IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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SUPPLEMENTAL DECLARATION OF DR. LOREN TERVEEN

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: Sep 25, 2025 By: _____

Loren Terveen, Ph.D.

APPLE 1023
Apple v. Smith Interface
IPR2024-01119

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I, Loren Terveen of Minneapolis, MN, declare that:

I. INTRODUCTION

1. I have been retained on behalf of Apple Inc. ("Apple"), as an independent expert consultant in this *inter partes* review ("IPR") proceeding before the Patent Trial and Appeal Board ("PTAB") of the United States Patent and Trademark Office ("USPTO"). I understand that the proceeding numbers of these consolidated IPR proceedings are IPR2024-01115, IPR2024-01116, IPR2024-01119.

2. I have been asked by Apple's counsel ("Counsel") to consider whether certain references describe or make obvious features recited in claims 1, 2, 27, 37, 58, 60-64, 67-79, 186, 187, 189, 191, 192, 197, 199-204, 208-216, 223, 225, 230 of U.S. Patent No. 10,656,754 ("the '754 patent") (EX1001). My opinions are based on my education, my knowledge and experience in the relevant fields of technology, and my review of the materials considered in preparing this document.

3. I previously submitted a declaration in this proceeding that I signed on June 28, 2024 ("Original Declaration"). I understand that the Original Declaration was marked as EX1003. The Declaration contained my opinions and the bases for them. Since submitting the Original Declaration, I have considered the Declaration

of Dr. Craig Rosenberg ("Rosenberg Declaration") (EX2018) as well as the references cited by him, including:

- EX2010: Manojit Sarkar and Marc H. Brown. *Graphical fisheye views of graphs*. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '92). Association for Computing Machinery, New York, NY, USA, 83–91 (1992)
- EX2011: Manojit Sarkar, Scott S. Snibbe, Oren J. Tversky, and Steven P. Reiss. *Stretching the rubber sheet: a metaphor for viewing large layouts on small screens*. In Proceedings of the 6th annual ACM symposium on User interface software and technology (UIST '93). Association for Computing Machinery, New York, NY, USA, 81–91. (1993)
- EX2012: U.S. Patent Publication No. 2011/0074697 to Peter William Rapp *et. al.*
- EX2013: David Leggett, Tip: Use The Grid in Photoshop, Photoshop Tutorials (Archived January 10, 2011 and available online at https://web.archive.org/web/20110110073302/http://www.tutorial9.net/tutorials/photoshop-tutorials/tip-use-the-grid-in-photoshop/)

- EX2014: U.S. Patent Publication No. 2005/0068290 to Denny Jaeger.
- EX2015: Provisional Patent Application 61/581,918
- EX2016: Kate Morrical, Drafting Settings Part 3 - Object Snaps, LT Unlimited (Archived May 08, 2010 and available online at https://web.archive.org/web/20100508130049/http://ltunlimited.typepad.com/my_weblog/2009/01/drafting-settings-part-3-object-snaps.html)
- EX2017: U.S. Patent 7,657,849 to Imran Chaudhri et al.

4. My opinions from my Original Declaration have not changed.

II. BACKGROUND AND QUALIFICATIONS

5. My background and qualifications are set forth in the Declaration. I incorporate that section in this declaration ("Supplemental Declaration") by reference.

III. INFORMATION CONSIDERED

6. In preparing this Supplemental Declaration, I have considered materials listed in paragraph 18 of my Original Declaration. I have also considered the references listed below. In addition, my opinions are further based on my education, training, experience, and knowledge in the relevant fields.

- EX1024: Transcript of July 10, 2025 Deposition of Craig Rosenberg, Ph.D.

- EX1025: U.S. Pat. No. 9,311,112 ("Shaffer")
- EX1026: U.S. Pat. No. 8,375,336 ("Matthews")
- EX1027: U.S. Pub. No. 201/0092381 ("Hoover")

IV. SUMMARY OF OPINIONS

7. I have been asked to consider whether the claims of the '754 patent are anticipated or obvious over certain prior art references. As explained in the Original Declaration, and in further detail in this Supplemental Declaration, it is my opinion that claims 1, 2, 27, 37, 58, 60-64, 67-79, 186, 187, 189, 191, 192, 197, 199-204, 208-216, 223, 225, 230 of the '754 patent are obvious over Ahn, Chaudhri-842, and Shiplacoff.

V. Reply to Arguments Made By Dr. Rosenberg

8. The Original Declaration analyzed how combinations of Ahn, Chaudhri-842, and Shiplacof render claims 1, 2, 27, 37, 58, 60-64, 67-79, 186, 187, 189, 191, 192, 197, 199-204, 208-216, 223, 225, 230 (among others) of the '754 patent obvious. I incorporate that analysis here by reference. In this Supplemental Declaration, I further address statements from Dr. Rosenberg relating to the prior art discussed in the Original Declaration.

A. The Combination of Ahn and Chaudhri Renders Obvious a Menu Emerging from a Side of the Display Simultaneous with a User's Drag Gesture and Blurring at Least a Portion of the Interface as a Function of the Gesture

9. As I explained in my Original Declaration, "Ahn describes the use of blurring in at least two ways" that would meet limitations [2.d] and [225.d]. EX1003, [93]. First, because Ahn describes that the menu may be translucent, it would have progressively blurred at least a portion of the graphical user interface as the user slid the menu onto the screen. EX1003, [93]-[95]. Second, Ahn illustrates that when a menu is opened, at least a portion of the underlying user interface (*e.g.*, a clock widget) is blurred, and a POSITA would have found it obvious in view of Chaudhri '842 that this blurring would have happened progressively as the user slid open the menu. EX1003, [96]-[102].

10. With respect to the first form of blurring, Dr. Rosenberg argues that I "must show" that "Ahn's menu follows the user's finger across the display." EX2018, [142]. While Ahn does show this (as I explain briefly below), my Original Declaration argued that a POSITA would have found it obvious in the Ahn-Chaudhri combination "Ahn's menu list would have been graphically displayed as sliding onto the display based on a change in a magnitude of the 'touch and drag' gesture being detected on the touch screen." EX1003, [94]. I did

not rely upon any one reference's teachings for this proposition. Rather, I cited to both references in combination as supporting that it would have been obvious.

11. A POSITA would have at least found obvious that Ahn teaches a menu that follows a user's finger. For example, Ahn teaches that "**as** the user drags the graphic shadow 1800, the menu list 1500 can be displayed **along** the dragged graphic 1800." EX1004, [0118][1]. Similarly, with respect to the embodiment of FIG. 18(b), "**as** the user may press the graphic 1800 with a finger, the graphic 1800 gradually disappears in the display 40, and the menu list 1500 can be displayed as **emerging** from the left side of the display 40 **while** the graphic 1800 disappears in the display 40." EX1004, [0119]. A POSITA would have understood or at least found obvious that these temporal descriptions would have been implemented such that menu 1500 emerges "**as** the user" "drags in a right direction" while "press[ing] the graphic 1800." *See* EX1004, [0117]-[0119][2].

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[1] Emphasis added throughout unless otherwise noted.

