

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

PETITIONER

V.

SMITH INTERFACE TECHNOLOGIES, LLC,

PATENT OWNER

INTER PARTES REVIEW NO. IPR2024-01090
PATENT 10,725,581 B1

DECLARATION OF DR. MARK P. MAHON

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I. INTRODUCTION

1. My name is Mark Mahon. I am over the age of twenty-one (21) years, of sound mind, and capable of making the statements set forth in this Declaration. I am competent to testify about the matters set forth herein. All the facts and statements contained herein are with my personal knowledge, and they are true and correct to the best of my knowledge.

2. I have been asked by Smith Interface Technologies, LLC (“Smith” or “Patent Owner”) to submit this declaration in response to the challenge of the validity of claims 1-3, 21, 29-31, 42-44 (“Challenged Claims”) of U.S. Patent No. 10,725,581 (the “’581 Patent”) by Petitioner Apple Inc. (“Apple” or “Petitioner”).

II. BACKGROUND AND QUALIFICATIONS

3. Exhibit 2006 is a true and correct copy of my curriculum vitae (“CV”), containing my complete qualifications and professional experience. The following is a brief summary of my relevant qualifications and professional experience.

4. I am a Teaching Professor in the School of Electrical Engineering and Computer Science at Pennsylvania State University, University Park, PA (“Penn State” or “PSU”). I have worked on telecommunications and wireless networks, including Z-Wave, Bluetooth, Zigbee, Wi-Fi, NFC, AMPS, IS-95, CDMA2000, GSM, EDGE, UMTS/WCDMA, LTE, and 5G cellular systems since 1988.

5. I received my B.S. in Electronics Engineering from the University of

Scranton in 1987. I received my M.S. in Electrical Engineering and Ph.D. in Acoustics from Penn State in 1991 and 2001, respectively.

6. In 1988, after I received my bachelor's degree, I joined the Central Intelligence Agency (CIA) while pursuing my M.S. degree at Penn State part-time. My first job at the CIA involved designing and testing systems to automatically capture and characterize telecommunication signals and emissions from various wireless and computer networking devices.

7. I returned to Penn State in early 1990 to pursue graduate research full-time and complete my M.S. degree. My graduate research work focused on wideband beamforming and adaptive signal processing. After completing my M.S. degree in EE in 1991, I accepted a full-time faculty research position at the Applied Research Lab at PSU, primarily working on classified programs, and began working on diverse radio frequency and acoustic sensor systems including wireless communications and small wireless networks for acoustic tracking, source localization, and feature extraction.

8. I began pursuing my Ph.D. part-time in 1993 while continuing my faculty research position. In 1997, as part of my faculty research position, I began working on classified programs focused on mathematical analytical modeling of cellular communication networks and the development of hardware and software systems to test against cellular networks. My role was to develop the algorithms and

write the code running on a specially developed embedded system. For this work, I received a letter of recognition as the “genius behind the VELA software algorithms” from the Director of National Reconnaissance Office (NRO) Systems Engineering and Technology Office. As part of this same work, I was extensively involved in protocol and signaling analysis as well as researching model-specific performance and unique functional characteristics associated with individual mobile devices. The work involved testing dozens of handsets from many manufacturers in controlled and real-world environments against network simulators and live operational networks for each research project.

9. In 2000, my research extended into utilizing non-orthogonal wavelets for improving detection and localization of cellular handsets from high altitude sensor systems. In 2001, I completed my Ph.D. and my research focused on the utilization of advanced communication signals for wideband characterization and remote sensing of propagation channels.

10. Beginning in 1997, my cellular communications research work focused on CDMA, GSM, EDGE, UMTS, LTE, and 5G cellular systems primarily under grants sponsored principally by the Department of Defense. This classified research work required 3GPP protocol analysis and development of real-time embedded hardware and software systems capable of interacting with cellular networks and cellular handsets. A large portion of my work was directed at architectures,

protocols, software, and signaling.

11. I have been working on classified projects since 1988. Before 1998, because the work was not deemed highly classified, I was able to publish eight journal and conference papers prior to 2000. Between 1999 and 2015, however, I was allowed to publish only one article in an unclassified symposium and published and presented about a dozen articles in classified settings. This is because during this period, the vast majority of my research was highly classified. As a result, nearly all of my research results were summarized in classified reports and not available to the general public. Further, because the U.S. government owns any intellectual property resulting from the sponsored research work, I did not pursue or file patent applications.

12. Beginning in 2003, I was co-principal investigator and technical lead on a 3 year multi-million-dollar research effort for developing the Global Information Grid (GIG). This project was sponsored by the Secretary of Defense's Office with a goal of developing a real-time, multi-intelligence (multi-Int) network for collecting, processing, storing, disseminating, and managing information on demand for decision makers including the warfighter, combatant command centers, policy makers, and support personnel and was the largest network-centric warfare project in development at the time. My research team (Ubiquitous Automated Information Manager) focused on building and deploying a scalable application to

perform real-time, multi-int data fusion to support every user in the system. This software application was deployed in Combat Operation Centers, Joint Interagency Task Force locations, and on various platforms (mobile and small computing environments) used by various warfighters. The fused data sources included various content management systems, supply chain logistic reports, GPS-based reports, new feeds, backend databases, sensor system reports, and various other broad data sources.

13. Beginning in 1994, I worked on various projects that involved the implementation and design of user interfaces to support the use of the research, design, analysis tools and signal processing systems for the end user. The user platforms included a broad array of footprints including, small handheld devices with screens or visual displays and those limited to audio-only inputs, medium sized laptops and small desktop systems, and also large, heavy devices, such as servers and clusters in operational environments (including combat operations centers and 3D immersive environments).

14. Specifically, for the GIG research effort, I led a team of software engineers to deploy our inferencing tool for a disparate range of end users, from dismounted combat soldiers with only a microphone as an interface to soldiers in mules with smart devices (tablets and laptops with multiple visual display interaction capabilities) to field command centers (medium sized clients with significant video

displays and processing power with touch and stylus interfaces to the) to combat operation centers with high-powered processing and complex user-interface capabilities/modalities.

15. In 2015, I transferred to the School of Electrical Engineering and Computer Science at Penn State as a teaching faculty member. In that role, I have continued teaching graduate and undergraduate courses, guiding Ph.D. and M.S. students in communication and mobile networking (including LTE and 5G cellular networks), and pursuing research in this and related areas. Since 2015, I have been an author on nine refereed papers as listed in my curriculum vitae (CV).

16. Because of my decades of research and my continuing work at Penn State, I have intimate knowledge of telecommunication networks, including the technology involved in the patents in this case. I have been highly recognized as an expert in such systems within the research community. I was recognized twice by the National Reconnaissance Office with commendation letters for work dealing with detecting cellular signals in low signal to noise ratio environments. The U.S. government awarded me over \$12M in grants between 2003 and 2015 for projects focused on mobile communication devices and networks, in which I served as a Principal Investigator (PI), Co- PI, and/or technical lead.

17. Additionally, during my research career, I interacted extensively with computer scientists and engineers responsible for the design, development, and

testing of telephony and data networking systems and testbeds. As a research faculty member, I oversaw engineers and computer scientists that executed many joint projects with development organizations. These interactions exposed me to a wide range of computer scientists and engineers working on telecommunication network technologies. Since 2011, I have been teaching undergraduate and graduate classes in communication and mobile networking and am familiar with the curricula being taught to electrical engineers and computer scientists. The interactions with a wide range of computer scientists and engineers working on telecommunication network technologies and the familiarity with the classes taught to electrical engineers and computer scientists have allowed me to have a good understanding of the level of skills possessed by a person of ordinary skill in the field of cellular technology.

18. I have extensive experience with mobile networks in general and LTE and 5G specifically. While most of my research efforts between 1998 and 2015 were highly classified, I can state that they included detailed investigation of network architectures, signaling, and functional behavior. A typical research effort would involve studying 3GPP, 3GPP2, IEEE, and other protocol standards to fully comprehend all aspects of L1, L2, and L3 requirements including timing, bit-level construction of the control and user plane messages, and timing characteristics for a given standard as well as functional behavior of network components and user equipment.

19. From 2006 through 2015, my research focused specifically on LTE. My research continues to this day, although I am no longer operating in a classified environment. During this time, I investigated the performance and functional differences of many varied network and handset devices to see how differing signaling and hardware configurations (including MIMO) and environmental factors influenced the behavior of user equipment in a given network environment. This included how diversity techniques (transmit and receive), synchronization, timing, and signal to interference plus noise ratio (SINR) for a given device would affect specific functional aspects including elements of the receiver structure, decoding and demodulation performance, calculation of parameters used by the device for making decisions and deriving parameters reported to the network.

20. As part of my research work, I built several custom CDMA, GSM, UMTS, and LTE platforms that implemented specific network-side and user equipment-side functionality including custom signal generation and processing structures, particularly the signal processing chains on both the transmit and receive sides. This equipment was developed using network simulation hardware in a laboratory environment and was later tested with corresponding networks in both controlled and fully operational environments. Implementing the transmit and receive chains for custom built protocol-enabled equipment required me to gain an intimate understanding of the relevant 3GPP protocol specifications and the

underlying structures. Since 2015, I have been primarily focused on guiding graduate students pursuing research including using code domain non-orthogonal multiple access (NOMA) combined with MIMO sparse coding multiple access to minimize latency and maximize user density in grant free Internet of Things (IoT) environments. Additionally, I am guiding my graduate students in pursuing research in optimized distributed processing algorithms, implementation of block chain coding techniques to improve handover security, and edge computing resource allocation in 4G (LTE)/5G (NR) networks.

21. Much of the classified research work I performed also led to similar approaches for other wireless protocols including IEEE 802.11 and 802.15 (e.g., Zigbee, Bluetooth, and UWB), HART, and other short-range standards as well as HF radio and Wi-MAX.

22. Throughout my career, I have accumulated significant expertise in the area of user interface design and the development of software and software tools for implementing and facilitating efficient user interaction, dissemination of complex information, and simple, intuitive user interfaces for screen displays.

III. COMPENSATION

23. My work on this matter is being billed at my customary rate of \$550 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 CONSIDERATIONS

24. I am not an attorney and have not been asked to offer my opinion on the law. However, as an expert offering an opinion on whether the claims of the '581 Patent are patentable, I have been told that I am obliged to follow existing law. My understanding of the law is based on information provided by counsel.

25. I understand that in an *inter partes* review proceeding, a patent claim is unpatentable if it is shown by a preponderance of the evidence that the claim is anticipated or obvious. I also understand that the anticipation or obviousness determination is viewed from the perspective of a person of ordinary skill in the art ("POSITA").

A. Anticipation

26. 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 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 POSITA to make and use the subject matter that document describes.

27. 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

28. For a claim to be obvious, I understand that every limitation of the claim must be disclosed in a combination of prior art references, as viewed from the perspective of a POSITA. I understand that a POSITA is presumed to know the relevant prior art.

29. I understand that while there is no rigid rule that a reference or combination of references must contain a “teaching, suggestion, or motivation” to combine references, some motivation to combine or modify prior art references must exist in the references or the knowledge generally available to a POSITA, otherwise the challenged claims would not have been obvious. I also understand that the “teaching, suggestion, or motivation” test can be a useful guide in establishing a rationale for combining elements of the prior art. In addition, I have been informed and I understand that there must be a reasonable expectation of success in combining prior art teachings to arrive at the claimed invention.

30. I understand that the relevant time for considering whether a claim

would have been obvious to a POSITA is the time of the effective filing of the '581 Patent.

C. Claim Interpretation

31. 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, as well as the POSITA's general knowledge and experience) 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.

V. TASK SUMMARY

32. I have been asked to review the challenged U.S. patent: the '581 Patent. I have been asked to provide my opinions from the perspective of a POSITA, having knowledge of the relevant art, as of August 5, 2011, and the opinions stated in this declaration are from that perspective. The qualifications and abilities of such a person are described in Section VII below.

33. In preparing this declaration, I have considered this patent in its entirety and the general knowledge of those familiar with the field of graphical user interfaces, as of August 5, 2011. My opinions are based on my education, training, and experience, as well as the references that form the basis for Petitioner's challenge to the '581 Patent, which I have reviewed in their entirety, including the publications listed in the following table:

Exhibit	Description
1001	U.S. Patent No. 10,725,581 ("581 Patent")
1002	U.S. Patent No. 10,725,581 File History ("581 File History")
1003	Declaration of Dr. Andrew Cockburn ("Cockburn Decl.")
1004	U.S. Patent Publication No. 2008/0259041 to Blumenberg et al. ("Blumenberg")
1005	U.S. Patent Publication No. 2008/0235594 to Bhumkar et al. ("Bhumkar")
1006	U.S. Patent Publication No. 2011/0248948 to Griffin et al. ("Griffin")
1007-1019	RESERVED
1020	Newton MessagePad, Models: original (OMP) and 100 (MP100), https://web.archive.org/web/19990202045806/ https://msu.edu/~luckie/gallery/mp100.htm (1999) ("Newton")
1021	Of mice and menus: designing the user-friendly interface, IEEE Spectrum (1999)
1022	Newton 2.0 User Interface Guidelines (1996)
1023	US 7,479,949
1024	US 8,954,887
1025	US 2009/0244023
1026	US 4,885,565
1027	Active Click: Tactile Feedback for Touch Panels (2001)
1028	Snap-Crackle-Pop: Tactile Feedback for Mobile Touch Screens (2006)
1029	Tactile Feedback for Mobile Interactions (2007)

1030	Design and Evaluation of Identifiable Key-Click Signals for Mobile Devices (2011)
1031	US 2006/0197753
1032	Issues and Techniques in Touch-Sensitive Tablet Input (1985)
1033	US 5,612,719
1034	US 2008/0036743
1035	US 8,830,181
1036	US 9,760,241
1037	Android Developers Guide, Creating Menus, https://web.archive.org/web/20110216140646/ http://developer.android.com/guide/topics/ui/menus.html (2011)
1038	The State of the Art of Mobile Application Usability Evaluation (2012)
1039	Usability Heuristics for Touchscreen-based Mobile Devices (2012)
1040	Web Usability: A Review of the Research (1999)
1041	US 11/367,749
1042	Evolution of Mobile Devices and Operating Systems (2013)
1043	US 2008/0094368
1044	US 2008/0168405
1045	iPhone User Guide: For iPhone OS 3.1 Software (2009)
1046- 1049	RESERVED
1050	Xlib—C Language X Interface, X Window System Standard (2002) (excerpts)
1051	US 2013/0007665
1052	US 2011/0252380
1053- 1096	RESERVED
1097	United States District Courts — National Judicial Caseload Profile (Dec. 31, 2023) United States Courts (uscourts.gov), https://www.uscourts.gov/sites/default/ files/fcms_na_distprofile_1231.2023_0.pdf (last visited June 25, 2024)
1098	Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (USPTO June 21, 2022) (“Guidance”)
1099	Case Management Order, Smith Interface Technologies, LLC v. Apple Inc., 3-23-cv-01187, S.D. Cal. (June 20, 2024)

