UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Dr. Terveen

v.

SMITH INTERFACE TECHNOLOGIES, LLC

Patent Owner

IPR2024-01117
Patent 10,656,754

DECLARATION OF MARC DAVIS, Ph.D.

TABLE OF CONTENTS

I. INTRODUCTION 1

II. PROFESSIONAL BACKGROUND 1

III. COMPENSATION 7

IV. LEGAL CONSIDERATION 7

A. Anticipation 7

B. Obviousness 8

C. Claim Interpretation 9

D. Overview of Task & Basis for Opinions 10

E. Level of Skill in the Relevant Art 12

V. OVERVIEW OF THE '754 PATENT 13

A. Independent Claims 1, 2, and 225 15

VI. OVERVIEW OF THE PRIOR ART 17

A. U.S. Patent App. No. 2008/0207188 ("Ahn") 17

1. Directional Key Operation 19

2. Touch and Drag Operation 20

3. Start Position Operation 22

B. U.S. Patent App. No. 2007/0150842 ("Chaudhri") 23

VII. GROUND 1A: DR. TERVEEN'S ANALYSIS FAILS TO SHOW OBVIOUSNESS OF CLAIM 2 BY AHN AND CHAUDHRI-842 26

A. Limitations [2d], [1h], [225d] 26

1. Dr. Terveen's Ahn Theory is Deficient 28

2. Dr. Terveen's Ahn-Chaudhri Theory is Deficient 40

VIII. GROUND 1B: DR. TERVEEN FAILS TO ESTABLISH OBVIOUSNESS OF CLAIM 1 OVER AHN, CHAUDHRI, AND SHIPLACOFF 60

IX. IPR2024-01116: DR. TERVEEN FAILS TO ESTABLISH OBVIOUSNESS OF CLAIM 225 OVER AHN AND CHAUDHRI-842 61

X. THE REMAINING IPR PETITIONS FAIL TO ESTABLISH OBVIOUSNESS OF CLAIM 2 OVER AHN AND CHAUDHRI-842 61

XI. CONCLUSION 63

I. INTRODUCTION

1. My name is Dr. Marc Davis, Ph.D. I have been retained by Smith Interface Technologies, LLC as an independent expert consultant in the seven inter partes review ("IPR") proceedings associated with U.S. Patent 10,656,754 before the United States Patent and Trademark Office ("PTO").

II. PROFESSIONAL BACKGROUND

2. All of my opinions stated in this Declaration are based on my own personal knowledge and professional judgment. In forming my opinions, I have relied on my knowledge and experience in designing, developing, researching, and teaching the technology referenced in this Declaration.

3. I am over 18 years of age and, if I am called upon to do so, I would be competent to testify as to the matters set forth herein. I understand that a copy of my current curriculum vitae, which details my education and professional and academic experience, is being submitted as EX2002. The following provides a brief overview of some of my experience that is relevant to the matters set forth in this Declaration.

4. In 1984, I received my Bachelor of Arts degree in College of Letters at Wesleyan University in Middletown, Connecticut. I then received my Master of Arts degree in Literary Science and Philosophy in 1987 at the University of Konstanz in Germany. During my time at the University of Konstanz, I also worked

as a Research Coordinator in the Literary Science department where I initiated and managed computerization of a large scale, multiyear Intertextuality Research Project. Later, in 1990, I pursued my doctorate in Media Arts and Sciences at the Massachusetts Institute of Technology (MIT) Media Laboratory. This program focuses on the invention, study, and creative use of new technologies and draws on a number of other disciplines, including computer science, cognitive sciences, communications, design, and the expressive arts. For 5 years, I also worked as a research assistant in the MIT Media Laboratory, where I worked on various multimedia, user interface, and AI technologies in digital applications with a focus on iconic visual language interfaces and systems for video annotation, retrieval, and repurposing. I received my Doctor of Philosophy in Media Arts and Sciences from MIT in 1995.

5. For 5 years, partially overlapping my PhD program, I served as a Project Coordinator for Interval Research Corporation, a research laboratory created by Paul Allen, the Co-Founder of Microsoft. My role included leading and contributing to the technical and user interface development of digital media technologies, including media automation applications, visual language programming tools, and media interfaces and systems. During this time, my responsibilities also included researching other digital projects, including various

interactive applications. It was at Interval Research where I first began patenting my inventions, leading to over 240 patents in my career.

6. I then served as Chief Technology Officer and Co-Founder of Amova, which focused on the development of media automation and personalization technology. In my role, I was responsible for the technical research and development of innovative personalized media systems and applications. My focus included the design of user interfaces for multimedia websites and location-based live interactive multimedia systems.

7. From 2002 to 2006, I served as Assistant Professor at the UC Berkeley School of Information where I initiated and directed various media related research and development projects that involved user interfaces and user experiences among various technologies, in particular for mobile devices. My mobile research projects pioneered technologies and interfaces for capturing, tagging, and sharing photographs on mobile devices, including using the earliest smartphone with a camera introduced in the United States. The Mobile Media Metadata projects (MMM and MMM2) developed context-aware mobile media technology, applications, and user interfaces that leveraged contextual metadata—spatial, temporal, and social—to infer media content and support media tagging, sharing, and reuse, including breakthrough work in context-aware mobile face and place recognition. In addition, our project collaborated closely with social science and

design research to understand how and why people use mobile media technologies. These Mobile Media Metadata Data projects were sponsored by numerous commercial leaders in mobile and media technologies, including British Telecom, Hewlett-Packard, France Telecom, Nokia, Ricoh Innovations, AT&T, Opera Software, TEKES, and the UC Discovery Grant for Digital Media. Other projects that I directed at the UC Berkeley School of Information included: Media Streams Metadata Exchange (media metadata framework for annotating, retrieving, sharing, and remixing video on the Web); Active Capture (interactive cameras that use signal processing and computer-human interaction to capture high quality, reusable, annotated media assets); and Adaptive Media (adaptive media templates and automatic editing functions to mass customize and personalize media). In my time at UC Berkeley, I also served as Co-Founder and Executive Committee Member of the interdisciplinary UC Berkeley Center for New Media, an Advisory Board Member of the Art, Technology, and Culture Colloquium, and an Affiliated Faculty Member of the Berkeley Institute of Design. In addition to supervising doctoral and master's degree students at the UC Berkeley School of Information, I taught courses in "Information Organization and Retrieval", "Multimedia Information", "Digital Media Design Studio", and "Foundations of New Media", all of which involved teaching and mentoring students in user interface design.

8. In 2005, I founded and co-directed Yahoo! Research Berkeley, a joint research laboratory in partnership between UC Berkeley and Yahoo!, which produced a number of innovative public prototypes in mobile media and social media technology and applications. The development of these prototypes included extensive exploration of user and design interfaces, mobile computing, and media technology. From 2006-2009, I transitioned to the role of Chief Scientist and Vice President of Early Stage Products (ESP) for Yahoo! Connected Life (which included Yahoo!'s mobile and interactive television divisions), and I also served as Social Media Guru at Yahoo!, including working closely with Yahoo! CEO and Co-Founder Jerry Yang. My work at Yahoo! focused in particular on creating the technology, applications, and user interfaces for mobile devices and systems including mobile search, mobile social communications applications, and mobile advertising. In addition, I was very actively involved in patenting my inventions, producing over 100 patents while at Yahoo!.

9. I then served as Chief Scientist for Invention Arts where I focused on new approaches to how people can better control, share, and benefit from their personal data as well as new methods of strategic intellectual property development. At Invention Arts, I worked with the World Economic Forum's Rethinking Personal Data project. After my time at Invention Arts, I worked as a Partner Architect for Microsoft's Online Services Division. I and my team continued to work on early-

stage products and developed technology involving personal data, privacy, social computing, and personalized search. This technology included the development of user interface (UI) and the software architecture underlying the UI. I also worked as an elite inventor at Microsoft including co-inventing with Microsoft Co-Founder and Chairman Bill Gates and current Microsoft CEO Satya Nadella resulting in numerous patents.

10. I am the inventor or coinventor on over two hundred and forty (240) granted patents, involving various computing environments, especially mobile and media systems, applications, and user interfaces. In my time at the MIT Media Laboratory, Interval Research, Amova, UC Berkeley, Yahoo!, Invention Arts, and Microsoft, I worked on innovative technologies, applications, and user interfaces for media automation, context-aware computing, computer vision, mobile computing, social and mobile media, social and mobile search, sociotechnical systems, mobile and social advertising, and personal data technologies and applications. During my time teaching and working with these entities, I was also a member of the Institute of Electrical and Electronics Engineers Computer Society (IEEE), Association for Computing Machinery (ACM), and American Association for Artificial Intelligence (AAAI).

11. My *curriculum vitae* is attached as Attachment A and includes a listing of my research publications and patents on which I am an inventor. To help gauge

the impact of my work, it is important to note that my patents and research publications have earned an h-index of 88, demonstrating significant impact, and an i10-index of 237, reflecting the wide scope of my contributions (Google Scholar).

III. COMPENSATION

12. My work on this matter is being billed at my customary rate of $400 an hour. Also, I am being reimbursed for reasonable expenses I incur in relation to my services. I have no pecuniary interest in the outcome of this proceeding. I understand I will be paid regardless of the outcome of any proceeding in which my work is used.

IV. LEGAL CONSIDERATION

13. I am not an attorney. My understanding of the law is based on information provided by counsel for Smith Interface Technologies, LLC.

A. Anticipation

14. I understand that a reference anticipates a claim if it discloses each and every element recited in the claim, arranged as in the claim, so as to enable a person of ordinary skill in the art (POSITA) to make and use the claimed invention without the need for undue experimentation in light of the general knowledge available in the art. I understand that a U.S. Patent document is presumed to have sufficient description to include sufficient detail for a person of ordinary skill in the art to make and use the subject matter that document describes.

15. I also understand that a claim limitation may be present in an alleged prior art reference either expressly or inherently, but inherency may be established only if such limitation is necessarily present in the reference. I understand inherency cannot be established by probabilities or possibilities, and the mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish inherency.

B. Obviousness

16. I understand that a claimed invention is obvious and, therefore, not patentable if the subject matter claimed would have been obvious to a person of ordinary skill in the art at the time that the invention of the '754 Patent (a "POSITA"), which I have been asked to treat as August 5, 2011.

17. I understand that a claim can be obvious in view of a single prior art reference (e.g., via modification of that prior art reference) or multiple prior art references (e.g., via a combination of two or more prior art references), if such a modification or combination was within the skill of a POSITA. I understand that there must be some articulated reasoning with some rational underpinning to support a conclusion of obviousness. I also understand that to establish a finding of obviousness one must show that one of ordinary skill in the art would have had a motivation to combine the prior art references to produce the claimed invention and a reasonable expectation that the combination would be successful.

18. I further understand that exemplary rationales that may support a conclusion of obviousness include: (1) simply arranging old elements in a way in which each element performs the same function it was known to perform, and the arrangement yields expected results, (2) merely substituting one element for another known element in the field, if the substitution yields no more than a predictable result, (3) combining elements in a way that was "obvious to try" because of a design need or market pressure, where there was a finite number of identified, predictable solutions, (4) that design incentives or other market forces in a field would have prompted variations in a work that were predictable to a person of ordinary skill in the art, and (5) that there was some teaching, suggestion, or motivation in the prior art that would have led a POSITA to modify or combine prior art references to arrive at the claimed invention.

C. Claim Interpretation

19. I understand that a claim term is interpreted according to its ordinary and customary meaning as a POSITA would have understood the term in light of the surrounding claim language, other claims, the specification, and the patent's prosecution history, which are referred to as intrinsic evidence. I also understand that prior art references cited in the patent's prosecution history are considered intrinsic evidence. I further understand that evidence outside the patent and its prosecution history (e.g., dictionaries and technical articles) may inform the context

in which a POSITA would have understood the claims of a patent. I understand this ordinary and customary meaning applies absent unique circumstances, such as where a patent clearly expresses an intent to set forth a special meaning for a term.

D. Overview of Task & Basis for Opinions

20. I have been asked to review U.S. Patent No. 10,656,754 (referred to as "the '754 Patent"). I have been asked to provide opinions related to certain issues from the perspective of a person of ordinary skill, having knowledge of the relevant art, as of August 5, 2011, and—except where otherwise noted—the opinions stated in this declaration are from that perspective. The qualifications and abilities of such a person are described in paragraph 25 below.

21. More particularly, I have been informed that this proceeding involves a scenario where multiple Petitions have been filed at the same time (parallel IPR petitions), each challenging the '754 Patent. The Petitions include IPR2024-01119, IPR2024-01116, IPR2024-01115, IPR2024-01114, IPR2024-01117, IPR2024-01118, and IPR2024-01086. The grounds and challenged claims associated with each Petition can be found in Petitioner's Notice Ranking. Each Petition challenges independent claim 2 of the '754 Patent and includes substantially the same arguments and analysis for challenging claim 2. In addition, Petition IPR2024-01119 challenges independent claim 1 and IPR2024-01116 challenges independent claim 225. Petitioner incorporates its analysis from claim 2 into its challenge for

independent claim 225. *See* IPR2024-01116 Petition at 67-68. For these reasons, and as is apparent from the Petitions, the challenge to independent claim 2 from the Petition in IPR2024-01119 is reproduced in every other Petition and is at least partially incorporated into the challenges of independent claims 1 and 225. For brevity, my declaration only refers to and cites the Petition and Expert Declaration (EX1003) from IPR2024-01119, which is equally applicable to the other six IPR proceedings.

