined number of times within a predetermined time period” confirms that a single tap would—just like a swipe or any other input on the wallpaper—move the grass. EX1004, [0028];

EX2005, ¶63. Indeed, if Hackborn treated taps differently than swipes and other inputs for its wallpaper, a single tap would have been sufficient to switch modes. *Id.*

Especially given that real-world grass moves whether poked or swiped, Hackborn does not need a threshold determination between taps and swipes to initiate movement of the grass because the grass already moves based on the magnitude of a contact. EX2005, ¶64. And that movement, regardless of input type, already achieves the desired result of visually perceptible grass movement. *Id.* Hackborn discloses that user input on the live grass wallpaper generates vector data representing the position, direction, and speed of the contact. EX1004, [0033]. This information is then used to determine whether the user’s finger contacts the grass and to generate the “animation that makes the grass blades look as if the finger is actually contacting them.” *Id.* Petitioner’s expert further acknowledged that Hackborn’s animation of the grass “would be towards the higher end of fidelity” which would “suggest dynamic generation of the images.” EX2007, 108:18–109:9. A POSITA would understand that the magnitude of the vector data is what determines the magnitude of the visual effect of the dynamically generated grass animation. EX2005, ¶64. Thus, a POSITA would understand that there is no need for a threshold determination between swipes and taps in Hackborn because less contact movement on the grass already results in less apparent movement of the grass—it is a continuum. *Id.*

Conversely, Westerman requires a threshold determination between taps and swipes because movement of a displayed object is not the desired result—the virtual keyboard does not move, nor is it intended to move, in response to the movement of the user input. EX2005, ¶65. Instead, the goal of Westerman is “to perform certain functions [,such as backspacing or shifting,] using swipes across the key area rather than tapping particular keys.” EX1005, Abstract. This is a binary determination with a binary result—i.e., if a swipe in a certain direction is detected, execute a predetermined function. EX2005, ¶65. Westerman does not disclose that the magnitude of a swipe determines the magnitude of the resulting function—the function either executes or it does not. A POSITA would recognize this binary, threshold determination is functionally different and incompatible with Hackborn’s high-fidelity dynamic animation based on the magnitude of contact. *Id.*

c) Petitioner fails to articulate any motivation to implement the combination such that taps would not move the grass

Finally, neither Hackborn nor Petitioner provide any rationale *why* Hackborn’s live grass wallpaper would seek to prevent taps on the wallpaper from causing the grass to move. The animation is merely an aesthetic effect with no functional significance. Hackborn does not disclose any problem with allowing the grass to move whenever it is contacted, thus a POSITA would not be motivated to look to Westerman’s threshold determination to patch a non-issue in Hackborn.

EX2005, ¶66. The entire basis of Petitioner’s rational for combining Westerman with Hackborn is to address an unsupported and manufactured problem in Hackborn that is purely based on impermissible hindsight. *See Metalcraft of Mayville, Inc. v. Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (“[W]e cannot allow hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention.”). Accordingly, Petitioner has not shown sufficient motivation to combine Hackborn and Westerman.

2. *Independent Claims 1 and 23 Are Not Obvious*

- a) Hackborn-Westerman fails to disclose “dynamically changing the appearance of the background” “in accordance with a determination that the first contact has a magnitude that is above a threshold”**

Petitioner’s asserted combination fails to disclose “dynamically changing the appearance of the background ... in accordance with a determination that the first contact has a magnitude that is above a threshold.” In Hackborn, the live grass wallpaper is active and “may *respond to inputs* from a user”, one “*example*” of which is “bend[ing] or sway[ing] as if contacted by the user’s finger during [a] swipe.” EX1004, [0026], [0028]. Hackborn explains that the information it collects from an input “may be used by the process executing the wallpaper 104 to determine that the user’s finger *contacted* items on the wallpaper—here, the grass 105.” EX1004, [0033]. Thus, a POSITA would understand that Hackborn’s only disclosed criteria for causing a change to the grass is contact with a finger, not path length or

velocity (nor whether such an input is a swipe *instead of* a tap). EX2005, ¶67. Hackborn’s reference to specific functions like a swipe “are meant to be exemplary only, and are not meant to limit implementations.” EX1004, [0061].

Hackborn does not indicate that taps would be excluded from the inputs that animate the grass, nor does Hackborn suggest such a distinction is necessary or desired. EX2005, ¶68. The goal of Hackborn’s moving grass is to generate an animation to make it seem like “the user’s finger contacted items on the wallpaper,” as if in real life. EX1004, [0033]; EX2005, ¶68. A POSITA would therefore understand that Hackborn’s live grass wallpaper is intended to simulate the real world effect of touching grass. EX2005, ¶68. And, as Petitioner’s expert acknowledged, “[i]n the physical real world,” “if you poke a blade of grass ..., it’s going to bend away from you.” EX2007, 63:21–64:2.

Moreover, there is no disclosure from Westerman that only a swipe results in a change. EX2005, ¶69. Instead, Westerman’s teachings are focused on differentiating swipes from taps on a virtual keyboard, where each gesture performs a function—pressing a key or executing another typing function, such as backspacing or inserting a new line. EX1005, [0018] (“The touch-sensitive input can include a virtual keyboard area, in which taps of a touch object generate text input.”); EX2005, ¶¶69. Neither Hackborn nor Westerman disclose or suggest that a tap should be ignored while a swipe initiates an action. As such, the asserted

combination does not meet claim 1's limitation of "dynamically changing the appearance of the background" "in accordance with a determination that the first contact has a magnitude that is above a threshold." EX2005, ¶¶69. Accordingly, claim 1 is not obvious over the Hackborn-Westerman. Likewise, because Petitioner relies principally on the same arguments for independent claim 23, that claim is also not obvious for the same reasons.

b) Hackborn does not disclose or suggest Petitioner's manufactured composite wallpapers

In its argument for claim 1, and relied upon throughout the Petition, Petitioner manufactures composite wallpapers comprising multiple wallpaper embodiments in Hackborn. *See, e.g.*, Pet., 25–27 (claim 1); *id.*, 32–41 (claims 11, 15, and 17). For example, Petitioner argues that a composite wallpaper could include the swaying grass as the "at least some of a plurality of images" and other images from other wallpapers (e.g., photographs from the camera; social media images) as the "plurality of images." Pet., 26.

Petitioner argues that such composites are taught merely because Hackborn states that "live wallpaper can include a combination of the described wallpaper examples." Pet., 25 (quoting EX1004, [0050]). Petitioner manufactures these composites to insert specific features from one embodiment into another in order to meet a specific claim limitation, and does not provide any explanation of why a

POSITA would have combined these particular aspects of those wallpapers *in the manner proposed*. See *Abiomed, Inc. v. Maquet Cardiovascular, LLC*, IPR2017-01204, -01205, Paper 8 at 11 (PTAB Oct. 23, 2017) (“Based on the record before us, we are left unpersuaded that the features of [prior art reference’s] various embodiments are interchangeable or that one skilled in the art would have combined those features in the manner proposed by Petitioner.”); EX2005, ¶70. Without further evidence that a POSITA would have made these combinations of embodiments as proposed by Petitioner, such combinations are legally insufficient.

