

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner

v.

SMITH INTERFACE TECHNOLOGIES, LLC

Patent Owner

Case IPR2024-01085

Patent No. 10,649,580

DECLARATION OF MARC DAVIS, Ph.D.

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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 this inter partes review (“IPR”) proceeding 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 EX2002 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 POSITA at the time that the invention of the '580 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. 10,649,580 (referred to as “the ’580 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 21 below.

21. More particularly, I have been informed that this proceeding is currently at a preliminary stage during which the Patent Trial and Appeal Board (the Board) will decide whether the Petition establishes a reasonable likelihood of at least one claim of the ’580 Patent being invalid. At this preliminary stage, I have been asked to focus my analysis on the Petition’s proposed invalidity theories for the ’589 Patent’s independent claims 1, 22, and 58.

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

23. 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

24. 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. Cockburn’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 26 of Dr. Cockburn’s declaration (EX1003) as of August 5, 2011. This POSITA would have bachelor’s degree in computer science, computer engineering, electrical engineering, human-computer interaction, or a related field, and would have had at least two years of relevant work experience in the design and development of graphical user interfaces (GUIs), human-computer interfaces, or equivalents thereof. Less work experience may be compensated by a higher level of education and vice versa. My education, technical expertise and

personal knowledge discussed in Section II shows that I meet the qualifications of a POSITA.

V. OVERVIEW OF THE '580 PATENT

25. The '580 Patent “generally relate[s] to touch screens.” EX1001, 1:36–37. Specifically, the '580 Patent features a camera on a mobile device, zooming functionality, various virtual display layers, implementation of translucency, and a display of a plurality of markings in response to a touch exceeding a threshold. *See* EX1001, Claims 1, 22, and 58.

26. The '580 Patent explains that “[i]n various embodiments, a 3D layered user interface may make use of multiple virtual display layers,” and “[i]n the context of the present description, a virtual display layer refers to a collection of display elements which have all been assigned the same apparent depth within the 3D layered user interface.” EX1001, 68:6–11.

27. The '580 Patent further states that “virtual display layers may be given the appearance of depth through the use of 3D depth cues.” EX1001, 68:25–27. Such visual cues “refer[] to an effect, manipulation, transformation, animation, or operation which gives a visual indication of simulated depth. For example, in one embodiment, a 3D depth cue may be a blur operation, such that layers located at successively greater depths may appear blurrier than those closer to the user. In

various embodiments, one or more 3D depth cues may be used to give the appearance of depth to one or more virtual display layers.” EX1001, 68:27–35.

28. Different depth cues may be used for different virtual display layers; depth cues may also “be used in conjunction with a 3D layered user interface implemented in a layered display device, to enhance the layered appearance.” EX1001, 68:36–40.

A. Independent Claims 1, 22, and 58

29. Independent claims 1, 22, and 58 of the ’580 Patent are directed to an electronic device programmed to perform certain functions. *See generally* EX1001. Specifically, claims 1, 22, and 58 include “when” or “in response to” “an aspect of the *touch* being *detected to surpass a threshold*, displaying, via the touch screen, a plurality of markings in a second virtual display layer that appears to have a *lesser depth* than the first virtual display layer, where at least a portion of the second virtual display layer is at least partially translucent so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” *See* Limitations [1h], [22d], [58c] (emphasis added).

30. Additionally, “the at least portion of the second virtual display layer is at least partially translucent so that *a result of the zoom operation* on the at least portion of the contents of the first virtual display layer is visible through the at least

portion of the second virtual display layer.” *See* Limitations [11], [22g], [58g] (emphasis added).

VI. OVERVIEW OF THE PRIOR ART

31. Dr. Cockburn primarily relies on three cited references for his invalidity analysis. *See* EX1003, ¶61 (the Ramos Paper-Ramos Video-Ording combination).

A. Ramos et al., “Zliding: Fluid Zooming and Sliding for High Precision Parameter Manipulation,” *UIST: Proceedings of the ACM Symposium on User Interface Software and Technology*, 2005 (“Ramos Paper”)

32. Ramos Paper is titled “Zliding: Fluid Zooming and Sliding for High Precision Parameter Manipulation,” and “introduces the notion of Zoom Sliding, or *Zliding*, for fluid integrated manipulation of scale (zooming) via pressure input while parameter manipulation within that scale is achieved via x-y cursor movement (sliding).” EX1004, Abstract. Ramos Paper “present[s] the Zlider (Figure 1), a widget that instantiates the Zliding concept.” EX1004, Abstract.

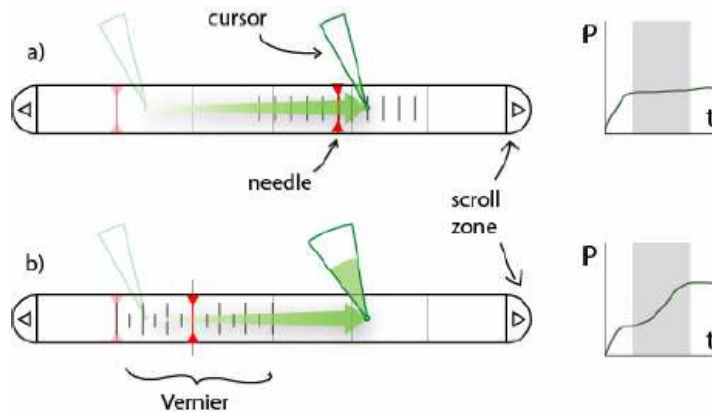


Figure 1: Sliding on the Zlider widget. a) A user manipulates a parameter at coarse granularity by sliding through the control while applying low pressure with the pressure transducer. b) The same x-y sliding action while pressing harder increases the granularity of the parameter space, allowing for more precise parameter manipulation when desired. The graphs on the right plot pressure over time, with the interval when the sliding occurs highlighted.