[2] It is my understanding that, during his deposition in IPR2024-01083, Dr. Rosenberg interpreted paragraphs [0117]-[0119] of Ahn as teaching that "it is a right swipe to bring up the graphic shadow and then a left swipe that is starting on the graphic shadow to dismiss the graphic shadow and bring up 15B." EX1024,

12. Dr. Rosenberg admits that Ahn discloses animations for the menu emerging from the side of the display. *See, e.g.*, EX2018, [51], ("[s]ome embodiments also include an animation effect"), [81], [91] ("including the embodiment in FIG. 18 which displays the menu as an animation effect after an input"). Therefore, the only difference between Ahn and the claims is whether the animation occurs in direct correspondence with a user's dragging gesture or after

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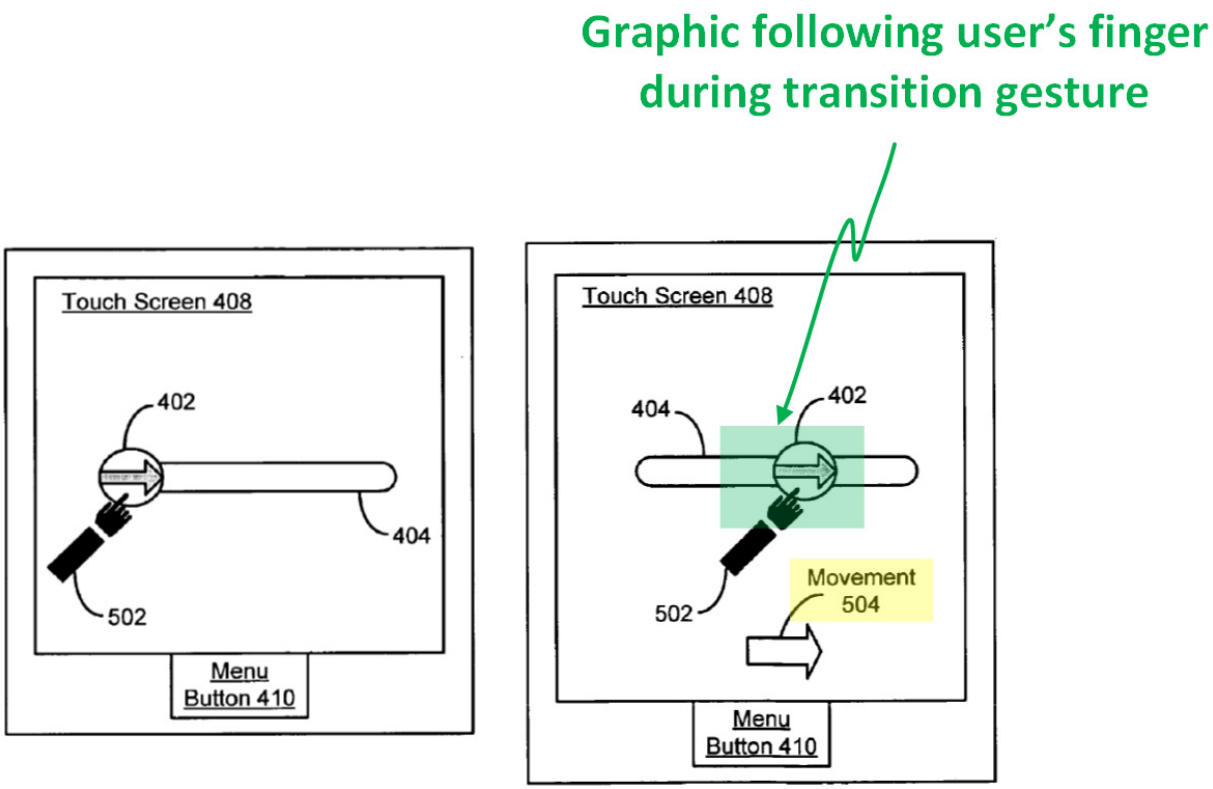
98:17-112:4. According to Dr. Rosenberg, a right-swipe would not open the menu at all. *Id.* This interpretation is directly counter to Ahn's goal of displaying the graphic shadow 1800. *See* EX1004, [0117]. Specifically, Ahn teaches that "an identifier [e.g., graphic shadow 1800] <u>for notifying the user</u> that an item list matched to the specific direction is displayed in the display 40 can be displayed in the display 40." *Id.* Forcing a user to access the notifying identifier with a gesture that itself has no identifier defeats the purpose of notification. Further, Ahn teaches that "the identifier may be a specific icon for notifying <u>a start position</u> of the touch and drag operation." *Id.* Under Dr. Rosenberg's interpretation, opening a menu is a two-part touch-and-drag operation that is started before the identifier is even displayed. Thus, under Dr. Rosenberg's interpretation, the identifier (*e.g.*, shadow 1800) would not "notify[] a **start** position." *Id.*

the dragging gesture is complete, which a POSITA would have understood are both straightforward and obvious design choices.

13. Furthermore, my Original Declaration relied upon the combination with Chaudhri-842 with respect to the menu following the user's finger, not solely on the teachings of Ahn. Specifically, my Original Declaration explained that "Chaudhri-842 describes moving displayed graphics in correspondence with the magnitude of gestures associated with those graphics in order to provide the user who is performing the gesture a visual confirmation of the gesture and help direct them on how to complete the gesture." EX1003, [94]. As part of this explanation, I cited various examples of visual cues provided by Chaudhri-842, including images that "move along with the gesture as the gesture is detected." *Id.*

14. In cited paragraph [0054], Chaudhri-842 describes "visual cue(s) [that] provide hints or reminders of" actions to the user, and "visual cues may be textual, graphical or any combination thereof." EX1005, [0054]. Chaudhri-842 goes on to describe that "the visual cues may also be displayed upon particular user inputs, such as the user interacting with the menu button…." *Id.* In an example of a locked device, Chaudhri-842 describes an unlock action with respect to "an unlock image" displayed "along with the visual cues," and teaches that performing an unlock action with respect to "the image includes dragging the unlock image in a predefined manner, which moves the unlock image across the touch screen."

EX1005, [0062]. C provides an example of this "unlock action" in FIGS. 5A-5C (two of which are reproduced below), which illustrate a user "performing [a] gesture by moving her finger, which is in continuous contact with the touch screen [], in the direction of movement" and an image being "dragged along...as a result of the gesture." *See* EX1005, [0074]-[0079].

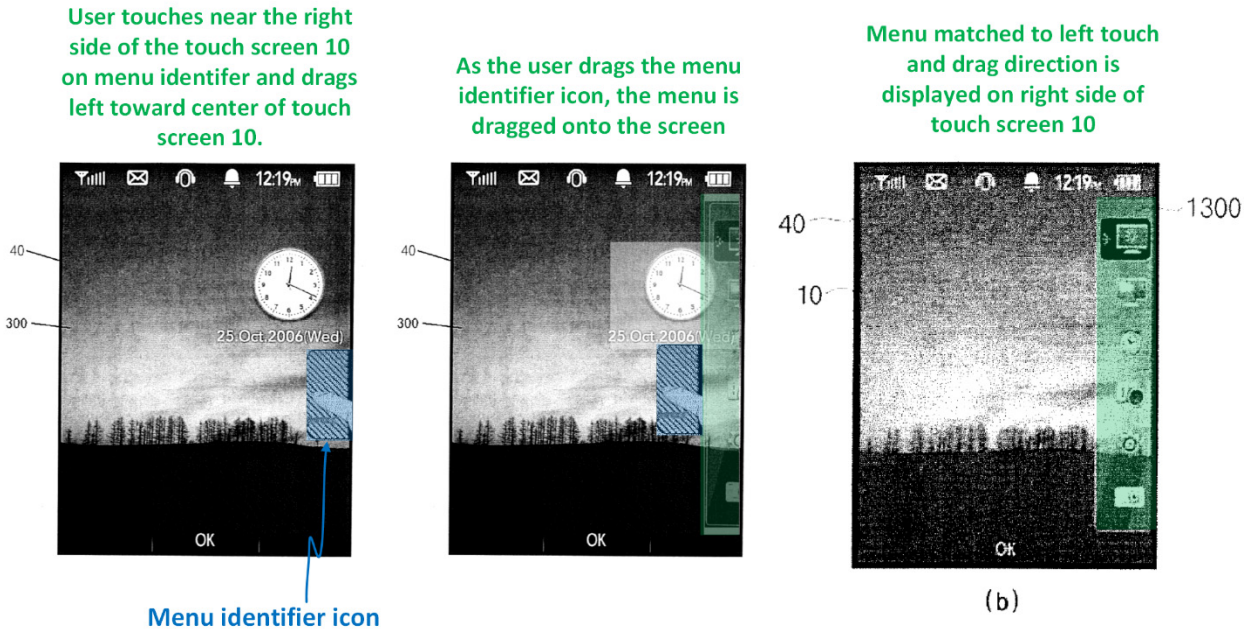


Chaudhri-842 (EX1005)
FIGS. 5A and 5B (Highlighted and Annotated)