3. *Dependent Claims 7 and 29 Are Not Obvious*

- a) The Hackborn-Westerman combination does not disclose “maintaining the appearance of the background” when an input is below a threshold.**

Petitioner contends that under Westerman’s swipe-detection logic, a “tap” would leave Hackborn’s wallpaper unchanged, thereby satisfying Claim 7. See Pet., 31. But Petitioner’s argument relies on the mistaken premise that Hackborn’s wallpaper only responds to movement-based gestures (*e.g.*, swiping). Hackborn instead repeatedly emphasizes that grass responds to user **contact**—not just movement. EX1004, [0026], [0028]; *see also* Section V.A.2.a). For example, Hackborn states the “wallpaper ... may respond to inputs from a user,” referencing “contact” with the grass itself. *Id.*; EX2005, ¶¶71. Nothing in the proposed Hackborn-Westerman combination suggests that determination of a tap necessarily

results in no change in the wallpaper. EX2005, ¶71. In fact, Westerman—on which Petitioner relies for distinguishing taps from swipes—discloses that taps are not disregarded. *See* EX1005, [0058] (“Keyboard tap recognizer 904 can serve to translate taps on the virtual keyboard surface in to key tap events 906. These key tap events are submitted to keyboard input manager 907. Keyboard input manager 907 interprets key tap events 906 and generates text events 908”).

At base, Petitioner plucks a single aspect—threshold, divorced from direction—from Westerman’s approach and attempts to graft that threshold onto Hackborn’s broad disclosure of responding to *any* contact. Pet., 31–32; EX2005, ¶72. But that still would not lead a POSITA to a system that “maintains the appearance of the background” when a user’s input is below a threshold—i.e., ignores taps for purposes of animating the grass. EX2005, ¶72. If anything, Hackborn indicates that its grass moves whenever it is touched—i.e., contact is made—regardless of swipe length or force. *Id.* Petitioner’s expert acknowledges that Hackborn’s live grass wallpaper performs “an animation that makes the grass blades look as if the finger is actually contacting them” (EX2007, 62:15–17) and that “[i]n the physical real world,” if you poke a blade of grass, it is going to bend away from you.” EX2007, 63:21–64:2. A POSITA would understand that nothing in Westerman’s determination of taps versus swipes would have supplanted Hackborn’s broad teaching that contact causes movement. EX2005, ¶72. Hence,

the Hackborn-Westerman combination fails to disclose or suggest an arrangement in which Hackborn's grass would remain stationary even when tapped. *Id.*

Accordingly, the combination does not meet claim 7's "maintaining the appearance of the background" limitation when the input does not exceed a threshold; therefore, claim 7 is not obvious over the Hackborn-Westerman. Likewise, because Petitioner relies solely on the same arguments for dependent claim 29, that claim is also not obvious for the same reasons.

4. *Dependent Claims 17, 37, and 38 Are Not Obvious*

- a) Hackborn-Westerman does not disclose "automatically moving, one-by-one, through the at least some of the plurality of images."**

For claim 17, Petitioner relies on a composite of different types of live wallpaper, particularly a composite of the live grass wallpaper shown in Figure 1 and the social media feed with images shown in Figure 6. Pet., 26, 39–40. Petitioner contends that when the social media feed receives new information—not through touch input by the user—the already displayed posts are scrolled downward, "thus the images in the posts are displayed in sequence by automatically moving one-by-one through them as new posts are received." Pet., 39. However, Petitioner's argument fails to show how the purported automatically moving images in the social media feed are part of "*the at least some* of the plurality of images" that are displayed

in sequence based on the “*magnitude of the first contact*,” as required by claim 17. EX2005, ¶74.

Claim 1, from which claim 17 depends, requires that “the dynamic change in appearance,” which includes the sequential display of “*at least some* of a plurality of images,” must be “based at least in part on the *magnitude of the first contact*.” EX1001, cl. 1. A POSITA would understand that the “*at least some* of a plurality of images” are sequentially displayed in response to a contact of sufficient magnitude that causes a dynamic change in appearance. EX2005, ¶75. For claim 1, Petitioner mapped Hackborn’s animated sequence of grass caused by contact with a finger on the live wallpaper to the “at least some of a plurality of images” limitation of claim 1. Pet., 24.

Claim 17 further requires that the same “*at least some* of a plurality of images is displayed, in sequence, by automatically moving, one-by-one, through *the at least some* of the plurality of images.” EX1001, cl. 17. However, for claim 17, Petitioner does not point to the animating blades of grass for images “automatically moving, one-by-one.” EX2005, ¶76. Instead, Petitioner imagines a composite of live wallpapers that includes a social media feed, shown in Figure 6, and the bending grass wallpaper. Pet., 40–41. Notably, Petitioner does not provide any reason why a POSITA would have created this composite (*see* §V.A.2.b) above), nor does Petitioner provide any example of how such a composite would operate or be

displayed. EX2005, ¶¶70, 76. Petitioner does not even attempt to present a composite figure illustrating the purported combination for claim 17.

Nonetheless, Petitioner argues that “a POSITA would have understood that the automatically scrolled social media posts could form only part of the background wallpaper display, where the wallpaper includes both the swaying grass from Hackborn’s Figure 1 and images from a social networking website.” Pet., 40–41. However, unlike Hackborn’s animated grass that moves in response to contact, Hackborn’s scrolling of the social media feed is not based on or caused by any contact or gesture by a user—it occurs “as new information is received” from the social media site. EX1004, [0047]; EX2005, ¶77. Thus, the scrolling images in the social media feed cannot be the “*at least some* of the plurality of images” that must display sequentially by “automatically moving, one-by-one” in response to a user’s contact of sufficient magnitude. EX2005, ¶77.

Furthermore, as discussed in Section V.A.2.b) above, Petitioner provides no rationale for why a POSITA would have been motivated to graft a part of a social media feed that spans the entire background of Figure 6 into the live grass wallpaper, or how it would be done. EX2005, ¶78. Petitioner merely states that Hackborn can display wallpaper with a combination of different types of wallpaper. *Id.*

Accordingly, Petitioner has failed to establish that Hackborn-Westerman discloses or suggests “automatically moving, one-by-one, through the at least some

of the plurality of images” of claim 17; therefore, claim 17 is not obvious. Likewise, because Petitioner relies solely on the same arguments for dependent claims 37 and 38, those claims are also not obvious for the same reasons.

5. *Dependent Claim 22 Is Not Obvious*

a) Hackborn-Westerman fails to disclose the limitations of claim 21, upon which claim 22 is dependent

Petitioner argues that the Hackborn-Westerman combination renders claim 22 obvious because it discloses that “the background includes a background image” and that “the one or more foreground objects includes one or more application icons.” Pet., 42. However, Petitioner neglects that claim 22 depends from claim 21, and thus necessarily incorporates all limitations of claim 21. Petitioner did not challenge claim 21 under Ground 1A at all and offers no separate argument or evidence demonstrating that the Hackborn-Westerman combination alone meets claim 21’s distinct limitations. EX2005, ¶80. Without demonstrating that Hackborn-Westerman meets claim 21’s limitations, Petitioner cannot meet its burden of showing that Hackborn-Westerman discloses each limitation of claim 22.