33. As an interactive widget, Zlider offers high precision parameter manipulation and immediate feedback for continuous, rather than discrete, parameter adjustments. EX1004, 1. Ramos Paper evaluates “three different input techniques for cursor position,” but ultimately elects the “stylus with integrated isometric pressure sensing tip” as the favored choice. EX1004, Abstract. “The scale factor of the Zlider is adjusted by changes in pressure at the stylus’ tip, and the stylus’ x-y position enables sliding of the parameter’s value.” EX1004, 3.

34. The Zlider also features “a clutching mechanism that enables users to completely stabilize pressure and hence lock the zoom level while sliding.” EX1004, 3. Clutching is activated “by sliding the cursor away from the Zlider’s working rectangle,” and declutching occurs by “[r]entering the working rectangle.” EX1004, 3. “While clutched, users can still slide outside the working rectangle []

but the widget maintains its scale at the last reported value regardless of pressure variations.” EX1004, 3.

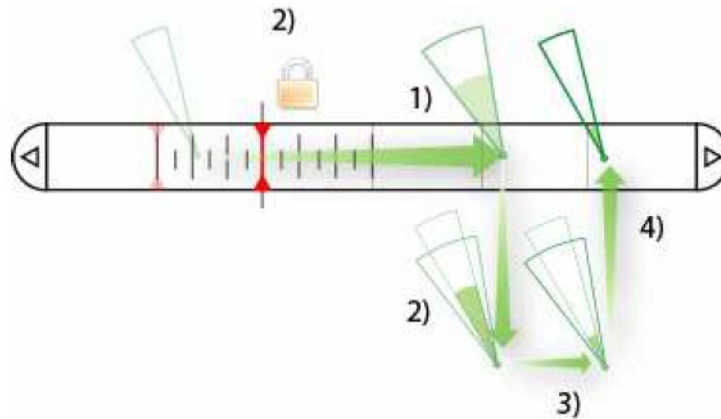


Figure 4: Clutching the zoom level

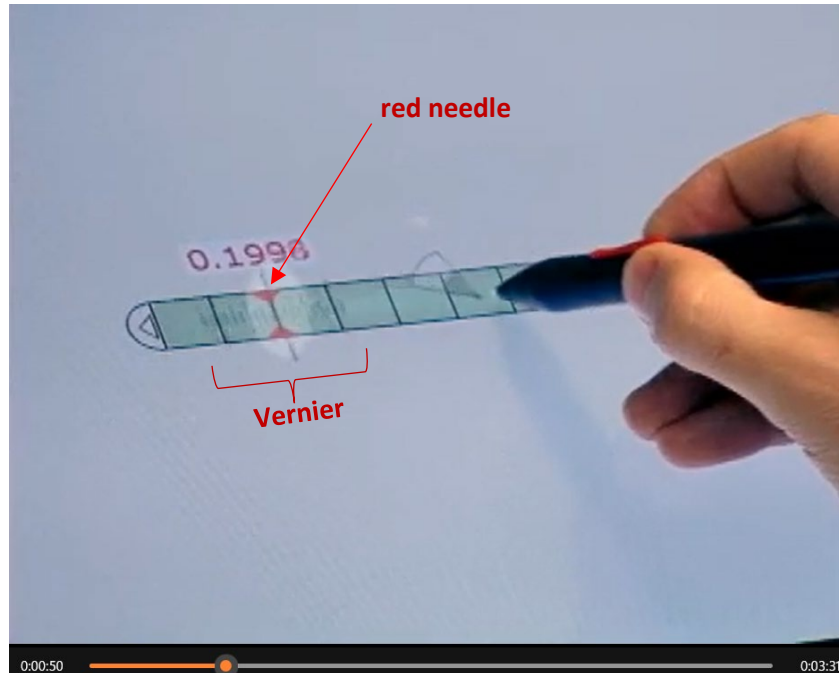
B. Zooming & Zliding (Gonzalo Ramos), December 28, 2007, available at <https://www.youtube.com/watch?v=EcE3XBytN-U> (“Ramos Video”)

35. The Ramos Video illustrates the use and functionality of the Zlider described in the Ramos Paper.

36. The Zlider “behaves like a regular selector with the difference that users can, while dragging or sliding, explicitly adjust the precision they wish to interact at or zoom by changing the amount of pressure they apply with an input device.” EX1005, 0:14–0:27.

37. The Zlider uses a pressure cursor that “provides users with a real-time visual indicator of the pressure they are applying with the input device. As the user slides across the working area, a red needle indicates the parameter’s magnitude relative to its minimum and maximum values at the extremes of the widget. The

Zlider also displays a Vernier, which adapts its grid spacing depending on the widget's current precision." EX1005, 0:27-0:59.