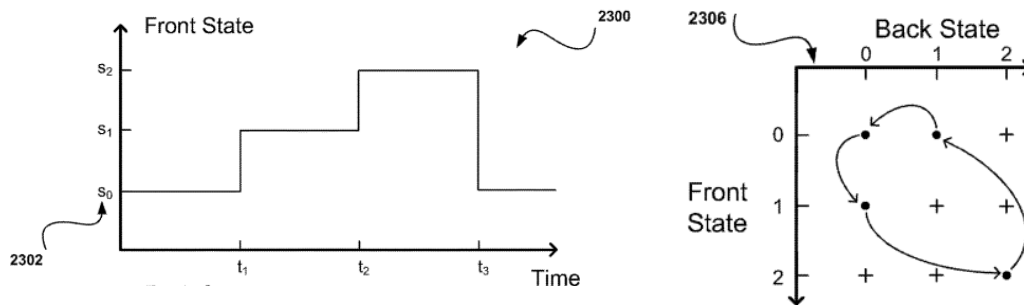
VI. OVERVIEW OF THE '581 PATENT

34. The '581 Patent “generally relate[s] to touch screens.” EX1001, 1:37–38. Specifically, the '581 Patent focuses on improving user interfaces for increasingly complex touchscreen devices. EX1001, Abstract. By the time of the '581 Patent’s December 2011, the priority date of the '581 Patent, touch screen mobile devices were becoming increasingly capable of handling more complex tasks, necessitating more advanced control methods than basic input methods could provide. Due to limited screen space, input and output techniques that had been used on desktop computers were not feasible for use on these new mobile devices. The '581 Patent resolves this issue by enabling users to operate the mobile devices and feature-rich applications through multi-part gestures, allowing for successive user actions and feedback at each stage. EX1001, 14:26-26:21, Abstract.

A. Multi-Part-Pattern Based Gestures

35. The '581 Patent refers to multi-part gestures as “pattern-based gestures” that “may be recognized in the form of an ordered sequence,” such as “using a decision tree.” EX1001, 73:45-47; EX2011, ¶[00581]. These gestures are further defined as “a path through a phase space of one or more dimensions.” EX1001, 71:48-50; EX2011, ¶[00564]. The patent also notes that “probabilistic pattern recognition algorithms may output a probability...[where] this probability may be used to alter or modify a selection.” EX1001, 74:15-22; EX2011, ¶[00585].

For instance, the patent explains that “pattern-based gesture 2302” is “described by a phase space path which represents the time evolution of the touch state associated with a contact point” on the touchscreen. EX1001, 71:62-65; EX2011, ¶[00566].



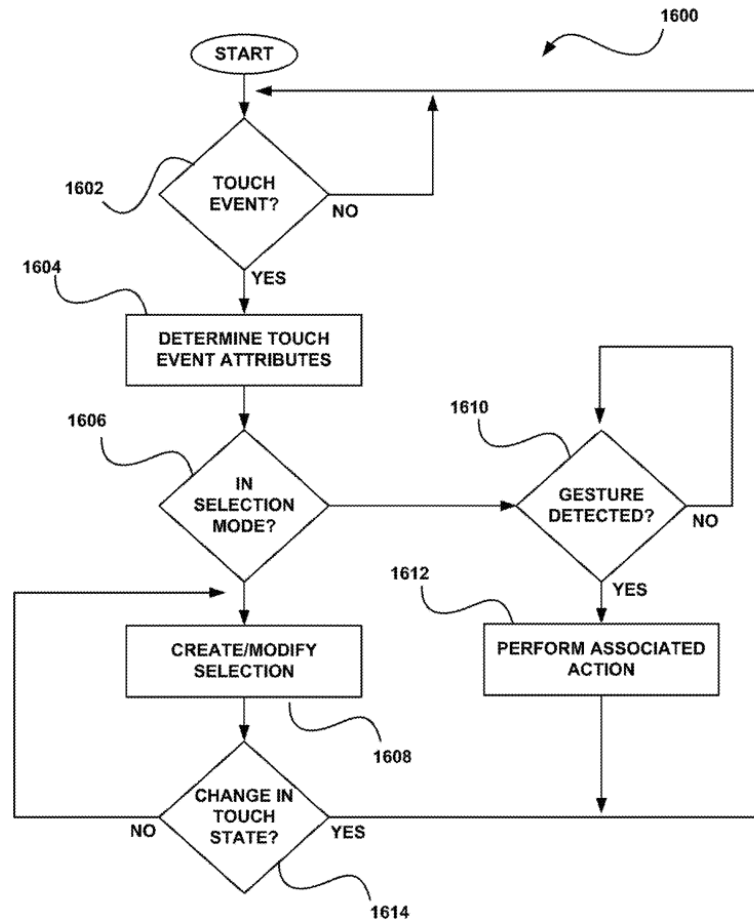
EX1001, FIG. 23; EX2011, FIG. 28.

36. Each state and the transitions between them can be defined by various factors, including “the time spent on each leg of the path through phase space.” EX1001, 72:1-28; EX2011, ¶¶[00567]–[00570]. For example, if the touch duration does not exceed the time threshold t_1 , FIG. 23 shows that the device remains in the same state, S_0 . EX1001, 72:1-9; EX2011, ¶[00567]. However, if the touch duration surpasses threshold t_1 , the device transitions to a different state, S_1 . *Id.* Likewise, if the duration exceeds threshold t_2 , the device proceeds to state S_2 . *Id.*

1. Figure 16

37. The '581 Patent describes a mobile device configured to detect pattern-based gestures using various components, including a touch screen that receives signals generated by contact with the screen. EX1001, 13:61–67, 14:7, 14:31–53,

Claim 1 Limitations [1.pre]–[1.c]; EX2011, ¶¶[0077]–[0078], [0082]. In response to these touch signals, the device may alter its output or perform processing actions. EX1001, 15:39–51, FIG. 3; EX2011, ¶[0089]. To recognize whether a user’s contact corresponds to a predefined gesture, the ’581 Patent explains the use of decision-tree-based programming logic, as illustrated in FIG. 16. This logic enables the device to detect a particular gesture and execute the action associated with it. EX1001, 73:45–47, 83:63–65, FIG. 26; EX2011, ¶¶[00507], [00581], FIG. 24. Figure 16 presents decision-tree-based programming logic that allows the device to determine whether a user’s contact with the touchscreen corresponds to “a selection made within a user interface.” EX1001, 53:7–54:34, FIG. 16. As shown in Figure 16, the logic begins with detecting a touch event and identifying the associated “touch event attributes.” EX1001, 53:7–27, Claim 1 Limitations [1.h]–[1.l]; EX2011, ¶¶[00355]–[00357]. These “touch event attributes” may include any measurable characteristic of the user’s interaction with the touchscreen, such as touch state, contact area, contact point, and attributes tracked over time. EX1001, 53:28–34, Claim 1 Limitations [1.h]–[1.l]; EX2011, ¶[00359]; *see also* EX1001, 56:45–16 (“Possible gesture inputs may include, but are not limited to, touch event attributes (both initial and over time)”); EX2011, ¶[00386].



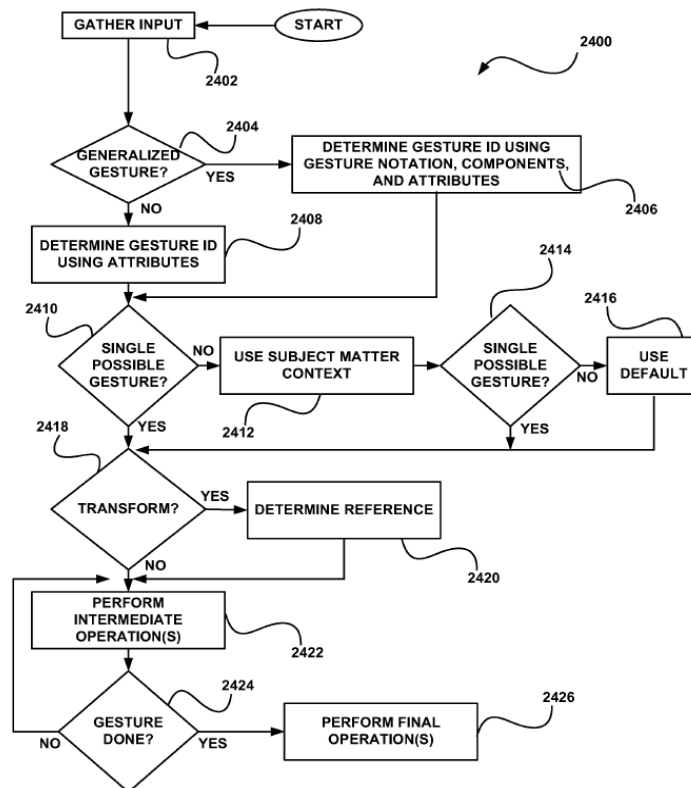
EX1001, FIG. 16; EX2011, FIG. 16. As shown in Figure 16, once the attributes of the initiating touch event are determined, the system proceeds to step 1606 to assess whether it is “in a selection mode.” EX1001, 54:35–36. If so, “a selection is created and / or modified as a function of the touch event attributes [and] then displayed.” *Id.*, 54:53–55. However, “if it is determined in 1606 that the system is not in a selection mode,” the system moves to step 1610 to determine whether “a gesture has been detected.” EX1001, 54:12–15, Claim 1 Limitations [1.m.ii]–[1.m.iii]; EX2011, ¶[00368]. If no gesture is detected at step 1610, the system continues looping through gesture detection without executing an associated action. EX1001, 54:12–

18, FIG. 16, Claim Limitations [1.m.ii]–[1.m.iii]; EX2011, ¶[00368]. The '581 Patent further states that “[i]f a gesture is detected, then an associated action is performed (step 1612).” EX1001, 54:19–20. It explains that a detected gesture may correspond to a specific command or function within the device’s programming logic, such as “scrolling a display or user interface element, zooming in or out, modifying the display brightness,” or “placing the system in a selection mode.” EX1001, 54:20–34, Claim Limitation [1.n.ii]–[1.n.vi]; EX2011, ¶¶[00369]–[00370]. The patent also notes, that “[i]f the system is in a selection mode, then a selection is created and/or modified as a function of the touch event attributes...” EX1001, 53:53–55.

38. With regard to determining whether a touch event qualifies as a gesture, the '918 Provisional—incorporated by reference into the '581 Patent (EX1001, 1:24–26)—describes a process called “gesture differentiation,” which goes beyond merely identifying a “basic user interaction (i.e., button press, basic application interaction, etc.).” EX2011, ¶¶[00498], [00502]. This process begins by assessing “whether there is any meaningful user input,” which may involve applying a “threshold above which user interaction may rise before it may be deemed meaningful.” *Id.*, ¶¶[00501]–[00502]. Gesture detection can also take into account “gesture subject matter context,” such as “objects displayed at or near the location of the gesture.” *Id.*, ¶[00512]. For instance, a gesture may begin with a touch contact

at a specific location on a particular object shown on the touchscreen. EX2011, FIG. 24; *see also* EX2011, FIG. 24.

39. As shown in the flow chart, multiple complete gesture patterns can begin from the same initial—and even intermediate—points. Reflecting the multi-part nature of such gestures, the device may execute “intermediate operations associated with the identified gesture.” EX2011, ¶[00521]. Furthermore, “each execution of intermediate gesture operations may trigger a display update (i.e. rendering, etc.).” *Id.*, ¶[00524]. These intermediate gestures serve an important purpose: allowing “a user [to] receive feedback on their gesture before terminating the interaction.” *Id.*, ¶[00522].



40. A “gesture may be ended by ending one or more user inputs” or “by performing a different gesture,” at which point “the final operations associated with the identified gesture are performed.” EX2011, ¶¶[00526]–[00528]. “For example, in one embodiment, a gesture which triggers the display of a pop-up menu and allows a user to cycle through menu items may have as a final operation the selection of the current menu item and removal of the pop-up menu.” *Id.*, ¶[00529].

2. Figure 6

41. Each decision block depicted in Figure 16 may incorporate its own decision-tree-based programming logic. For instance, Figure 6 presents decision-tree-based logic for creating a selection based on touch event attributes, corresponding to step 1608 in FIG. 16. EX1001, 26:41–49, FIG. 6. As illustrated, “if it is determined in 608 that there is at least one embedded hyperlink within the context determination zone, then a context sensitive embedded hyperlink selection function is chosen,” and a “selection may be defined based upon user input.” *Id.*, 30:44–49; EX2011, ¶[00188].

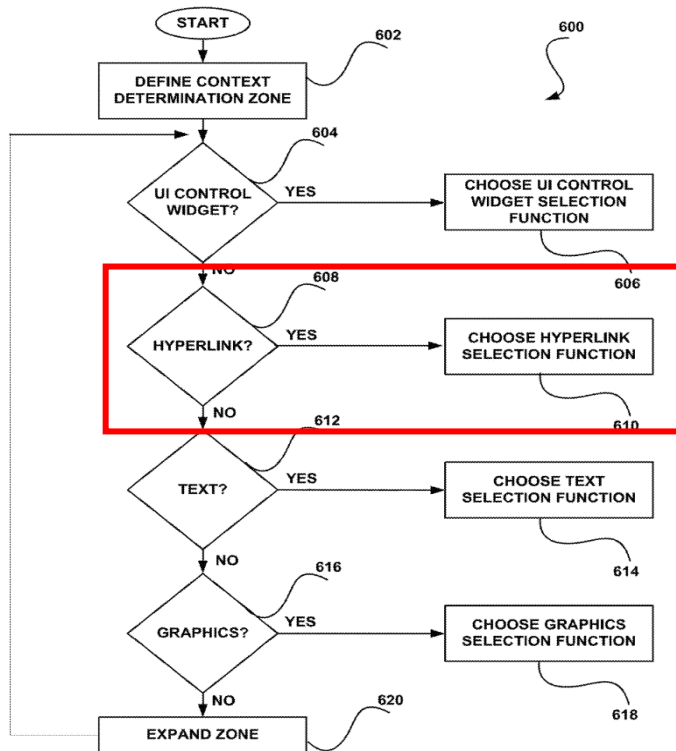


FIGURE 6

EX1001, FIG. 6; EX2011, FIG. 6 (annotated).