6. *Dependent Claims 2–3, 7, 10–11, 13, 15, 17, 20, 22, 24–25, 32–33, 35, 37–38, and 41–42 Are Not Obvious*

As discussed above in Section V.A.2, independent claims 1 and 23 are not obvious under the combination of Hackborn and Westerman; therefore, all challenged dependent claims are also non-obvious for at least the same reasons.

B. Ground 1B: Hackborn-Westerman-Townsend Does Not Render Obvious Claims 4, 5, 8, 9, 21, 26, 27, 30, 31, or 43

1. A POSITA Would Not Have Been Motivated To Combine Hackborn, Westerman, and Townsend

Petitioner argues that a POSITA would seek out Townsend to fill Hackborn’s disclosure gap regarding how its grass animation might be implemented. Pet., 46–47. Specifically, Petitioner contends that because Hackborn does not detail the technical means of animating grass, a POSITA “would have naturally looked to related prior art, such as Townsend,” which purportedly teaches “techniques based on physics to simulate the behavior of the object” in response to user manipulations. *Id.* This rationale, however, over-generalizes Townsend’s actual teachings and fails to explain how its system would be relevant—or helpful—for animating the swaying, anchored grass of Hackborn. EX2005, ¶82.

Townsend’s inertia system “receives manipulations that only describe the movement of an object based on the movement of contacts with the multi-touch hardware.” EX1006, [0016]. Using these manipulations, Townsend’s inertia system defines object boundaries, calculates deceleration of objects moving across a screen due to simulated friction, and handles object collisions, including the elasticity of the colliding objects. EX1006, [0016], [0041], [0050]–[0051]. A POSITA would understand that Townsend’s inertia system operates on the motion of whole objects

moving across a screen, not a comprehensive physics engine that simulates the real world behavior of any object under any condition. EX2005, ¶83.

Hackborn's grass is not a free-floating object traveling across the screen after finger release. EX1004, [0028]. Rather, the grass remains anchored at its base and merely "bends or sways as if contacted by the user's finger." *Id.* A POSITA would see little relevance of Townsend to Hackborn's grass animation because Townsend's inertia engine does not model the deformation or bending of flexible objects in response to a force being applied, nor does it teach or mention simulating the oscillation of that flexible, anchored object after the removal of an applied force. EX2005, ¶84. Moreover, there are no freely moving objects in Hackborn's live grass wallpaper that would prompt a POSITA to look for a system like Townsend's. *Id.* Absent a stated need for the object-level friction and collision detection that Townsend discloses, it is simply hindsight to assert that a simulation of Hackborn's bending grass would be implemented with Townsend's full-object inertia system without any sufficient rationale to do so. *See Belden Inc.*, 805 F.3d at 1073 ("[O]bviousness concerns whether a skilled artisan not only could have made but **would have been motivated to make** the combinations or modifications of prior art to arrive at the claimed invention.").

Accordingly, Petitioner's contention that a POSITA would naturally import Townsend's inertia simulation to animate Hackborn's live grass is unfounded. No

evidence or reasoning suggests combining them. EX2005, ¶85. Therefore, Petitioner fails to establish a sufficient motivation to combine Townsend with Hackborn-Westerman.

Further, as discussed above in Section V.A.1, a POSITA would not be motivated to combine Hackborn and Westerman. Petitioner does not contend that Townsend provides any additional motivation to combine Hackborn with Westerman. Pet., 46–48. Because the Petition failed to establish a sufficient motivation to combine Hackborn with Westerman, the Petition likewise fails to establish a sufficient motivation to combine Hackborn, Westerman, and Townsend.

2. Dependent Claims 5 and 27 Are Not Obvious

a) Hackborn-Westerman-Townsend fails to disclose “a magnitude of the dynamic change in the appearance of the background of the first user interface decays following detection of a cessation of the first contact”

Petitioner argues that Hackborn’s grass animation, combined with Townsend’s inertia-based physics system, necessarily exhibits “decay” once a user’s contact ends, meeting claim 5’s requirement that “the magnitude of the dynamic change in the appearance of the background decays.” Pet., 49–50. According to Petitioner, “[a] POSITA would have understood or found obvious that Hackborn’s “simulate[d] frictional dragging” of grass movement results in the ceasing of grass movement (e.g., due to friction) after cessation of the user input.” Pet., 49. Petitioner argues that “by simulating ‘frictional dragging,’ the animating motion of

the wallpaper representation (e.g., blades of grass) would appear to slow down, or decay, over time as a result of a force (e.g., simulated friction) that opposes the ‘force’ provided by the user input (e.g., simulated touching of grass).” Pet., 50. This is incorrect for two reasons.

First, in Hackborn, “dragging across the display” results in an animation motion that “simulates frictional dragging of elements.” EX1004, [0008]. The example used by Hackborn is “bending one or more graphical elements in a direction of the dragging input.” EX1004, [0008]. Petitioner’s interpretation ignores the “dragging” portion of the phrase, and, instead, incorrectly interprets “frictional dragging” as disclosing a simulation of all friction. Nothing in Hackborn supports this expansive interpretation—Hackborn does not discuss the animation motion that occurs after the dragging finger is no longer touching the grass. EX2005, ¶87. A POSITA would understand the “frictional dragging” of Hackborn as simply describing the animation of the surface of the element dragging along the interpreted “surface” of the finger touching the element. *Id.*

Second, and more importantly, Petitioner does not identify any disclosure in Hackborn indicating that the purported “decay” due to friction occurs “***following*** detection of a cessation of the first contact,” as required by claim 5. A POSITA would understand that cessation of a first contact occurs, for example, when the user lifts a finger from contacting the screen at the end of a gesture. EX2005, ¶88.

However, whether contact with the screen has ended is not a determination considered anywhere in Hackborn's disclosure. *Id.* Instead, Hackborn discloses that the animation is based on the determination "that the user's finger contacted items on the wallpaper—here, the grass." EX1004, [0033]. In other words, Hackborn's animation of grass is based on whether a finger is touching the grass, not whether the finger is still touching the screen. EX2005, ¶88. A POSITA would not expect that the animation of the blades of grass would delay until the finger is lifted from the screen instead of not touching the grass because any delay in performing the grass animation following the contact with the grass would not make "the grass blades look as if the finger is actually contacting them." *Id.*; EX1004, [0033]. Thus, a POSITA would not understand Hackborn as disclosing an alleged "decay" animation that begins *after* a determination that the user's finger has been lifted from the screen. EX2005, ¶88.

Petitioner also relies on Townsend to assert that "[a] POSITA would have recognized that the motion of grass decays (decelerates) once the swipe ceases." Pet., 50. But Townsend's inertia system addresses the movement of whole objects across the screen once user contact is lifted and does not address localized deformation of an anchored object—like a blade of grass bending near its base. EX1006, [0016], [0041]; EX2005, ¶89. The concepts of friction and elasticity in Townsend focus on object boundaries and collisions, not modeling how a portion of

a single anchored object moves after being contacted by a finger. EX1006, [0041]; EX2005, ¶89. Neither Hackborn nor Townsend provides instructions or examples for simulating oscillatory motion in a localized region of an anchored, partially elastic object, such as the grass, and a POSITA would not expect that Townsend's inertia system is modeling the motion of the grass, let alone a "decay" in the motion of the grass. EX2005, ¶89.