22. I also understand that these proceedings are currently at a preliminary stage during which the Patent Trial and Appeal Board (the Board) will decide whether each of the Petitions establishes a reasonable likelihood of at least one claim of the '754 Patent being invalid. At this preliminary stage, I have been asked to focus my analysis on the Petition's proposed invalidity theories for the '754 Patent's independent claims 1, 2, and 225.

23. My opinions are based on my education, training, and experience as well as items that I reviewed to prepare my opinions, including the Petitions, and the documents listed in the Exhibit List included with the IPR2024-01119 Petition that I reference in my below analysis.

24. I understand that other issues may arise that require further explanation, and I will provide that explanation if appropriate. As a result, I respectfully reserve

the right to update and supplement this declaration and the information and opinions provided herein.

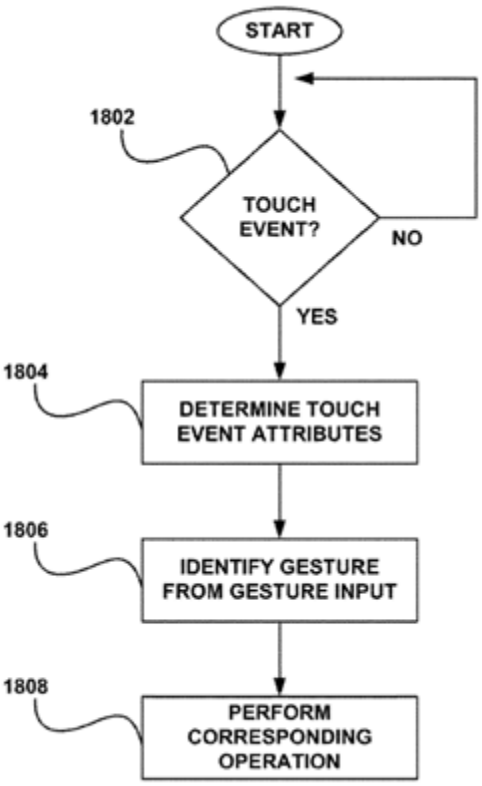
E. Level of Skill in the Relevant Art

25. I understand that a patent must be analyzed from the perspective of a person of ordinary skill in the art ("POSITA") as of the time of invention of the patent, which is typically considered to be the patent's earliest filing date. While I do not necessarily agree with every aspect of Dr. Terveen's explanation of the level of ordinary skill in the art, I do not currently believe the aspects of that explanation I would change or clarify would impact the analysis set forth in this declaration. For purposes of this declaration, my opinions are therefore provided from the perspective of the POSITA described in paragraph 29 of Dr. Terveen's declaration (EX1003) as of August 5, 2011. This POSITA would have a Bachelor's degree in computer science, computer engineering, electrical engineering, human-computer interaction, or a comparable field and at least two years of professional experience in the design and development of graphical user interfaces (GUIs), human-computer interfaces, or equivalents thereof. However, additional years of experience could substitute for the advanced-level degree. EX1003, ¶29. My education, technical expertise and personal knowledge discussed in Section II shows that I meet the qualifications of a POSITA.

V. OVERVIEW OF THE '754 PATENT

26. The '754 Patent describes devices, methods and graphical user interfaces for manipulating user interface objects. EX1001, Title. For example, the '754 Patent describes a mobile device having various components, including user interface devices such as a touch screen. EX1001, 13:61-14:11. In operation, signals can be received in association with the touch interface (e.g., touch screen) and can correspond to a signal indicative of a touch interface being touched. Id., 14:31-53. The user experience can then be altered utilizing these touch signals. Id., 15:39-51, FIG. 3.

27. An example of these operations can be seen in FIG. 18, where attributes of touch events are detected, and gesture inputs related to these touch event attributes (both initial and over time) can be identified. EX1001, 56:34-60.



EX1001, FIG. 18.

28. These attributes can include the duration and/or distance of a gesture because often different gestures will be indistinguishable based on initial contact. EX1001, 56:34-60, 61:1-5. Once the gesture is identified, a corresponding operation can be performed (step 1808). EX1001, 57:9-10. Such operations can include the modification of one or more display attributes such as blurring the display attributes. EX1001, 57:35-36, 68:58-69:6. For example, some "gestures may be associated with operations that are carried out as functions of the gesture input" EX1001, 59:15-27. In this way, the device can provide a user with feedback as a gesture is performed *See* EX1001, 59:47-53.

A. Independent Claims 1, 2, and 225

29. Independent claim 2 is directed to an "apparatus" having one or more processors that are configured to execute instructions to perform functions at the apparatus. EX1001, 95:35-49. Specifically, claim 2 recites **[2a]** An apparatus, comprising: at least one non-transitory memory; a touch screen; and one or more processors in communication with the at least one non-transitory memory, and the touch screen, wherein the one or more processors execute instructions in the at least one non-transitory memory to cause the apparatus to:

[2b] display an object and at least one other object;

[2c] detect at least part of a gesture on the touch screen; and

[2d] during detection of at least a portion of the gesture before a completion thereof is detected, blur, based on a change in a magnitude of the gesture being detected on the touch screen, at least a portion of the at least one other object. EX1001, 95:35-49.

30. Claim 225 includes limitations similar to the Limitations [2b]-[2d] of claim 2, but is directed to a "method" that is performed at an apparatus. EX1001, 119:43-54. Specifically, claim 225 recites **[225a]** A method, comprising: at an apparatus including a display, at least one non-transitory memory, a touch screen, and one or more processors in communication with the at least one non-transitory memory and the touch screen: **[225b]** displaying an object; **[225c]** detecting at least

part of a gesture on the touch screen; and **[225d]** in response to the detection of the at least part of the gesture without a completion of the gesture being detected, blurring, based on a change in a magnitude of the gesture being detected on the touch screen, at least a portion of at least one other object.

31. Independent claim 1 includes limitations similar to the Limitations [2b]-[2d] of claim 1 and [225b]-[225d] of claim 225. EX1001. 95:28-34. Claim 1 describes an "electronic device" having programs that are executed by one or more processors to perform the operations described in [2b]-[2d] and [225b]-[225d]. Claim 1 also recites that the one or more programs include instructions for:

> **[1b]** displaying a plurality of user interface elements on the display including a first user interface element and a second user interface element;
>
> **[1c]** detecting a first contact moving across the display; and,
>
> **[1d]** 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]
>
> **[1e]** moving the second user interface element on the display at a second speed greater than the first speed;

EX1001, 95:9-27.

VI. OVERVIEW OF THE PRIOR ART

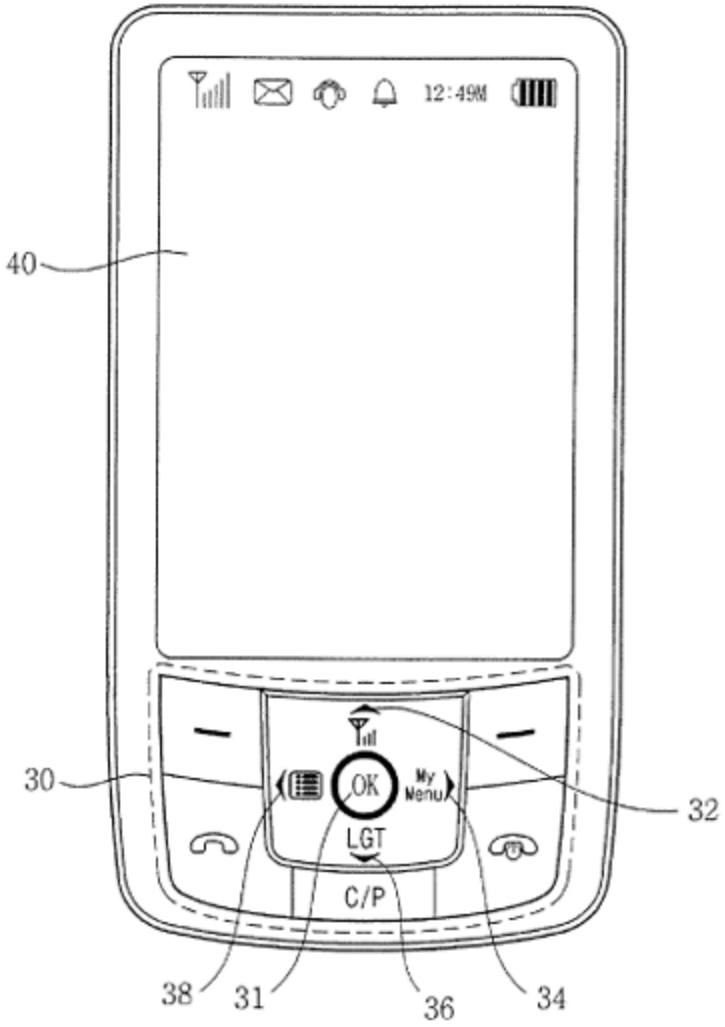
32. Dr. Terveen primarily relies on two cited references for his invalidity analysis. *See* EX1003, ¶62 (the Ahn-Chaudhri combination).

A. U.S. Patent App. No. 2008/0207188 ("Ahn")

33. U.S. Patent App. No. 2008/0207188 is titled "Method of Displaying Menu in a Mobile Communication Terminal" and lists as its first inventor Hye Sang Ahn. I will refer to this reference as "Ahn."

34. As depicted in FIG. 2 (inset below), Ahn discloses a mobile communication terminal that includes a display 40 along with a key input device 30 and a touch input device (e.g., element 10 in FIG. 1). EX1004, Abstract, ¶[0027].

FIG. 2



35. Ahn's proposed operation attempts to solve the problem where device characteristics are unavailable when a menu list is displayed. EX1004, ¶¶[0005]-[0006]. In particular, Ahn addresses the situation in mobile communication terminals where the standby screen disappears when a menu screen is displayed. Thus, Ahn proposes to provide menus that only take up a portion of the display so that the standby screen can still be displayed concurrently with the menu.

36. Against this backdrop, Ahn discloses a method of displaying menus in a mobile communication terminal, where each menu can correspond with a selection of one of a plurality of specific directions associated with the menus. EX1004, Abstract ("menu corresponding to the selected specific direction on the standby screen"). In Ahn, the menu is displayed after an input (e.g., after selection of direction key (¶[0034]) or after a touch and drag operation (¶[0102])) is completed. If the input is not completed, the menu will not open and will remain closed (i.e., not displayed). *see e.g.,* EX1004, ¶[0116] (menu can be displayed "if the touch and drag operation of the user ***is completed***").[1]

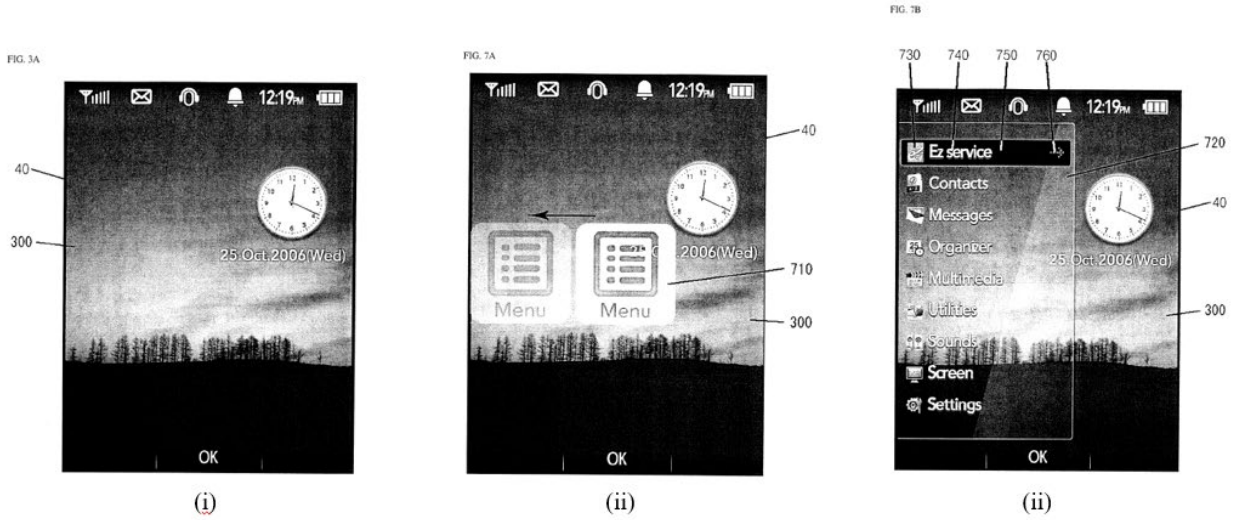
37. As described in more detail below, Ahn discloses three separate methods for displaying a menu via the use of directional keys, a simple touch and drag operation, and via a start position operation.