42. When defining a selection associated with a hyperlink, the '581 Patent describes using a “method 4[sic]” (*i.e.*, “method 400”), where the method indicates that “a selection may be established if the user maintains a contact pressure level for a predefined amount of time.” EX1001, 30:44–50; 25:8–10; Claim Limitations [1.m.ii], [1.n.ii], [1.o.ii]; EX2011, ¶¶[00188], [00150]. The patent further explains that “once the selection establishment conditions have been satisfied, the selected embedded hyperlink may be activated.” EX1001, 31:53–55; Claim Limitations [1.n.vi]; EX2011, ¶[00195]. The '581 Patent also explains that an embedded

hyperlink “may have selection establishment conditions which change, depending upon previous user input...to require the selection of an option from a hyperlink contextual menu.” EX1001, 31:39–45; Claim Limitations [1.o.vii]; EX2011, ¶[00194]. It further states that “the contextual menu may provide options common to web browsers, including but not limited to ‘open link’, ‘copy link’, and/or any other action which may be performed on or with a hyperlink.” EX1001, 31:46–49; EX2011, ¶[00194].

3. Figure 18

43. Like Figure 16, Figure 18 depicts decision-tree-based programming logic used to determine whether a user’s contact with the touchscreen matches a predefined gesture and, if so, to trigger the operation associated with that gesture. EX1001, 56:24–57:10, FIG. 18. The logic in Figure 18 begins by checking whether a touch event has occurred. EX1001, 56:32–36. If a touch event is detected, the system proceeds to determine the attributes of the touch event (at 1804), then evaluates those attributes—both initially and over time—to assess whether they correspond to a gesture (at 1806). When it is determined that the attributes match a particular gesture, the logic initiates performance of the operation mapped to that gesture. EX1001, 56:32–60; EX2011, ¶[00382].

B. Independent Claims 1 and 42

44. The Petition challenges two independent claims of the ’581 Patent:

Claims 1 and 42 (the “Challenged Independent Claims”). Claim 1 is directed to an “electronic device” that includes “one or more programs including instructions to” cause the device to execute the specified logic operations. EX1001, 102:50–103:55. Specifically, Claim 1 includes “instructions” that direct the device to evaluate whether a user’s contact with the touchscreen satisfies the preconditions for three distinct scenarios and to perform a corresponding action or function “when” the preconditions for a given scenario are met. The preconditions for the **First Scenario** are set forth in Limitations [1.m.i]–[1.m.ii], those for the **Second Scenario** are found in Limitations [1.n.i]–[1.n.v], and the preconditions for the **Third Scenario** are described in Limitations [1.o.i]–[1.o.v].¹

[1.m] when: */i/* the first web page is displayed via the user interface of the network browser application, */ii/* the duration of the first contact is determined to be less than a first user-configurable predefined duration, and the end of the first contact is detected: */iii/ avoid display, on the first web page, a result of any operation based on the first contact;*

[1.n] when: */i/* the first web page is displayed via the user interface of the network browser application, */ii/* the duration of the first contact is determined to be greater than the first user-configurable predefined duration and less than a second user-configurable predefined duration, */iii/* the first contact point of the first contact is determined to correspond with the location of the hyperlink of the first web page, */iv/* it is not determined that there is the contact movement of the first contact between the first contact point and the second contact point, and */v/* the end of the first contact is detected: */vi/ replace the display of the*

¹ All emphasis added unless otherwise noted.

first web page with the second web page via the user interface of the network browser application; and

[1.o] when: *[i]* the first web page is displayed via the user interface of the network browser application, *[ii]* the duration of the first contact is determined to be greater than the second user-configurable predefined duration, *[iii]* the first contact point of the first contact is determined to correspond with the location of the hyperlink of the first web page, *[iv]* it is not determined that there is the contact movement of the first contact between the first contact point and the second contact point, and *[v]* the end of the first contact is not detected: *[vi] output, utilizing the actuator, a first feedback that is perceptible by touch and [vii] display a menu including at least one option for, in response to detection of a selection thereof, performing an operation on a web address associated with the hyperlink of the first web page, and [viii] further display at least a portion of the second web page, such that at least the at least portion of the second web page is displayed in at least one first virtual display layer which appears above at least one second virtual display layer that includes at least a portion of the user interface of the network browser application that remains at least partially visible.*

See Pet., vi-viii.

45. Claim 42 is directed to a method performed by an “electronic device,” which includes method steps (Limitations [42.h], [42.i], [42.j]) that are analogous to Limitations [1.m]-[1.o] of Claim 1. EX1001, 114:53-115:53; see EX1003, ¶181; Pet., 4-5, 64. As with Claim 1, which recites programming logic that causes a device to perform the actions/functions of Limitations [1.m]-[1.o] “when” the corresponding preconditions are met, EX1001, 102:50-103:55, Claim 42 recites that the actions/functions of Limitations [42.h]-[42.j] are performed “based on detected usage where” the “corresponding preconditions are met, EX1001, 114:53-115:53.

1. “Conditional” Limitations of Claim 1

46. Limitations [1.m], [1.n], and [1.o] collectively require executable instructions to perform specified actions or functions—such as “avoid display,” “replace display,” “output, using the actuator,” and “display a menu”—“when” it is determined that the user’s contact with the touchscreen satisfies the preconditions for each corresponding action. The plain and ordinary meaning of these limitations mandate that the actions or functions described in Limitations [1.m.iii], [1.n.vi], and [1.o.vi]–[1.o.viii] must be performed when all of the preconditions set forth in Limitations [1.m.i]–[1.m.ii], [1.n.i]–[1.n.v], and [1.o.i]–[1.o.v], respectively, have been satisfied. Dr. Cockburn appears to agree with this position as he testified in his deposition. EX2010, 37:10-14 (“A. The functionality associated with the first scenario involves avoiding display of any operation. A person of skill in the art would understand there are abundant other situations in which there is an avoidance of displaying any operation.”). However, Dr. Cockburn departs from this plain meaning by arguing that the recited actions do not need to be triggered by a determination that all preconditions are met. *See* EX2010, 43:18-23 (“Q. So as written, Claim 1, the functionality of the second scenario would not occur if only the aspects [limitations] of the first scenario exist; correct? A. The claims of the '581 patent are clear, that ‘when’ is an inclusive term. It really relates to a period of time.”). Instead, Dr. Cockburn asserts that the claims are satisfied so long as the

action is performed during a time period that merely overlaps with the period in which the corresponding preconditions are met. EX1003, ¶¶150-158; Pet., 49–52 (mapping Limitation [1.o.viii] to Blumenberg’s disclosure of displaying link information before all recited preconditions for the third scenario are satisfied).

47. This interpretation contradicts the basic principles of programming logic and, as a result, is inconsistent with the claim language, which recites “one or more programs including instructions to” cause the device to perform a specified action “when” it determines that the relevant preconditions are satisfied. A POSITA would understand that Claim 1’s reference to executable instructions necessarily requires programming logic that (a) detects whether the preconditions for the First Scenario (Limitations [1.m.i]–[1.m.ii]), Second Scenario (Limitations [1.n.i]–[1.n.v]), or Third Scenario (Limitations [1.o.i]–[1.o.v]) have been met, and (b) triggers the performance of the corresponding actions in Limitations [1.m.iii], [1.n.vi], and [1.o.vi]–[1.o.viii] “when” all of those preconditions are satisfied.

48. This causal connection is a fundamental principle of programming logic. For executable instructions to cause a device to perform a function, they must include logic operations that detect when the preconditions for the action are satisfied and trigger the performance of that action in response. This type of logic operation is commonly referred to as an “event listener,” which is a piece of code designed to initiate a specific action in response to a defined event—such as a mouse

click, key press, or touchscreen interaction. An event listener can also respond to a sequence of events or to multiple events occurring simultaneously. Without such logic operations that detect the relevant preconditions, the device would have no way of determining when to initiate the corresponding action. Therefore, executable instructions cannot cause a device to perform an action “when” certain preconditions are met unless the programming logic is structured to trigger performance of the action upon satisfaction of those preconditions.

49. Here, the plain language of the challenged claims plainly defines the sequence of logic operations that a device must execute to (a) detect when the recited preconditions of Limitations [1.m], [1.n], and [1.o] are met and (b) trigger the actions recited in those limitations “when” the corresponding preconditions are met. Specifically, the logic operations of Claim 1 begin with detecting “a first contact starting at a first contact point at a first contact time,” which the claims themselves define as the beginning of “the first contact.” *See* EX1001, 102:60–63. A POSITA would understand this as the initiating input that causes the device to further evaluate preconditions relevant to the claimed scenarios. If the specific preconditions for one of these scenarios are determined to be met—such as a contact duration is greater than a second predefined duration and contact does not end—the device is then programmed to execute a corresponding action, such as “output, using the actuator,” “display a menu,” and “display at least a portion of the second web page” *See*

EX1001, 103:10–55. A POSITA would interpret this flow as a conditional control structure in which execution of an action is governed by a determination of whether input conditions have been satisfied.

50. This interpretation is further supported by the specification’s repeated emphasis on the use of decision-tree logic to detect pattern-based user gestures and trigger corresponding system responses. For instance, the specification explains that “If a gesture has been detected, then an associated action is performed.” EX1001, 54:19–20. Similarly, it states that “Once the gesture has been identified, the corresponding operation is performed.” *Id.*, 57:9–10. And in describing a control loop that continues until a condition is met, the specification teaches: “If it is determined that the selection establishment conditions have not been met, the selection is updated in a loop through performing operations... The selection may continue to vary as a function of user input until the selection establishment conditions have been met.” *Id.*, 25:28–32. These passages would confirm for a POSITA that the claims reflect standard conditional programming structures in which input detection, condition evaluation, and response execution occur in sequence.

51. Dr. Cockburn’s attempt to recast the claims as involving merely a “basic when-then conditional relationship” that is somehow distinct from “typical causal language (such as ‘in response to’) or exclusive conditional language (such

as ‘only when’))” is flawed. *See* EX1003, ¶158; *Pet.*, 52 n.8. A POSITA would not distinguish between claim language stating that a device performs an operation “when” preconditions are met and claim language stating that device performs the same operation “in response to” those conditions. Both interpretations reflect the same underlying logical construct—namely, that the action is triggered by the determination that specific input preconditions are met. *See* EX1004, claim 24 (“which when executed by a portable electronic device with a touch screen display, cause the device to...”); EX1006, claim 1 (“performing a function when the touch meets the modified touch threshold”). In programming practice, there is no difference between triggering an action “when X is true” and doing so “in response to X being true.” Both invoke conditional logic that would be implemented using well-understood constructs such as if-statements or event handlers that monitor for specified conditions.

52. Indeed, from a software engineering standpoint, it would not be possible to implement a function that performs an action “when” preconditions are met unless that function is designed to be executed because those preconditions have been detected. In my experience, a POSITA would recognize that the plain language of the claims—interpreted in view of the specification—requires the system to perform the recited actions as a direct consequence of determining that the input preconditions have been met. Accordingly, I disagree with Dr. Cockburn’s effort to

create a distinction where none exists. The claim language and specification consistently and unambiguously indicate that the actions recited in the challenged claims are performed in response to, and not independently of, the evaluation of the stated preconditions.

53. Thus, a POSITA would recognize that the Challenged Independent Claims require executable instructions that trigger the recited actions—such as “replace the display,” “output, using the actuator,” or “display a menu”—in response to a determination that the specific preconditions set forth in the claim have been satisfied. *See, e.g.,* EX1001, 103:17–31 (Limitations [1.n.i]–[1.n.vi]). A POSITA would readily understand that, under the plain and ordinary meaning, the claimed actions must occur not merely at some point during operation, but must be triggered “when” the particular conditions are detected. In this context, “when” functions as causal and temporal language—signifying that the action must follow, and be triggered by, the fulfillment of the specified preconditions. Thus, from a programming perspective, the claims are not satisfied by logic that causes the action to occur under some other set of conditions not recited in the claim. To illustrate, Limitation [1.n.vi] specifically requires executable instructions to “replace the display of the first web page with the second web page via the user interface of the network browser application” when the conditions recited in Limitations [1.n.i] through [1.n.v] are met—such as determining that the contact duration falls between

a first and second user-configurable duration and that the end of the contact is detected. *See* EX1001, 103:17–31. A POSITA would recognize that if the device includes logic that replaces the display of one web page with another in response to different conditions—*i.e.*, conditions not specified in Limitations [1.n.i]–[1.n.v]—such logic would not satisfy Limitation [1.n], even if the end result (replacing the display) appears similar.

54. This distinction is important. The claims do not prohibit a device from supporting additional display-replacement logic under other conditions. However, for Limitation [1.n.vi] to be met, the claimed action must be linked by explicit logic to the specifically claimed set of preconditions. Merely showing that a device sometimes replaces the display does not meet the limitation unless the device also performs that replacement in response to the particular sequence of user inputs and conditions defined in the claim. A POSITA would understand that compliance with Limitation [1.n] requires conditional logic—not just outcome equivalence. Put another way, the recited instruction to “replace the display” must be executed when the claimed preconditions are evaluated to be true—not when some other condition happens to result in the same outcome. This causally and temporally linked structure is a fundamental feature of the claimed programming logic. Accordingly, any assertion that logic triggered under alternative, unclaimed circumstances satisfies the limitation would be inconsistent with the plain meaning of the claims and with basic

principles of software implementation as understood by a POSITA.

2. “Conditional” Limitations of Claim 42

55. Limitations [42.h], [42.i], and [42.j] collectively recite performing specified actions (e.g., “avoid display” “replace display,” “output, using the actuator,” “display a menu”) “based on detected usage” that meets certain preconditions. Dr. Cockburn acknowledges that Claim 42 is “substantially similar to” Claim 1 and the Dr. Cockburn makes no distinction between the “when” limitations of Claim 1 and the “based on” limitations of Claim 42. EX1003, ¶181; Pet., 64. For the reason alone, Limitations [42.h], [42.i], and [42.j] should be interpreted consistently with Limitations [1.m], [1.n], and [1.o] to require that performance of the recited action be triggered by a determination that all corresponding preconditions have been met. Further, to interpret Claim 42 otherwise would be contrary to its plain language, which expressly requires that the recited actions be executed “based on detected usage where” all corresponding preconditions are satisfied. EX1001, 115:7-53; *see also* Pet., xi-xii.