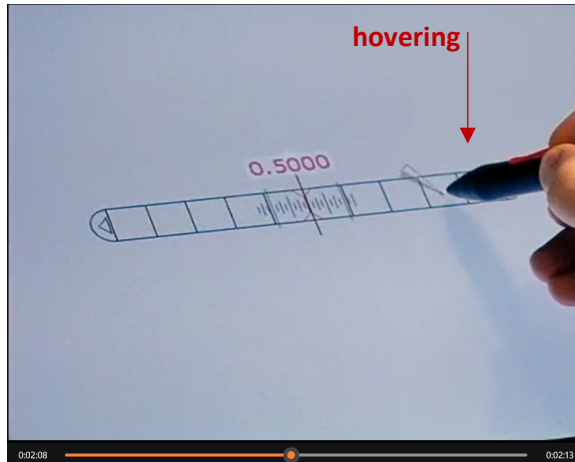


EX1005, 0:50 (Zlider) (annotated)

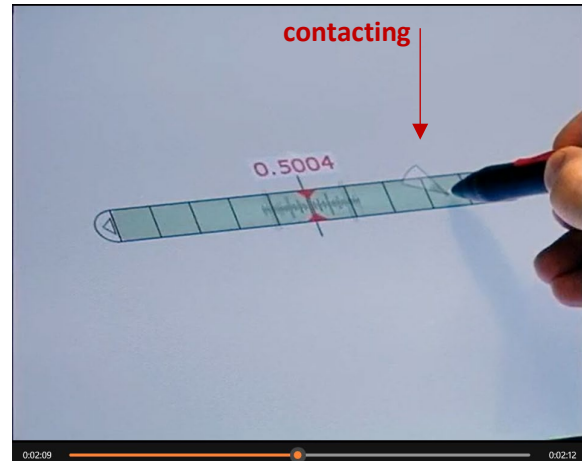
38. In addition to the clutching mechanism described above in the Ramos Paper, the Ramos Video explains that “[u]sers can also hold the slider’s current scale by using the hover region of the input device. This region allows them to perform micro parameter adjustments without the need to reacquire a precision level as well as to reposition the cursor as needed.” EX1005, 2:00–2:16.

39. Further, “[t]he hover region of the input device also allows users to reach arbitrarily high precision levels. Users do this by repeatedly alternating between increasing pressure and lifting the stylus while remaining in tracking

distance. By leaving and re-entering the Zlider's working area while in the hover region, users can also decrease the widget's precision." EX1005, 2:19-2:45.



EX1005, 2:08 (annotated) (hovering)



EX1005, 2:09 (annotated) (contacting)

C. U.S. Patent App. No. 2008/0094356 ("Ording")

40. Ording is titled "Methods For Determining A Cursor Position From A Finger Contact With A Touch Screen Display," and relates "to portable devices that adaptively determine a cursor position from a finger contact with a touch screen display and then perform operations according to the cursor position." EX1006, [0003].

41. Ording developed its methods to address the difficulty in navigating compact mobile devices forced to support increasing functionality but armed with outdated user interfaces such as physical pushbuttons. EX1006, [0004]–[0007]. Specifically, it addresses challenges in accurately identifying and responding to user input on a compact screen, which is essential for improving usability on multifunctional mobile devices. EX1006, [0004], [0006].

42. The invention includes a method where the device identifies the contact area of a user's finger on the touch screen and determines a cursor position based partially on this contact area. EX1006, [0009]. Other factors influencing cursor positioning include distances to nearby user interface elements and specific "activation susceptibility" values for each element, which improve the precision and accuracy of the touch input. EX1006, [0009]. This method allows for dynamic adaptation to different user interactions, improving the user experience by reducing accidental selections and enhancing ease of use. *See* EX1006, [0007].

43. The patent further covers the application of this cursor positioning method to various device functions, such as "telephoning, video conferencing, e-mailing, instant messaging, blogging, digital photographing, digital videoing, web browsing, digital music playing, and/or digital video playing." EX1006, [0008].

VII. ALL GROUNDS: DR. COCKBURN FAILS TO SHOW OBVIOUSNESS OF CLAIMS 1, 22, AND 58 OVER THE ALLEGED RAMOS PAPER, RAMOS VIDEO, AND ORDING DEVICE (PROD)

A. [1h], [22d], [58c]: [when/in response to] an aspect of the touch [is/being] detected to surpass a threshold, display[ing], via the touch screen, a plurality of markings in a second virtual display layer

44. Limitation [1h] recites: "when an aspect of the touch is detected to surpass a threshold, display, via the touch screen, a plurality of markings in a second virtual display layer [...]."

45. Limitations [22d] and [58c] similarly recite: “in response to an aspect of the touch being detected to surpass a threshold, display[ing], via the touch screen, a plurality of markings in a second virtual display layer [...].”

46. For claim 1, “the touch” finds its antecedent in Limitation [1g]: “detect, via the touch screen, at least a portion of touch on the least one user interface element.” *See also* Limitations [22c], [58b].

1. A “touch” is a touch; mere proximity is not a “touch”

47. For Limitation [1g], Dr. Cockburn pretends there is no difference between a stylus not touching (hovering within a threshold distance of) and touching (actually contacting) the screen.

48. First, Dr. Cockburn asserts that the “[t]he Ramos Video further shows several examples of the device detecting *at least a portion of a touch* on the working area (at least one user interface element) displayed on the touch screen, as evidenced by the ‘before’ and ‘after’ of the displays, shown below.” EX1003, ¶79 (emphasis added).