1. Directional Key Operation

38. In a first embodiment, Ahn describes a method of displaying a menu via a selection of a specific direction on a direction key. *See* EX1004, ¶¶[0030], [0034]-[0035]. As shown in FIGs. 7A-7C, a menu (e.g., setting menu list 720; this same setting menu list also appears as setting menu list 820 in FIG 9A) can be accessed "when a leftward direction key is selected." *Id.*, ¶[0062]. This operation

[1] All emphasis added unless otherwise noted.

starts "when the standby screen 300 is displayed on the display 40." *Id.*, ¶[0063]. When the "user selects the leftward direction key 38," an icon 710 is "displayed around the center of the standby screen 300" and then "disappears while moving to [the] left" side of the screen. *Id.* This operation is illustrated in greater detail below, in which FIGs. 3A, 7A, and 7B depict various stages of displaying the left side menu.



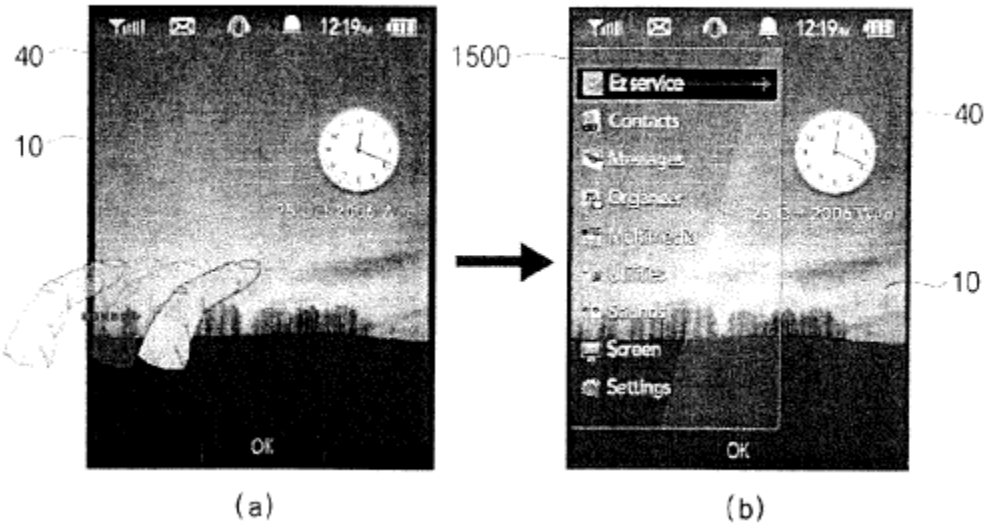
39. First, the standby screen 300 is displayed. EX1004, ¶[0035]. Next, after the left direction key is pressed, the icon 710 is displayed and fades to the lefthand side of the screen to provide the user with feedback as to the operation associated with the left direction key. *Id.*, ¶[0063]. Finally, once the icon 710 disappears, a menu 720 is displayed on the lefthand side of the standby screen 300. *Id.*

2. Touch and Drag Operation

40. In another embodiment, Ahn describes a method of displaying a menu via "a touch and drag operation of a specific direction." *Id.*, ¶[0101], see also

¶¶[0102]-[0104]. As shown in FIGs. 15A-15B of Ahn (inset below), "if the user touches screen 10 and drags the touch in a rightward direction, a menu list 1500 matched to a right direction is displayed in the display 40." *Id.*, ¶[0103].

FIG. 15



This menu list 1500 is the same menu list 720/820 that was discussed in Ahn's directional key operation. *See* EX1004, ¶¶[0075]-[0076], [0104], FIGs. 7B (showing identical menu 720) 8C (showing identical menu 820), 15B (showing identical menu 1500).

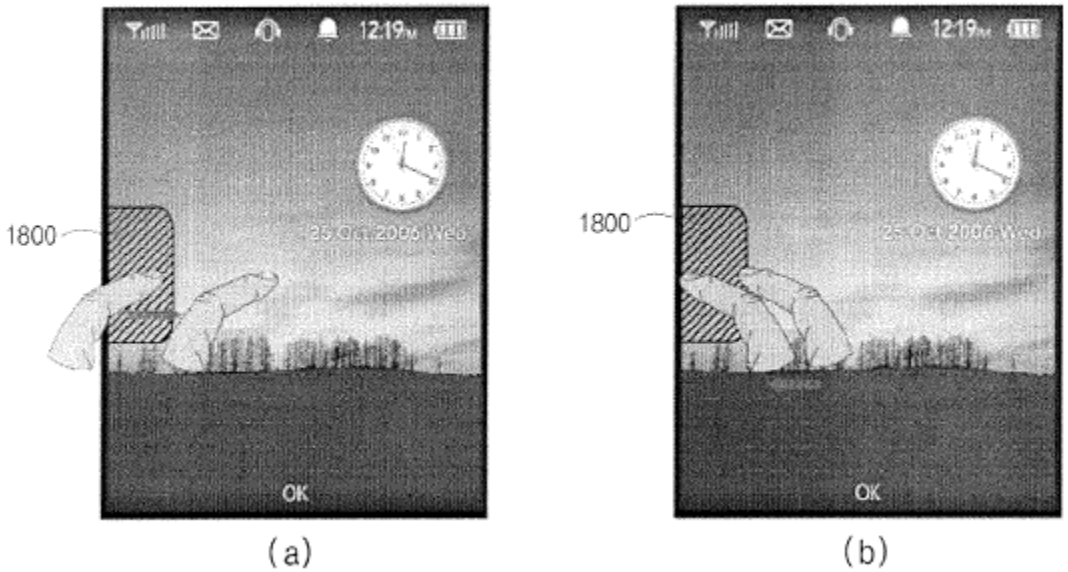
41. This operation starts when "[t]he controller 50 detects a touch and drag operation of a specific direction in the touch screen 10." *Id.*, ¶[0107]. Then "[t]he controller 50 determines whether a drag distance of the detected touch and drag operation is a first distance or more." *Id.*, ¶[0109]. ***After*** the user performs the touch and drag gesture and the controller compares the drag distance to a threshold, the

menu can then be displayed. *Id.*; *see also* FIG. 16 (detecting touch at step 1610 and displaying menu at step 1630). "That is, if the touch and drag operation of the user ***is completed***, the controller 50 determines a distance of the touch and drag operation, whereby a specific menu list corresponding to the distance can be displayed in the display 40." EX1004, ¶[0116].

3. Start Position Operation

42. In another embodiment, Ahn describes methods of "notifying a start position of a touch and drag operation to a user," as illustrated in FIGs. 18a and 18b (inset below). *Id.*, ¶[0118].

FIG. 18



43. In these embodiments, a "graphical shadow 1800," instead of a menu, is displayed based on a user's touch and drag operation. Unlike the directional key and touch and drag operations described above, this operation does not solely open

a menu that corresponds to the direction of a user's input. Instead, menu 1500 can be opened starting with a left or a right swipe. EX1004, ¶¶[0118]-[0119] (opening menu list 1500 when "the user drags in a right direction after touching" and when "the user touch drags to the left")

44. In a first embodiment, "if the user drags in a right direction after touching the screen, a graphical shadow 1800 is displayed in the display 40." *Id.*, ¶[0118]. Then, the user may drag the graphic shadow to display menu list 1500, as illustrated in FIG. 18A.

45. In a second embodiment, the menu list 1500 can also be displayed "if the user touch drags to the left." *Id.*, ¶[0119]. In this operation, the user touch drags to the left to display the graphical shadow 1800 and then the user may press the graphic 1800 with a finger. *Id.* After the user selects the graphical shadow (when activated with a left swipe), the graphic "disappears in the display 40, and the menu list 1500 can be displayed." Thus, Ahn's Start Position operation provides an alternative manner of handling the detected touch and drag gestures than the Touch and Drag Operation described above.

B. U.S. Patent App. No. 2007/0150842 ("Chaudhri")

46. U.S. Pat. Pub. No. 2007/0150842 is titled "Unlocking a Device by Performing Gestures on an Unlock Image" and lists as its first inventor Imran Chaudhri. I will refer to this reference as "Chaudhri."

47. Chaudhri-842 discloses "[a] device with a touch sensitive display [that] may be unlocked via gestures performed on the touch-sensitive display." EX1005, Abstract. The primary focus of Chaudhri-842 is a method for "unlocking [a] device" via a "predefined gesture" where the method includes "moving [an] unlock image to a predefined location and/or moving the unlock image along a predefined path." EX1005, Abstract. As described in more detail below, Chaudhri-842 discloses two separate methods for unlocking a device: via transitioning from a lock screen to a separate interface and via displaying additional interface objects on the lock screen.

1. Transition From Lock Screen to Separate Interface

48. In a first embodiment, Chaudhri-842 describes a method of unlocking a device using a predefined gesture via transitioning from a lock screen to a separate interface. *See* EX1005, ¶¶[0074]-[0076]. As shown in FIGs. 5A-5D (inset below), this operation starts when a user "touch[es] a touch screen 408 of device 400 with her finger 502." *Id.*, ¶[0074]. Specifically, "[t]he user touches the touch screen 408 at the location corresponding to the unlock image 402, which is located initially at the left end of the channel 404." *Id.* When the user drags their finger "in the direction of movement 504 […] [t]he unlock image 402 is dragged along the channel 404 as a result of the gesture." *Id.*, ¶[0075]. When "the user has dragged the unlock image 402 to the right end of the channel 404 […] [and] releases the unlock image 402 […] the unlock action is complete." *Id.*, ¶[0076]. When the unlock action is

complete, "the device unlocks and displays on the touch screen 408 user-interface objects associated with normal operation of device 400[,]" such as menu 506 in Fig. 5D. *Id.*

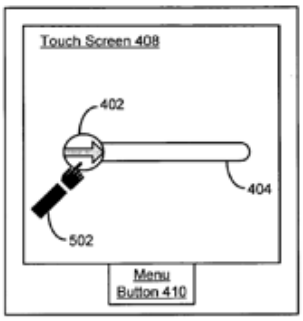


Fig. 5A

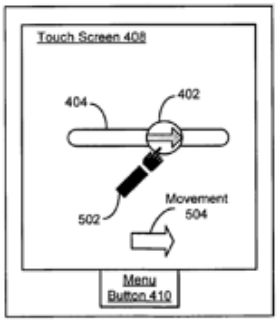


Fig. 5B

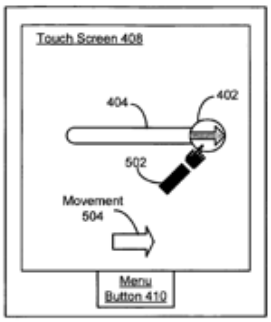


Fig. 5C

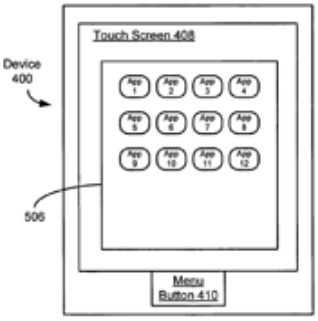
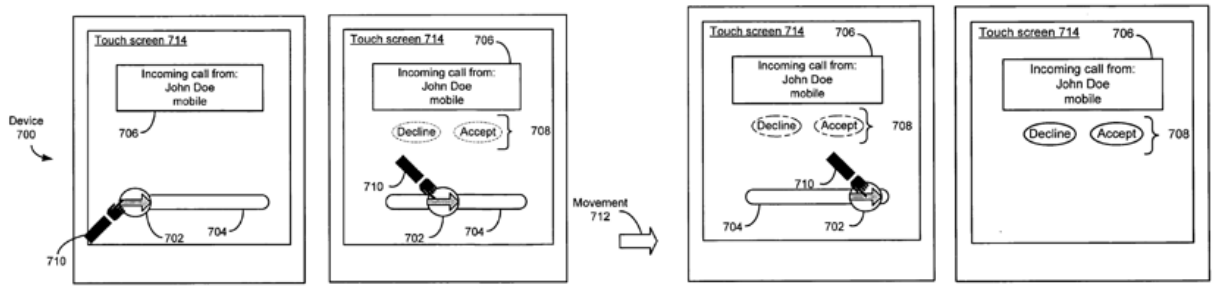


Fig. 5D

2. Display Additional Interface Objects on Lock Screen

49. In another embodiment, Chaudhri-842 describes a method of unlocking a device using a predefined gesture via displaying additional interface objects on a lock screen. *See* EX1005, ¶¶[0091]-[0093]. As shown in FIGs. 7A-7D (inset below), this operation starts when "device 700 is locked […] [and] display[s] a prompt 706 to the user, informing the user of [an] incoming call […]" *Id.*, ¶[0091]. When the user "drag[s] unlock image 702 along the channel 704 in the direction of movement 712 […] a set of virtual buttons 708 appears and increases in optical intensity." *Id.*, ¶[0092]. When "the user completes the unlock action by dragging the unlock image to the right end of channel 704 […] [t]he unlock image 702 and the channel 704 disappear from the display and the virtual buttons 708 are at their

final optical intensity levels […]." *Id.*, ¶[0093]. Once the virtual buttons are at their final intensity levels, "the user may interact with virtual buttons 708 and accept or decline the incoming call." *Id.*



EX1005, FIGs. 7A-7D.

VII. GROUND 1A: DR. TERVEEN'S ANALYSIS FAILS TO SHOW OBVIOUSNESS OF CLAIM 2 BY AHN AND CHAUDHRI-842

50. Dr. Terveen's analysis of Ahn and Chaudhri-842 fails to establish that his proposed combination would arrive at each of the claimed limitations.