3. The First Contact

56. The Challenged Independent Claims recite “determine a duration of the first contact as a difference between the first contact time and the second contact time.” Limitations [1.h], [1.j]; *see also* Limitations [42.c], [42.e] (“detecting a first contact...” and “determining a duration of the first contact...”). They further require

comparing “the duration of the first contact” with one or more “predefined” durations to “determine” whether “the duration of the first contact” is “less than,” or “greater than” the predefined duration. Limitations [1.m.ii], [1.n.ii], [1.o.ii], and [42.h]–[42.j]. The use of the antecedent phrases “the duration of the first contact” and “the first contact time” indicates that the evaluation of the duration for each action must be based on a single, shared contact event with a common starting point. Limitations [1.h], [42.c]. The claims expressly define that common starting point as “a first contact starting at a first contact point at a first contact time on the touch-sensitive interaction surface.” Limitations [1.h], [42.c].

57. Accordingly, the Challenged Independent Claims are not satisfied by programming logic that triggers performance of any of the recited actions based on a contact other than “the first contact.” Likewise, they are not satisfied by logic that evaluates a different duration—such as a display duration beginning after the initial contact—instead of the defined duration of the first contact.

VII. LEVEL OF ORDINARY SKILL IN THE ART

58. At the time of the invention of the ’581 Patent, a POSITA would have had at least a bachelor’s degree in computer science, computer engineering, electrical engineering, or a related field, and would have had at least two years of relevant work experience in the design and development of graphical user interfaces (GUIs) or equivalents thereof. Less work experience may be compensated by a

higher level of education and vice versa.

59. I have reviewed the proposed level of ordinary skill in the art by Petitioner's expert, Dr. Cockburn. EX1003, ¶20. Though there are some differences in our definitions, I would have at least been a POSITA as of the priority date under either definition and can opine on the perspective of a POSITA at that time. *See* Section II.

VIII. OVERVIEW OF THE PRIOR ART

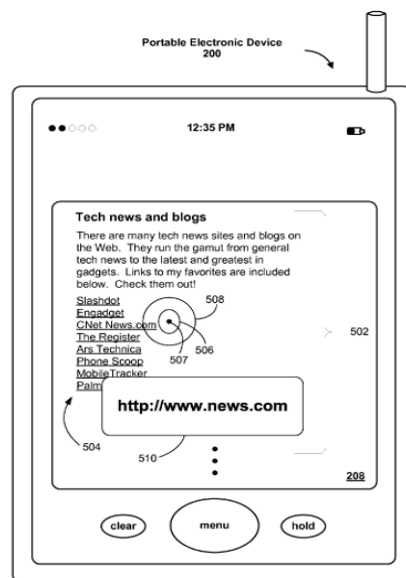
A. Blumenberg

60. Blumenberg discloses a portable electronic device equipped with a touchscreen that presents hyperlinks, which may be selected by a user via finger contact to initiate specific actions on the device. EX1004, ¶¶[0007]–[0012]. These actions include, for example, (1) “displaying” preview information related to a hyperlink, and (2) “activating” the hyperlink itself. EX1004, ¶¶[0036], [0041], Figs. 3–5.

1. Hyperlink Preview Functionality

61. Blumenberg's disclosure is focused primarily on addressing challenges associated with the “small screen size” of portable devices, which, as it explains, impairs the user's ability to reliably navigate hyperlinks. EX1004, ¶[0004] (“navigating...via the hyperlinks takes on a hit-or-miss character [that] frustrate[s] users”). To address this issue, Blumenberg teaches the use of hyperlink previews—

such as link information 510—to provide users with concise and readable information that confirms whether the correct hyperlink has been selected. *See id.*, ¶¶[0048], [0053]. As depicted in Figure 5C of Blumenberg, the hyperlink preview (e.g., link information 510) includes the hyperlink’s URL along with “a snippet of content from the page to which the link points and/or a summary of the content from the page to which the link points.” EX1004, ¶¶[0047]–[0048], [0053].



EX1004, FIG. 5C

62. Figure 5C further illustrates that the process of selecting a target link 504 is based on the user’s contact with touchscreen 208—for example, at contact area 506 and/or contact point 507. EX1004, ¶[0047]. Once contact is detected, one or more criteria, such as the proximity between the link 504 and contact point 507, may be used to determine which link is most likely intended by the user. *Id.* After identifying the target link, “information [510] associated with the link that is closest

to the point 507 may be displayed on the touch screen 208.” *Id.*, ¶[0048]; *see also id.*, ¶¶[0036]–[0040], FIG. 3 (steps 304–310).

63. Blumenberg also discloses that, in certain embodiments, the hyperlink preview (*i.e.*, the display of information associated with the hyperlink) may appear only “after the contact is maintained for at least a predetermined time (e.g., 0.2 seconds, or another value between 0.1 and 0.25 seconds).” EX1004, ¶[0049]; *see also* EX1003, ¶60 (describing the “first” scenario). In contrast, if the user maintains contact for a longer, second predetermined time (e.g., three to five seconds), “the information 510 [associated with the hyperlink] may be removed.” EX1004, ¶¶[0049], [0051]. As Blumenberg explains, “if the contact is held for longer than a second predetermined amount of time, whatever link information that is displayed is removed from display and the link is not activated.” *Id.*, ¶[0051]; *see also* EX1003, ¶64 (describing the “fourth” scenario).

2. Hyperlink Activation Functionality

64. Blumenberg describes two distinct operational scenarios for hyperlink “activation,” which Dr. Cockburn maps to the claimed second and third scenarios set forth in Limitations [1.n] and [1.o], respectively. *See* EX1003, ¶¶61–63. Both scenarios occur after the device has displayed hyperlink preview information in response to user contact, and the contact with the touchscreen is subsequently broken.

65. Under the second scenario, Blumenberg teaches that “the selected link is activated by a contact break if the link information was displayed less than the first predetermined amount of time.” EX1004, ¶[0051]. In other words, if the user breaks contact before the preview has been displayed for the first predetermined duration, the hyperlink is activated upon contact break. *Id.*

66. By contrast, in the third scenario, “if the link information was displayed for more than that amount of time [*i.e.*, the first predetermined amount of time], then the user must break contact and tap the link information (which is continued to be displayed after the contact break) to activate the selected link.” EX1004, ¶[0051]. That is, Blumenberg teaches that when the contact is broken *after* the first predetermined amount of time, the link information continues to display and the link may be activated only if the user makes a separate, second contact. Regarding this second contact, Blumenberg states that “the activation of the link may be triggered by a gesture, such as a quick tap on the touch screen 208 after breaking contact.” EX1004, ¶[0051].

3. Dr. Cockburn’s Mapping of Blumenberg

67. In reviewing Blumenberg, I understand that Dr. Cockburn attempts to map Blumenberg’s disclosure to the Challenged Independent Claims by identifying three operational scenarios in Blumenberg’s portable electronic device (*see* EX1003, ¶¶60–64), each of which relates to the hyperlink preview and hyperlink activation

functionality previously described. Each scenario begins with the detection of user contact on the touchscreen, but the scenarios differ in terms of when that contact is broken and whether it remains static. *See* EX1004, ¶[0047] (“When the user makes contact with the touch screen 208, the device 200 determines a link amongst the links 504 that satisfies a number of predefined criteria with respect to the contact area 506 and/or the point 507.”).

a) Dr. Cockburn’s First Blumenberg Scenario

68. In what Dr. Cockburn identifies as the first operational scenario, the user makes contact with the touchscreen near a hyperlink, but the contact is not held for the “predetermined time,” which Dr. Cockburn refers to as the “selection threshold” (*e.g.*, 0.2 seconds). EX1003, ¶60; *see also* Pet., 9 (citing EX1004, ¶[0049]). Notably, Blumenberg does not expressly describe this scenario. Rather, Blumenberg states that “information is displayed after the contact is maintained for at least a predetermined time (*e.g.*, 0.2 seconds, or another value between 0.1 and 0.25 seconds) for displaying the link information.” EX1004, ¶[0049]. Dr. Cockburn equates this first operational scenario—in which the user’s contact ends before the predetermined time—with claim Limitations [1.m] and [42.h], which require, among other things, that “when:...the duration of the first contact is determined to be less than a first user-configurable predefined duration, and the end of the first contact is detected, avoid display ... a result of any operation based on the first contact.”

EX1003, ¶¶117-123.

b) Dr. Cockburn's Second and Third Blumenberg Scenario

69. In the second operational scenario identified by Dr. Cockburn, the user's contact with the touchscreen is broken after the link information has been displayed but before a predetermined amount of period of time that Dr. Cockburn refers to as the "activation threshold." EX1003, ¶61; *see also* Pet., 9, 37-38 (citing EX1004, ¶[0051]). According to Dr. Cockburn, in this scenario, contact is maintained beyond the initial "selection threshold" of 0.2 seconds, but is broken before the "activation threshold," resulting in automatic activation of the selected hyperlink. *Id.* Dr. Cockburn maps this scenario to claim Limitations [1.n] and [42.i], which recite, among other things, "when...the duration of the first contact is determined to be greater than the first user-configurable predefined duration and less than a second user-configurable predefined duration, replace the display of the first web page with the second web page." EX1003, ¶¶126-133.

70. In the third operational scenario described by Dr. Cockburn, the user maintains contact with the touchscreen until "the link was displayed for more than [the first predetermined] amount of time," which Dr. Cockburn again refers to as the "activation threshold." EX1003, ¶62; EX1004, ¶[0051]. In this case, Blumenberg explains that breaking contact alone is not sufficient to activate the link. Instead, activation requires a separate, second gesture—specifically, a "quick tap" or

“confirmatory tap” on the link information that remains displayed after the initial contact is broken. EX1004, ¶[0051]. Dr. Cockburn equates this third scenario to claim Limitations [1.o] and [42.j], which state, in part, “when...the duration of the first contact is determined to be greater than the second user-configurable predefined duration, display a menu including at least one option for ... performing an operation on a web address associated with the hyperlink [and] display at least a portion of the second web page.” EX1003, ¶¶135-158.

4. Blumenberg’s Fourth Operational Scenario

71. In addition to the three scenarios discussed by Dr. Cockburn, Blumenberg also describes a fourth operational scenario that is briefly acknowledged by Dr. Cockburn. EX1003, ¶64. Dr. Cockburn does not rely on nor consider this fourth operation scenario for his invalidity combinations. In this fourth scenario, Blumenberg teaches that if the user maintains contact with the touchscreen in the same position “for longer than a second predetermined amount of time, whatever link information that is displayed is removed from the display.” EX1004, ¶[0051]. Blumenberg further explains that “[i]n some embodiments, the information is removed from display if the contact area 506 is not moved for longer than a predefined amount of time. For example, returning to FIG. 5C, the hyperlink preview information (i.e., information 510) may be removed after a predetermined amount of time (e.g., three to five seconds) if the contact area 506 is maintained in the

position as illustrated.” EX1004, ¶[0049].

B. Bhumkar

72. Bhumkar describes techniques designed to improve a user’s internet browsing experience on desktop computers by providing “[p]reviews of a target web site or other Internet-accessible resource ... in response to cursor control events.” EX1005, Abstract. According to Bhumkar, users often encounter difficulty distinguishing between relevant and irrelevant links when viewing search results because search engines typically return only limited details—such as the URL and “a few lines of text clipped from the target web page.” *Id.*, ¶[0005]. As Bhumkar notes, this limited preview “provides the searcher with little or no information” to assess whether a result is useful, requiring the user to “click through to the target web page associated with the link” to “fully determine whether or not the result is truly relevant.” *Id.*, ¶[0006]. To address this limitation, Bhumkar proposes the use of a “quick view” or “preview” window displaying more informative content about the target web page. EX1005, ¶[0038].

1. Preview Window With Toolbar Functionality

73. Bhumkar teaches that a preview is presented in “a window superimposed over or adjacent to the first Web page as displayed in the browser.” EX1005, ¶[0014]. These previews appear in response to “cursor control events,” which Bhumkar defines as input received from user-operated devices like a mouse,

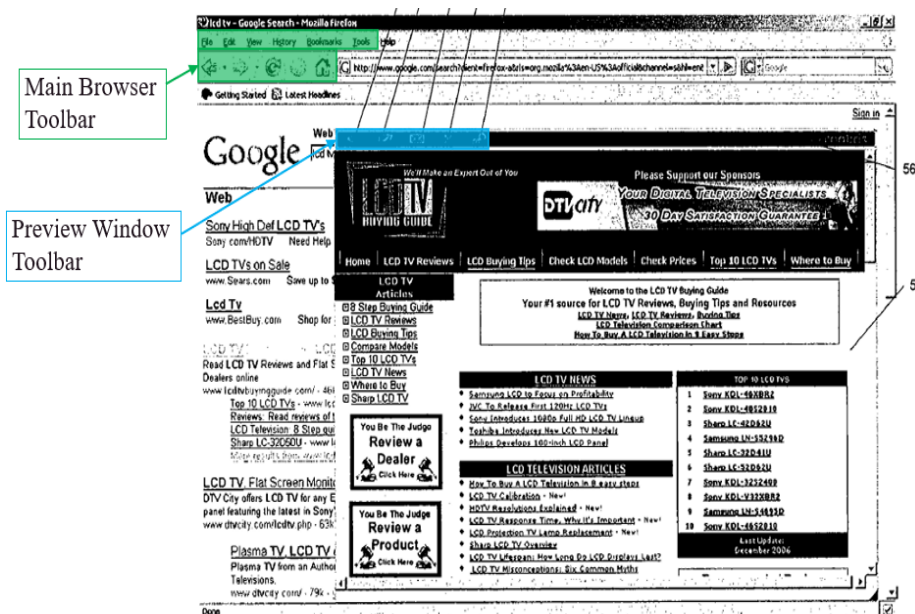
trackball, or directional keys that influence cursor movement and command selection. EX1005, Abstract; ¶[0083].

74. Bhumkar discloses two embodiments of the preview window. The first is a non-functional, static version that displays an image of the webpage (EX1005, ¶¶[0041], [0049]–[0050]; FIG. 2), while the second is a functional, dynamic version capable of loading and interacting with a live web page. EX1005, ¶¶[0071]–[0072]; FIG. 5. Bhumkar teaches that the functional embodiment of its preview window includes a toolbar and conventional browser functionality. EX1005, FIGs. 2, 4. Bhumkar does *not* disclose toolbar functionality as part of its non-functional embodiment. EX1005, FIG. 5.