Accordingly, Petitioner fails to show that Hackborn-Westerman-Townsend teaches or suggests the "a magnitude of the dynamic change in the appearance of the background of the first user interface decays" limitation of claim 5. Petitioner relies solely on the same arguments for dependent claim 27, so it is non-obvious for the same reasons.

3. Dependent Claims 8 and 30 Are Not Obvious

For the same reasons discussed in Section V.B.2, Hackborn-Westerman-Townsend does not disclose that the purported stopping of animation occurs as a result of detecting that a finger is no longer on the screen. EX2005, ¶91. Petitioner thus fails to show that Hackborn-Westerman-Townsend discloses the "in response to detecting a cessation of the first input, ceasing the dynamically changing of the appearance of the background" limitation required by dependent claims 8 and 30.

4. *Dependent Claims 9 and 31 Are Not Obvious*

a) Hackborn-Westerman-Townsend fails to disclose “reverting to the display of the first user interface” “in response to detecting a cessation of the first input”

Petitioner relies on Townsend to argue that when user contact ceases, Hackborn’s grass “reverts to its original state,” supposedly meeting claim 9’s requirement of “reverting to the display of the first user interface, including the background.” Pet., 51. Yet Townsend’s primary function is to continue moving an object—in its entirety—via simulated inertia after all touchpoints are released. EX1006, [0016]. This is starkly different from anchored grass that momentarily bends but remains affixed to the same location. In Townsend’s model, the object can travel or collide with other objects or boundaries until its velocity dissipates, which does not apply to Hackborn’s scenario where the grass remains anchored to a position on the background. EX2005, ¶92.

Moreover, Hackborn’s disclosure does not describe the grass “reverting” once contact ends. EX1004, [0028]. It simply states that when a user touches the wallpaper, the grass will “bend or sway as if contacted by the user’s finger.” EX1004, [0028]. Petitioner’s speculation that blades of grass “would return to their initial positions upon cessation of contact” lacks any textual grounding in Hackborn. Pet., 51; EX2005, ¶93. Townsend’s inertia engine is similarly silent on the ability

of partially elastic and anchored objects to spontaneously return to an un-deformed shape. EX2005, ¶93.

Finally, Petitioner cites its expert’s assertion that “grass would naturally revert to its original shape due to elasticity,” which the expert concedes is a “guess” because he is “not an expert on grass.” Pet., 51; EX1003, ¶124; EX2007, 98:20–24. Neither Hackborn nor Townsend discusses elasticity modeling for living plant matter, and neither suggests that once the contact with the screen stops, the grass (or any object) must return to the precise original image. EX2005, ¶94. But claim 9 requires that very result, a reversion “to the display of the first user interface, including the background.” EX1001, cl. 9.

Accordingly, Petitioner fails to show that Hackborn-Westerman-Townsend teaches or suggests the “reverting to the display of the first user interface” limitation of claim 9. Petitioner relies solely on the same arguments for dependent claim 31, so it is non-obvious for the same reasons.

5. *Dependent Claims 21 and 43 Are Not Obvious*

- a) Hackborn-Westerman-Townsend fails to disclose “revert[ing] to one of the plurality of images that is different from that which is displayed as the background prior to detecting the first input”**

Claim 21 contemplates a scenario where the background does not revert to the originally displayed image but instead reverts to “one of the plurality of images that is different” from the starting image. EX1001, cl. 21. Petitioner suggests

Townsend's inertia engine could cause the grass to remain partially displaced after contact ends, meaning the "resting" wallpaper image would differ from the original. Pet., 52. But Townsend's inertia relies on object-level momentum and boundary collisions, not on partially deformed anchored objects that subtly shift shape. EX1006, [0016], [0050]–[0051]. For instance, if a user flicks an on-screen object, Townsend simulates continued motion across the screen until friction slows it. EX2005, ¶95; EX1006, [0016], [0030], [0041]. None of that corresponds to Hackborn's grass resting at a newly bent angle or final shape. EX2005, ¶95.

Petitioner again leans on its expert's unsupported statements about "summer grass" having reduced elasticity. EX1003, ¶125; EX2007, 88:20–24. Yet no portion of either reference addresses vegetation's elasticity or implies that some new resting position emerges for the grass. Hackborn never mentions the resting state of its grass—it simply states that the grass bends when touched. EX1004, [0028]. Townsend is likewise silent on anchoring only part of an object while letting another part bend. EX2005, ¶96. Hence, the references simply do not describe a background that ends up in a different stable image, as distinct from the original image.

Petitioner also fails to identify any mechanism by which the grass "reverts" to a prior but not original image. EX2005, ¶97. Instead, Petitioner merely argues that the grass would not revert to the original image, not that it would revert to a previous image. Pet., 52. Petitioner's expert acknowledged that Hackborn's depiction of

animated grass is intended to have high fidelity and use dynamically generated images. EX2007, 98:11–14 (“Q. And so higher fidelity would suggest dynamic generation of the images? A. I think that’s fair, as taught by the Hackborn, Westerman, and Townsend combination.”). A POSITA would therefore understand that, even *if* Hackborn-Westerman-Townsend could simulate an elastic nature of grass, the grass would be dynamically generated from the calculations of the simulation and, thus, has not been shown to revert to any image. EX2005, ¶97.

Accordingly, Petitioner fails to show that Hackborn-Westerman-Townsend teaches or suggests the “revert[ing] to one of the plurality of images that is different from that which is displayed as the background prior to detecting the first input” limitation of claim 21. Petitioner relies solely on the same arguments for dependent claim 43, so it is non-obvious for the same reasons.

6. *Dependent Claims 4–5, 8–9, 21, 26–27, 30–31, and 43 Are Not Obvious*

Townsend does not address the deficiencies of Petitioner’s mapping of independent claims 1 or 23 to Hackborn-Westerman, as discussed in Section V.A.2; therefore, all challenged dependent claims are also non-obvious for at least the same reasons.

C. Ground 1C: Hackborn-Westerman-Jablonski Does Not Render Obvious Claim 16

As discussed above in Section V.A.1, a POSITA would not be motivated to combine Hackborn and Westerman. Petitioner does not contend that Jablonski provides any motivation to combine Hackborn and Westerman. Pet., 53–54. In fact, Petitioner never mentions or cites Westerman. *Id.* Because Petitioner has failed to establish a sufficient motivation to combine Hackborn with Westerman, Petitioner likewise fails to establish a sufficient motivation to combine Hackborn, Westerman, and Jablonski. EX2005, ¶100. Additionally, Jablonski does not address the deficiencies of Petitioner’s mapping of independent claim 1 to Hackborn-Westerman, as discussed above in Section V.A.2; therefore, dependent claim 16 is also non-obvious for at least the same reasons.