49. Dr. Cockburn then shows a number of screenshots from the Ramos Video, without addressing the elephant in the room—i.e., that the “after” display of the Vernier is responsive to the stylus hovering within a threshold distance of the screen, *not* to the stylus actually touching the screen.

50. Dr. Cockburn next asserts—without explanation—that a “POSITA would have understood that a touch in the Ramos Paper and Ramos Video includes both contact with the touch screen *and meeting a threshold proximity* [without contact] between the stylus and the touch screen.” EX1003, ¶80 (emphasis added). But that’s nonsensical: what distinguishes proximity from a touch is that a touch includes contact, while proximity does not.

51. The only support Dr. Cockburn cites for the conclusion that merely getting close could be a “touch” is a (misquoted) passage in the ’580 Patent. Dr. Cockburn contends that “the ’580 Patent explains that ‘contact pressure level may be represented by a touch state,’ which ‘refers to a predefined subset of the range of measurable contact pressures,’ where the ‘lowest touch state may require some form of proximity,’” and therefore the “PROD teaches and/or renders obvious detecting at least a portion of a touch (e.g., proximity).” EX1003, ¶80 (quoting EX1001, 17:22–36).

52. But Dr. Cockburn overlooks the most important piece of that passage—i.e., that the “lowest touch state” is not a little touch; it is explicitly “**no touch**.” EX1001, 17:25–29 (emphasis added).¹ Stated another way, the cited passage of the ’580 Patent suggests that some proximity is required before even registering the “no

¹ Aspects of a *touch* are not limited to the *touch states* defined in the specification.

touch” touch state (which is logical, as movements farther away may not even be indicative that a touch may be likely).

53. Thus, the very passage Dr. Cockburn cites to suggests that an absence of touch might still be a touch, shows exactly the opposite—that proximity is only relevant when there is “no touch.” EX1001, 17:22–36. As such, Dr. Cockburn’s attempt to treat “no touch” as a “touch” is wholly unsupported.

54. Further, interpreting “touch” to include a lack of touch (i.e. “proximity”) would not make sense in the context of the challenged claims (and those that depend therefrom) as the claims explicitly state: “detect, via the touch screen, at least a portion of touch on the least one user interface element.” EX1001, Claim 1 (emphasis added). The ’580 Patent makes it clear that “a *touch* event refers to an event in which an implement of interaction comes *into contact* with an interaction surface.” EX1001, 52:48–50 (emphasis added).

2. Ramos Paper and Ramos Video display their Vernier in response to a hover—not touch

55. For Limitation [1h], Dr. Cockburn contends that “display[ing], via the touch screen, a plurality of markings in a second virtual display layer” is met by Ramos Paper and Ramos Video’s display of their Vernier. EX1003, ¶86 (“in response to determining that an aspect of the touch (e.g., a duration or distance of a touch on Ording’s touch screen) surpasses a threshold (e.g., a time or distance

threshold, taught or suggested by Ording), the Vernier of the Zlider, as taught by Ramos Paper and Ramos Video, is displayed on the touch screen.”).

56. But Dr. Cockburn glosses over the fact that Ramos Paper and Ramos Video do **not** display their Vernier in response to a touch, and fails to articulate any motivation to change that foundation.

57. First, Dr. Cockburn explicitly recognizes that “Ramos Paper and Ramos Video similarly teach or suggest the use of a threshold associated with a detected aspect of a touch: when an aspect of the touch is detected to surpass a threshold (i.e., the signals associated with the hover threshold described further below) when using the Zlider, the Vernier is displayed on the touchscreen.” EX1003, ¶85 (citing EX1005, 0:14, 3:10–3:11).

58. Dr. Cockburn further states that a “POSITA would have understood or found obvious that the tracking state is activated when signals from the stylus exceed a threshold (i.e., the stylus is ***close enough to the touch surface*** to be registered as movement ***near the surface***).” EX1003, ¶85 (emphasis added).

59. Thus, Ramos Paper and Ramos Video display their Vernier in response to the stylus coming near the display, **not** in response to the stylus actually touching the display.

60. Second, despite arguing generally that it would have been obvious in view of Ording to add a duration threshold to the Ramos Paper and Ramos Video,

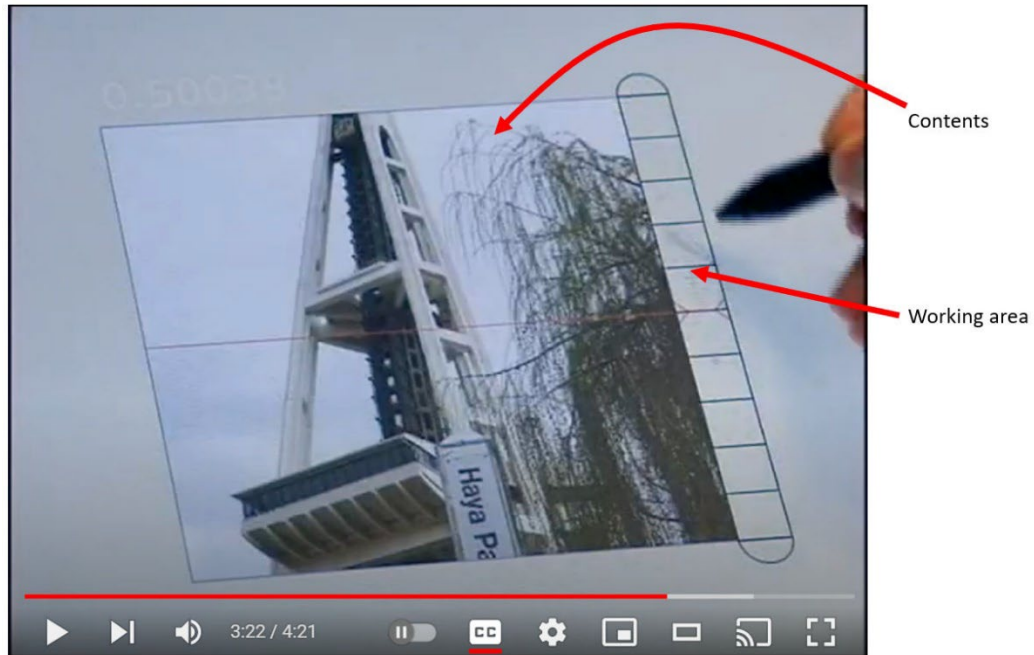
Dr. Cockburn never articulates any theory (much less motivation) to modify the Ramos references to display the Vernier in response to touch rather than mere proximity. *See* EX1003, ¶84.