A. Limitations [2d], [1h], [225d]

51. Limitation [2d] recites "during detection of at least a portion of the gesture before a completion thereof is detected" the processor causes the apparatus to "blur, based on a change in a magnitude of the gesture being detected on the touch screen, at least a portion of the *at least one other object*." *Supra*, §VII.A That is, Claim 2 requires "detect[ing] . . . a gesture on [a] touch screen and "blur[ring]" a portion of an object displayed on the touch screen "during detection of" the gesture and "before a completion" of the gesture is detected. EX1001, 95:45-49, 119:50-54.

52. "[T]he at least one other object" is introduced in Limitation [2b], which recites "display an object and at least one other object." For Limitation [2b], the IPR2024-01119 Petition (the "Petition")[2] relies on the "clock widget of [Ahn's] standby screen 300" as the claimed "at least one other object." *See* Pet., 23-24 ("at least one of the icons in the indicator area 320 and the clock widget displayed on display 40 of Ahn's mobile communication terminal 100 are ***an object and at least one other object***, respectively, as in [2.b]" (emphasis in original)); *see also* EX1003, ¶¶83-87 (same). The Petition does not identify any other elements as allegedly corresponding to the claimed "at least one other object." Thus, for Limitation [2d], the Petition must show that Ahn-Chaudhri-842 would have rendered obvious blurring Ahn's "clock widget" as required by the language of the claim. But the Petition fails to establish any reasonable chance of success on this point.

53. Dr. Terveen provides two theories for changing the appearance of Ahn's clock widget in his analysis of Limitation [2d]. *See* EX1003, ¶¶93-102. Each

[2] As explained above in my paragraph 21, the analysis of the Petition in IPR2024-01119 is applicable to all seven IPR proceedings. *See e.g.,* IPR2024-01116 Petition at 29-30 (repeating, verbatim, same text at page 23-24 of IPR2024-01119) Unless specified otherwise, all references to the Petition are to the IPR2024-01119 Petition.

theory focuses on certain elements of Limitation [2d] but neglects other elements, meaning both theories fail to meet all required elements of Limitation [2d].

54. Dr. Terveen's first theory relies on Ahn alone; specifically, Ahn's disclosure of displaying a menu in response to a swipe. EX1003, ¶¶93-95. This theory cannot succeed, at least because Ahn displays the menu in response to the *completion* of a touch and drag gesture, not "***during detection*** of at least a portion of the gesture ***before a completion*** thereof is detected," as required by Limitation [2d].

55. Dr. Terveen's second theory relies on Ahn in combination with Chaudhri-842. EX1003, ¶¶96-102. Dr. Terveen contends that Chaudri-842's disclosure, of increasing the optical intensity of a *foreground* UI element would have led a POSITA to "blur"[3] Ahn's *background*. EX1003, ¶¶96-102. But Chaudri-842 does not suggest blurring a background, and Dr. Terveen adds no further explanation or analysis, leaving his second theory without support.

1. Dr. Terveen's Ahn Theory is Deficient

56. Dr. Terveen's first theory relies solely on Ahn. EX1003, ¶¶93-102. Nowhere in its discussion of the first theory does Dr. Terveen attempt to modify Ahn

[3] I do not agree with Dr. Terveen's proposed interpretation of blurring. Nevertheless, Dr. Terveen's theories are deficient even under his own interpretation.

or provide a motivation for doing so. EX1003, ¶¶93-102. Although Dr. Terveen references Chaudhri-842 as "similarly" describing moving graphics like that in Ahn, there is no modification to utilize any operation of Chaudhri-842. As explained below, Dr. Terveen's understanding of Ahn is incorrect and nothing in the cited portions of Chaudhuri-842 (EX1005, ¶¶[0054], [0060], [0062]) would correct Dr. Terveen's misinterpretation of Ahn.

57. For this theory, Dr. Terveen contends that Ahn's menu can be displayed in a translucent state and that "when embodied in translucent form, its menus would have blurred at least a portion of the background standby screen (e.g., shown in FIG. 12) by rendering the portion under which it is displayed as vague or less distinct." EX1003, ¶93. According to Dr. Terveen, "in at least implementations like those described with respect to FIG. 18, Ahn's menu list would have been graphically displayed as sliding onto the display based on a change in magnitude of the 'touch and drag' gesture being detected on the touch screen." EX1003, ¶94. But this fails to meet the claimed operation and Dr. Terveen's rearrangement of Ahn's embodiments is inconsistent with the teachings of Ahn.

a) Dr. Terveen's First Theory Relies on Ahn's Fig. 4B Embodiment

58. Dr. Terveen's first theory is quite convoluted, and it can be at times challenging to identify which portions and embodiments of Ahn he is relying on, but it is precisely which parts of Ahn he refers to that proves to be decisive in the failure

of his argument. EX1003, ¶¶93-95. Dr. Terveen starts by addressing the alleged translucency of Ahn's menus (EX1003, ¶93), then quotes language that describes certain aspects of Ahn's Figure 18 embodiment (EX1003, ¶94), references the operation of Chaudri-842 (*id.*) seemingly to support his interpretation of Ahn's Figure 18 embodiment (*id.*), and then lands on Ahn's Figure 4B embodiment to show alleged blurring of the "clock widget" (EX1003, ¶93).

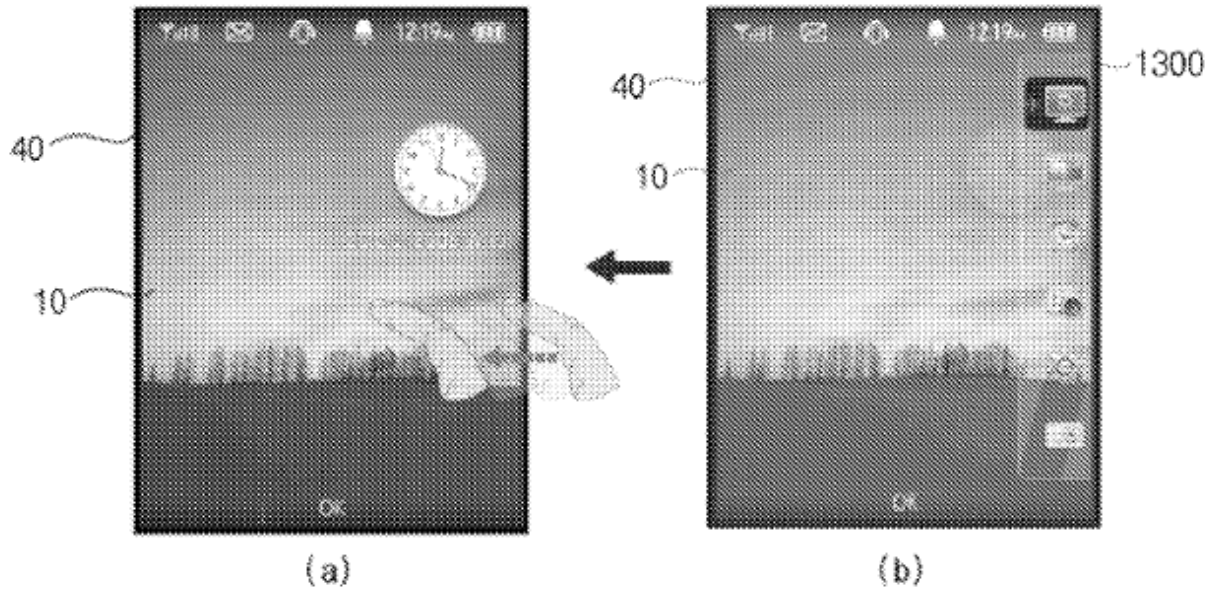
59. What is crystal clear, however, is that the only place Dr. Terveen alleges blurring of the clock widget is in connection with the deployment of user menu 420 (or corresponding menu 1300) as illustrated in Ahn's FIGs 4B, 10, and 13B. EX1003, ¶¶95-96; *see also, e.g.*, EX1005, FIG. 15 (no apparent change in appearance of clock widget by menu list 1500), FIGs. 7B, 8C, 9A, (same). At no point does Dr. Terveen allege that another menu (e.g., menu list 1500) would allegedly blur the clock widget. *See* EX1003, ¶¶83-102. In fact, as illustrated in Ahn's FIG. 10, the lefthand menu list 820 specifically does *not* alter the appearance of the portion of the clock widget which appears underneath it. EX1005, FIG. 10. Thus, to succeed on this first theory, Dr. Terveen must show that deployment of Ahn's user menu 420 meets all requirements of Limitation [2.d]. But it does not.

b) Ahn does not alter the appearance of the clock widget *during* detection of and *before a completion* of the gesture is detected

60. First, Dr. Terveen fails to show that display of Ahn's menu 420 would cause the alleged 'blurring' "during detection of at least a portion of the gesture" and "before a completion [of the gesture] is detected."

61. Dr. Terveen's analysis of Limitation [2c] maps the claimed "gesture" to a "touch and drag operation" associated with opening Ahn's menu list 1300, which matches Ahn's user menu 420. EX1003, ¶¶89-90; *compare* EX1005, FIG. 13 *with id.*, FIG. 4B. Referring to Ahn's FIGs. 13(a)-(b) (inset below), a user touches the screen and "drags the touch in a left direction" as shown in FIG. 13(a). EX1004, ¶[0102]. Afterwards a menu list 1300 matched to a left direction is displayed, as shown in FIG. 13(b).

FIG. 13

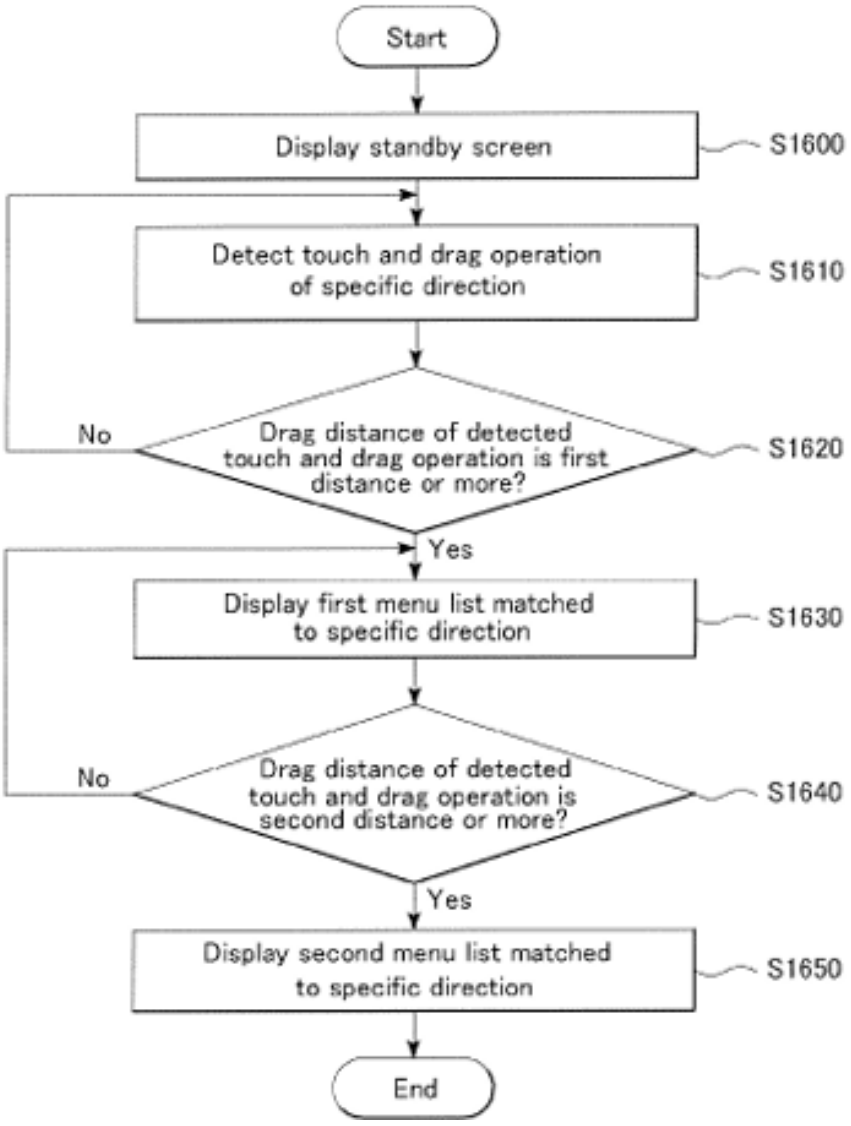


EX2005, 71/75.[4]

62. As shown in FIG. 13(a), the user's finger drags from a first point to a second point on the display, while the display does not change as the user's finger drags the touch in a left direction. Only ***after*** "the touch and drag operation [i.e., gesture] of the user is completed" is the menu displayed (FIG. 13b). *See* EX1004, ¶[0116]. Thus, a POSITA would understand that the drawings of Ahn disclose that its menu 1300 does not move with the user's finger but is displayed after the gesture is detected as complete. EX1004, ¶¶[0102], [0108]-[0109]; FIG. 13(a) (showing user's finger dragging across screen with no menu displayed); FIG. 13(b) (showing the finger as being removed from the screen when menu 1300 is displayed).