15. A POSITA would have undoubtedly understood that these figures illustrate an image following a user's finger. A POSITA would have understood and found obvious that the purpose of Chaudhri-842's visual cues is the same as Ahn's "identifier [*e.g.*, graphic shadow 1800] for notifying the user that an item list

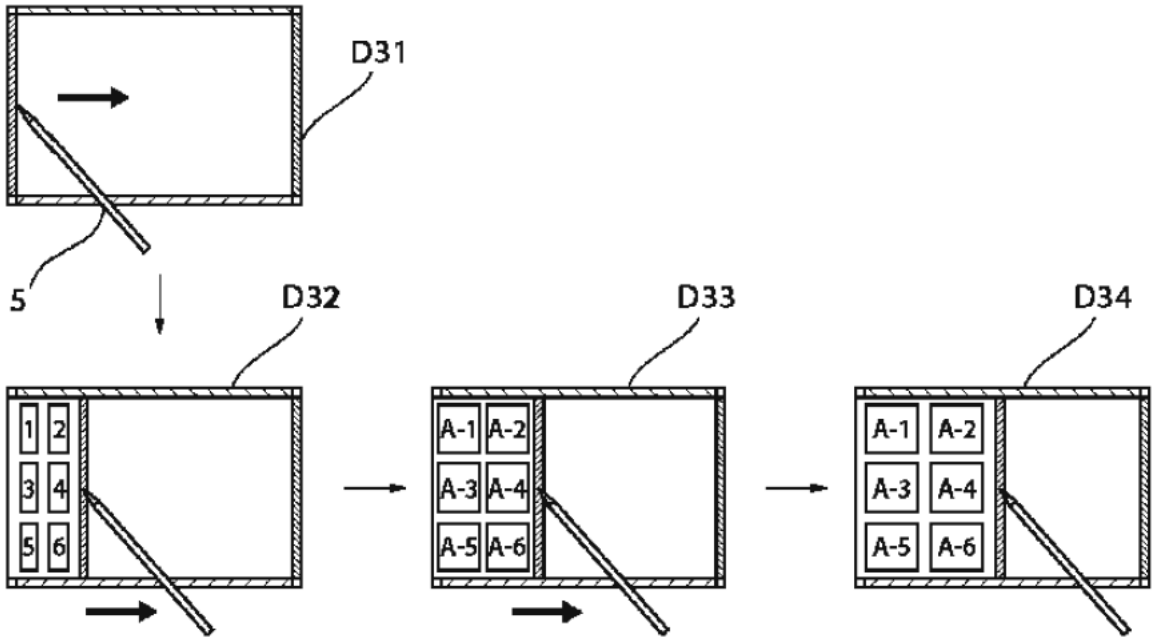
matched to the specific direction is displayed in the display 40." *Compare* EX1005, [0054] *to* EX1004, [0117]; EX1023, [XX]. Like Chaudhri-842's unlock image, a POSITA would have found it obvious that, in order to open a menu, a user touches the touch screen at the location corresponding to the Ahn's graphic shadow 1800, moves her finger from the edge of the display toward the center of the screen while in continuous contact with the touch screen, and while the gesture is being performed, the graphic shadow 1800 is dragged along as a result of the gesture and the menu is "displayed along the dragged graphic 1800." EX1004, [0117]-[0118]; EX1005, [0074]-[0075]. An example of this is shown below diagram based on Ahn's FIGS. 13 and 18[3].

[3] A POSITA would have found obvious from Ahn's teachings that the menu identifier icon would either remain displayed (as illustrated) or disappear as the menu opens. *See* EX1004, [0117]-[0119].



16. In addition to being consistent with the express teachings of Ahn and Chaudhri-842, the method of opening a menu shown in the above sequence was well known in the art. For example, Hinckley describes the opening of a menu from the side of a display similar to Ahn and teaches that the menu "slides out and tracks with the user's finger." EX1006, [0080]. Similarly, Nan describes an example of "edge gestures" that open a menu, and that the menu "presented in response to a gesture [can] be presented prior to completion of the gesture" and "progressively as the gesture is received." *See* EX1010, 4:1-4 (describing that an "options menu" may be displayed), 6:65-7:8. "This permits a user experience of dragging out the user interface from the edge as the gesture is performed with the user interface appearing to 'stick' to the gesture (e.g., to a mouse point or person's finger making the gesture)." *Id.* Furthermore, Hisatomi describes "processing

procedures at the time of displaying [a] pull-out menu" during which "the display amount of the pull-out menu will be updated corresponding to the X coordinate value generated by the input device." EX1011, [0050]-[0052].



Hisatomi (EX1011), FIG. 21

17. Thus, as I explained in my Original Declaration, "[a] POSITA would have found obvious from these teachings that, in at least implementations like those described referencing FIG. 18, Ahn's menu list would have been graphically displayed as sliding onto the display based on a change in a magnitude of the 'touch and drag' gesture being detected on the touch screen." EX1003, [94].

18. With respect to the second form of blurring, Dr. Rosenberg argues that the combination of Ahn and Chaudhri-842 that I explained in my Original Declaration "is premised on the combination providing a user with an indication of

or feedback on the progress of Ahn's gesture." EX2018, [95]. However, I explained that there were at least four reasons why a POSITA would have found the combination with Chaudhri-842 obvious, and only one of those four related to providing a user with an indication of or feedback on the progress of Ahn's gesture. *See* EX1003, [63]-[67].

19. Dr. Rosenberg's arguments assume that the menu does not slide with the user's input. *See* EX2006, [95]-[102]. Thus, Dr. Rosenberg is not accounting for the full combination, in which both the menu sliding open and the underlying user interface (*e.g.*, the clock widget) blurring provide the visual confirmation to a user of their progress. *See* EX1003, [65] (explaining that movable images "when combined with the transition in optical intensity, help the user visualize the correct gesture and how to complete it successfully). Taken together, these two visual cues would have accomplished the benefit of providing the user sensory feedback.

20. Dr. Rosenberg also argues that Ahn's clock widget is part of the background, and that Chaudhri '842 does not teach blurring the background. EX2018, [104]-[111]. Dr. Rosenberg is mistaken for at least two reasons. First, my Original Declaration explained that "Ahn already illustrates in FIGS. 3A and 4B that the process of opening the edge menus may cause <u>user interface objects</u> that are displayed as part of the standby screen 300 (<u>e.g., a clock widget</u>) to be blurred when the edge menu is opened and displayed on the screen." EX1003,

[63]. I similarly differentiated the clock widget as a distinct user interface object in other places in my Original Declaration. *See, e.g.*, EX1003, [67] ("varying optical intensity for a user interface object (e.g., the blurring of Ahn's clock widget)"), [123] (the various elements of the standby screen 300 are contained in "at least one other virtual display layer"). This is consistent with Ahn's treatment of the clock widget in the figures, because it shows only the clock widget being blurred and not the whole "background." *See* EX1004, FIG. 4B, 13(b). As I explained in my Original Declaration (EX1003, [86]), Chaudhri-842 describes that the "user-interface objects" to which its teachings apply broadly encompass "objects that make up the user interface of the device and may include, without limitation, text, images, icons, soft keys (or 'virtual buttons'), pull-down menus, radio buttons, check boxes, selectable lists, and so forth." EX1005, [0060]. "The displayed user-interface objects may include non-interactive objects that convey information or contribute to the look and feel of the user interface, interactive objects with which the user may interact, or any combination thereof." *Id.* In other words, there is no indication that Chaudhri-842 intended to limit its changes in optical intensity to "foreground" objects, as Dr. Rosenberg alleges.