61. Thus, even if the Ramos Paper and/or Ramos Video were modified to include a duration threshold (purportedly to avoid inadvertent activations), Ramos would still display the Vernier in response to a hover, *not* “when [in response to] an aspect of *the touch* is [being] detected to surpass a threshold.”

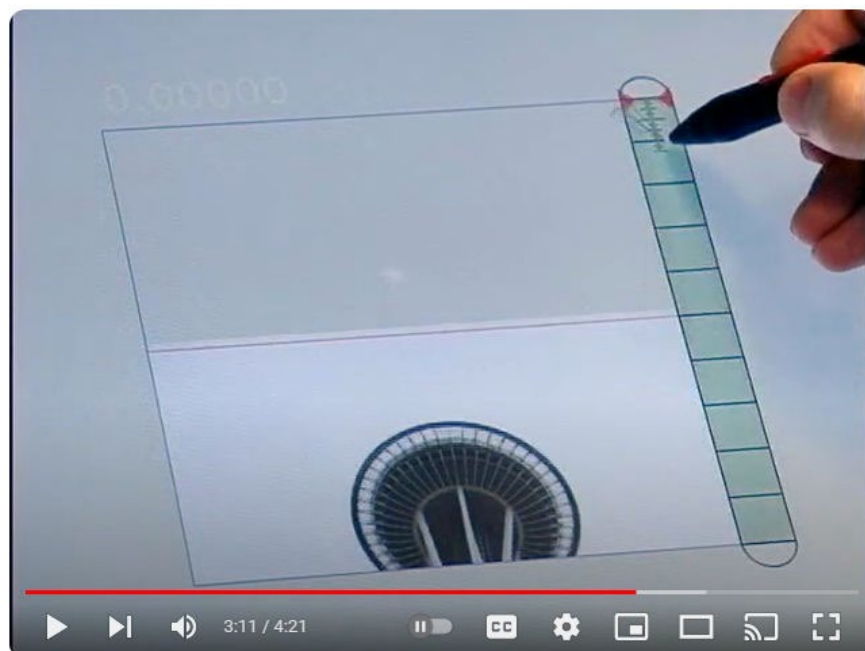
B. [1i], [22d], [58c]: at least a portion of the second virtual display layer is at least partially translucent

62. Limitations [1h], [1i], [22d], and [58c] recite “a plurality of markings in a second virtual display layer that appears to have a lesser depth than the first virtual display layer, where at least a portion of the second virtual display layer is at least partially translucent.” Limitations [1i], [22g], and [58g] recite the latter part, specifically “at least [a] portion of the second virtual display layer is at least partially translucent.” Dr Cockburn, however, fails to establish obviousness as to these limitations.

63. Dr Cockburn maps to the subject image as the “contents” in the alleged first virtual display layer. *See, e.g.*, EX1003, ¶74.



64. And Dr. Cockburn contends that the “contents” are behind the “working area” of the Zlider next to the image (EX1003, ¶74), such that “the plurality of markings are displayed on a second virtual layer.” EX1003, ¶87; *see also* EX1003, ¶88 (citing EX1005, 3:11).



65. Limitations [1i], [11], [22d], [22g], [58c], and [58g] also require that at least a portion of the second virtual display layer is partially *translucent*. See Pet., vi, vii, x, xii, xiii. Dr. Cockburn offers two mappings to meet these limitations, both of which are internally inconsistent and fail to meet the recited combination of these claim limitations.