63. This operation is confirmed by Ahn's FIG. 16 (inset below). *See* EX1004, ¶[0107]-[0109]. As shown, the touch and drag operation is detected at step 1610 and the drag distance is compared with a drag distance at step 1620 ***before*** a menu is displayed at step 1630. EX1004, ¶[0107]-[0109]. That is, Ahn only displays its menu ***after*** determining a drag distance exceeded a first distance. *Id.*

[4] For improved clarity, the figure is from the counterpart European application (EP1962480) that is substantially identical to Ahn and claims priority to the same applications as Ahn. *See* EX2005, 78/79 (claiming priority to KR 2007-018175, KR 2007-033308, KR 2007-043087); EX1004, 1 (same).



EX1004, FIG. 16.

64. A POSITA would therefore understand that Ahn's display of menu list 1300/420 is a binary operation—the full menu will open if a user enters an input (right direction on arrow key (¶[0050]) or left slide on touchscreen (¶[0102])) and the menu will stay closed otherwise. EX1004, ¶¶[0106]-[0109], FIG. 16. "That is, if the touch and drag operation of the user ***is completed***, the controller 50 determines

a distance of the touch and drag operation, whereby a specific menu list corresponding to the distance can be displayed in the display 40." EX1004, ¶[0116].

65. The menu 1300 is not displayed ***during*** the gesture; rather, it is displayed only ***after*** the gesture is completed. *See id.*[5] Dr. Terveen's first theory for Limitation [2.d] does not purport to modify this functionality of Ahn's menu 1300/420. *See* EX1003, ¶¶93-95. Thus, regardless of whether Ahn's menu alters the appearance of the clock widget once the menu is displayed ***after*** the gesture is completed, the Petition fails to show the menu is displayed (or the clock widget's appearance altered) "***during detection*** of at least a portion of the gesture ***before a completion thereof*** is detected."

c) Ahn's FIG. 18 operation does not alter the appearance of the clock widget

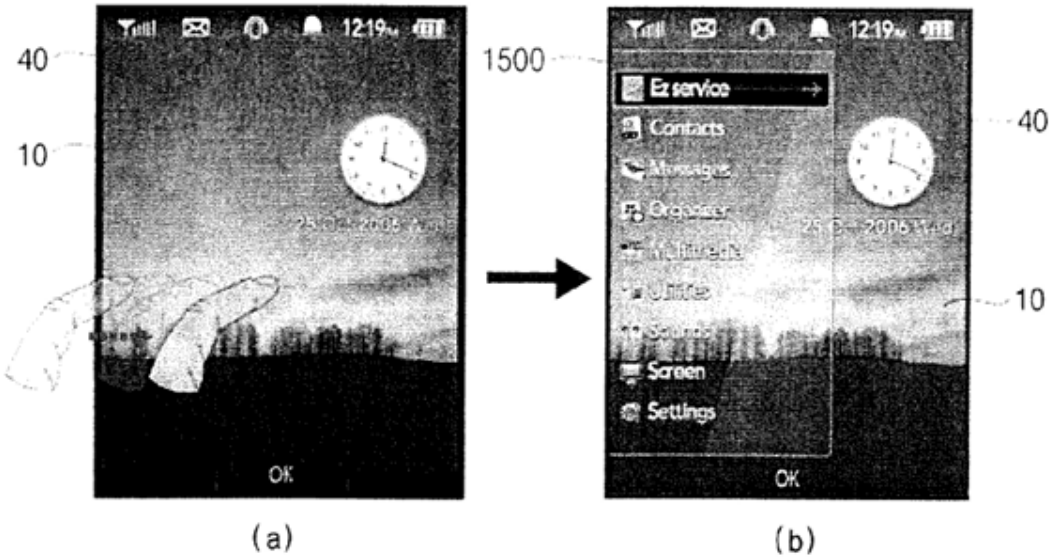
66. Dr. Terveen's discussion of "Ahn's FIG. 18" in his paragraph 94 is irrelevant to the operation of menu 1300/420 in Dr. Terveen's mapping. As

[5] Ahn's menu 1300 does not include a "second menu list." *See* EX1004, ¶¶[0051]-[0057] (submenus of menu 420—which corresponds to menu list 1300—are not activated by a slide gesture), [0102], FIGs. 5A-5B, 13; *cf* EX1004, ¶[0112] (second menu list 1710 is displayed by slide gesture), FIG. 17. Thus, the gesture relied on in the Petition is completed after the touch and drag is determined to be past the first distance and before menu list 1300 is displayed.

explained in my Section VI.A above, the operation of FIG. 18 is a different embodiment that displays a different menu (menu list 1500) than the menu list 1300 associated with the gesture identified in the Petition. *Supra*, §VI.A.3; EX1003, ¶91 (identifying the gesture "as shown in at least FIGS. 13a and 13b" as allegedly disclosing "detect[ing] at least part of a gesture on the touch screen, as in [2.c]."); EX1004, FIGs. 13a-13b (depicting menu list ***1300***); ¶¶[0118]-[0119] (FIG. 18 describing opening menu list ***1500***). Further, Dr. Terveen also does not explain or provide a motivation for combining the alleged functionality of Ahn's distinct embodiments. As such, Dr. Terveen's reference to Ahn's FIG. 18 only highlights the deficiencies in his first theory.

67. The operation of FIG. 18—which is only disclosed as opening menu list 1500—fails to alter the appearance of the clock widget. As shown in Ahn's FIGs. 15a-15b (inset below), the display of menu list 1500 does not dim, obstruct, or otherwise alter the appearance of the clock widget.

FIG. 15



EX1004, FIG. 15A-B (appearance of clock widget is not changed from FIG 15A to FIG. 15B) *see also* FIGs. 8C, 9A, 9B (same).

68. Ahn clearly shows that the appearance of the clock widget is not altered by menu list 1500 (or corresponding menu list 820). As shown in FIGs. 8C and 9A of the European version of Ahn—in which Ahn's figures are reproduced in higher quality—the menu 820 does not alter the display of the clock widget in any manner.

FIG. 8C

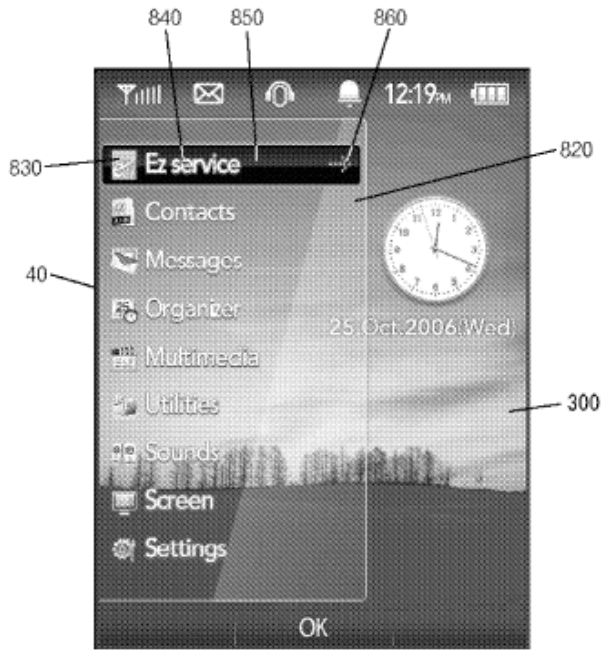


FIG. 9A

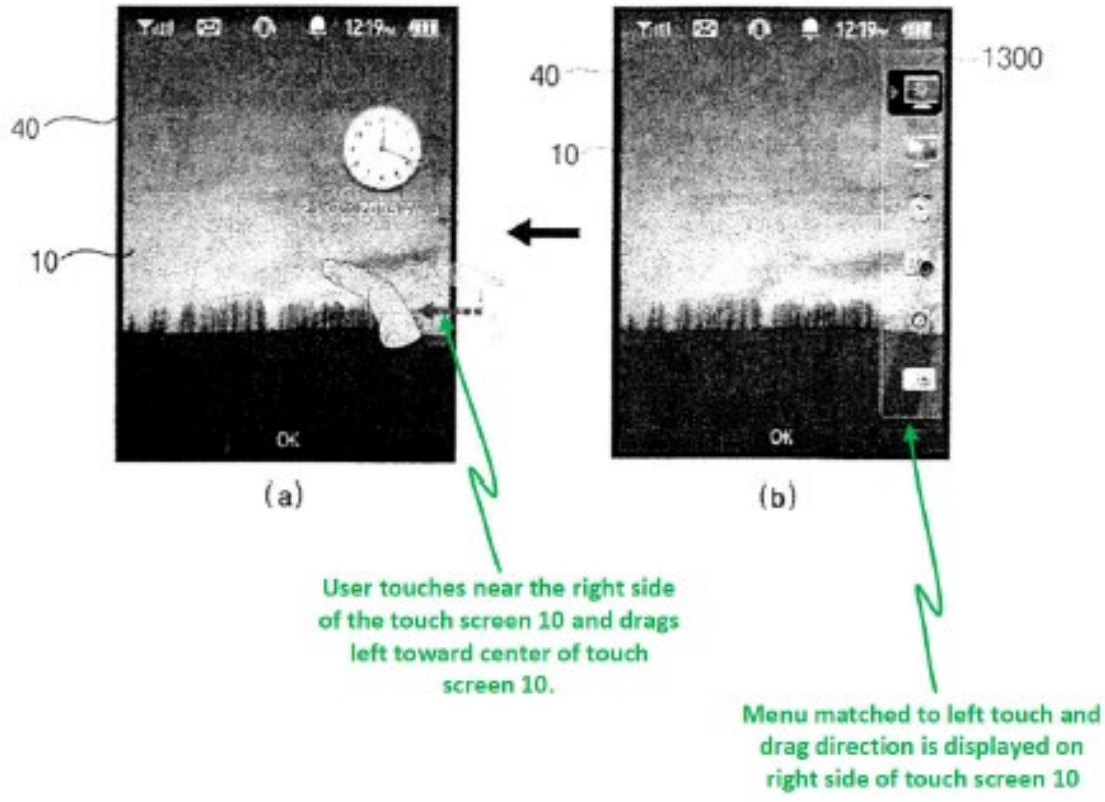
EX2005, 64-65/79.

69. "[T]he the clock widget of standby screen 300" is the only component Dr. Terveen identifies as corresponding to the claimed "at least one other object." EX1003, ¶87. Thus, Dr. Terveen's citations to FIG. 18 or graphical shadow 1800—which are associated with menu 1500—fail to disclose any operation that would "blur … at least a portion of the at least one other object" (e.g. the clock widget), as claimed.

70. Second, Dr. Terveen's reliance on the operation of FIG. 18 renders Dr. Terveen's mappings internally inconsistent (identifying different menus and different gestures than those previously mapped in the Petition) and must fail for at least this reason. As shown in Dr. Terveen's analysis of Limitation [2c], Dr. Terveen

identifies a gesture where "a user initially touches near the right side or edge of the touch screen 10 and initiates the drag gesture that moves inward toward the center of the display." EX1003, ¶90. In this scenario, "if the user touches a specific position of the touch screen 10 and drags the touch in a left direction a menu list 1300 matched to a left direction is displayed in the display 40." EX1004, [0102]. Dr. Terveen's position is illustrated in its annotated version of Ahn's FIGs. 13(a)-13(b) (inset below).

FIG. 13



Menu list 1300 is unequivocally different than menu list 1500 (EX1004, ¶¶[0102]-[0103]) and, therefore, Dr. Terveen's mapping is internally inconsistent.

71. Dr. Terveen also inconsistently maps to different gestures. In his analysis of the claimed "gesture," Dr. Terveen identifies where a "[u]ser touches near the right side of the touch screen 10 and drags left toward center of touch screen 10." EX1003, ¶¶89-90 (quotation from annotations in FIG. 13a of Ahn). But this left drag gesture is not the same gesture Terveen claims as the relevant gesture in asserting against Limitation 2.d. EX1003, ¶94 ("[…] in at least implementations like those described with respect to 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."). As explained above in Section VI.A.3, Ahn's paragraph [0118] describes a first embodiment of a Start Position operation "if the user drags in a ***right*** direction after touching the screen." Thus, the gesture in Ahn's FIG. 18a (right drag gesture) is not ***the*** gesture identified for Limitation [2c] (left drag gesture). EX1003, ¶¶89-90; EX1004 (identifying left drag gesture), ¶[0118] (describing right drag gesture). In the embodiment of Ahn's FIG. 18b, when the user performs a touch and drag in a *left* direction—similar to Dr. Terveen's mapping of the gesture in Limitation [2c]—a graphical shadow 1800 is displayed, not a menu. EX1004, ¶[0119]. Performing the identified gesture ("touch[ing] near the right side […] and initiat[ing] the drag gesture that moves inward toward the center of the display" (EX1003, ¶90)) in the second embodiment of the Start Position operation (FIG. 18b) only displays

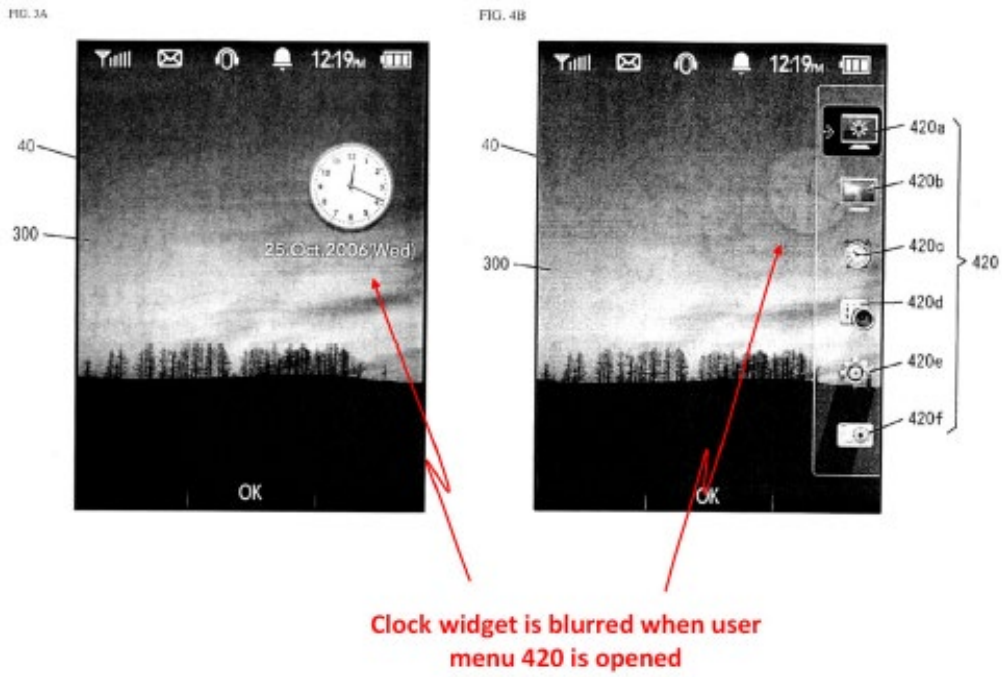
graphical shadow 1800 which also does not alter the appearance of the clock widget in any way. In this operation, the user may then perform a *separate* gesture to display menu list 1500. EX1004, ¶[0119] ("the user may press the graphic **1800** with a finger, the graphic **1800** gradually disappears 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**."). As explained above, this gesture (press) is inconsistent with "***the*** gesture" identified in Limitation [2c] and, in any case, does not "blur" the clock widget.