21. Chaudhri-842 teaches an example in which "as the user transitions from a first application and to a second application, a user interface for the second application may fade in (i.e., increase in intensity) <u>and a user interface for the first</u>

application may fade out (i.e., decrease in intensity)." EX1005, [0079]. "In other words," I explained, "the transition may appear to a user as though objects associated with the second user interface state 'fade in' while objects associated with the first user interface state 'fade out.'" EX1003, [47]. From this, a POSITA would have at least found obvious that Chaudhri-842's teachings regarding varying optical intensity applied equally to Ahn's clock widget. *See* EX1005, [0079], [0087].

22. Second, Dr. Rosenberg again reads the prior art too narrowly. Chaudhri-842 teaches that, "[i]n some other embodiments, the optical intensity may be the visual differentiation between the user-interface object and the background, based on color, hue, color saturation, brightness, contrast, transparency, and any combination thereof." EX1005, [0085]. This description of these "other embodiments" does not limit the use of "color, hue, color saturation, brightness, contrast, transparency, and any combination thereof" to only the user-interface object in order to achieve the differentiation with the background. *Id.* A POSITA would have also understood this sentence as teaching that the properties of the background (*e.g.*, transparency) could also be adjusted to achieve the differentiation.

B. My Analysis of the Dependent Claims Is Consistent with A Menu Emerging in Correspondence with a User's Gesture

23. Dr. Rosenberg argues that, "for almost all of his dependent claim theories, Petitioner relies upon embodiments of Ahn that do not progressively slide onto the display with the user's gesture." EX2018, [112]. However, this argument rests on a misunderstanding of my reliance on Ahn's FIG. 16.

24. My Original Declaration cited FIG. 16 of Ahn as teaching that "controller 50 determines whether a drag distance of the detected touch and drag operation is a first distance or more (S1620)," and "[i]f a drag distance of the detected touch and drag operation is a first distance or more, the controller 50 controls to display a first menu list matched to the specific direction (S1630)." EX1003, [134] (citing EX1004, [0109]). However, I referred these disclosures in the context of the Ahn-Chaudhri combination. *See* EX1003, [132]-[134].

25. Dependent claims 27, 186, and 230 refer back to "the gesture" recited in independent claim 2. Thus, my application of the Ahn-Chaudhri combination to "the gesture" of independent claim 2 still applies in the treatment of the dependent claims. In other words, my Original Declaration was relying upon the teachings of FIG. 16 in the context of the combination, where the menu follows the user's finger, as I discuss in more detail above. There is no contradiction in this position.

26. Furthermore, Ahn does not specify or limit the "first distance" that the drag operation must meet or exceed in order to display a first menu. EX1004, [0109]. A POSITA would have found obvious that the "first distance" would be a *de minimus* distance used to distinguish a drag gesture from other gestures, such as a "tap." The use of such *de minimus* distances to distinguish between gestures was well known to POSITAs as of the Critical Date. For example, Shaffer describes that a "tap" may include some small amount of movement of a user's finger, so long as the movement is "less than a predefined threshold" (*e.g.*, 5 pixels). *See* EX1025, 28:37-62. On the other hand, if the user's finger exceeds this *de minimus* threshold the gesture may, for example, be recognized as a "swipe." *See* EX1025, 30:19-42 (definition of swipe include "swiping of <u>at least</u> N pixels"). Similarly, Matthews offers that, "[i]f the duration of the gesture <u>does not comprise a distance of uninterrupted movement above a predefined distance</u> or does not meet a predefined threshold time period, the gesture is considered a tap-type operation… Otherwise, the gesture is considered a drag operation." APPLE-1026, 10:65-11:7; *see also id.*, 3:38-46.

27. Thus, a POSITA would have understood and found obvious that Ahn's FIG. 16 process would first determine that the user's finger has traveled further than a first, *de minimus* distance, interpret the gesture being performed as a dragging gesture, and have the menu indicator (*e.g.*, graphical shadow 1800)

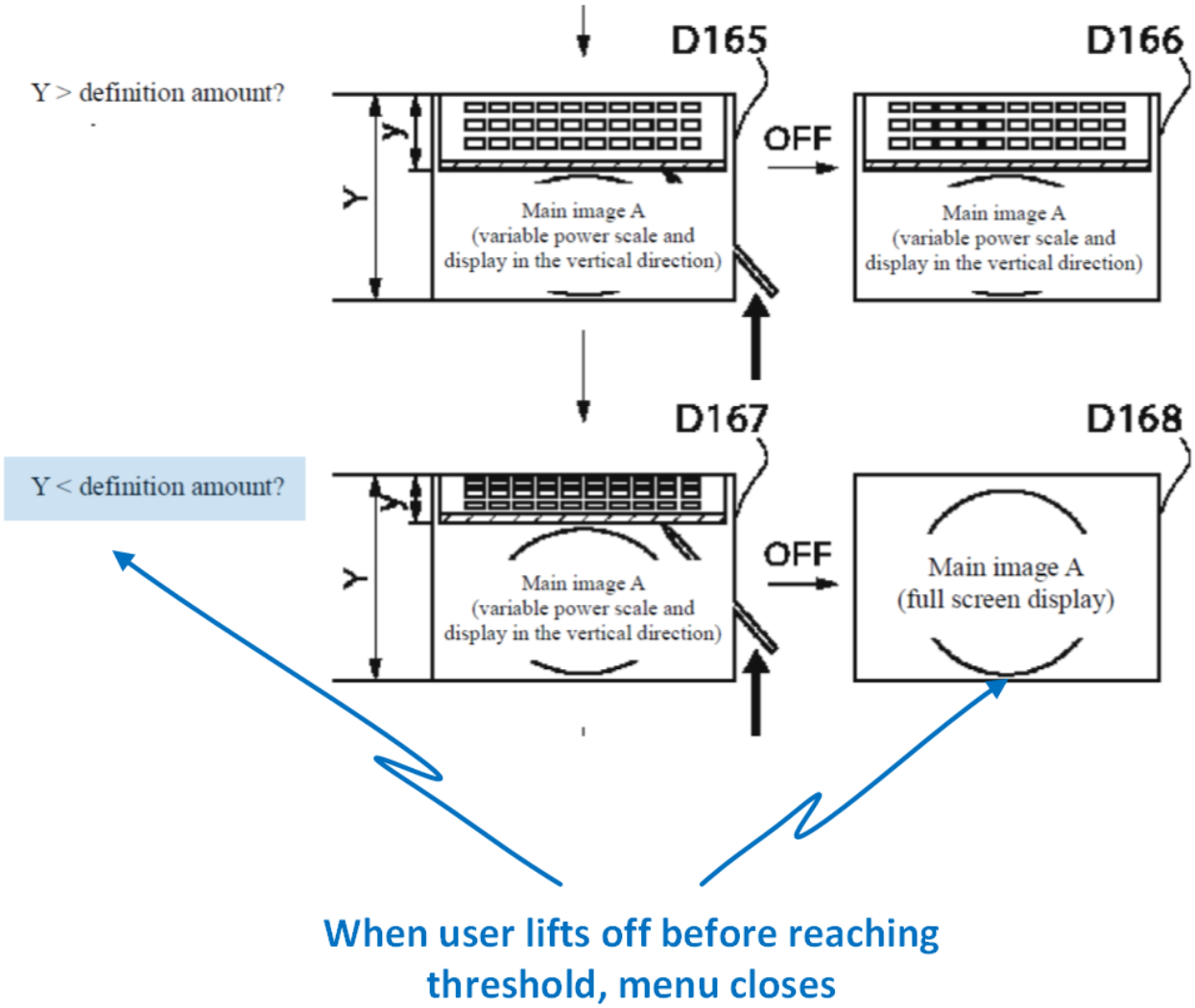
follow the user's finger. Because the first distance is small (*e.g.*, 5 pixels), a user would not be able to perceive the brief portion of their drag gesture during which Ahn's device is attempting to distinguish between different types of gestures.