D. Ground 1D: Hackborn-Westerman-Jobs Does Not Render Obvious Claims 18, 19, 39, or 40

1. A POSITA Would Not Have Been Motivated To Combine Hackborn, Westerman, and Jobs

Petitioner argues that a POSITA would have been motivated to “improv[e] the device by preventing ‘unintentional activation or deactivation of functions’ while still producing an ‘interesting and compelling user interface’ in the lock screen.” Pet., 58–59. However, this argument is rooted in hindsight rather than being supported by the prior art. *See Scientific Plastic Products, Inc.*, 766 F.3d at 1359.

Hackborn’s live wallpaper is directed towards active use of the device, where the user intentionally interacts with the display to experience improved aesthetics, such as the blades of grass that bend or sway in response to user contact. EX1004, [0028]; EX2005, ¶102. In contrast, Jobs’ lock screen “maintains the user-interface lock state if the detected contact does not correspond to the predefined gesture” to unlock the phone. EX1009, [0177]. The primary purpose of maintaining this “lock state” is to minimize user input, thereby “saving battery life” and preventing “unintentional or unauthorized use of the device ... or activation or deactivation of functions.” EX1009, [0177]; EX1010, [0049].

A POSITA would have recognized that Hackborn’s “live” wallpaper—responding to user touches in real time, whether or not the user intends to or not—directly conflicts with the functionality and purpose of Jobs’ lock screen because it permits unintended or unauthorized user input and processor activity that can drain battery or trigger unnecessary actions. EX2005, ¶102. Petitioner never explains why a POSITA would undermine the lock screen’s core purpose by equipping it with an interactive background.

Petitioner’s alleged reasons for merging Hackborn, Westerman, and Jobs on a lock screen ignore the fundamental conflict between a power- and security-conscious UI intended for when a phone is not in use (Jobs) and a continuously interactive, user-contact-driven wallpaper (Hackborn). EX2005, ¶103. Petitioner’s

combination is nothing more than impermissible hindsight that does not logically flow from the references' teachings.

2. *Dependent Claims 18 and 39 Are Not Obvious*

a) Hackborn-Westerman-Jobs fails to disclose “a background with an appearance” and “one or more foreground objects”

Petitioner contends that the Hackborn-Westerman-Jobs combination “has a lock screen as a first interface and the lock screen includes a wallpaper, per Jobs, which is “live,” per Hackborn.” Pet., 61. However, in pointing to the lock screen interface of Jobs instead of the interface of Hackborn, Petitioner fails to show that the Hackborn-Westerman-Jobs combination discloses the required limitations of both claim 18 and the claim from which it depends, claim 1. EX2005, ¶104.

Claim 1 recites “one or more foreground objects.” In Ground 1A, Petitioner pointed to icon 102, gadget 106, icons 108, and application 110 of Hackborn as foreground objects because they “exist on a layer in front of the wallpaper 104. Pet., 18–19. Petitioner does not identify any foreground objects in the lock screen interface of Jobs, nor does Petitioner indicate that the foreground objects identified in Hackborn would exist in the lock screen interface of Jobs. EX2005, ¶105.

Additionally, Petitioner’s composite image of Jobs Figure 3A interface modified with Hackborn’s live grass wallpaper does not show any objects that appear to be in front of the wallpaper. Pet., 60–61. In fact, as shown below, in

creating this composite image, Petitioner appears to have purposefully excluded the foreground objects of Hackborn from its composite. *Compare* EX1004, FIG. 1, with Pet., 60 (modified EX1009, FIG. 3A).

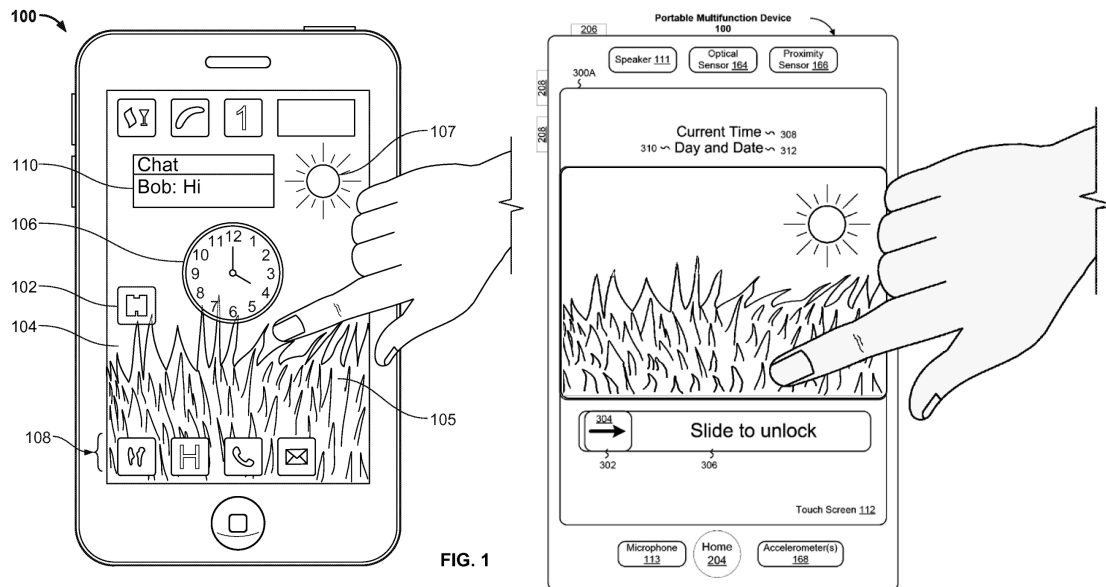


FIG. 1

A POSITA would also understand that the foreground objects of Hackborn would not be present in a lock screen interface like that of Jobs because those objects had functions in Hackborn, such as launching applications that would be undesirable on a lock screen to avoid accidental activations. EX2005, ¶106; *see* EX1009, [0177] (maintaining the lock state “saves battery power by ensuring that the device is not accidentally awakened”); EX1010, [0004] (“[A] problem associated with using touch screens on a portable device is the unintentional activation or deactivation of functions due to unintentional contact with the touch screen.”).

Similarly, though Hackborn uses the term “background” in connection with certain instances of its wallpaper as part of a home screen, Petitioner does not identify any disclosure that would indicate that Hackborn’s wallpaper would be a background in Job’s lock screen interface (in which wallpaper would no longer be a home screen). EX2005, ¶107; *see* EX1004, [0025] (“graphical objects in the example implementations are objects that are *displayed as part of a home screen* for an operating device—the screen that is shown behind applications that may be opened by a user, such as when a user has minimized all such applications.”); *id.* (“Traditionally, a home screen includes a background”). A POSITA would understand that Job’s lock screen interface is not a home screen. EX2005, ¶107.

Accordingly, Petitioner fails to show that Hackborn-Westerman-Jobs discloses “a background with an appearance” and “one or more foreground objects” limitations of claim 18. Petitioner relies solely on the same arguments for dependent claim 39, so it is non-obvious for the same reasons.

3. Dependent Claims 19 and 40 Are Not Obvious

Petitioner contends that in the Hackborn-Westerman-Jobs combination “the lock screen can be unlocked where the ‘device detects contact with the touch sensitive display ... while the device is in a user-interface lock state,’ and the ‘device moves the unlock image 302 in accordance with the contact.’” Pet., 61–62. However, as discussed in Section V.D.2 for claims 18 and 39 above, in pointing to the unlocked

lock screen interface of Jobs instead of the interface of Hackborn, Petitioner fails to show that the Hackborn-Westerman-Jobs combination discloses the required “background with an appearance” and “one or more foreground objects” of claim 19. Petitioner relies solely on the same arguments for claim 40, so it is non-obvious for the same reasons.