2. Dr. Terveen's Ahn-Chaudhri Theory is Deficient

72. Dr. Terveen's second theory relies on the alleged "blurring" of the clock widget in Ahn's background. EX1003, ¶96. According to Dr. Terveen, "when the user menu 420 is opened, Ahn illustrates that the clock widget becomes blurred." *Id.* As explained above, however, Ahn does not display its user menu 420 or alter the appearance of its background until *after* completion of Ahn's "touch and drag operation." Ahn therefore does not alter the appearance of its clock widget "during detection of at least a portion of the gesture before a completion thereof is detected."

73. Dr. Terveen then turns to Chaudhri-842's, "use of transitioning optical intensity." EX1003, ¶¶97-101. Specifically, Dr. Terveen contends that it would have been obvious to "blur" Ahn's clock widget during a transition from "a [first] user interface state where the standby screen is displayed (*see, e.g.*, EX1004, FIG.

13a) to a second user interface state where a menu list 1300 is displayed above or on top of the [background] standby screen (*see, e.g.*, EX1004, FIG. 4B, 10, and 13b)." EX1003, ¶101. The two alleged user-interface states are illustrated by Dr. Terveen's annotated Figures 3A and 4B of Ahn (reproduced below). EX1003, ¶96.



74. For this theory, Dr. Terveen contends that Chaudri-842 would have led a POSITA to *decrease* the optical intensity of Ahn's *background* (including the clock widget). *See* EX1003, ¶101. But that is not what Chaudri-842 discloses. Dr. Terveen's presentation of Chaudri-842 is incorrect, and the alleged motivations for modification of Ahn are illogical and would not result in the proposed combination.

a) Dr. Terveen's proposed modification is inconsistent with Chaudhri-842's varying the optical intensity of foreground UI elements

75. Chaudhri-842 does not vary the optical intensity of a background. *See e.g.,* EX1005, FIGs. 7A-7D. To the contrary, Chaudhri-842 discloses adjusting an optical intensity of user interface (UI) objects: "The optical intensity of a user-interface object, as used herein, is the object's degree of visual materialization." EX1005, [0085]. And Chaudri-842 repeatedly makes clear that user interface objects are distinct from a background. *See, e.g.*, EX1005 [0085] ("optical intensity may be the visual differentiation *between* the user-interface object and *the background*"). Thus, Chaudri-842 teaches varying the optical intensity of foreground UI elements.

76. Unlike Chaudri-842's foreground UI elements, Ahn's clock widget is part of the background, as conceded by Dr. Terveen. *See* EX1003, ¶96 ("that a clock widget is part of the background standby screen 300"), ¶101 ("the background (e.g., the standby screen and/or clock widget)."). But Chaudri-842 does not suggest adjusting the optical intensity (or otherwise altering) a background. And neither the Petition nor Dr. Terveen's expert explains this gap in logic.

77. Further, in paragraph 101 of Dr. Terveen's declaration he asserts that a POSITA would have found it obvious to vary the optical intensity of the standby screen or portions thereof. Continuing, Dr. Terveen specifies that varying the optical

intensity of the standby screen would involve utilizing "utilizing [a] progressive translucency" on the standby screen (EX1003, ¶101)—which he acknowledges is the background (EX1003, ¶96). In fact, the only discussion of the variation in optical intensity in Dr. Terveen's analysis of Limitation [2d] relies on altering "transparency." EX1003, ¶99 (emphasis in original); *see also* EX1003, ¶96 ("blur includes changing a translucency"). However, a POSITA would have understood that varying the transparency of the *background* standby screen is pointless because there is nothing below the background (e.g., underlying layers) that would be revealed by altering its transparency. This is why Dr. Terveen's attempt to apply Chaudhri's techniques for altering the transparency of a *foreground* user interface object makes no sense when applied to the background standby screen in Ahn. There is nothing in Dr. Terveen's analysis of Limitation [2d] that explains how the *background* standby screen can be made transparent and Ahn does not disclose that there are other layers below the standby screen.

b) Dr. Terveen's proposed modification is inconsistent with Chaudhri-842's varying the optical intensity UI elements associated with a second user-interface state

78. As Dr. Terveen explains, "Chaudhri-842 describes 'a process 600 for indicating progress towards satisfaction of a user input condition.'" EX1003, ¶98 (quoting EX1005, ¶[0080]). In this process, an electronic device is transitioned between a first user-interface state and a second user-interface state. EX1005,

[0081]-[0082]. Chaudhri explains that "progress is indicated (604) towards satisfaction of the condition by transitioning an optical intensity of one or more user interface objects ***associated with the second user-interface state***." EX1005, [0081]-[0082] (underline emphasis in the original). This operation is illustrated in Chaudhri's FIG. 6 (inset and annotated below).

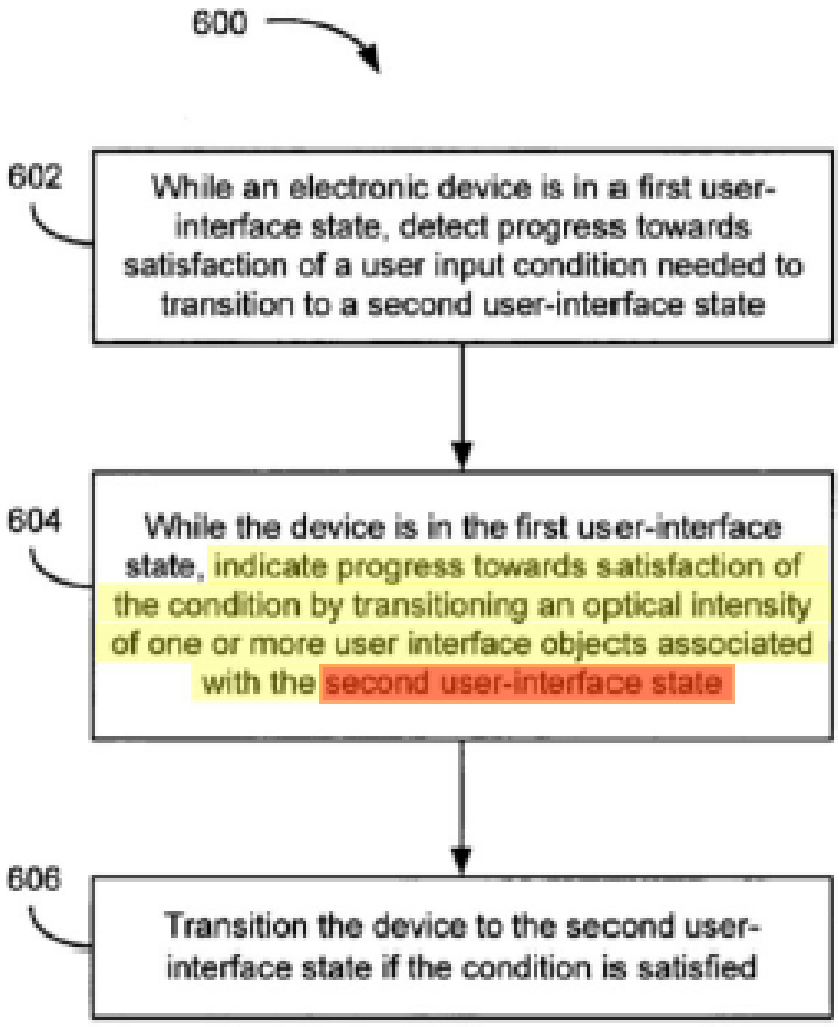


Figure 6

EX1005, FIG. 6.

79. Chaudri-842 also illustrates an example of this concept in its Figures 7A-7D (inset below). As shown, as the arrow 702 slides to the right, the optical intensity of the virtual buttons 708—associated with the second user interface state—increases. EX1005, [0092]-[0093] ("In FIG. 7D, the user completes the unlock action … [such that] [t]he unlock image 702 and the channel 704 disappear from the display and the virtual buttons 708 are at their final optical intensity levels, as illustrated by their solid outlines.")

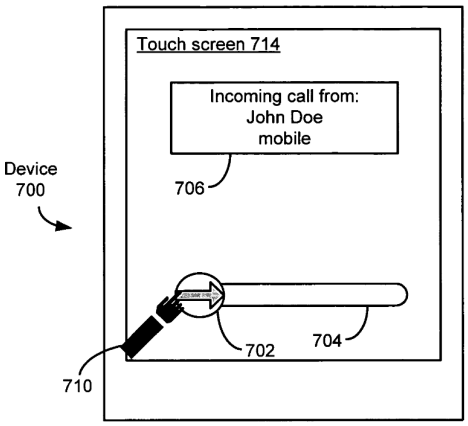


Figure 7A

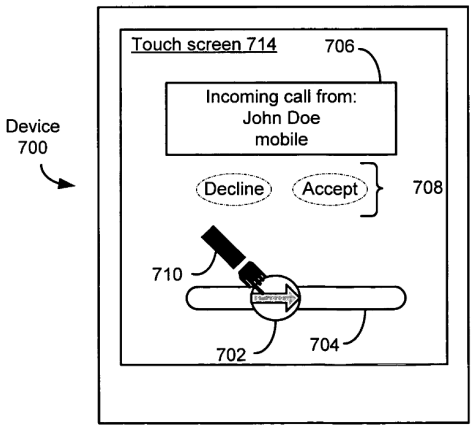


Figure 7B

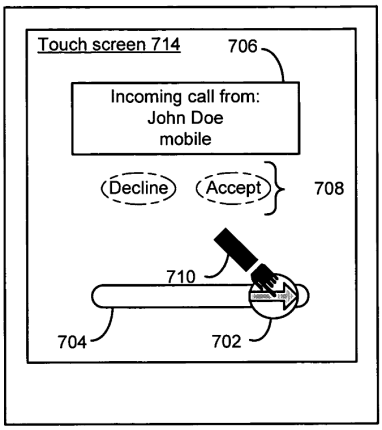


Figure 7C

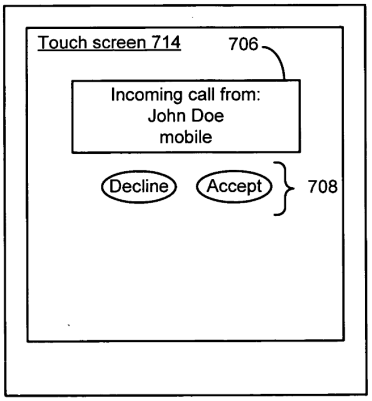
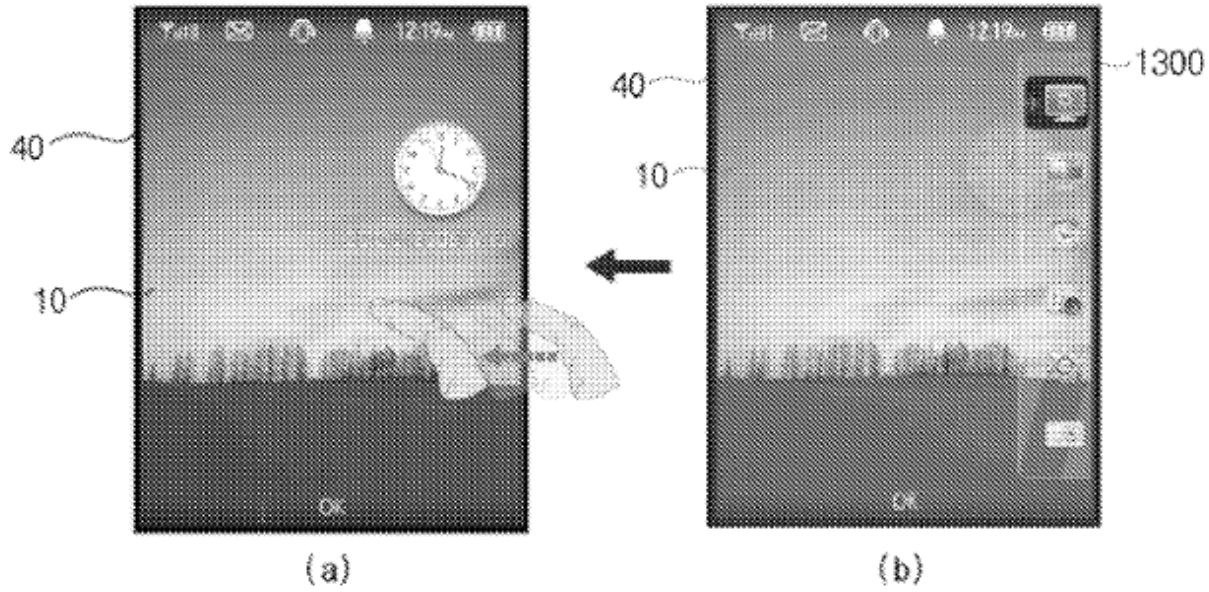


Figure 7D

80. In contrast, Dr. Terveen's combination relies on *reducing* the optical intensity of Ahn's background (the alleged *first* user interface state). Specifically, Dr. Terveen identifies the display of the standby screen of Ahn (FIG. 13A – below left) as corresponding to the <u>first</u> user interface state and the "user interface state where a menu list 1300 is displayed" (FIG. 13B – below right) as the <u>second</u> user interface state. EX1003, ¶101 (transition between a user interface state where the standby screen is displayed (e.g., FIG. 13a) and a user interface state where a menu list 1300 is displayed (e.g., FIG. 13b))

FIG. 13



EX2005, 71/75.