1. Dr. Cockburn’s first mapping relies on a semitransparent element that is not in the second virtual display layer

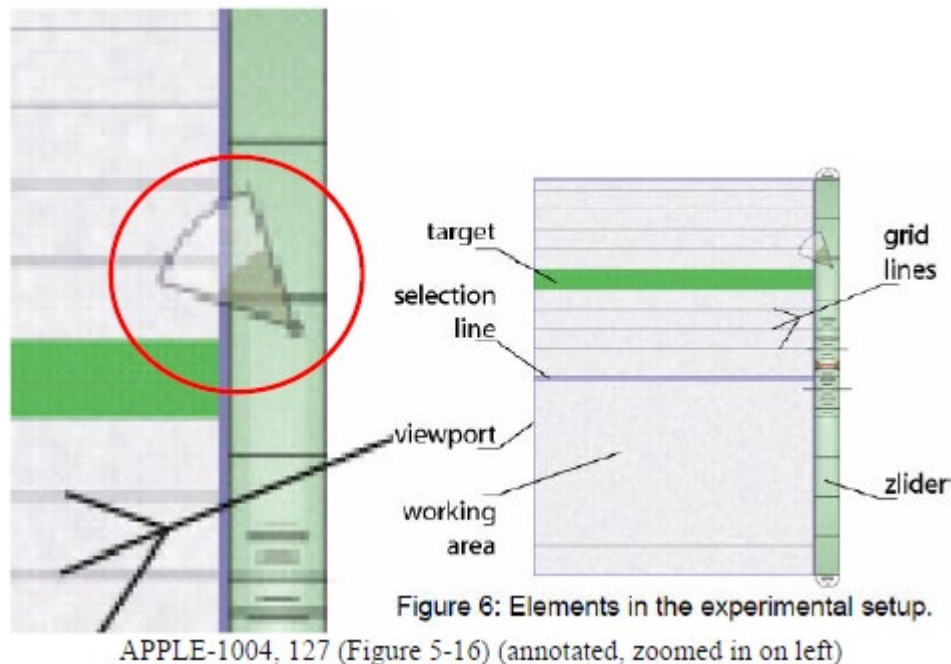
66. Dr. Cockburn’s first mapping fails to show a partially translucent second virtual display layer that appears to have a lesser depth than the first virtual display layer.

67. In addition to the “plurality of markings in a second virtual display layer that appears to have a lesser depth than the first virtual display layer,” Limitations [11], [22g], and [58g] also require that “at least [a] portion of the second virtual display layer is at least partially translucent.”

68. For the “at least partially translucent” feature, Dr. Cockburn points to the “semi-translucent” aspect of the pressure cursor in the Ramos Paper as meeting the “partially translucent” element in Limitations [1i], [11], [22d], [22g], [58c], and [58g]. EX1003, ¶90.

69. Specifically, Dr. Cockburn points to Figure 6 (inset below, as excerpted and annotated by Dr. Cockburn) of the Ramos Paper showing the “pressure cursor”

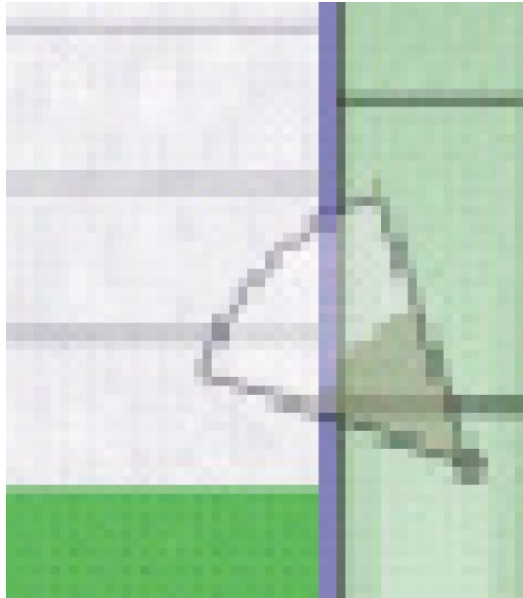
as “semi-translucent, as evidenced by the grid lines visible through the cursor.” EX1003, ¶90. Dr. Cockburn then cites to Figure 6 (inset below) of the Ramos Paper for support that “the ‘pressure cursor’ of the Zlider is displayed in a second layer.” EX1003, ¶91.



70. However, the translucency of the pressure cursor cannot meet the requirement that “at least a portion of the second virtual display layer is at least partially translucent” because the pressure cursor is plainly shown to be **above** the Zlider. *See also* EX1003, ¶91 (“[the pressure cursor] is always above, for example, the image being displayed and manipulated by the Zlider) along with other components of the Zlider (e.g., working area of the Vernier).”).

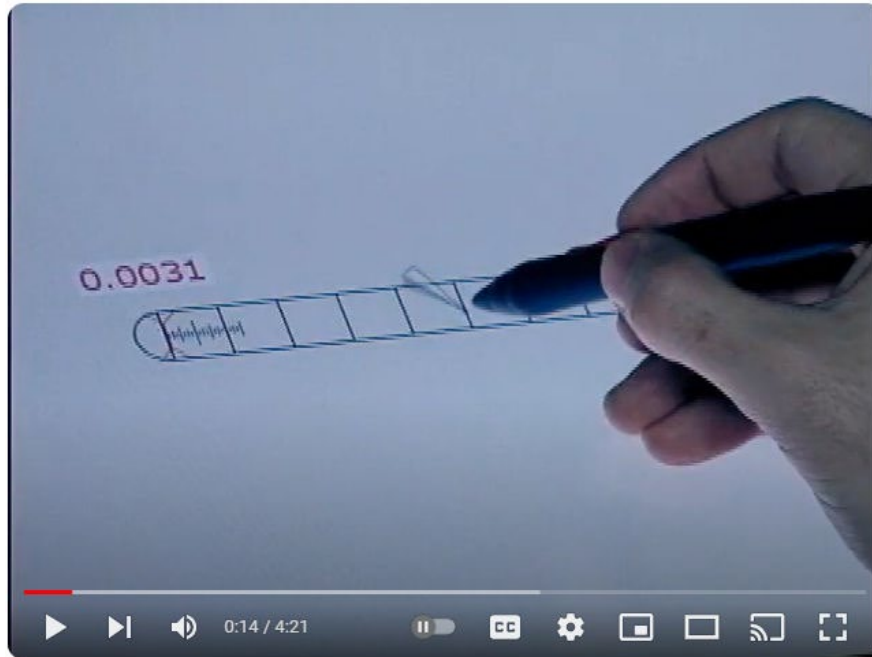
71. Specifically, the translucency of the pressure cursor changes the appearance of both the alleged content (which Dr. Cockburn identifies as being in a

first virtual display layer) and the Zlider widget (which Dr. Cockburn identifies as being in a second virtual display layer).