75. In the functional, dynamic embodiment, the preview window is not merely a visual reference but a fully interactive browser interface. Bhumkar explains that this version “may offer or permit any conventional browser functionality, such as Back, Jump to, Close, Share, Lock, RSS, WAP, Sidekick, Stumble, Full Screen, etc., in order to further facilitate solutions to the aforementioned problems.” EX1005, ¶[0040]. Moreover, Bhumkar emphasizes that the quick view feature inherits the full capabilities of the primary browser window: “Because the quick view relies on the use of a hidden frame within the browser, all of the functionality available to the browser is available to the quick view process.” *Id.*, ¶[0066].

76. This functionality is visually represented in FIG. 5, where toolbar 56 is

shown integrated into preview window 54. The toolbar in the preview window mirrors that of the main browser window, reinforcing Bhumkar's teaching that full browser capabilities are preserved in the quick view mode. EX1005, FIG. 5.



C. Griffin

77. Griffin describes “an apparatus for and method of modifying a touch threshold” that may be employed to “trigger performance of functions, such as provision of tactile feedback.” EX1006, ¶[0014]. This process is visually detailed in Griffin’s FIG. 7, which outlines a “method of modifying a touch threshold.” *Id.*, ¶[0039].

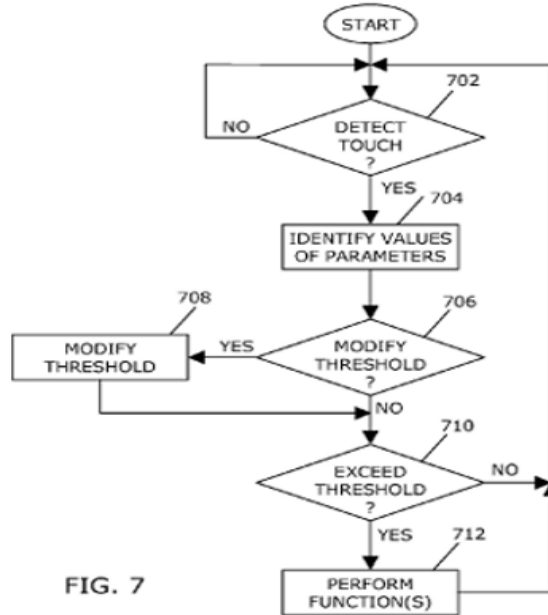


FIG. 7

78. According to the flowchart in FIG. 7, the method begins at step 702, where a touch input is detected. Then, at step 704, the system identifies various parameters associated with the touch. EX1006, ¶[0040]. Based on this information, step 706 involves evaluating whether the system should alter the existing touch threshold. *Id.*, ¶[0041]. Once that determination is made, step 710 compares the identified touch parameters to either the original threshold or a newly modified threshold, depending on which one is currently in effect. *Id.*, ¶[0053]. If the parameters do not exceed the operative threshold, the system loops back to detect a new touch at step 702. If the threshold is met or exceeded, the process advances to step 712, where one or more system functions are executed.

79. Griffin offers a specific use case for this threshold modification

mechanism: when a high frequency of unintended touches occur within a short timeframe—such as when a device is stored in a pocket or bag. In such situations, “the force threshold aspect of the touch threshold may be increased for a fixed period of time or until the inadvertent touches are not detected.” *Id.*, ¶[0043]. This means that for a set duration, the device requires a higher force input to activate functions, thereby minimizing accidental activations. Griffin explains that this approach ensures “the inadvertent touches do not activate any unintended functions (e.g., pocket-dial).” *See id.*, ¶[0061] (“reduces the occurrence of inadvertent touches causing functions to be performed, such as ... calling a contact”).

IX. GROUND 1: THE PETITION AS SUPPORTED BY DR. COCKBURN’S DECLARATION FAILS TO SHOW OBVIOUSNESS OF CLAIMS 1-3, 21, 29-31, 42-44 OVER BLUMENBERG, BHUMKAR, AND GRIFFIN

A. Dr. Cockburn’s Combination Fails to Meet All the Claimed Elements of Claims 1 and 42

80. As I have explained in Section VI.B of this declaration, the plain language of Claim 1 establishes a defined starting point for the programming logic implemented by the claimed electronic device: “a first contact starting at a first contact point at a first contact time on the touch-sensitive interaction surface.” Pet., vi, Limitation [1.h]. Claim 1 further recites that the programming logic must (a) determine when specific conditions pertaining to “the first contact” are satisfied, as set forth in Limitations [1.m.i]–[1.m.ii], [1.n.i]–[1.n.v], and [1.o.i]–[1.o.v], and (b)

perform the corresponding device actions recited in Limitations [1.m.iii], [1.n.vi], and [1.o.vi]–[1.o.viii] upon making that determination. *See* Section VI.B. Dr. Cockburn acknowledges that the parallel limitations (*i.e.*, Limitations [42.h]–[42.j]) in Claim 42 are substantially the same. EX1003, ¶181; Pet., 64.

1. Limitations [1.m.], [42.h]

81. As described in the Petition (Pet., vi–vii), Limitation [1.m] includes Limitations [1.m.i]–[1.m.ii] (collectively referred to by Dr. Cockburn as the “First Scenario”) and Limitation [1.m.iii]. Limitation [1.m] requires that the programming logic execute the action identified in [1.m.iii] (“avoid display, on the first web page, a result of any operation based on the first contact”) “when” it is determined that the two identified preconditions are met: (1) the first web page is being displayed by the browser ([1.m.i]); and (2) the duration of the first contact is less than a configurable threshold and the end of the contact has been detected ([1.m.ii]). *See* EX1001, 103:10–16; Pet., vi–vii. The structure and language of Claim 1 make clear that the recited action—avoiding the display of a result based on the first contact—is causally dependent on the device determining that the specific preconditions have been satisfied. This relationship is inherent in the claim’s use of the word “when,” which links the determination of those preconditions directly to the triggering of the associated action. EX1001, 103:10–17; *see also* Section VI.B.1. Claim 42 includes substantially similar requirements, with Limitation [42.h] substantially similar to

Limitation [1.m]. See EX1001, 115:7–13; Pet., 64 (citing EX1003, ¶181) (explaining that “Claims 42–44, 54, 62–65 are substantially similar to Claims 1–3, 21, 29–31, respectively.”).

82. Dr. Cockburn relies on the combined teachings of Blumenberg and Griffin to argue that Limitations [1.m] and [42.h] are met. EX1003, ¶¶115-123; Pet., 34–36. However, as I explain in the following sections, Blumenberg does not disclose these limitations as required by the claims, and incorporating Griffin does not remedy Blumenberg’s deficiencies. Accordingly, the combination fails to teach or suggest the logic required to meet the full scope of Limitations [1.m] and [42.h].

a) Blumenberg Fails to Disclose Limitations Associated With The First Scenario

83. Blumenberg does not disclose the requirement that “when...the duration of the first contact is determined to be less than a first user-configurable predefined duration, and the end of the first contact is detected,” the device “avoid[s] display[ing], on the first web page, a result of any operation based on the first contact” as required by Limitation [1.m.ii] and [1.m.iii] of Claim 1. The same is true for the corresponding limitation in Claim 42 ([42.h]). In attempting to map these limitations, Dr. Cockburn relies on ¶[0049] of Blumenberg, which states that hyperlink preview information “is displayed after the contact is maintained for at least a predetermined time.” EX1003, ¶¶60, 119; Pet., 34 (citing EX1004, ¶[0049]). From this, Dr. Cockburn infers that if a user ends contact with the screen before the

predefined duration, the device will “avoid display” of the hyperlink preview. *Id.* To bolster this inference, he further cites ¶[0034] of Blumenberg, which states that “inadvertent contact with an icon may not select the corresponding symbol.” EX1003, ¶¶60, 118; Pet., 34–35 (citing EX1004, ¶[0034]).

84. First, Dr. Cockburn’s effort to connect disparate and unrelated portions of Blumenberg is not supported. Even assuming that Blumenberg’s portable electronic device avoids displaying hyperlink previews when contact duration is too short, this still falls short of what Claims 1 and 42 require. Limitation [1.m.iii] and [42.h] require that the device not just avoid showing the preview, but also “avoid display ... [of] ***a result of any operation*** based on the first contact.” Avoidance of a specific outcome (such as a preview) is insufficient; the claim language mandates that any result triggered by the contact be prevented from altering the display. Blumenberg is silent as to whether a brief contact might cause some other display change, and nothing in ¶[0049] provides a clear teaching that all display updates based on the first contact are suppressed when the duration threshold is not met.

85. Further, Blumenberg’s reference to “inadvertent contact” appears in the context of a different embodiment entirely—specifically, a virtual keyboard displaying icons. *See* EX1004, ¶[0034]. That paragraph describes a touchscreen interface in which a keyboard is rendered on a “defined region” of the screen and includes “a plurality of icons” representing symbols. Blumenberg explains that an

“inadvertent contact with an icon”—such as a swipe—may not select the corresponding symbol if the expected input gesture is a tap. *Id.* A POSITA, reading this disclosure in context, would understand that it pertains to gesture differentiation within a soft keyboard UI, not to hyperlink behavior. A POSITA would not equate a virtual keyboard icon with a hyperlink, given that they serve different functions, are located in different interface regions, and respond to different user inputs.

86. Dr. Cockburn suggests that Blumenberg’s statement about ignoring inadvertent touches with icons can be generalized to its hyperlink embodiments, but he offers no analysis or rationale for that conclusion. *See* EX1003, ¶¶118-119; Pet., 34–35. He does not explain how this behavior would be implemented in the hyperlink context or why a POSITA would have been motivated to apply that functionality beyond the specific icon-based UI. In my view, a POSITA would not draw that connection without explicit teaching or suggestion, especially given the differences between keyboard input and hyperlink selection. The icon gesture logic described in EX1004, ¶[0034]—which distinguishes between tap and swipe—has no relevance to a static touch held for a short duration, which is what the claims contemplate. Moreover, there is no technical basis to conclude that a short-duration touch of under 0.2 seconds would be considered “inadvertent” as Dr. Cockburn assumes. On the contrary, existing literature and design practices suggest that touches up to 100 milliseconds (0.1 seconds) fall within the accepted range for

deliberate tap gestures. For example, Hammer.JS (an open-source Javascript library for touch gestures) states: “[...] if it is touchstart + touchend and less than 100ms passed between two events then it looks like a tap.” EX2005, 1/2. This is also supported by the disclosure of Blumenberg which requires that the contact be “maintained for at least a predetermined time” to reach the 0.2 second threshold. EX1004, ¶[0049]. The language that the contact must be “maintained” suggests this threshold is associated with a gesture that is more than just a tap, such as a hold (aka a “long press”) gesture.

87. For at least these reasons, Dr. Cockburn’s combination of Blumenberg, Bhumkar, and Griffin fails to satisfy the requirements of Limitations [1.m] and [42.h].

b) The Combination With Griffin Fails To Cure The Deficiency

88. The proposed combination of Blumenberg with Griffin does not teach or suggest a device that “avoid[s] display[ing]...a result of any operation based on the first contact” when that contact lasts less than Blumenberg’s so-called “selection threshold”—a threshold Dr. Cockburn equates with the “first user-configurable predefined duration” recited in the claims. EX1003, ¶¶120-123; Pet., 34–35. To support this position, Dr. Cockburn relies on portions of Griffin that describe mechanisms for detecting “inadvertent” touches when a device is “carried in a pocket or bag” and then altering how the system processes input signals to prevent

accidental activation of functions. EX1003, ¶¶120-123; Pet., 35 (citing EX1006, ¶¶[0033], [0043], [0061]). However, Dr. Cockburn’s Declaration fails to provide a clear or specific reason why a POSITA would have been motivated to incorporate this type of functionality into Blumenberg’s hyperlink preview system. The only stated rationale appears to concern modifying Blumenberg to include a “user-configurable predefined duration,” but this alone does not justify the adoption of Griffin’s touch rejection mechanisms for pocket-dial prevention. EX1003, ¶122; Pet., 35–36. Dr. Cockburn’s Declaration does not explain why a POSITA would view Griffin’s disclosure—which addresses a distinct use case involving accidental touches while a device is concealed in a user’s clothing—as relevant to the context of hyperlink activation on a visible, actively used touchscreen interface. A POSITA would distinguish between a passive, unintended touch caused by environmental contact and an intentional user interaction that is merely brief in duration. Griffin addresses the former, while the claims address the latter. Further, a POSITA would recognize that Blumenberg already solves that problem of inadvertent inputs when a device “is carried in a pocket or bag” by permitting a user to lock the screen. EX1004, ¶[0025] (“A quick press of the push button (not shown) may disengage a lock of the touch screen 112.”).

89. Additionally, Griffin’s teachings are fundamentally incompatible with the logic required by Limitations [1.m.i]–[1.m.iii] and [42.h]. Griffin discloses

strategies for reducing inadvertent input in scenarios where the device is not being actively used—namely, when it is “carried in a pocket or bag.” EX1006, ¶¶[0033], [0043]; Pet., 35. Specifically, Griffin describes detecting patterns of repeated, unintentional touches that serve as indicators the device is being stored and then responding by increasing a force threshold required for interaction. EX1006, ¶[0043]. This results in suppression of unintended operations, such as accidental dialing, by requiring greater force to register a valid input. *See* EX1006, ¶[0043]. Griffin’s technique is reactive to multiple touch events, not to a single brief contact as described in the claim language. *Id.* A POSITA reviewing Griffin’s disclosure would recognize that its functionality is not directed at individual touch duration thresholds, but rather at cumulative behavioral patterns over time. The action taken—adjusting the force threshold—is not triggered by the duration of a single, deliberate contact, but instead by an environment-based condition inferred from a sequence of touch inputs.

90. Accordingly, Griffin does not teach or suggest logic for avoiding the display of any result of an operation based solely on the characteristics of a first contact, as required by the claims. Moreover, a POSITA would not have reasonably interpreted Griffin’s teaching to mean that a single short-duration contact should automatically be treated as inadvertent. Griffin’s focus on environmental context and touch frequency would not inform a design decision in the context of

Blumenberg's hyperlink interactions, which concern user selections within a browser interface.

91. For at least these reasons, Dr. Cockburn's combination of Blumenberg, Bhumkar, and Griffin fails to satisfy the requirements of Limitations [1.m] and [42.h].