E. Ground 2: Hackborn-Westerman-Jobs Does Not Render Obvious Claims 1, 4–8, 10–12, 15, 17–20, 22, 23, 26–30, 32, 34, or 37–42

1. A POSITA Would Not Have Been Motivated To Combine Hackborn, Westerman, and Jobs

At the outset, Ground 2 refers to Petitioner’s assertions in Ground 1A as to why the Hackborn-Westerman combination allegedly would have been obvious. Pet., 63. But those assertions are insufficient for the same reasons explained above in Section V.A.1.

From there, Petitioner shifts the focus of Ground 2 from Hackborn’s animated grass wallpaper to the social media wallpaper of Hackborn’s Figure 6. Pet., 63–64. Ground 2 seeks to modify Hackborn’s Figure 6 embodiment—“which includes information fetched or received from one or more social services on the Internet”—with Westerman’s discrimination between taps and swipes, and Jobs’s vertical scrolling functionality. Pet., 64–71.

a) Ground 2 is built on a faulty foundation

Petitioner contends that:

[A] POSITA reviewing Hackborn's teaching of scrolling social media posts in relation to Figure 6 would have found it obvious to provide a way to view older posts (e.g., partially-displayed post 606e) that s/he may not have already read before the posts were moved downward and less (or not) visible. [APPLE-1003, ¶148.] Specifically, a POSITA would have found it obvious to allow for manual scrolling through the [social media] posts by the user.

Pet., 66. This passage provides the foundation for the rest of Petitioner's obviousness theory for Ground 2—i.e., this purported obviousness of manual scrolling is the reason Petitioner proffers to look to Jobs, which coincidentally connects manual scrolling of the posts with a swipe gesture, which coincidentally is the only way Petitioner circles back to Westerman's thresholds. EX2005, ¶110.

Without that foundation—a POSITA's purported self-inspired desire to manually scroll the social media posts 606a-606e in Hackborn's alleged *background* wallpaper—the Petition offers no reason to look to Jobs, and therefore fails to connect scrolling those posts to any swipe or threshold. EX2005, ¶110. As such, without that foundation, Ground 2 necessarily fails. To be sure, Petitioner's theory

has an air of truthiness⁴—it *feels* familiar and straightforward—but that familiarity is explained by the *present-day* ubiquity of smart phones and their *present-day* functions; it is not supported by the evidence or logic of the Petition. Indeed, Petitioner’s foundation is flawed for each of multiple reasons. EX2005, ¶110.

First, these two *manual-scrolling-was-obvious* sentences do not articulate a motivation to modify Hackborn to include manual scrolling *in Hackborn’s wallpaper*. EX2005, ¶111; Pet., 66.⁵ Instead, they simply recite in general terms what is today a ubiquitous smartphone function in the context of social media applications—manual scrolling of posts—without explaining why that would have been desirable in the context of Hackborn’s *wallpaper*. That is legally insufficient. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d at 1073 (“[O]bviousness concerns

⁴ <https://www.merriam-webster.com/dictionary/truthiness>

⁵ Dr. Cockburn contends that “[f]ailure to support manual scrolling would be infuriating to a user,” but that motivation (a) does not appear in the Petition, (b) fails to consider that manual scrolling of social media posts was already available in Hackborn’s social media applications, and (c) to the extent applied to Hackborn’s wallpaper, is belied by the fact that Hackborn did not provide such manual scrolling of its wallpaper. EX2005, ¶111.

whether a skilled artisan not only could have made but ***would have been motivated to make*** the combinations or modifications of prior art to arrive at the claimed invention.”).

Second, the Petition asserts—without objective evidence, meaningful consideration of Hackborn, or an articulated motivation—that a POSITA would have found it obvious to provide a way to view older posts (e.g., partially-displayed post 606e) that s/he may not have already read before the posts were moved downward and [became] less (or not) visible.” Pet., 66. But Petitioner and its expert fail to address the fact that Hackborn already provides a way for a user to view past posts—i.e., by opening a social media application with which posts are associated. *See, e.g.*, EX1004, [0048]. Hackborn explains that “selection of the wallpaper or a portion of the wallpaper ... may cause an application associated with the wallpaper or a portion of the wallpaper to launch or become active, and may allow the user to work with an aspect of the wallpaper or associated with the displayed wallpaper.” *Id.* And Hackborn offers the example that “if message 606 *c* represents a Facebook post, selection of message 606 *c* may launch a Facebook application on device 600, which may permit the user to respond to Donaldson’s post 606 *c*.” *Id.* Thus, even to the extent a POSITA would have “found it obvious to” provide a way for a user to view past posts, Hackborn already answered that call—meaning a POSITA would have had no reason to look elsewhere, much less to Jobs. EX2005, ¶112. And, for

the “partially-displayed post 606e” (Pet., 66), a user could have selected post 606e directly to launch the associated application to view and respond to that post. *Id.*

Third, Petitioner asserts—again without objective evidence, meaningful consideration of Hackborn, or an articulated motivation—that “a POSITA would have found it obvious to allow for manual scrolling through the [social media] posts by the user.” Pet., 66. On its face, this sentence is conclusory, devoid of any additional reasoning. And, here again, Hackborn already spoke to this functionality. EX2005, ¶113. For example, to manually scroll through Facebook posts, a user could simply “launch a Facebook application on device 600” to scroll through the posts. EX1004, [0048]; EX2005, ¶113. Thus, even to the extent a POSITA would have found it obvious to allow a user to manually scroll through social media posts, a POSITA had no need to look elsewhere. EX2005, ¶113.

Fourth, the Petition fails to connect the purported obviousness of manual scrolling *in the abstract* to the specific context of Hackborn’s wallpaper. EX2005, ¶114. Neither Petitioner nor Dr. Cockburn assert that any of the cited prior art references disclose manual scrolling of such posts in a background or wallpaper layer. Pet., 66; EX2005, ¶114. Nor do Petitioner or Dr. Cockburn address the fact that Hackborn itself explains that “[i]n general and with regard to **any of** the displayed examples of live wallpaper in the figures, the wallpaper or a portion of the wallpaper be selected ... to cause the wallpaper or a portion thereof to assume a

more prominent display position or status.” EX1004, [0048]. Importantly, Hackborn further explains that “[*ff*or *example*, display planes may be adjusted based on certain inputs or information received” *Id.* This is critical because adjusting a display plane of the wallpaper to cause it to assume a more prominent display position or status means moving the wallpaper forward out of the lowermost layer. EX2005, ¶114; *see also* EX1004, [0031], FIG. 2. As can be seen in Figure 2 of Hackborn, this would mean moving the wallpaper ‘upward’ to a plane above that of the icons. EX1004, [0031], FIG. 2; EX2005, ¶114.