81. In Dr. Terveen's mapping to Ahn, the clock widget is displayed in (e.g., associated with) the ***first*** user interface state. EX1003, ¶101 (identifying FIG. 13a

as the initial user interface state). But Chaudhri-842 does not teach adjusting the optical intensity of an object associated with the ***first*** user-interface state. *See* EX1005, ¶¶[0081]-[0082], [0086], [0091]. Thus, Dr. Terveen's modification to change the appearance of Ahn's clock widget (of the ***first*** user-interface state) is inconsistent with Chaudhri-842's teaching to "transition[] an optical intensity of one or more user interface objects associated with the ***second user-interface state***." EX1005, ¶[0082]. As such, here too, Dr. Terveen's alleged modification does the opposite of what Chaudhri teaches, and a POSITA would not have made such a conflicting modification)—especially not without some articulable reason, which the Petition does not provide.

82. Ultimately, Dr. Terveen's proposed modification would not have made sense in the context of Chaudhri-842's teachings. As shown in Chaudhri-842's FIGs. 7A-7D (above) a ***selectable UI element*** (708) from a second user interface state increases in optical intensity to signify to the user that further completion of its gesture will allow the user to interact with that UI element. EX1005, ¶[0092]. In the example of Chaudri-842's FIGs. 7A-7D, the increasing optical intensity of the virtual buttons 708 helps the user understand that continuing to slide image 702 to the end of channel 704 will allow the user to interact with (e.g., select) one of buttons in 708. *Id.*

83. In contrast, Dr. Terveen's modification would *decrease* the optical intensity of the *background* clock widget as the user drags their finger towards an undefined end, which would not offer any context to the user on what operation will occur or when. Thus, Dr. Terveen departs from Chaudri-842's teachings at least in that the proposed Ahn-Chaudri combination purports to make translucent a *background* object (clock widget) that is part of the *first* user interface state. *Contra* EX1005, ¶¶[0092]-[0093]. It makes little sense to add translucency to a background, given the lack of anything beneath the background that might otherwise show through. Moreover, once the touch and drag operation is complete and the menu subsequently deployed, the clock widget also cannot be interacted with (i.e., selected) in the second interface, meaning that the alleged *decreasing* of the optical intensity of the clock widget fails to serve the purpose set forth in Chaudri-842 for *increasing* the optical intensity of Chaudri-842's virtual buttons. In fact, a POSITA would understand that the clock widget of Ahn is not selectable when obstructed by menu. For example, if the clock widget was selectable when displayed at the same time of menu 420 it would cause significant UI issues as the user would not be able to reliably select between the clock widget and some icons (e.g., 420a, 420b). *See* EX1004, FIG. 4B.

84. Dr. Terveen fails to acknowledge these significant discrepancies, much less provide any evidence or explanation for why a POSITA would have done the

opposite of what Chaudhri-842 discloses. That alone undermines the alleged Ahn-Chaudri-842 combination.

c) Dr. Terveen's Asserted Modification Would Not Achieve the Functionality that Allegedly Motivates Dr. Terveen's Combination

85. Dr. Terveen relies on several of the benefits associated with Chaudri-842's operation as motivations for a POSITA to make its alleged modifications to Ahn. EX1003, ¶101. But, as explained above, Dr. Terveen's alleged modifications are inconsistent with Chaudri-842's teachings and, ultimately, none of those purportedly motivating benefits actually carry over to Dr. Terveen's alleged combination.

86. To illustrate, Dr. Terveen contends it would have been obvious to implement its modification—alleged "blurring" of the clock widget during the touch and drag operation—"to provide ***visual feedback*** regarding the ***progress*** of a transition between user interface states." EX1003, ¶97. According to Dr. Terveen, this would (1) "provid[e] a visual indication to the user of their progress in completing the gesture" and (2) "help differentiate between the" menu list and the clock widget. EX1003, ¶101. But a POSITA would not have expected either purported motivation to be present in Dr. Terveen's proposed Ahn-Chaudhri-842 combination.

(1) Dr. Terveen's modification does not provide visual feedback of the progress of a user's gesture

87. As explained below, the alleged "blurring" of Ahn's clock widget during Ahn's "touch and drag operation" would not provide the user with any indication of progress of opening menu 420/1300.

88. Chaudhri-842 shows progress by an indicator 702 moving toward an "end" of a channel 704. EX1005, FIGs. 7A-7D; *see also id.*, [0071] (end of the channel 404 "serves as a predefined location to which the unlock image 402 is to be dragged."). Simultaneously, optical intensity of the virtual buttons 708 *increases* to "their final optical intensity levels, as illustrated by their ***solid outlines***." EX1005, [0093].

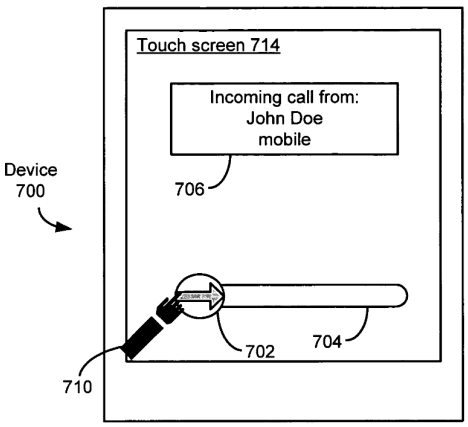


Figure 7A

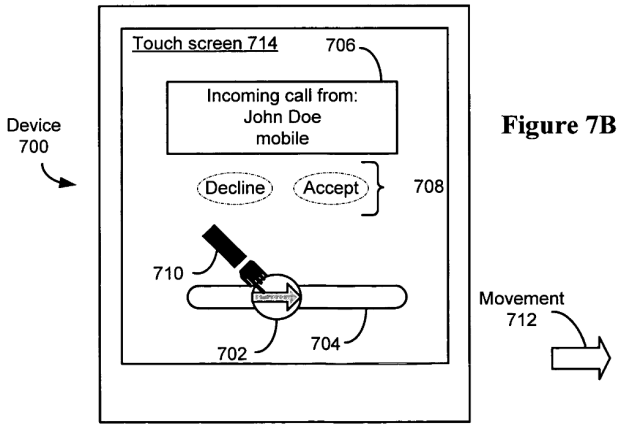


Figure 7B

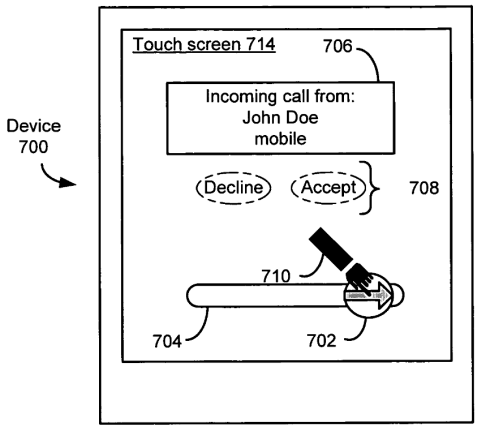


Figure 7C

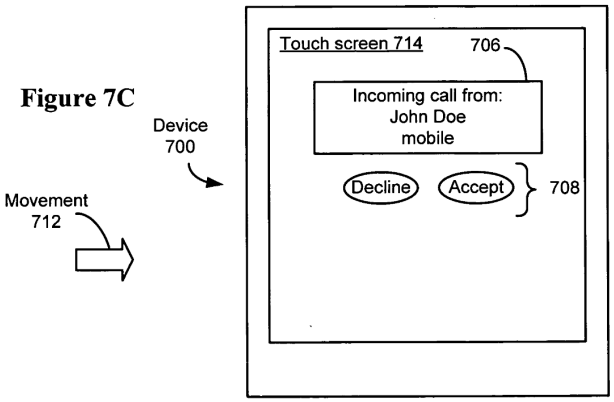


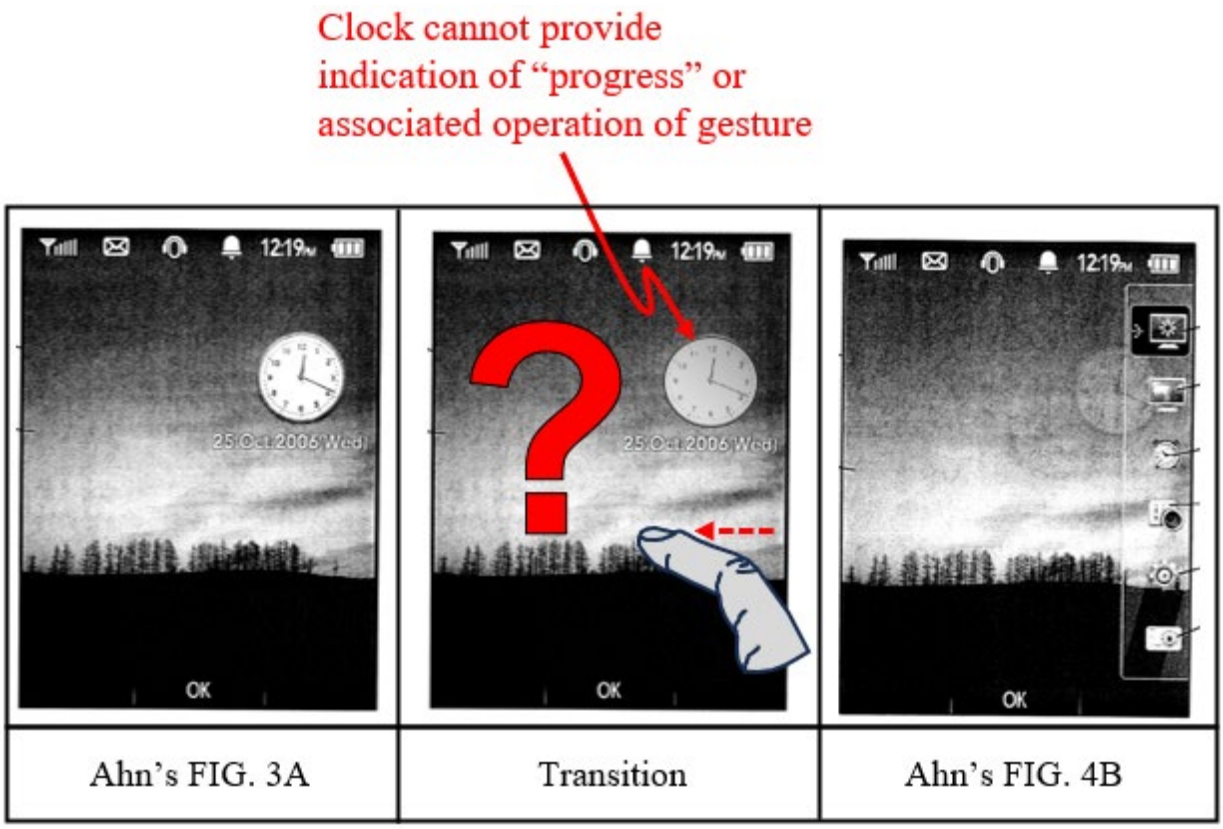
Figure 7D

89. Thus, a user is given feedback of the progress of an "unlock action" by the distance the indicator 702 has moved relative to the total length of the channel 704, and by virtual buttons 708—associated with the second user-interface state—*increasing* in optical intensity to an opaque end point with "solid outlines." EX1005, [0090]-[0093]; *see also id.*, [0087] ("the indication of progress may be defined in terms of the distance between the two edges because the distance remaining objectively measures how much further the user has to move her finger to complete the gesture"). Chaudhri-842's visual feedback is thus provided only because the selectable virtual buttons 708 of the second user-interface state *increase* in optical intensity.