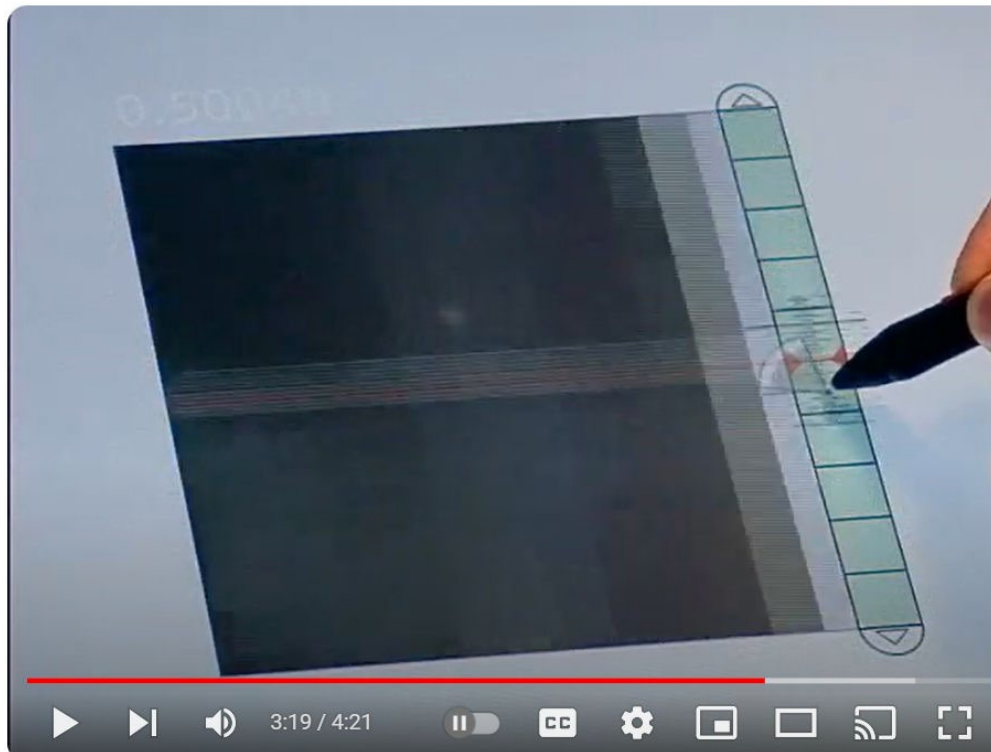


EX1004, Fig. 5 (excerpt).

72. The same can be seen in the Ramos Video, in which the pressure cursor plainly casts a shadow over both the Zlider and the adjacent area just before the stylus contacts the screen. EX1005, 0:14 (cited at EX1003, ¶49).



73. The same is true once the stylus contacts the screen, as can be seen in another part of the Ramos Video inset below.



EX1005, 3:19 (cited at EX1003, ¶52).

74. As shown—and consistent with Figure 6 of the Ramos Paper—the translucency of parts of the pressure cursor changes the appearance of both the markings of the Vernier and the underlying content—plainly indicating that the pressure cursor is in a different virtual display layer above the markings.

75. Thus, the pressure cursor is above or at a lesser depth than the markings of the Vernier. Stated another way, the Ramos Paper and the Ramos Video illustrate the pressure cursor in a different virtual display layer than the alleged markings (i.e., Vernier) of the Zlider widget. *See also* EX1001, 68:7–11 (“a virtual display layer refers to a collection of display elements which have all been assigned the same apparent depth within the 3D layered user interface”).²

² Dr. Cockburn also identifies an aspect of a different, color-picker widget in the Ramos Video as showing alleged translucency above the content. EX1003, ¶91–92. However, Dr. Cockburn fails to explain any reason it would have been obvious to include that in Ramos’ Zlider, much less in a way that would position that alleged translucency in a second virtual display layer as required by Limitations [1i], [22d], and [58c].

76. Thus, if the alleged markings³ are in the second virtual layer, then the pressure cursor is *not* in the second virtual display layer, and Dr. Cockburn’s mapping fails to show “at least a portion of the second virtual display layer is at least partially translucent.”

77. If instead the pressure cursor is in the second virtual display layer, then the alleged markings are not, meaning Dr. Cockburn’s mapping fails to show “at least a portion of the second virtual display layer is at least partially translucent.”