And, doing so in response to interaction with (*e.g.*, scrolling) the wallpaper, as explicitly suggested by this passage of Hackborn, is fatal to Petitioner’s mapping of Limitation [1.j], which requires “changing the appearance of the background of the first user interface *without changing an appearance of the one or more foreground objects.*” EX2005, ¶115. This is because moving the wallpaper (604) to a plane above the icons (608) would mean that the icons (608) would no longer be displayed—i.e., their appearance would change. *Id.* Of course, if the purpose of manual scrolling is to allow a user to view the posts 606, then it would make sense to follow Hackborn’s suggestion to move wallpaper 604 upward to a plane above icons (608)—in which the icons (608) would not block the wallpaper (604). *Id.*; *see also* EX1004, [0047] (“While no application windows are shown in FIG. 6, it is understood that a user could launch an application and work in an application area

on the display 602, where the application area would be displayed above the wallpaper layer and the icon layer, for example.”), FIG. 4 (chat application window 410), [0041] (describing same). But, despite acknowledging Hackborn’s teaching of “causing a portion of the background wallpaper to assume a more prominent display position” (Pet., 66), Petitioner does not explain why a POSITA would have left Hackborn’s wallpaper 604 in the background when manually scrolling to improve visibility of posts 606. EX2005, ¶115. That failure further illustrates the lack of evidentiary or logical support for Petitioner’s contention that a POSITA viewing Hackborn alone would have “found it obvious” to add manual scrolling in the context of wallpaper 604 when in a *background* layer. *Id.*

For each of the foregoing reasons, Petitioner fails to support its foundational premise that a POSITA would have found it obvious—based on Hackborn alone—to modify Hackborn’s wallpaper of Figure 6 to enable manual scrolling. Without that premise from which to build, the entirety of Ground 2 necessarily fails.

b) Even accepting *arguendo* that a POSITA would have found obvious manual scrolling in the abstract, Petitioner’s alleged combination of Hackborn with Jobs and Westerman is legally deficient

Petitioner explains its alleged combination of Hackborn and Westerman as simply “applying Jobs’ disclosure of associating swipes with manual scrolling through images in Hackborn’s device” and contends that it would have “provid[ed]

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., 70–71. Yet, Petitioner and Dr. Cockburn overlook both the technical limitations of such a combination in the context of Hackborn’s system and objectives, and the distinct nature of Westerman’s tap versus swipe determination.

First, Petitioner fails to address the technical limitations of Hackborn’s system that would have made manual scrolling unworkable for Hackborn’s wallpaper. EX2005, ¶117. Hackborn discloses that its live wallpaper is implemented in a distinct process. EX1004, Abstract, [0031] (“the term ‘process’ is intended by its ordinary usage to represent an environment, isolated from other such environments, in which one or more pieces of code may execute in such isolation”). Hackborn also explains that its wallpaper “may be updated independently of other displayed graphics.” *Id.*, [0027]. Jobs, on the other hand, discloses a messaging application with a list-based interface capable of continuously scrolling instant messages. EX1009, [0243]; EX2005, ¶117. However, Hackborn’s wallpaper—when in a background layer—would be at least partially covered by icons, widgets, or applications, leaving limited screen real estate for reading a manually scrollable feed. EX1004, FIG. 6. Further, a POSITA would understand that implementing Jobs’ continuous scrolling in a background context would demand significant

modification of Hackborn's wallpaper process to manage historical post data storage, collision with home-screen icons, and continuous input detection to allow up-or-down movement behind foreground objects. EX2005, ¶117. Nothing in the references or Petitioner's arguments explains why a POSITA would implement manual scrolling despite these complexities, much less do so with Hackborn's wallpaper remaining in a background layer during that scrolling. *Id.*

Second, Petitioner fails to provide any evidence of a purported advantage of a manually-scrollable background feed over a dedicated application optimized for reading or interaction. EX2005, ¶118. A wallpaper interface is typically not structured for in-depth navigation. *Id.* Merely asserting that doing so would be "intuitive" to manually scroll a list does not overcome the practical design considerations or the absence of support in the references themselves for doing so in a background layer. *Id.* A POSITA would have understood that typical social media applications like the Facebook application already in Hackborn would have provided more robust interaction (e.g., scrolling, commenting, liking), and that providing feed updates to the live wallpaper therefore would have needlessly increased UI complexity while still being necessarily limited by the wallpaper form. *Id.*

Finally, as discussed in Section V.A.1 above for Ground 1A, Westerman's threshold-based determination between swipes and taps for text entry is completely disconnected from both the feed-based wallpaper of Hackborn and scrolling

messages list of Jobs. EX2005, ¶119. Petitioner argues that “[a] POSITA would have found it obvious to modify live wallpaper 604 such that a user could scroll through the images/posts of the wallpaper ‘using vertically upward and/or vertically downward gestures’ (i.e., swipes, *detected per Westerman*) ‘on the touch screen,’ per Jobs.” Pet., 68–69. However, like the dynamic grass animation of Hackborn, the vertical scroll of Jobs is not a binary determination—it’s continuous. *See* EX1009, [1138] (“In response to detecting the movement, the list of items displayed on the touch screen display is scrolled so that a new portion of the list is displayed.”); *id.* (“In some embodiments, scrolling the list has an associated speed of translation that corresponds to a speed of movement of the object.”); EX2005, ¶119.

A POSITA would have understood that there is no need for a threshold determination between swipes and taps in Hackborn or Jobs because Jobs already discloses scrolling where less contact movement on the social media feed would result in less scrolling of the feed. *Id.* Indeed, Jobs teaches the receipt of “taps” but distinguishes them spatially rather than via thresholds. EX2005, ¶120; *compare* EX1009, [0232], [0237], [0239], [0240], [0241] (discussing multiple examples of “a finger tap” on various icons *outside* the area displaying the conversation), *with id.*, [0243] (discussing “swipe gesture 610 *to the area displaying the conversation*”). Nowhere does Petitioner explain why implementing manual scrolling in Hackborn’s virtual wallpaper requires receiving and distinguishing taps and swipes *in the same*

part of the screen. EX2005, ¶120. Yet that is what Westerman teaches and, absent a need for that in Hackborn, a POSITA starting with Hackborn would have had no reason to turn to Westerman. *Id.* In contrast, assuming *arguendo* that manual scrolling like that of Jobs were implemented in Hackborn, it would scroll with any moving input in a designated region, whereas another gesture in other designated areas would select corresponding posts. *Id.* Any other result would interfere with continuous scrolling by, *e.g.*, awkwardly forcing a user to move its input for a threshold distance or above a threshold speed before the social media posts of the wallpaper would begin to move. *Id.* Thus, Petitioner has not identified an actual problem in any combination of Hackborn and Jobs that would necessitate the binary determination of swipes versus taps of Westerman.

Overall, the references do not indicate any interaction that would motivate a POSITA to implement either (a) a complicated, potentially cluttered scrolling feature *in the background*, particularly when the device already has a dedicated social-media application, or (b) an unnecessary binary tap-swipe determination to facilitate vertical scrolling. EX2005, ¶121. As a result, Petitioner fails to sufficiently support its purported combination of Hackborn, Westerman, and Jobs.