90. A POSITA would have understood that this visual feedback is absent from Dr. Terveen's proposed modification of Ahn. *See* EX1003, ¶101. In Dr. Terveen's modification, the user cannot compare its gesture to some visual end point and, instead, would see only in abstract the alleged "blurring" of the clock widget.

But that change in appearance of the clock widget offers no indication of progress, at least because its end state cannot be perceived or predicted based on that alleged change in appearance. Nor does alleged "blurring" of the clock widget direct a user to a selectable object as in Chaudri-842, because a user would not be able to interact with Ahn's now "blurred" clock widget once the menu is displayed over the top of that clock widget.

91. These issues can be illustrated in the below figure that depicts Dr. Terveen's alleged modification of Ahn in which the alleged optical intensity of the clock widget decreases as a function of Ahn's "touch and drag" gesture. As explained above, a POSITA would not have arrived at this modification based on Chaudhri-842's teachings. Nevertheless, the proposed modification cannot provide the indication of progress that Dr. Terveen's alleges. As seen by the below sequence of figures, a device transitions from a Standby Screen (corresponding to Ahn's FIG. 3A) to a Menu Screen (corresponding to Ahn's FIG. 4B) in response to a touch and drag gesture as described in Ahn. *See* EX.003, ¶101. The touch and drag gesture is shown in the middle figures (Transition), which mimic Ahn's FIGs. 13(a)-(b).



92. As is apparent in this sequence of figures (and Ahn's FIG. 13B), the clock widget remains visible throughout the transition. This increase in the alleged "blur" of the clock widget, from left to right in the images above, does not suggest to a user *when* or *if* the menu 420 will appear as in Ahn's FIG. 4B. . Nor is this end-state otherwise related to the alteration of the clock widget in any manner that is perceivable by a user. For example, there is no frame of reference—like the images and channel with defined end points in Chaudhri-842—to discern any progress, relative to its required distance, of the gesture based on the changing appearance of the clock widget. As such, the alleged "blurring" *during* the touch and drag operation would not provide any indication of (1) how much of the gesture is

completed, or (2) how much of the gesture is remaining. For example, it is impossible to tell the progress of the gesture in Transition 1 and 2 and where the finger is required to travel to arrive at the end-state. This is in contrast to Chaudhri-842's operation as illustrated in FIGs. 7A-7D above. *See* EX1005, ¶¶[0088]-[0090] ("If the user input condition includes a predefined gesture, then the indication of progress of the gesture may be defined in terms of how much of the gesture is completed and ***how much of the gesture is remaining***"). In other words, it is impossible to tell from the "blurring" how much more "blurring" or swiping is needed before the menu 420 associated with the end-state appears.

93. Dr. Terveen fails to provide any actual explanation as to how the asserted change in appearance of the *background* clock widget would allow a user to gauge a "progress" of the left drag gesture in Ahn, and it would not. Rather, this change in appearance would indicate only that a gesture is happening, but the user *already* knows that much because the user *is performing* that gesture. As in Ahn alone, the user would only know the gesture is complete once the menu list 1300/420 appears, ***upon completion of the gesture***. *Supra*, §VII.A.1.b). Accordingly, a POSITA would have understood that Dr. Terveen's purported modification would not provide any indication of a user's progress in completing Ahn's "touch and drag" gesture because, unlike Chaudhri-842, the Petition's proposed UI shows no indication of progress toward a clearly visible end goal. *Id.* Therefore, a POSITA

seeking to provide visual feedback of the progress of a user's gesture in Ahn would not have arrived at Dr. Terveen's proposed modification.

(2) Dr. Terveen's modification does not help differentiate between objects

94. Dr. Terveen's assertion that "utilizing this progressive translucency or blurring effect would have helped differentiate between the user-interface object (e.g., the menu list 1300) and the background (e.g., the standby screen and/or clock widget)" is misguided and is not supported by evidence. EX1003, ¶101.

95. To start and most importantly, Ahn's menu is not displayed until ***after*** the gesture is completed. *Supra*, §VII.A.1.b). Thus, in Dr. Terveen's modification of Ahn, the menu would not be displayed while the appearance of Ahn's clock widget is progressively changing. Without the display of the menu there can be no differentiation between the menu and the clock widget, as Dr. Terveen alleges and Dr. Terveen does not articulate a modification or a motivation to change Ahn's menu 1300 to slide in as the touch and drag gesture is being performed. Once the menu is displayed, Ahn already subjects the clock widget to the alleged change in appearance. EX1004, FIG. 13(b). Thus, this alleged 'differentiation' motivation offers no change from the 'differentiation' already provided by Ahn. That is, the alleged motivation provides no actual solution and is based on a problem that does not exist.

96. Further, there is nothing in Chaudhri that describes using optical intensity to provide a distinction between *overlapping* UI objects. Additionally, a POSITA would understand the ability to differentiate between the menu and the clock widget in Ahn is far more a function of the amount of (total percentage of) *difference* in optical intensity than the progressiveness of any change in optical intensity of the clock widget when the menu is not yet present. In fact, the portion of Chaudhri-842 cited by Dr. Terveen ([0085]) does not even reference any *progressive change* in optical intensity. EX1005, ¶[0085] (defining "***the*** optical intensity"—not a progressive change in optical intensity—as "the visual differentiation between the user-interface object and the background"); EX1003, ¶101 (citing EX1005, ¶[0085]). Thus, paragraph [0085] of Chaudhri-842 describes that it is the difference in opacity between the UI element and the background that results in the visual differentiation of Chaudhri-842. Accordingly, a POSITA reading Chaudhri-842 would have understood that progressively changing the appearance of Ahn's background would not improve visual differentiation of Ahn's menu 1300 because (1) the alleged "blurring" of Ahn's background is already present when menu 1300 is visible, and (2) progressively "blurring" that background while menu 1300 is *not visible* would not help visually differentiate that menu 1300 from the background.

(3) Dr. Terveen's generic motivations also fail

97. Dr. Terveen's mapping of Limitation [2.d] also references Section VI.A.3 of the Petition as support for its assertion that "a POSITA would have found it obvious to apply Chaudhri '842's user interface state transition techniques—particularly the use of transitioning optical intensity to provide visual feedback regarding the progress of a transition between user interface states as a result of detecting a user's input of a predefined gesture—in the context of Ahn's mobile communication terminal 100." EX1003, ¶97. Foundationally, this sentence is so broad as to be meaningless and, as explained above, Dr. Terveen's modification does not "provide visual feedback regarding the progress of a transition between user interface states." *Supra*, §VII.A.2.c)(1)-(2). This assertion fails to assert that, much less explain why, Chaudhri-842's teachings would be applied in a way that would meet the claims. Nevertheless, the four motivations alleged in that referenced section also fail to lead a POSITA to Dr. Terveen's alleged combination. *See*, EX1003, ¶¶63-67.

98. First, Dr. Terveen asserts generally that "Chaudhri '842 provides one example of implementation details that are lacking for a feature otherwise disclosed in Ahn." EX1003, ¶63. However, for the reasons explained above in Sections VII.A.2.a)-b), Chaudhri-842 discloses varying the optical intensity of UI elements (not the background), and discloses increasing the optical intensity of UI

elements associated with a second user-interface state (not decreasing optical intensity of a background associated with a first user-interface state). As such, Dr. Terveen's proposed modifications to Ahn do not implement the alleged "implementation details" of Chaudhri-842's. Instead, Dr. Terveen modifies Ahn in a manner that is contrary to Chaudhri-842's "implementation details" and provides no explanation for doing so.

99. Second, Dr. Terveen asserts generally that "Chaudhri '842 teaches that the 'change in optical intensity of the user-interface objects provides a user with sensory feedback of the progress in transitioning between user interface states.'" EX1003, ¶65. But this is the same motivation that Dr. Terveen relies upon in his analysis of Limitation [2.d] (*see e.g.,* EX1003, ¶100), and therefore fails for the same reasons explained in Section VII.A.2.c)(1) above.

100. Third, Dr. Terveen asserts generally that "a POSITA would have known that transparency, translucency/blurring, and other 'focus and context' techniques may be utilized in user interfaces to help draw a user's attention to the most relevant part of a user interface." EX1003, ¶66. This too is the same "visual differentiation" motivation parroted specifically for Limitation [2.d], and therefore fails for the same reasons explained in Section VII.A.2.c)(2).

101. Fourth, Dr. Terveen asserts generally that "POSITA would have known that varying optical intensity for a user interface object (*e.g.*, the blurring of Ahn's

clock widget) as a function of the magnitude of the user's touch and drag gesture would have been one of a limited number of ways of implementing the blurring effect that's shown in FIGS. 4B, 10, and 13B of Ahn." EX1003, ¶67. Dr. Terveen continues that "[e]ither a POSITA could have implemented the blurring effect in a binary fashion (e.g., toggling instantaneously between unblurred and blurred) or progressively varied the blur as a function of the user's gesture, as taught by Chaudhri '842." EX1003, ¶67. Here, Dr. Terveen abandons his first three motivations and, as a last-ditch fallback, constructs a false binary choice of its own by framing the decision as simply either/or. Not only is this motivation divorced from the teachings of Ahn or Chaudhri-842, but it is also belied by Dr. Terveen's own arguments based on the various reasons and considerations driving a POSITA's decision of whether, when, and how to alter the appearance of Ahn's background. *See, e.g.*, EX1003, ¶¶62-67.

102. As explained in Section VII.A.1.b) above, Ahn's menu 1300 is not displayed until after the "touch and drag operation" is complete. As such, varying the optical intensity of Ahn's background *during* the touch and drag operation is pointless because there is simply no menu 1300 displayed to show progress toward or to visually differentiate from the background. Weighing against doing so is the fact that varying the optical intensity of the background is not without cost. In particular, *progressively* varying the optical intensity of the background with no

differentiating foreground menu present in a touch input device 10 like Ahn's would also cause needless additional use of the limited processing power and memory bandwidth of the mobile device and as well as increased draw from the battery. In Dr. Terveen's asserted combination, progressively varying the optical intensity of the background while the menu 1300 is not displayed would serve no purpose. As such, even assuming Dr. Terveen's false binary, a POSITA would have chosen not to expend resources to make that modification to Ahn.

103. For the reasons explained above, Dr. Terveen's modification would not achieve any of the purported benefits alleged to motivate Dr. Terveen's modifications of Ahn.

VIII. GROUND 1B: DR. TERVEEN FAILS TO ESTABLISH OBVIOUSNESS OF CLAIM 1 OVER AHN, CHAUDHRI, AND SHIPLACOFF

104. Similar to claim 2, claim 1 recites "displaying an object and at least one other object" ([1f]), "detecting at least part of a gesture on the display," ([1g]) and "during detection of at least a portion of the gesture before a completion thereof is detected, blur, based on a change in a magnitude of the gesture being detected on the display, at least a portion of the at least one other object" ([1h]).

105. Dr. Terveen incorporates his analysis of Limitations [2b]-[2d] from Ground 1A into its Ground 1B for independent claim 1. EX1003, ¶¶369-371. Dr. Terveen provides no additional explanation or independent analysis for Limitations

[1f], [1g], and [1h]. EX1003, ¶¶369-371. Accordingly, Ground 1B must fail for at least the same reasons as Ground 1A.

IX. IPR2024-01116: DR. TERVEEN FAILS TO ESTABLISH OBVIOUSNESS OF CLAIM 225 OVER AHN AND CHAUDHRI-842

106. Similar to claim 2, claim 225 recites "in response to the detection of the at least part of the gesture without a completion of the gesture being detected, blurring, based on a change in a magnitude of the gesture being detected on the touch screen, at least a portion of at least one other object" ([225d]). *Supra*, §V.A

107. Dr. Terveen incorporates his analysis of Limitations [2b]-[2d] from Ground 1A into his analysis for independent claim 225. EX1003, ¶¶302-304. Dr. Terveen provides no additional explanation or independent analysis for Limitations [225b], [25c], and [225d]. EX1003, ¶¶302-304. Accordingly, Dr. Terveen's arguments for claim 225 must fail for at least the same reasons as claim 2.

X. THE REMAINING IPR PETITIONS FAIL TO ESTABLISH OBVIOUSNESS OF CLAIM 2 OVER AHN AND CHAUDHRI-842

108. As discussed above, the other six IPR Petitions advance substantially identical arguments as IPR2024-01119 for claim 2. As explained in my Section VII, the IPR2024-01119 Petition and Dr. Terveen's corresponding arguments do not establish claim 2 as obvious in light of the purposed Ahn-Chaudhri combination. For at least the same reasons, the remaining IPR petitions also fail to claim 2 as

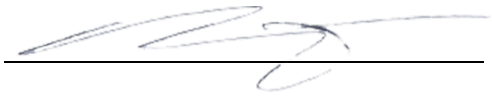
obvious in light of the purposed Ahn-Chaudhri combination. Accordingly, all seven petitions are deficient.

XI. CONCLUSION

109. All statements made herein of my own knowledge are true, all statements made herein on information and belief are believed to be true, and these statements were made with the knowledge that willful false statement and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

Respectfully submitted,

Dated: November 14, 2024



Marc Davis, Ph.D.