28. Additionally, as I explained in my deposition, a POSITA would have reasonably interpreted reference in Ahn's FIG. 16 to "display[ing] a first menu" at S1630 as the complete opening of the menu. *See* EX2009, 38:9-44:1; EX1004, [0105]-[0109]. That is, from FIGS. 16 and 17, a POSITA would have additionally or alternatively understood that the menu follows the user's finger, and only after the user's finger has traveled a certain distance would the menu be and remain fully opened when the user's finger lifts from the screen.

29. Ahn specifically describes that, "[i]f a drag distance of the detected touch and drag operation is a first distance or more, the controller 50 controls to display a first menu list matched to the specific direction (S1630)." EX1004, [0109]. There is a similar description with respect to FIG. 17. *See* EX1004, [0111]. These descriptions do not require that the menu remain completely off the screen before a specific drag distance is reached. *See* EX1004, [0105]-[0116]. Rather, the descriptions only require that "the controller 50 controls to display a first menu." *Id.* One obvious way this would work is for Ahn's menu to follow the user's finger, and depending on whether the finger travels a certain distance

before it lifts off the screen, the menu would either close or remain completely displayed.

30. That the menu would remain completely displayed only after reaching a particular drag distance is consistent with similar prior art interfaces. *See, e.g.*, EX1005, [0062] (describing that if a dragging gesture is not complete, a dragged image is returned to its starting position); EX1011, [0048] ("in a period when the menu pull-out amount y is less than the defined amount, if it became OFF as shown on screen D5 in FIG. 12, the process of pulling out the menu will be cancelled midway and the process will return to step S101"), [0052], [0192].



Hisatomi (EX1011), FIG. 50 (Annotated)

31. For either or both of the above reasons, a POSITA would have understood and found obvious that Ahn's teachings with respect to FIG. 16 do not contradict a menu following a user's finger as the user performs a dragging gesture to open the menu. Rather, a POSITA would have appreciated that Ahn's FIG. 16 provides teachings that inform the use of distance threshold in determining what to

display, and would not have seen FIG. 16 as precluding any obvious implementation details.

VI. Shiplacoff Renders Varying the Speed of the Displayed Cards Obvious

32. Elements [1.d] and [1.e] of independent claim 1 recites "while the first contact is detected moving across the display: moving the first user interface element in a first direction on the display at a first speed; [and] moving the second user interface element on the display at a second speed greater than the first speed." EX1001, 95:21-27. In addressing these Elements, my Original Declaration relied upon the obvious distinction between the speed of a card being dragged across the display by the user and the speed at which a card moves automatically to fill in spots or scroll while the user is performing the dragging gesture. *See* EX1003, [358]-[368].

33. Dr. Rosenberg argued that my "theory regarding the speed of the cards is based on the assumption that the term 'snap' means moving an object quickly," and that "[t]here is no disclosure or teaching in Shiplacoff that would suggest 'snap' is related to the speed that an object moves EX2018, [179]-[180].

34. First, the analysis in my Original Declaration does not rely upon Shiplacoff intending for the word "snap" to mean that the cards move quickly—though that's how a POSITA would reasonably have interpreted the term. Rather, my Original Declaration explained that "the speed of card 301B is dictated by the

speed at which the user's finger moves across the touchscreen, which would naturally vary throughout the gesture and would, in some instances, slow substantially while the other cards in the sequence shift," and that in such instances, "the speed of card 301B would have been slower than cards 301C and 301D as they 'snap' to fill the gap." EX1003, [367].

35. These teachings of Shiplacoff render Elements [1.d] and [1.e] obvious regardless of the speed at which the "snap" occurs. My Original Declaration recognized "that, in filling the gap, cards 301C and 301D move with a particular speed in the direction of the arrow shown in FIG. 9B," and that the particular speed is a design choice. EX1003, [361], [364]-[367]. Regardless of the speed at which cards 301C and 301D "snap" to fill the gap, I explained how a POSITA would have recognized that "the speed of the card 301B moving across the display would have matched the speed of the user's finger moving across the touch-sensitive screen," and this speed of card 301B (in comparison to the fixed speed of cards 301C and 301D) "would naturally vary throughout the gesture, including coming to or nearly to a stop at the top of the upward drag shown in FIG. 9B to allow cards 301C and 301D to move to fill in the gap." EX1003, [361] (citing EX1013, [0104]-[0106]). Accordingly, whatever speed a POSITA implementing Shiplacoff's system chose for cards 301C and 301D to move to fill the gap, as shown in FIG. 9B, that speed would obviously be faster than a "near stop" to

which a user would bring card 301B as the movement of cards 301C and 301D was happening before the user replaces card 301B elsewhere in the order. *See* EX1013, [0104]-[0106].

36. Second, in context, a POSITA would have understood Shiplacoff's use of the word "snap" as evidence in and of itself that the speed intended by Shiplacoff is quick. Dr. Rosenberg argues that, in the context of user interfaces, the word "snap" provides no indication of speed by relying upon several extrinsic references that Dr. Rosenberg asserts prove the word "'snap' is related to an object's alignment or position on the screen and not a speed that the object moves." EX2018, [182]. However, the references Dr. Rosenberg relies upon prove that a POSITA would have understood that the speed of a "snap" is quick.

37. For example, Dr. Rosenberg turns to Rapp (EX2012) and argues that "'after the first input ends' (as illustrated in FIG. 6G), the device automatically, without user intervention, 'align[s] one edge of the user interface object 6002 with the first guide 6082.'" EX2018, [182]. However, Rapp says nothing to suggest that this "snapping" of a user interface object into a particular position happens anything other than quickly. *See* EX2012, [0171]-[0172]; *see also id.* [0226]-[0232], [0235]-[0236]. To the contrary, Rapp describes that "there is a need for computing devices with <u>faster</u>, more efficient methods and interfaces for more accurately <u>manipulating user interface objects</u>, while minimizing the number of

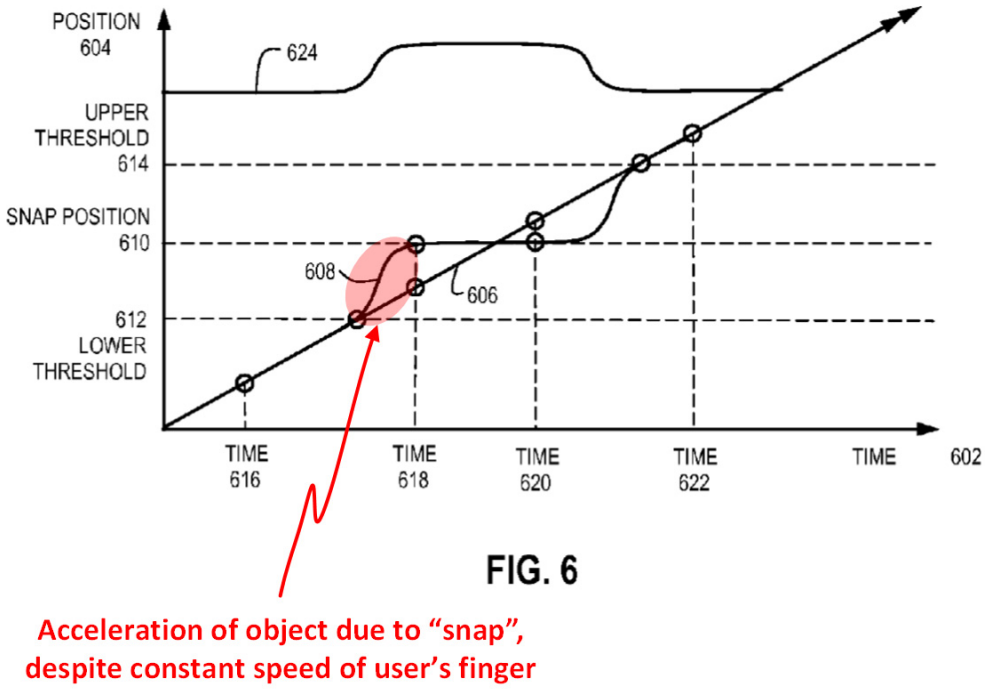
user inputs required to perform the user interface object manipulation tasks." EX2012, [0006]; *see also id.* [0032], [0176], [0206] (describing that "performance of the desired candidate action faster…conserves power"). In other words, Rapp explicitly intends for the manipulation of its user interface objects to be "faster," which a POSITA would have understood to mean that the described "snapping" happens quickly.