2. *Independent Claims 1 and 23 Are Not Obvious*

- a) Hackborn-Westerman-Jobs fails to disclose “dynamically changing the appearance of the background” “in accordance with a determination that the first contact has a magnitude that is above a threshold”**

Petitioner contends that “a POSITA would have found it obvious to implement the H2WJD 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. However, there is no indication in Hackborn, Jobs, or Westerman that the feed-based wallpaper will only update its display once a certain threshold is met. EX2005, ¶122.

Hackborn explains that social-media updates shift older posts when new content arrives; it does not discuss rejecting inputs below a threshold. EX1004, [0047]; EX2005, ¶123. Jobs discloses the ability to vertically scroll through messages in an instant messaging application. EX1009, [0243], [1138]. While this might conceptually overlap with Hackborn’s notion of a feed, neither reference suggests gating display changes in the feed behind a threshold. EX2005, ¶123. The vertical scroll of Jobs is not a binary determination—it’s continuous. *Id.*; EX1009, [1138]. A POSITA would understand that Jobs does not rely on the distinction between a swipe and a tap to initiate its vertical scroll because the amount of scrolling corresponds to the magnitude of the contact movement. EX2005, ¶123. In

other words, Jobs already discloses scrolling where less or no contact movement on the social media feed would result in less or no scrolling of the feed. *Id.* Westerman’s binary distinction between a “tap” and a “swipe” has no role in Jobs’ vertical scrolling. *Id.* Indeed, Westerman does not scroll. *Id.*

Thus, Petitioner fails to explain why the purported combination would include “dynamically changing the appearance of the background” “in accordance with a determination that the first contact has a magnitude that is above a threshold” required by claim 1. Likewise, because Petitioner relies solely on the same arguments for independent claim 23, it is also non-obvious for the same reasons.

3. *Dependent Claims 7 and 29 Are Not Obvious*

a) Hackborn-Westerman-Jobs fails to disclose “maintaining the appearance of the background” when an input is below a threshold

Petitioner contends that “a POSITA would have found obvious that the responsive scrolling of images in the H2WJD is only in response to a swipe and not a tap, for example, which does not suggest the same scrolling output.” Pet., 79–80. However, this reasoning overlooks how these references actually function.

First, as discussed in Section V.E.2 for claim 1, Westerman’s binary distinction between a “tap” and a “swipe” has no role in initiating Jobs’ vertical scrolling because the amount of scrolling corresponds to the magnitude of the contact movement. EX1009, [0243], [1138]; EX2005, ¶126. Second, none of the

references indicate that “taps” do nothing. Westerman discloses that functions still execute when a tap is detected. *See* EX1005, [0058] (“Keyboard input manager 907 interprets key tap events 906 and generates text events 908”). And Hackborn discloses that individual posts in the feed can be selected “to cause the wallpaper or portion thereof to assume a more prominent display position or status.” EX1004, [0048]. A POSITA would understand that is one possible way of selecting a post. EX2005, ¶126. Thus, none of the references disclose a mechanism that “maintains the appearance of the background” specifically because the contact is a tap. *Id.*

Accordingly, Petitioner fails to establish that Hackborn-Westerman-Jobs discloses “maintaining the appearance of the background” “in accordance with a determination that the first input does not have a magnitude above the threshold” as in claim 7. Petitioner relies solely on the same arguments for dependent claim 29, so it is non-obvious for the same reasons.

4. Dependent Claims 18, 19, 39, and 40 Are Not Obvious

For claims 18, 19, 39, and 40, Petitioner largely relies on its arguments outlined in Ground 1D. Pet., 84–87, 90. The only difference is that Petitioner inserts the social media feed as the wallpaper on the lock screen instead of the live grass wallpaper. EX2005, ¶128. For at least the same reasons outlined in Sections V.D.2–3 for Ground 1D, Petitioner fails to show that Hackborn-Westerman-Jobs discloses

“a background with an appearance” and “one or more foreground objects” limitations of claims 18, 19, 39, and 40.

5. *Dependent Claim 22 Is Not Obvious*

a) Hackborn-Westerman-Jobs fails to disclose the limitations of claim 21, from which claim 22 depends

Petitioner argues Hackborn-Westerman-Jobs renders obvious claim 22 because it discloses “the one or more foreground objects includes one or more application icons” because “Figure 6 [of Hackborn] shows foreground objects including application icons for contacts 608a, browser 608b, and maps 608c.” Pet., 87–88. However, Petitioner ignores the fact that claim 22 depends from claim 21, which requires Petitioner to establish that the limitations of claim 21 are also disclosed by the Hackborn-Westerman-Jobs combination. However, Petitioner did not assert that claim 21 was obvious under the Hackborn-Westerman-Jobs combination of Ground 2. EX2005, ¶129. Nor did Petitioner argue in its discussion of claim 22 that the limitations of claim 21 are disclosed in the Hackborn-Westerman-Jobs combination. Given that Townsend is not included in Ground 2 and that Petitioner does not argue that the Hackborn-Westerman-Jobs combination alone discloses the limitations of claim 21, Petitioner has failed to establish that Hackborn-Westerman-Jobs discloses every limitation of claim 22.

6. *Dependent Claim 28 Is Not Obvious*

- a) **Hackborn-Westerman-Jobs fails to disclose a “dynamic change in the appearance of the background” that is “independent of the location that corresponds to the background”**

Petitioner points to its argument for claim 6, which contends that “a POSITA would have understood that the scrolling gesture 610 in Figure 6A of Jobs can occur at *any* location within the message list, and similarly that the scrolling gesture (or a ‘focus selector,’ to the extent one exists in the H2WJD) in the H2WJD can occur at any location on the live wallpaper.” Pet., 79, 89. Petitioner’s argument fails because in Petitioner’s theory “the dynamic change of the background” is dependent on “the location that corresponds to the background.”

However, Petitioner does not explain how the scrolling of the message list is independent of the location of the gesture, which Petitioner admits occurs “***within the message list***” that represents the dynamic change of the background. EX2005, ¶131; Pet., 79. Accordingly, Petitioner has failed to adequately establish that Hackborn-Westerman-Jobs discloses that the “dynamic change” is “independent of the location that corresponds to the background.” Therefore, claim 28 is not obvious.

7. *Dependent Claims 4–8, 10–12, 15, 17–20, 22, 26–30, 32, 34, and 37–42 Are Not Obvious*

As discussed above in Section V.E.2, independent claims 1 and 23 are not obvious under the combination of Hackborn-Westerman-Jobs; therefore, all challenged dependent claims are also non-obvious for at least the same reasons.

VI. CONCLUSION

For the foregoing reasons, Patent Owner respectfully asks that the challenged claims be upheld.

Dated: April 14, 2025

Respectfully submitted,

/Eagle H. Robinson/

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Lead Counsel for Patent Owner

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(a)(i), the undersigned certifies that this Paper—exclusive of the table of contents, exhibit list, certificate of service, and this certificate of word count—includes 13,985 words. The undersigned has relied upon the word count feature provided by Microsoft Word.

/Eagle H. Robinson/
Eagle H. Robinson (Reg. No. 61,361)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on April 14, 2025, complete copies of this Patent Owner Response and EX2005-EX2007 were served on Petitioner via email (by consent), at the following email address(s):

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