2. Limitations [1.n], [42i]

92. As described in the Petition (Pet., vi–vii), Limitation [1.n] includes Limitations [1.n.i]–[1.n.v] (collectively referred to by Dr. Cockburn as the “Second Scenario”) and Limitation [1.n.vi]. Limitation [1.n] requires that the programming logic execute the action identified in [1.n.vi], “replace the display of the first web page with the second web page via the user interface of the network browser application,” when the device determines that each of five recited preconditions are satisfied. These include, for example, that “the duration of the first contact is determined to be greater than the first user-configurable predefined duration and less than a second user-configurable predefined duration” ([1.n.ii]) and that “the end of the first contact is detected” ([1.n.v]). Pet., vii; EX1001, 103:17–31. As I’ve previously explained (*see* Section VI.B.1), Claim 1 employs causal language that plainly requires the action to occur in response to the device determining that these preconditions are met. Claim 42 includes substantially similar requirements, with Limitation [42.i] substantially similar to Limitation [1.n]. *See* EX1001, 115:14–29;

Pet., 64 (citing EX1003, ¶181); Section VI.B.2.

a) Dr. Cockburn Mischaracterizes Blumenberg's Disclosure Regarding The Second Scenario

93. To support his mapping for Limitations [1.n] and [42.i], Dr. Cockburn relies on what he describes as Blumenberg's second operational scenario—namely, the situation in which “the selected link is activated by a contact break if the link information was displayed for less than a first predetermined amount of time,” which Dr. Cockburn's refers to as the “activation threshold.” EX1003, ¶¶61-62, 127-128; Pet., 9, 37–38 (citing EX1004, ¶[0051]). To bolster this theory, Dr. Cockburn points to additional disclosure in the same paragraph that mentions that “the activation of the link may be triggered by ... a *quick tap*.” See EX1003, ¶¶61-62, 127-128; Pet., 9, 37–38; EX1004, ¶[0051].

94. This is a mischaracterization of Blumenberg's teachings. Blumenberg does not associate the “quick tap” with its second operational scenario, but rather with its third operational scenario, which is discussed separately in the same paragraph. According to Blumenberg, when “the link information was displayed for more than that amount of time,” the user must “break contact and tap the link information”—*i.e.*, perform a second, separate interaction—to activate the hyperlink. See EX1004, ¶[0051] (“the activation of the link may be triggered by ... a quick tap on the touchscreen 208 *after breaking*” the first contact.). The phrase “activation of the link may be triggered by ... a quick tap” refers to this second

gesture, which occurs *after* the initial contact has been broken. *See also* EX2010, 65:13-17 (“Q: Is it fair to say that the quick tap on the touchscreen is described as one that occurs after breaking contact? A. It reads, ‘such as a quick tap on the touch screen 208 after breaking contact.’”).

95. Accordingly, a POSITA would not interpret Blumenberg’s reference to “a quick tap” as describing an action that is part of the same contact that activates a link in the second operational scenario (*i.e.*, when the contact with the screen is broken while the preview has been visible for less than the “activation threshold”). Instead, a POSITA would understand the quick tap as a distinct, subsequent gesture that functions as a confirmation action in the third scenario. Because Limitation [1.n] and its counterpart [42.i] require the action—replacing the display of the first web page—to be triggered by conditions relating to “the first contact,” a separate contact does not satisfy the claim.

96. For at least these reasons, Dr. Cockburn’s combination of Blumenberg, Bhumkar, and Griffin fails to satisfy the requirements of Limitations [1.n] and [42.i].

b) Blumenberg Fails To Disclose The Limitations Associated With The Second Scenario

97. Blumenberg does not disclose that “when... the duration of the first contact is determined to be greater than the first user-configurable predefined duration and less than a second user-configurable predefined duration...and the end of the first contact is detected” (as recited in Limitations [1.n.ii] and [1.n.v]), the

device “replace[s] the display of the first web page with the second web page via the user interface of the network browser application” (as recited in Limitation [1.n.vi]). The same omission is present with respect to the corresponding aspects of Limitation [42.i].

98. As discussed above, Dr. Cockburn maps these limitations to Blumenberg’s second operational scenario, in which “the selected link is activated by a contact break if the link information was displayed for less than a first predetermined amount of time”—a duration that he labels the “activation threshold.” EX1003, ¶¶61-62, 125-129, Pet., 37–38 (citing EX1004, ¶[0051]). However, this disclosure does not satisfy Limitation [1.n.ii] or the corresponding portion of [42.i], because the claims do not turn on how long the hyperlink preview is displayed, but rather on how long the user maintains the first contact with the touchscreen. As the claims expressly recite, the device must “determine a duration of the first contact as a difference between the first contact time and the second contact time,” where “the first contact time” is when the contact begins, and “the second contact time” is when that contact ends. *See* EX1001, 102:63–103:67; *See also* Section VI.B.3. Blumenberg contains no teaching that its portable electronic device makes any such duration determination for the initial contact as required by the claims. Instead, its logic centers around how long preview information is displayed—not how long the user maintains physical contact with the touchscreen. EX1004, ¶[0051]. A POSITA

would recognize that display time and contact time are separate measurements and would not equate the two without an express link in the reference.

99. Moreover, to the extent Dr. Cockburn attempts to invoke Blumenberg’s “quick tap” mechanism as support for satisfying these claim elements—which, for reasons I have discussed previously, is improper—that functionality does not meet the requirements of Limitations [1.n] and [42.i]. The claims require that the device “replace the display of the first web page with the second web page” based on a determination that the first contact satisfies certain timing conditions and that “the end of the first contact is detected.” EX1001, 103:17–31. However, Blumenberg explicitly states that the “quick tap” activation is “triggered by a gesture, such as a quick tap on the touch screen 208 *after breaking contact.*” EX1004, ¶[0051] (emphasis added). Thus, the quick tap occurs as a separate, second contact—distinct from the first contact used to determine the thresholds in the claim—and cannot satisfy claim language that requires the action to be triggered by a determination that the circumstances of the the first contact satisfy the preconditions. A POSITA would not read Blumenberg as disclosing that the action in Limitation [1.n.vi] is performed in response to an evaluation of the original contact, as the reference clearly describes an entirely new gesture initiating the activation.

100. For at least these reasons, Dr. Cockburn’s combination of Blumenberg, Bhumkar, and Griffin fails to satisfy the requirements of Limitations [1.n] and [42.i].

3. Limitations [1.o], [42j]

101. As described in the Petition (Pet., vii-viii), Limitation [1.o] includes Limitations [1.o.i]-[1.o.v] (collectively referred to by Dr. Cockburn as the “Third Scenario”) and Limitations [1.o.vi]-[1.o.viii]. Limitation [1.o] requires that the programming logic execute three specific actions set forth in Limitations [1.o.vi] through [1.o.viii] when the device determines that five preconditions, recited in Limitations [1.o.i] through [1.o.v], are satisfied. Pet., vi–vii; EX1001, 103:32–55, 115:30–53. The required actions include: “[1.o.vi] output, utilizing the actuator, a first feedback,” “[1.o.vii] display a menu... for performing an operation on a webpage associated with the hyperlink,” and “[1.o.viii] display at least a portion of the second web page.” EX1001, 103:32–55, 115:30–53. The key distinctions between the preconditions of Limitation [1.o] and those of Limitation [1.n] are that Limitation [1.o.ii] requires “the duration of the first contact is determined to be greater than the second user-configurable predefined duration,” and Limitation [1.o.v] requires that “the end of the first contact is not detected.” These preconditions confirm that the claimed actions must occur while the first contact is still ongoing. As discussed previously, Claim 1 requires that actions be performed in response to the determination that all recited preconditions have been met. *See* Section VI.B.1.

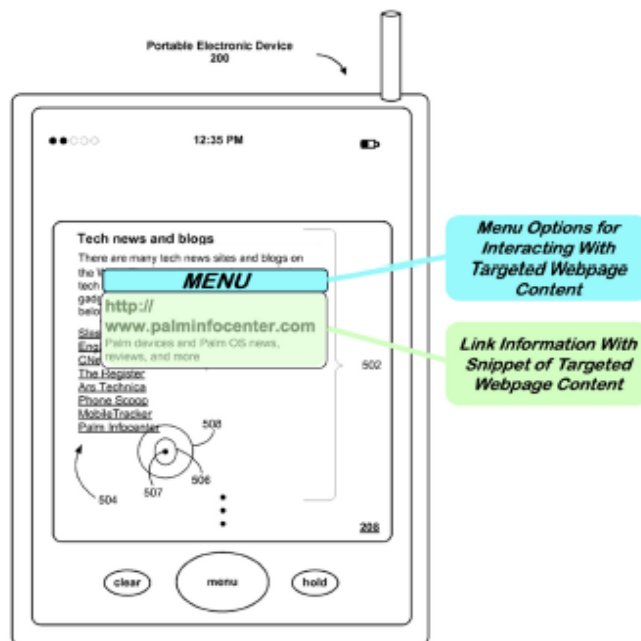
102. Claim 42 contains a substantively similar requirements, with Limitation [42.j] substantially similar to Limitation [1.o]. EX1001, 115:30–53; Pet., 64 (citing

EX1003, ¶181) (explaining that “Claims 42–44, 54, 62–65 are substantially similar to Claims 1–3, 21, 29–31, respectively”). To meet these limitations, the Dr. Cockburn proposes two separate modifications of Blumenberg. Neither is sufficient.

a) [1.o.vii]-[1.o.viii] – Dr. Cockburn’s First Modification Fails

103. Dr. Cockburn’s first proposed modification of Blumenberg (the “First Modification”) involves altering Blumenberg’s hyperlink preview functionality to include a menu of options, as purportedly taught by Bhumkar. EX1003, ¶¶69, 146; Pet., 13–14 (citing EX1005, ¶¶[0021], [0042]–[0043]). This proposal is illustrated in Dr. Cockburn’s modified version of Blumenberg’s FIG. 5F, in which the hyperlink preview is shown in green and the added menu is shown in blue. EX1003, ¶¶69, 146; Pet., 13–14. Dr. Cockburn asserts that the added menu corresponds to the recited action “display a menu ... for performing an operation on a webpage associated with the hyperlink” in Limitation [1.o.vii], and that the hyperlink preview corresponds to the recited action “display at least a portion of the second web page” in Limitation [1.o.viii]. EX1003, ¶¶146, 151; Pet., 46, 49.

104. As described by Dr. Cockburn, the First Modification incorporates Bhumkar’s teaching of a toolbar that appears within a preview window, combining it with Blumenberg’s system for displaying hyperlink preview content. EX1003, ¶¶69, 146, 151; Pet., 13–14; *see also* Pet., 46 (citing EX1004, ¶[0048]; EX1005, ¶[0071], FIG. 5).



105. As Dr. Cockburn acknowledges, Blumenberg teaches that hyperlink preview information (i.e., “information associated with the link”) is displayed when the duration of the user’s contact with the screen exceeds a “selection threshold,” which he equates to a “first user-configurable predefined duration.” See EX1003, ¶¶69, 146, 151; Pet., 36-38; EX1004, ¶[0049]. And Bhumkar teaches that its toolbar is integrated into the preview window and displayed simultaneously. See EX1005, ¶[0071] (“preview window 54 includes a toolbar 56”), FIG. 5. Thus, under Dr. Cockburn’s proposed modification, the menu and the hyperlink preview would be displayed simultaneously once the contact exceeds the “selection threshold,” which he equates to the claimed “first user-configurable predefined duration.”

106. But Limitations [1.o] and [42.j] do not recite display of the menu and

second web page in response to the “first user-configurable predefined duration” being exceeded. Rather, those limitations require that the menu and second web page be displayed “when” a determination is made that the contact duration is “greater than the second user-configurable predefined duration.” *See* EX1001, 103:32–55; 115:30–53; *see also* Pet., vii–viii, xii. Dr. Cockburn’s First Modification fails to satisfy that requirement. In particular, the alleged display of the menu ([1.o.vii]) and display of the second web page ([1.o.viii]) are not triggered in response to contact exceeds the “the second user-configurable predefined duration,” which he equates to the an “activation threshold.”

107. Rather, under Dr. Cockburn’s proposal, these actions occur before such a determination is ever made in relation to an “activation threshold.” A POSITA would recognize that triggering these actions based on the “selection threshold,” fails to satisfy the plain language of the claims. Dr. Cockburn’s proposed modification would cause the menu and preview to be displayed too early, based on a condition (exceeding the “selection threshold”) that does not fulfill the requirement of Limitation [1.o.ii] (“the duration of the first contact is determined to be greater than the second user-configurable predefined duration”). Accordingly, this modified version of Blumenberg does not perform the recited actions “when” the full set of conditions in Limitations [1.o.i]–[1.o.v] is met, as required by the claims.

108. For at least these reasons, Dr. Cockburn’s First Modification of

Blumenberg fails to satisfy the requirements of Limitations [1.o] and [42.j].

b) [1.o.vii]/[1.o.viii] – Dr. Cockburn’s Second Modification Fails

109. Dr. Cockburn’s second proposed modification of Blumenberg (the “Second Modification”) is one in which he asserts that “the complete set of limitations at Elements [1.o.vi] – [1.o.viii]”—which include “display[ing] a menu” and “display[ing] at least a portion of the second web page”—“is caused by and only occurs in conjunction with the complete set of limitations at Elements [1.o.i] – [1.o.v] that constitute the claimed condition.” EX1003, ¶¶69, 147, 158; Pet., 52. Specifically, Dr. Cockburn proposes modifying Blumenberg to include “output of feedback perceptible by touch (as taught by Griffin) and the display of a menu (as taught by Bhumkar)” after the “contact duration exceed[s] the activation threshold.” EX1003, ¶158; Pet., 52. He further contends that the display of the hyperlink preview—which he equates with “display[ing] ... a portion of the second webpage”—would be “paired with tactile feedback and a menu *only after and as a consequence of the activation threshold.*” Pet., 52–53 (citing EX1003, ¶158) (emphasis added).

110. This Second Modification fails because it would render key aspects of Blumenberg’s system inoperative. Blumenberg teaches that hyperlink preview information is initially displayed when a user maintains contact for a short period (e.g., 0.2 seconds), which Dr. Cockburn refers to as the “selection threshold.” Pet.,

9 (citing EX1004, ¶[0049]). Blumenberg further teaches that if the user breaks contact shortly after, the hyperlink may be activated, provided the preview was displayed for less than a longer “activation threshold.” EX1004, ¶[0051]; Pet., 9, 37–38. Dr. Cockburn relies on this sequence of behavior to map Limitations [1.n] and [42.i] to Blumenberg. EX1003, ¶¶125-129; Pet., 9, 37–38.

111. If Blumenberg were modified in the manner Dr. Cockburn proposes, the hyperlink preview would no longer be displayed at the short selection threshold, but instead only after the longer activation threshold. EX1003, ¶158; Pet., 52 . As a result, the second operational scenario described in Blumenberg—which Dr. Cockburn maps to the Second Scenario of the claims—would no longer function, because the preview that triggers link activation would not be available until too late. A POSITA would recognize that this breaks the logic of Blumenberg’s disclosure, rendering the system nonoperational for its intended purpose.