38. The other citations provided by Dr. Rosenberg describe the result of "snapping" without providing any further detail about how the "snap" itself is displayed, and certainly do not dictate or limit the speed at which the "snap" occurs. *See* EX2018, [180], [182] (citing EX2013, 2/8; EX2014, [0002]-[0003]; EX2016, 1-3). Rather, looking beyond Dr. Rosenberg's limited citations, the Jaeger reference (EX2014) to which he cites actually teaches the opposite of his contention.

39. Specifically, Jaeger explains that, one concern of "the 'snap to grid' option of the grid feature of conventional computer programs" is that, "when this option is active, a text or object being moved over the grid by the user <u>jumps</u> from one position to another in predefined distances," and this results in "an unusual or unnatural movement for a dragged text or object." EX2014, [0002]-[0009]. In other words, Jaeger proves that, without teachings to the contrary, a POSITA

would have assumed that a "snap" causes user interface objects to move quickly (*i.e.*, "jump") across the display. *See id.*

40. This is consistent with other teachings prior to the Critical Date. For example, Hoover (EX1027) teaches that, as a "user moves his finger(s) to manipulate an element," the "element snaps to a snap position [] when the element's position reaches a lower snap threshold." EX1027, [0049]. Hoover notes that "the user moves his finger(s) at a constant rate of speed…, but as depicted by the plot of the position of the element over time 608, the element does not move at a constant rate of speed." EX1027, [0049]. "Rather, <u>the movement of the element is **accelerated** toward the snap position 610</u>, as is reflected by that portion of the plot of the position of the element over time 608 having a steeper slope during that portion than during the preceding portion." EX1027, [0050].



Hoover (EX1027), FIG. 6 (Annotated)

41. From all of these teachings, a POSITA would have expected that a "snap" would result in the quick movement of a user interface object across a display.

42. Dr. Rosenberg further argues that FIGS. 9B and 9c show that "the user's finger and card 301B are stationary as card 301C fills the gap." EX2018, [184]. However, Shiplacoff contains no such limitation. Rather, Shiplacoff's description of FIGS. 9A through 9D describes a user dragging and moving card 301B, but says nothing about card 301B being "stationary," as alleged by Smith.

[0104] In one embodiment, the user can also rearrange cards **301** while in card mode, by tapping and holding a card **301** for a period of time (such as, for example, 500 milliseconds), and then dragging a card **301** from one position to another. An example is shown in FIGS. **9**A through **9**D. The user taps and holds his or her finger on card **301**B, then drags card **301**B upward, causing cards **301**C and **301**D to move to fill the gap. The user does not immediately release card **301**B however; instead, he or she moves card **301**B into a position between cards **301**C and **301**D, as shown in FIG. **9**C. As the user moves the dragged card **301**B between two other cards **301**C and **301**D, the two cards **301**C and **301**D separate to allow placement of the dragged card **301**B. The result is the sequence shown in FIG. **9**D, where card **301**B is now positioned between cards **301**C and **301**D.

Shiplacoff (EX1013), [0104] (Highlighted)

43. Shiplacoff goes on to explain that, "[o]nce the movement action has been initiated, the user can **continue to drag** card 301 in any direction in order to place card 301 at the desired position within the sequence of cards 301." EX1013, [0106]. In other words, Shiplacoff actually describes continuous movement of the user's dragging gesture. EX1023, [XX]. This is consistent with my Original Declaration's explanation that, "[i]n the example shown in FIGS. 9A-9D, a POSITA would have found obvious that the dragging speed—and thus the speed of the card 301B— would naturally vary throughout the gesture, including **coming** to or **nearly to a stop** at the top of the upward drag shown in FIG. 9B to allow cards 301C and 301D to move to fill in the gap." EX1003, [361].

44. My deposition testimony does not indicate that the card 301B needs to be stationary before card 301C and 301D move to fill the gap. Rather, I

acknowledged that the card 301B would not be moving "**if** the user's finger is not moving on the screen." *See* EX2009, 80:14-81:15. I went onto explain that Shiplacoff describes "a gesture of dragging the card" and "what that means is that the finger and the card move in tandem." EX2009, 81:16-82:8. My Original Declaration explained that natural variation of the user's dragging speed would encompass her finger coming to a stop and also coming "nearly to a stop" or "slow[ing] substantially while the other cards in the sequence shift." EX1003, [361], [367]-[368].

45. Further, when asked to confirm that "from Figure 9B to 9C, the user's finger and the card both move downward"—consistent with my Original Declaration—I agreed. EX2009, 82:9-83:3. In other words, I testified to the exact opposite of Dr. Rosenberg's assertion that "card 301B is not moved at all from FIG. 9B to FIG. 9C." EX2018, [184].

VII. There is No Inconsistency Between My Analysis of Independent Claim 2 and Dependent Claim 208

46. Dr. Rosenberg alleges that I "fail[ed] to analyze or integrate his claim 2 mapping into his theories for the limitations of claim 208." EX2018, [186]. However, the gesture I relied upon with respect to claims 2 and 208 was the same dragging gesture that opens a menu.

47. With respect to independent claim 2, my Original Declaration discussed certain example menus described in Ahn to explain the combination's dragging gesture and resulting user interface operations. However, my explanation would have equally applied for any menus in the Ahn-Chaudhri combination. *See generally* EX1003, [78]-[102]. With respect to dependent claim 208, my Original Declaration relied further upon the disclosures of Shiplacoff in explaining how the Ahn-Chaudhri-Shiplacoff combination renders obvious a dragging gesture that opens a particular type of multi-tasking menu while still blurring Ahn's background, including the clock widget—consistent with my analysis of claim 2.

A. My Analysis of Claims 2 and 208 Rely Upon the Same Gesture

48. Dr. Rosenberg asserts that my Original Declaration "identifies Ahn's left touch and drag operation shown in FIG. 13" as the "gesture" recited in claim 2, but inconsistently "identifies 'a swipe up gesture…described in Shi[p]lacoff,'" as the "gesture" recited in claim 208. EX2018, [188]-[189]. However, my analysis of independent claim 2 was not limited to Ahn's "left touch and drag."

49. In analyzing Element [2.c], my Original Declaration relied generally upon Ahn's "touch and drag operation" as the claimed "gesture." *See* EX1003, [90] ("A POSITA would have found obvious that Ahn's 'touch and drag operation' is a gesture"). While my Original Declaration turned to "one example illustrated in

FIGS. 13a and 13b" in order to explain how Ahn's "touch and drag operation" works, the Petition did not limit its analysis to this one example. *See id.*

50. Similarly, in analyzing Element [2.d], the Petition explained how "[a] POSITA would have found obvious from these teachings that, in at least implementations **like** those described referencing FIG. 18, Ahn's menu list would have been graphically displayed as sliding onto the display based on a change in a magnitude of the 'touch and drag' gesture being detected on the touch screen." EX1003, [94]. Again, my Original Declaration referenced FIG. 18 to help illustrate the general obviousness arguments advanced, but never limited its analysis of Element [2.d] and how the Ahn-Chaudhri combination renders it obvious to this or any other singular example. *See* EX1003, [93]-[102].