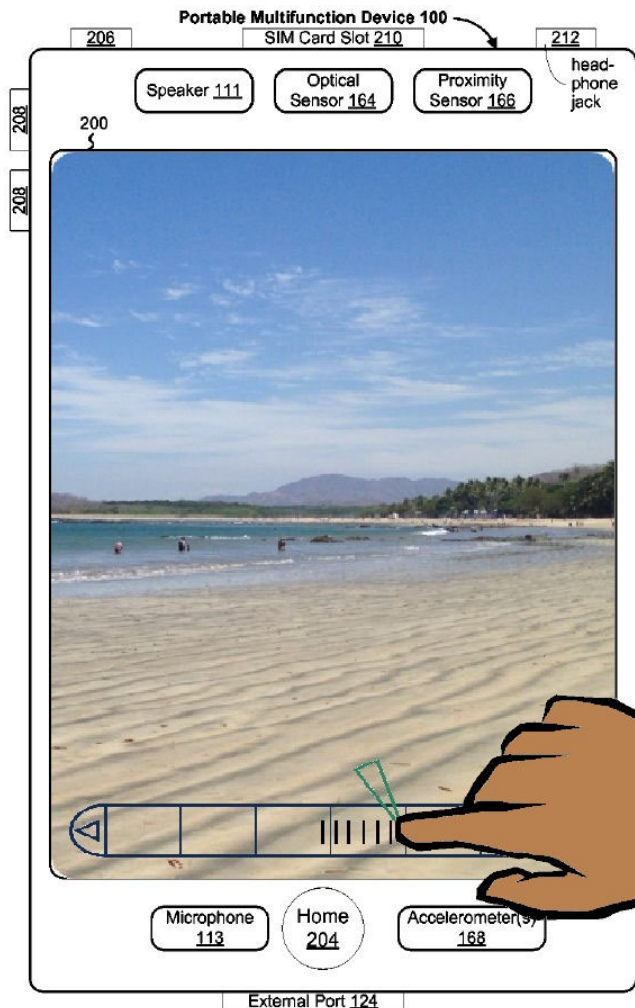
78. Put simply, Limitations as [1h]–[1i], [22d], and [58c] each require the markings and the translucency to both be in the same virtual display layer, and Dr. Cockburn’s first mapping simply does not disclose or suggest this.

³ Dr. Cockburn implies, without directly alleging, that the Ramos Video displays the Vernier’s extended markings in a “semi-transparent manner.” EX1003, ¶57. But the Ramos Video shows the extended markings as opaque. *See* EX1005, 3:19. Further, Dr. Cockburn’s actual mapping to the “at least partially translucent” feature in the claims does not point to these extended markings. *See* EX1003, ¶¶90-93.

2. Dr. Cockburn's second mapping fails to show semitransparency in a second virtual display layer

79. Dr. Cockburn's second mapping also fails to show a partially translucent second virtual display layer at a lesser depth than the first virtual display layer.

80. Dr. Cockburn asserts that it would have been obvious for a POSITA to modify the Zlider in the Ramos Paper and the Ramos Video with the "semitransparent object" in Ording and shows a modified version of Ording with the alleged "semitransparent" version of Ramos' Zlider (inset below). EX1003, ¶¶92–93.



81. But Dr. Cockburn fails to show—much less assert—that the alleged markings (i.e., Ramos’ Vernier) in this combination, would have been in a second virtual display layer. *See also* EX1003, ¶¶92–93 (addressing only semitransparency).

82. Thus, Dr. Cockburn’s second mapping is—at best—incomplete in that it focuses on a single feature of Limitations [1i], [22d], and [58c] to the exclusion of all others, leaving Patent Owner and the Board to guess at the extent to which the

combination may impact the remainder of Dr. Cockburn’s mappings which renders this second mapping insufficient as a matter of law.

83. Moreover, Dr. Cockburn’s alleged motivation for modifying Ramos’ Zlider to be transparent is entirely superficial and conclusory. EX1003, ¶93.

84. Specifically, Dr. Cockburn asserts that “a POSITA would have found it obvious to implement a widget [...] using the well-known approach to provide UI objects as ‘semitransparent[]’[...] [for] the benefit of providing a less intrusive UI element that permits a user to use the Zlider while minimizing the obstruction on the image content caused by the UI element.” EX1003, ¶93.

85. But this “motivation” is so broad as to be meaningless, and utterly fails to consider the particular nature of the Ramos Zlider.

86. For example, making the interior of the Zlider widget transparent—and then overlaying the Zlider on an image—as shown in Dr. Cockburn’s illustrated combination (inset above), would make the markings (i.e., Vernier) in the Ramos Zlider utterly useless whenever the underlying image included dark or otherwise patterned features that would obscure the markings.

87. The problem is readily apparent in the screenshot from the Ramos Video included on page 76 of Dr. Cockburn’s Declaration.



88. As shown, if the interior of the Zlider were made transparent and shifted to the left over the image itself, the markings of the Vernier would be completely illegible, rendering the very core of Ramos' work unusable. As such, not only is this second mapping incomplete, but it is also fundamentally flawed.

89. At base, Dr. Cockburn does not consider or address the impact of the proposed modification or "motivation" on the particular features or functionality of Ramos' work.

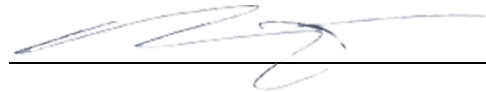
90. Dr. Cockburn therefore fails to show that the PROD combination would disclose or suggest either of Limitations[1i], [11], [22d], [22g], [58c], and [58g].

VIII. CONCLUSION

91. 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: October 30, 2024

A handwritten signature in blue ink, appearing to read 'Marc Davis', is written over a horizontal line.

Marc Davis, Ph.D.