112. Additionally, the Second Modification introduces performance and usability disadvantages that are not addressed in Dr. Cockburn’s analysis. For example, the proposed change would require users to maintain contact for a significantly longer duration before any meaningful display (menu or preview) is shown. This would result in a slower, less efficient, and less responsive user interface than what is described in the original Blumenberg system. A POSITA would have viewed this as a degradation of performance, not an improvement.

113. Moreover, Blumenberg expressly teaches away from displaying any additional content after the activation threshold is reached. In particular, Blumenberg states that “if the contact is held for longer than a second predetermined amount of time”—*i.e.*, beyond the activation threshold—“whatever link information that is displayed is removed from display and the link is not activated.” EX1004, ¶[0051]. Dr. Cockburn’s proposed modification is therefore in direct conflict with this teaching. A POSITA would have recognized that modifying Blumenberg to instead add more content at this point would undermine its clear design intent, and would not have been motivated to make such a change.

114. Dr. Cockburn’s only support for his proposed Second Modification is his conclusory testimony that claims that Blumenberg’s “extended touch duration indicates the user’s competing interests,” which a POSITA would purportedly have “attempt[ed] to address” by “integrat[ing] functionality [*i.e.*, displaying the menu and hyperlink preview] to interact with the target webpage without leaving the current webpage.” EX1003, ¶¶79–80; Pet., 17–18. However, Dr. Cockburn provides no citation to any portion of Blumenberg’s disclosure—or any other prior art reference—that supports the proposition that maintaining contact with the screen reflects such “competing interests.” Blumenberg teaches only one outcome for extended contact: that if the contact is held for too long, “whatever link information that is displayed is removed from display and the link is not activated.” EX1004,

¶[0051]. A POSITA would understand this as an instruction to clear the screen of link-related content and terminate the operation, not as a cue to expand the interface with additional functionality. A POSITA would also recognize that modifying Blumenberg to do the opposite—*i.e.*, to display more information at that point—would not only contradict the reference but undermine its intended user experience and interface logic.

115. For at least these reasons, Dr. Cockburn’s Second Modification of Blumenberg fails to satisfy the requirements of Limitations [1.o] and [42.j].

c) A POSITA Would Not Have Made Any Other Alternative Modification

116. To the extent Dr. Cockburn now attempts to rely on a third modification of Blumenberg—in which Blumenberg’s hyperlink preview is displayed after the selection threshold, and the menu is only added to the display after the activation threshold—his assertions are not supported. Dr. Cockburn’s declaration contains no substantive discussion of such a sequential display approach in the main body of the text. Instead, Petitioner and Dr. Cockburn make this assertion in a single footnote, stating that “to the extent” the Board interprets the conditional limitations of the Challenged Independent Claims differently from his proposed construction, “a POSITA would have pursued ... a design option” in which “the menu options [are] displayed only when the conditions of Elements [1.o.i] – [1.o.v] occur.” Pet., 46 n.7 (citing EX1003, ¶147); EX1003, ¶¶77-82. That footnote cites to Dr. Cockburn’s so-

called “‘fourth’ motivation rationale,” and includes no further explanation or citation to evidence. *Id.* Further, the section of the Declaration referencing this “fourth motivation rationale” merely states that “a POSITA would have appreciated that there are additional benefits to introducing menu options to the displayed webpage preview after the duration of the user’s touch surpasses Blumenberg’s activation threshold.” EX1003, ¶81; Pet., 18 (emphasis in original). But this statement is presented as a general design opinion, not a specific mapping to any particular limitation or claim term. Critically, Dr. Cockburn’s Declaration never explains how this alleged two-stage display—first displaying the hyperlink preview, then separately displaying the menu—would satisfy the requirements of Limitations [1.o] and [42.j], nor does it provide any analysis regarding the timing or conditional logic required by the claims. And Dr. Cockburn cites no prior art reference or empirical basis to support the notion that a POSITA would have pursued or implemented such a sequential display model.

117. Furthermore, to the extent Dr. Cockburn now argues that Blumenberg’s snippet could simply be replaced with Bhumkar’s “‘quick view’ or ‘preview’ of a target web site,” that position is also flawed. EX1003, ¶152; Pet., 50. Blumenberg’s hyperlink preview, as shown in FIG. 5F, includes a modest amount of display data—a URL and a short snippet of content—suitable for presentation on a small-format portable electronic device. *See* EX1004, FIG. 5F. A POSITA would have recognized

that Blumenberg’s interface was tailored to the strict screen size constraints of mobile devices. By contrast, Bhumkar’s preview interface, which includes a full-scale rendering of an actual or functional web page in a desktop browser window, is significantly more information-dense and visually demanding. *See* EX1005, ¶[0071], FIG. 5. A POSITA would understand that substituting Bhumkar’s preview in place of Blumenberg’s would require fundamental changes to the user interface, device rendering capabilities, and screen layout logic. This is not a mere substitution of equivalent elements, but rather a complete re-architecting of the display framework, particularly in light of mobile power and performance limitations.

118. Even if such a redesign were attempted, it would still not satisfy Limitations [1.o] and [42.j]. The claims require that the recited actions of displaying a menu and displaying a portion of the second web page occur only “when” the set of preconditions in Limitations [1.o.i] – [1.o.v] are met—including that the duration of the first contact exceeds a second user-configurable predefined duration. If, as in Dr. Cockburn’s proposal, the hyperlink preview is displayed before this activation threshold is crossed and simply continues to display past it, the claim requirement that the action occur in response to the condition is not met. *See* Section IX.A.3.a)

119. Moreover, neither Blumenberg nor Bhumkar teaches or even suggests a user interface behavior in which content is displayed in stages based on successive thresholds. Blumenberg discloses that all of its hyperlink preview content—the

URL, title, and snippet—is displayed simultaneously after crossing the initial duration threshold. *See* EX1004, ¶¶[0048]–[0049], FIGs. 5C, 5E. Bhumkar likewise teaches that its preview window and integrated toolbar appear at the same time; it does not disclose nor suggest a model in which the toolbar is delayed until some further condition is met. *See* EX1005, ¶[0071], FIG. 5. The concept of a sequential user interface in which only part of the content appears initially and additional elements appear later based on touch duration is not supported by either reference. Even the expert testimony cited by Dr. Cockburn (EX1003, ¶¶79–82) contains no citation or demonstration of any such implementation. A POSITA would not have found a motivation, teaching, or expectation of success for pursuing such a non-standard and unreferenced interaction model.

120. For at least these reasons, Dr. Cockburn’s assertions regarding an alternative or “third” modification of Blumenberg fails to satisfy Limitations [1.o] and [42.j].

B. A POSITA Would Not Have Been Motivated to Modify Blumenberg’s Link Information to Have a Menu

121. Dr. Cockburn’s alleged motivations to modify Blumenberg’s hyperlink preview functionality are deficient because they rely on the mistaken assumption that user interface components designed for desktop web browsers, like those disclosed in Bhumkar, are readily transferable to the constrained environments of portable electronic devices, such as those disclosed in Blumenberg. Blumenberg

discloses a mobile device or portable electronic device. EX1004, ¶[0020]. On the other hand, a POSITA would understand that Bhumkar discloses a desktop browser. EX1005, ¶¶[0065] (“using desktop search tools”), [0089], FIGs. 1, 2, 5. While Bhumkar does acknowledge that “hand-held devices” may be considered (EX1005, ¶¶[0080]), a POSITA at the time would have understood that desktop and mobile device interfaces present fundamentally different design challenges and technical constraints. For instance, the interface examples employed in Bhumkar’s desktop context (which are dependent on “cursor control events”) do not translate directly to mobile environments, which are constrained by limited screen size, processor performance, and power budgets. *See* EX2004, 1/12 (“Mobile Sites Are Different from Desktop Web Sites”). Furthermore, Blumenberg itself identifies the screen size limitation of mobile devices as a key problem impacting user experience, particularly in relation to web browsing and hyperlink navigation. EX1004, ¶[0004]. Dr. Cockburn, when questioned, conceded that he was not aware of any disclosure in Blumenberg linking screen size constraints to desktop systems. *See* EX2010, 48:11-14 (“Q. And are you aware of any other disclosure in Blumenberg that links screen size as a drawback associated with desktop computers? A. don't recall any such explicit disclosure, no.”). Against this backdrop, none of Dr. Cockburn’s proposed motivations provide a plausible reason that a POSITA would have incorporated the toolbar of Bhumkar’s conventional web browser into Blumenberg’s

user interface, which is specific to portable electronic devices.

122. Therefore, from the perspective of a POSITA, Dr. Cockburn's rationale for combining Bhumkar's desktop-oriented toolbar with Blumenberg's mobile-focused system lacks credibility.

1. Dr. Cockburn's Modifications To Blumenberg Are Incompatible With Its Teachings

123. A POSITA would not have been motivated to combine the conventional desktop browser functionality disclosed in Bhumkar with the portable electronic device described in Blumenberg. As Blumenberg explains, a portable device's "small screen size limits the amount of information and/or the size of the information that can be shown on the screen" and "pose[s] problems for web browsing on such devices because links in webpages displayed on a small screen may not be perceived easily by users." EX1004, ¶[0004]. These screen size constraints result in a user experience where "getting information about the hyperlinks and navigating to other web-pages via the hyperlink takes on a hit-or-miss character, which can frustrate users and make the web browsing experience ... cumbersome." EX1004, ¶[0004]. To address this problem, Blumenberg teaches presenting a simplified and legible hyperlink preview that includes, for example, magnified text of the URL and optionally a "snippet of content from the page to which the link points and/or a summary of the content from the page." EX1004, ¶[0048]; *see also* ¶[0053] ("The link information 510 is displayed at a legible size, such as 14 point or larger,"

including “18 point text.”). This allows the user to confirm link relevance without navigating away from the current page, all while accommodating the display limitations of a portable device. A POSITA would understand that these problems are specific to mobile devices and are fundamentally different from those associated with the conventional web browsing environments described in Bhumkar. Indeed, Dr. Cockburn conceded in deposition that Blumenberg “makes no explicit mention of personal computers” when asked to confirm that Blumenberg ¶[0058] “does **not** expressly state that either screen size or....more efficient ways to convey hyperlink information” are problems associated with conventional web browsers available on a PC. EX2010, 49:20-25.

124. Moreover, a POSITA would have understood that Blumenberg’s emphasis on readability through large text and simplified layout—combined with the inherent display constraints of small mobile screens—leaves little room for integrating additional features like a toolbar. EX1004, ¶[0053]; *see also* EX1004, FIGs. 5C, 5E-5H. In contrast, Bhumkar’s preview window is a robust and interactive interface that displays a fully functioning web page, complete with a conventional desktop toolbar. EX1005, ¶[0070]. Incorporating such functionality into Blumenberg’s device would require substantial modification to its core design, and a POSITA would understand that the preview methods in the two systems are intended to address different technical problems in fundamentally different hardware

contexts.

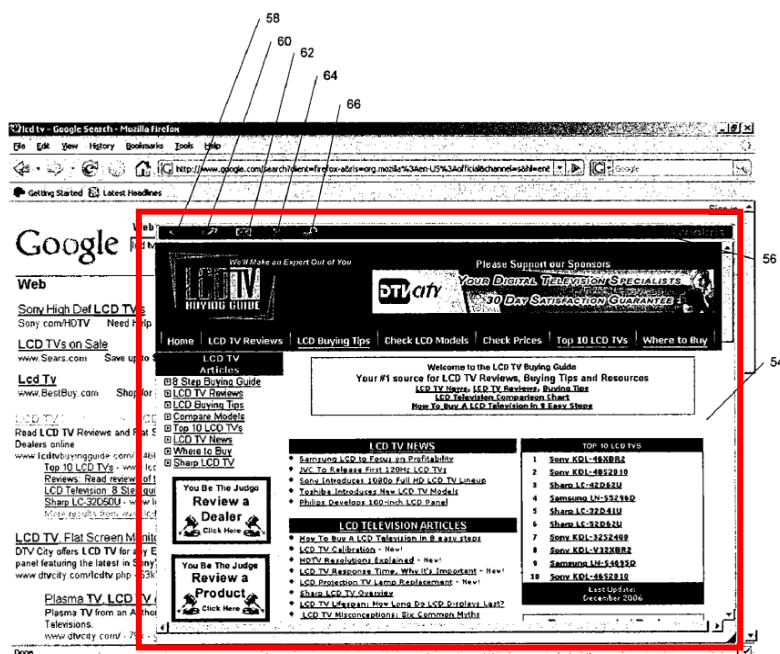


FIGURE 5

125. Bhumkar’s focus on rendering an entire functional web page within a preview window is directly at odds with Blumenberg’s approach of showing limited textual data to maintain legibility.² In fact, Bhumkar criticizes traditional hyperlink snippets (such as URLs and small excerpts of page text) as providing “little or no information on which to base a decision as to the relevance of the associated web page.” EX1005, ¶[0006]. As Bhumkar further explains, search results typically include only “a few lines of text clipped from the target web page,” which are “usually limited to a few words which may or may not help the searcher in assessing

² See EX1004, ¶[0040] (describing the information included in Blumenberg’s hyperlink preview).

the relevancy of the returned result.” EX1005, ¶[0005]. This teaching would lead a POSITA to conclude that Blumenberg’s approach—focused on enlarged, legible snippets—is insufficient to satisfy Bhumkar’s stated objective of providing a meaningful preview to aid user decision-making. Thus, a POSITA would not have viewed the functionality described in Bhumkar as compatible with Blumenberg’s teachings, nor would they have regarded the substitution of Bhumkar’s “fully functioning web page” preview window for Blumenberg’s hyperlink preview as a simple or obvious design choice. Such a substitution would require substantial re-engineering to accommodate both the display limitations and the different user interaction models of mobile devices. As a result, Dr. Cockburn’s proposal to combine these teachings lacks both technical rationale and evidentiary support.