51. Rather, when my Original Declaration turned to the teachings of Chaudhri-842, I explained how "a POSITA would have at least found it obvious to vary, according to the teachings of Chaudhri-842, the optical intensity of the standby screen or at least portions thereof (***e.g.***, the blurring of the clock widget, as shown in FIGS. 4B, 10, and 13b) as a visual indication of a user's progress in completing Ahn's 'touch and drag' gesture." EX1003, 101. Thus, without restricting my analysis to any singular menu or embodiment, my Original Declaration described how "the standby screen or at least portions thereof" would be blurred in response to "Ahn's 'touch and drag' gesture." *Id.*

52. When turning to dependent claim 208, the Petition further relied upon a combination with the teachings of Shiplacoff. *See* EX1003, [382]-[406]. In doing so, my Original Declaration explained that "[t]he fundamental aspects of Ahn's disclosure would remain intact, bolstered by the well-known, beneficial, and complementary teachings of Chaudhri-842 (*e.g.*, transitions in optical intensity during transitions in under interface states to provide visual cues and feedback to the user) and Shiplacoff (*e.g.*, for launching and navigating between multiple active applications/functions/activities)." EX1003, [73]. In other words, the combination with Shiplacoff did not change the underlying characteristics of the Ahn-Chaudhri combination used to analyze claim 2.

53. Where my analysis of dependent claim 208 diverged from my analysis of independent claim 2, my Original Declaration explained the divergence. For example, my Original Declaration explained that a "POSITA would have understood and found obvious that in those implementations that include a graphic shadow 1800, it is also an object, as recited in Element [2.b]." EX1003, [141] (citing to my earlier description of "a POSITA's understanding of the term 'object'"). Anywhere else, my analysis of dependent claim 208 maintained the analysis provided with respect to independent claim 2. For example, the "gesture" described in the analysis of claim 208 is still a touch and drag operation to open a menu—in this case a swipe up to open the multi-tasking menu described by

Shiplacoff. *See* EX1003, [76] ("A POSITA would have found it obvious that at least one way to implement the Ahn-Chaudhri-Shiplacoff combination would have been to associate one of the directions of Ahn's touch-and-drag gesture with the navigation between the different card navigation 'modes,' consistent with the teachings of Shiplacoff"). In another example, my analysis of Element [208.h] referred back to "the at least portion of the at least one other object that is blurred" recited in independent claim 2 and maintained its focus on the "one or more elements of standby screen 300" described with respect to independent claim 2 as being blurred. *See* EX1003, [399]-[405].

54. Dr. Rosenberg finds fault in my analysis because the examples I utilized in describing the operation of the combinations "start on two different interfaces." EX2018, [188]-[190]. However, Dr. Rosenberg does not point to any Element in claim 2 that dictates what is displayed at the time that the gesture is detected. *See id.* Absent such a claim element, my analysis of independent claim 2 turning to Ahn's standby screen as an example starting point for the detected gesture when explaining the obviousness of Elements [2.a] to [2.d] is not incompatible with my analysis of dependent claim 208 turning to Shiplacoff's full screen mode as an example starting point for the detected gesture when explaining the obviousness of Elements [208.a] to [208.i]. For example, Element [2.b] recites "display an object and at least one other object," but does not limit when the object

and at least one other object are displayed or even that they be displayed simultaneously.

B. The Swipe-Up Gesture of the Ahn-Chaudhri-Shiplacoff Combination Would Have Progressively Blurred One or More Elements of Standby Screen 300

55. Dr. Rosenberg asserts that I do "not even allege that its 'swipe up' gesture would blur the at least one other object (i.e., clock widget) based on a change in a magnitude of the gesture being detected." EX2018, [191]. However, as I explained above, the analysis of dependent claim 208 left intact the analysis of dependent claim 2 except where it explained differently. Thus, with respect to Element [208.h], my analysis maintained its reference to the "one or more elements of standby screen 300" with respect to the claimed "at least portion of the at least one other object that is blurred," leaving intact the Petition's explanation with respect to Element [2.d] how and why the one or more elements of standby screen 300 are blurred. *See, e.g.*, EX1003, [95] (describing that "as a translucent menu slides onto the screen in correspondence with the magnitude of the touch and drag gesture, the translucent menu would correspondingly progressively blur the portion of the background over which the menu is displayed"), [99] (explaining how "Chaudhri '842 explicitly describes differentiating between a menu and a background displayed on the touch screen during its user interface state transition process").

56. Dr. Rosenberg further asserts that "Dr. Terveen's alleged operation would not blur the clock widget." EX1003, [191]-[199]. Similar to his mistaken arguments with respect to Ahn, Dr. Rosenberg again assumes Shiplacoff limits its system to transitioning to card mode only after a gesture is input. *Id.* However, as I described previously, my analysis of claim 208 was with respect to the Ahn-Chaudhri-Shiplacoff combination as a whole, and Shiplacoff operates in much the same manner as Ahn and Chaudhri-842 with respect to how the user interface responds to a user's gesture. *See generally* EX1003, [73]-[77], [381]-[406].

57. Shiplacoff describes that "[o]ne skilled in the art will recognize…that the invention can be practiced in many other contexts, including any environment in which it is useful to switch easily and smoothly from one activity to another." EX1013, [0062]. One way that Shiplacoff describes smoothly transitioning from one activity to another is through the use of a "transition effect" (*see* EX1013, [0094]), and describes that "a transition effect is performed when switching from one mode to another" (*see* EX1013, [0124]). And Dr. Rosenberg admits that Shiplacoff teaches moving user interface objects in direct proportion to a user's gesture. *See* EX2018, [184]-[185] (acknowledging that "card 301B is moved in a first direction (upward) from FIG. 9A to FIG. 9B"). Accordingly, Shiplacoff's teachings are directly applicable to graphically displaying a menu "as sliding onto the display based on a change in a magnitude of the 'touch and drag' gesture being

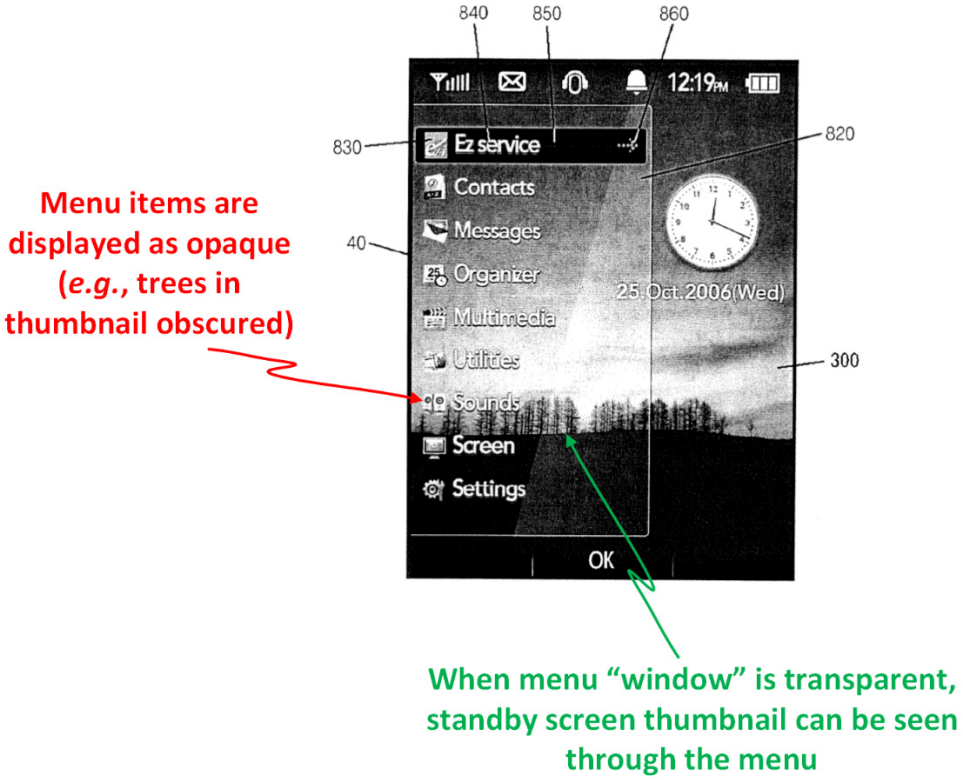
detected on the touch screen," as explained with respect to [2.d]. *See* EX1003, [94]; *see also id.*, [383] (explaining how "Shiplacoff's card mode is a type of menu").

C. A POSITA Would Have Implemented the Ahn-Chaudhri-Shiplacoff Combination to Present Shiplacoff's Card Mode as a Menu, Like the Menus Taught by Ahn

58. With respect to how the Ahn-Chaudhri-Shiplacoff combination would display card mode, Dr. Rosenberg asserts that I "provides no motivation for its modification to blur the area between the cards and merely concludes a POSITA would arrive at the claimed features." EX2018, [197]. However, my Original Declaration explained how "[a] POSITA would have found obvious that Shiplacoff's card mode is a type of menu" (EX1003, [383]) and how, "[i]mplemented in the manner of Ahn's translucent menus,… a POSITA would have at least found it obvious that Shiplacoff's card mode would be displayed 'on' the standby screen 300 in a translucent form, such that the area between the displayed cards would show a blurred standby screen 300" (EX1003, [400]-[404]). In other words, I turned to the references themselves to explain the motivation of a POSITA to implement the Ahn-Chaudhri-Shiplacoff combination as I described.

59. Dr. Rosenberg further alleges I "can only arrive at [my] modification by mischaracterizing the teachings of the references and combining disparate portions of the references in a manner contrary to their disclosure." EX2018,

[197]. In support, Dr. Rosenberg argues "neither Petitioner nor its expert explain why a POSITA would deviate from Ahn's teachings to make a 'menu' both translucent and opaque." *Id.* However, my Original Declaration relied upon Ahn's teaching that menus may be displayed as transparent, translucent, or opaque "windows." EX1003, [401]-[205]; *see* EX1004, [0038]-[0039] (describing menus as a "pop-up window"), [0070] (describing "menus displayed on the standby screen 300 can be embodied in a translucent form or an opaque form, depending on implementation"). Ahn does not teach that the entire menu is "transparent" (or translucent) only the background "window" is. *See, e.g.*, EX1004, FIG. 8C (reproduced below). A POSITA would not have implemented the entire menu, including its menu items, as transparent (per Dr. Rosenberg's argument), because doing so would have made the entire menu invisible to the user.



Ahn (EX1004), FIG. 8C (Annotated)

60. In Shiplacoff's card mode, the cards are the menu items and the area between the cards would be the "window" described by Ahn as being transparent, translucent, or opaque. *See* EX1003, [381]-[384] (describing how the various active applications/activities shown in Shiplacoff's card mode are the menu "options" or items). Consistent with the menus described by Ahn, a POSITA would have found obvious that Shiplacoff's cards would be displayed as opaque menu items, and the "window" on which the cards are displayed would be translucent and "displayed on" the standby screen. *See* EX1004, [0038]-[0039], [0070].

61. Dr. Rosenberg further argues that a POSITA would not have used Ahn's "identifier for notifying the user [of] an item list matched to the specific direction" (*e.g.*, graphical shadow 1800) in the Ahn-Chaudhri-Shiplacoff combination. EX2018, [200]-[205]. However, in support of this argument, Dr. Rosenberg wrongly assumes that the swipe up gesture in the Ahn-Chaudhri-Shiplacoff combination would "begin in gesture area 102." *Id.* However, my Original Declaration did not rely upon Shiplacoff's gesture area as part of the Ahn-Chaudhri-Shiplacoff combination (*see generally* EX1003, [73]-[77]), particularly because Shiplacoff itself does not require the gesture area 102. *See* EX1013, [0064]-[0065] (describing that only "one embodiment" include a gesture area and that the "present invention can be implemented, according to various embodiments, in any type of device having a touch-sensitive screen, and is not limited to devices having the listed functionality").

62. Dr. Rosenberg also alleges that a POSITA would not have included Ahn's identifier, because it would "divide [the swipe] gesture" between two operations and take up valuable screen real estate. EX2018, [202]-[205]. However, these arguments are directly counter to similar prior art systems, where gestures started at or near an edge are differentiated from all other "commonly-available gestures" (*see, e.g.*, EX1010, 2:2:44-3:5) and affordances indicating the presence of menus are continuously displayed along each edge of the display (*see,*

e.g., EX1011, [0018]-[0020]). Accordingly, Dr. Rosenberg's arguments are not consistent with the knowledge of a POSITA found in the prior art.

VIII. Dr. Rosenberg's Arguments Regarding Various Dependent Claims

63. Dr. Rosenberg provides additional arguments with respect to various dependent claims. For example, with respect to dependent claims 37, 64, 75-79, 187, 189, and 223, Dr. Rosenberg assumes that a POSITA would have implemented the combinations exactly as examples in the prior art used to explain aspects of the combination. EX2018, [117]-[125], [144]-[155], [166]-[171]. However, a POSITA would not have been so constrained, as evidenced by the references themselves. *See* EX1004, [0071] ("Please note however that this is an exemplary illustration, and various menus can be displayed, depending on implementation."); EX1005, [0025] ("it will be apparent to one of ordinary skill in the art that the present invention may be practiced without [the] specific details" set forth to provide an understanding of the invention), [0080] ("it should be apparent" that the process flow 600 "can include more or fewer operations") Further, these arguments are not consistent with the combinations I described in my Original Declaration, which, for example, do not require the specific menus and their associated items disclosed in Ahn to demonstrate obviousness. *See, e.g.*, EX1003, [92]-[102] (analyzing Element [2.d] without limiting the analysis to any specific menu).

64. With respect to dependent claims 67-74, 197, 201-204, and 216 Smith's arguments rely upon or extend arguments made with respect to other claims, each of which is rebutted above. *See* EX2018, [156]-[165], [127]-[129], [133]-[142]. For example, Dr. Rosenberg's argument with respect to claim 197, rests on the same arguments related to claim 186 that I previously explained were incorrect. *See* EX2018, [127]-[129]. Similarly, Dr. Rosenberg's arguments with respect to claims 67-74 and 201-204 rely upon his assumption that the combination does not display the menu opening until after the gesture is completed, which I explained above was incorrect. *See* EX2018, [156]-[170], [133]-[142]. And Dr. Rosenberg's argument with respect to claim 216 rests upon his incorrect assumption that the combination requires a "separate gesture area 102." *See* EX2018, [209]-[211].

65. With respect to dependent claims 199 and 210, Dr. Rosenberg's arguments misrepresent the breadth of my Original Declaration's obviousness arguments. *See* EX2018, [130]-[131]. [207-[208]. Dr. Rosenberg's arguments with respect to claims 199 and 210 focus solely on "varying the optical intensity of the clock widget" (*see id.*), but my Original Declaration explained how it would have been obvious "to vary...the optical intensity of the standby screen or at least portions thereof," of which the clock widget may be only one example. *See, e.g.*, EX1003, [101], [222]-[226], [413]-[417].