126. Further, when considering the teachings of Blumenberg and Bhumkar collectively, a POSITA would have understood that Bhumkar’s teaching to display a fully functioning webpage in a preview window is fundamentally incompatible with the design constraints and objectives of Blumenberg’s portable electronic device. Blumenberg explains that such devices suffer from limited screen real estate, noting that a “small screen size limits the amount of information and/or the size of the information that can be shown on the screen,” which “pose[s] problems for web browsing on such devices because links in webpages displayed on a small screen may not be perceived easily by users.” EX1004, ¶[0004]. As a result, “getting

information about the hyperlinks and navigating to other web-pages via the hyperlink takes on a hit-or-miss character, which can frustrate users and make the web browsing experience ... cumbersome.” EX1004, ¶[0004]. A POSITA would have recognized that the toolbar described in Bhumkar—associated with a fully functional browser preview window—would not translate to Blumenberg’s use case. Bhumkar’s toolbar is specifically designed for a conventional desktop web browser and includes controls such as “Back, Jump to, Close, Share, Lock, RSS, WAP, Sidekick, Stumble, [and] Full Screen.” EX1005, ¶0040. These functions presuppose the existence of a session history or multi-page browsing context, which is absent in Blumenberg’s hyperlink preview. Blumenberg’s system does not disclose a browsing session within the preview window—indeed, the hyperlink preview is not a functioning webpage, but rather a non-interactive display of selected link metadata (e.g., URL and snippet). Therefore, features like “Back” or “Jump to” would have no operational context in Blumenberg, and a POSITA would have regarded their inclusion as both unnecessary and incompatible. *See also* EX1005, ¶[0071] (discussing that “preview window 54 includes a toolbar 56” in the context of a functioning webpage).

127. This understanding is supported by Bhumkar itself, which explains that the toolbar is included only in embodiments where the preview window renders a full web page. *See* EX1005, ¶[0071]. Bhumkar omits the toolbar when the preview

window is a static representation, reinforcing that the toolbar's usefulness is context-dependent and not universally applicable. Thus, from the perspective of a POSITA, there would be no motivation to add Bhumkar's toolbar to Blumenberg's hyperlink preview, which is not a functional browsing environment.

128. Despite these incompatibilities, Dr. Cockburn nonetheless contends that a POSITA would have been motivated to modify Blumenberg's hyperlink preview to include the functionality of Bhumkar's desktop toolbar. However, this assertion fails to address the fundamental disconnect between the intended operating environments and design philosophies of the two systems. As explained above, the teachings of Bhumkar are tailored to improving user navigation and information access in a desktop browsing context, while Blumenberg is focused on alleviating the limitations posed by small screens in mobile devices. A POSITA would have recognized that overlaying Bhumkar's toolbar into Blumenberg's constrained interface would not only impair usability but contradict Blumenberg's very purpose—to simplify and streamline the presentation of hyperlink information. Accordingly, a POSITA would not have been motivated to implement the toolbar of Bhumkar in the context of Blumenberg's non-functional, static hyperlink preview.

a) Dr. Cockburn's "Sharing" Modification

129. First, Dr. Cockburn contends that a POSITA would have been motivated to incorporate the sharing functionality disclosed in Bhumkar's toolbar

into a toolbar integrated within Blumenberg’s hyperlink preview. *See* EX1003, ¶¶73-74; Pet., 15, 46. However, this contention conflicts with Bhumkar’s own teachings regarding the limitations of presenting minimal hyperlink metadata. Bhumkar specifically criticizes preview techniques that display only a “snippet” of text or the hyperlink’s URL, explaining that “such information provides the searcher with little or no information on which to base a decision as to the relevance of the associated web page.” EX1005, ¶0006. This is consistent with Bhumkar’s critique of search engine results pages, which provide only “a few lines of text clipped from the target web page,” noting that such content “is usually limited to a few words which may or may not help the searcher in assessing the relevancy of the returned result.” EX1005, ¶[0005]. Accordingly, Bhumkar teaches that in order to meaningfully assess the relevance of a hyperlink, “the searcher must actually click through to the target web page.” EX1005, ¶[0006].

130. Based on these teachings, a POSITA would not be motivated to incorporate sharing functionality into Blumenberg’s preview, which, as described, consists only of the hyperlink text, URL, and optionally a short snippet. *See* EX1004, ¶[0040]. Such a preview does not allow a user to assess the quality or relevance of the target page with sufficient confidence to justify sharing it. Doing so would risk encouraging the sharing of hyperlinks of indeterminate relevance, which is the exact usability problem that Bhumkar seeks to avoid. For these reasons, a POSITA would

not view the integration of Bhumkar's sharing function into Blumenberg's hyperlink preview as beneficial, and in fact, such a modification would be inconsistent with the very rationale Bhumkar discloses for requiring more complete preview content.

b) Dr. Cockburn's "Full Screen" Modification

131. Second, Dr. Cockburn contends that a POSITA would have been motivated to incorporate functionality from Bhumkar's toolbar that enables the user to initiate a "full-screen mode." EX1003, ¶¶149, 175-177; Pet., 48 (citing EX1005, ¶[0073]). Dr. Cockburn's Declaration suggests that this would allow a user to enlarge Blumenberg's hyperlink preview (i.e., the URL name and snippet of content) for improved readability and that doing so would "enhance the consumption of information displayed in the current preview window." *Id.*

132. This proposed modification similarly fails to account for the different problems each system seeks to solve. In Bhumkar, the preview window is a fully functioning web page that replicates the functionality of the main browser, and the preview area is inherently limited in how much content it can display without scrolling. *See* EX1005, ¶[0070] (describing preview as a "fully functioning web page"); *id.*, FIG. 5 (showing content scrollable both vertically and horizontally). Bhumkar thus explains that "the content of the preview window may be more easily consumed in the full screen mode." EX1005, ¶[0073].

133. In contrast, Blumenberg's hyperlink preview is expressly designed to

present a small, focused subset of content in a highly legible format that fits entirely within the constrained dimensions of a mobile device display. Blumenberg teaches that the preview content—such as the text and URL of the hyperlink—is “displayed at a legible size, such as 14 point or larger,” and may include “18 point text,” specifically to enhance visibility and minimize the need for scrolling or magnification. EX1004, ¶[0053]; *see also id.*, ¶[0040], FIGs. 5C, 5E–5H. Because the preview already shows all relevant information in a format optimized for small screens, a POSITA would not regard full-screen expansion as offering any practical advantage.

134. The functionality of expanding to full screen in Bhumkar’s desktop context addresses a fundamentally different need—i.e., displaying additional, scrollable content from a functioning web page. Blumenberg’s preview contains no such scrollable or dynamic content, and its design is already optimized for clear readability on a compact display. Accordingly, a POSITA would not have been motivated to add a full-screen mode for Blumenberg’s static hyperlink preview, as doing so would yield no functional benefit.

2. Dr. Cockburn’s Motivations Do Not Resolve the Incompatibilities Of The Combinations

a) Dr. Cockburn’s First Purported Motivation Fails

135. First, Dr. Cockburn contends that because “Bhumkar employs a menu to augment a webpage preview,” “it would have been axiomatic for a POSITA to do

the same in the context of Blumenberg’s ‘link information’ that similarly previews webpage.” EX1003, ¶¶40-46, 71-72; Pet., 14–15. However, this assertion rests on a flawed premise. Dr. Cockburn’s claim that Bhumkar and Blumenberg “similarly preview webpage content” (EX1003, ¶72; Pet., 15) is inaccurate and mischaracterizes the respective disclosures.

136. Bhumkar’s preview window displays “a fully functioning web page” that replicates the behavior and structure of a traditional desktop browser. EX1005, ¶[0070]. In contrast, Blumenberg’s “link information” does not operate as a web browser window and does not provide interactive content or embedded controls. Instead, it merely displays limited metadata—namely, the hyperlink text, URL, and optionally “a snippet of content from the page to which the link points.” EX1004, ¶[0048]. As explained in EX1004, this preview information is presented specifically “to confirm whether or not the user selected the correct hyperlink,” and not to enable full-featured interaction with the underlying page. EX1004, ¶[0048].

137. Given these distinctions, a POSITA would not equate Blumenberg’s static, text-based link preview with Bhumkar’s live webpage rendering. Nor would a POSITA regard the addition of Bhumkar’s menu or toolbar—designed for a fully interactive browsing context—as a natural or obvious enhancement to Blumenberg’s limited, non-interactive preview interface. In fact, Bhumkar expressly teaches that the toolbar functionality appears only in embodiments in which the preview window

contains a functioning web page. EX1005, ¶[0071] (explaining that the toolbar is present in preview window 54 “containing a fully functioning web page”). By contrast, Blumenberg’s preview is not a functioning webpage and lacks any navigation history, input fields, or dynamic content that could make use of such a toolbar.

138. Furthermore, Blumenberg is focused on minimizing display clutter and preventing accidental user input—especially in the context of small touchscreen interfaces. As Blumenberg explains, “a small screen size limits the amount of information and/or the size of the information that can be shown,” which makes it difficult for users to “perceive” and “select” links accurately. EX1004, ¶[0004]. Adding a toolbar with “conventional browser functionality,” such as the functions listed in Bhumkar (*e.g.*, Back, Share, Full Screen), would introduce additional icons and controls that increase the density of interface elements. A POSITA would recognize that this increase in visual and interactive complexity directly contradicts Blumenberg’s core objective of “reducing the chance of inadvertent selection.” EX1004, ¶[0004]. For these reasons, a POSITA would find that Bhumkar’s toolbar is not suited for integration into Blumenberg’s mobile preview window, and would view such a modification as incompatible with Blumenberg’s stated design goals.

139. Additionally, Dr. Cockburn argues that because menus were in common use across mobile applications, it would have been obvious to incorporate

one into Blumenberg’s link preview. *See* EX1003, ¶¶40-46, 71-72; Pet., 15. But this reasoning is both generic and untethered from the specific teachings and objectives of the prior art. While it is true that menus were broadly used in mobile environments at the time, a POSITA would not consider the mere existence of menus as sufficient justification to add them indiscriminately to every UI element, especially one with a constrained purpose like Blumenberg’s preview. Blumenberg explicitly defines its preview as distinct from the application-level menus described in paragraph 30. *See* EX1004, ¶[0030] (listing “examples of applications” that include their own user interfaces, without reference to link preview functionality). Thus, a POSITA would understand that Blumenberg’s preview is not a standalone mobile application and was not designed to accommodate additional features like a menu bar.

140. Dr. Cockburn offers no specific rationale tied to user need, technical benefit, or design compatibility that would motivate a POSITA to add menu functionality to Blumenberg’s preview. Instead, Dr. Cockburn’s Declaration merely assumes—without analysis—that such a modification would have been “axiomatic.”

b) Dr. Cockburn’s Second Purported Motivation Fails

141. Second, Dr. Cockburn contends that incorporating Bhumkar’s toolbar “would predictably improve Blumenberg’s browser from a usability standpoint” by enabling the user “to accomplish common tasks associated with the target webpage (e.g., sharing the page with an acquaintance) more quickly and efficiently (e.g., with

fewer user inputs).” EX1003, ¶¶73-74; Pet., 15. In support of this alleged motivation, Dr. Cockburn asserts that “the degree to which a given web browser efficiently facilitates the user’s desired task” is “a key differentiator among competing web browsers.” EX1003, ¶74, Pet., 15–16. However, Dr. Cockburn’s reasoning is flawed in several respects and thus fails to establish a valid motivation to combine.

142. Specifically, Dr. Cockburn’s focus on improving a conventional “web browser” is misplaced because Dr. Cockburn’s proposed modification of Blumenberg relates to Blumenberg’s hyperlink preview window, which Blumenberg describes as being independent from its web browser. EX1004, ¶[0045] (describing the hyperlink preview functionality is not limited to “a webpage” but would also function with “other document[s]” (i.e., documents not displayed in a web browser)). And as Blumenberg makes clear, the hyperlink preview functionality is not limited to webpages or traditional browsers. It can operate in conjunction with “a webpage or other document” and may be presented independently of any browser session. *See* EX1004, ¶[0045] (“The methods and systems described herein can also be used with other document types.”). Thus, the usability advantages Dr. Cockburn claims for “competing web browsers” have no direct relevance to Blumenberg’s hyperlink preview functionality.

143. Even assuming a browser context, Dr. Cockburn offers no explanation for how the addition of a toolbar to Blumenberg’s hyperlink preview would improve

the usability of Blumenberg's browser overall—much less how it would reduce the number of user inputs, as he alleges. In fact, his proposed benefits are unsubstantiated. Dr. Cockburn relies on EX1038 to support part of his usability argument, but EX1038 cannot serve as valid prior art because it postdates the effective filing date of the challenged claims. *See* EX1003, ¶¶73-74 (citing EX1038, 1-2 (2012 25th IEEE Canadian Conference)). Dr. Cockburn concedes that he did not perform any analysis regarding whether the '581 Patent was entitled to an earlier priority date. *See* EX2010, 16:12-16 ("Q And in reaching that conclusion, which is expressed in paragraph 22 and Footnote 1, did you consider the disclosure from any of the provisional applications? A. I don't recall analyzing the provisional applications."). Moreover, as shown in Section VI.A, the challenged claims are entitled to a priority date of at least December 30, 2011, based on U.S. Provisional App. No. 61/581,918. *See* Pet., 5 (asserting a priority date of August 5, 2011. Therefore, EX1038 is not prior art under 35 U.S.C. § 102 and cannot be relied upon to supply a motivation to combine.

144. Further, even if EX1038 were considered, it is of limited relevance. That reference focuses on the usability of mobile device applications, as shown in its title and abstract. *See* EX1038, Title ("Improving Mobile Application Usability with User-Driven Design Feedback") and p. 1. But Blumenberg's hyperlink preview is not a mobile application. It is a feature embedded within various types of content

or software environments, including email and documents, as expressly disclosed. *See* EX1004, ¶[0030] (noting that the touch-sensitive interface may be used with a “calendar application,” “a note-taking application,” or “an email application,” none of which are associated with hyperlink previews). A POSITA would not regard Blumenberg’s hyperlink preview feature as falling within the scope of mobile “applications” as contemplated in EX1038.

145. Dr. Cockburn also states that a POSITA would recognize that Bhumkar’s share functionality allows a user to share a page “more quickly,” but fails to specify what operations or number of inputs are allegedly being avoided. *See* Pet., 15. As explained above in Section IX.B.1.a), a POSITA would understand the share functionality of Bhumkar’s toolbar to be of little value in Blumenberg’s hyperlink preview window because the user would have to decide whether to share the webpage based solely on the URL of the target web page and a snippet of text, which Bhumkar criticizes as insufficient to determine the relevancy of a web page.

c) Dr. Cockburn’s Third Purported Motivation Fails

146. Third, Dr. Cockburn contends that a POSITA would have recognized “the similarities between Blumenberg’s ‘link information’ and Bhumkar’s webpage preview” and therefore “sought to predictably improve Blumenberg’s browser in the same way Bhumkar did.” EX1003, ¶¶75-76; Pet., 16. However, as I have explained above in Section IX.B.2.b), Dr. Cockburn’s proposed modification does not relate

to Blumenberg's browser itself, but instead targets the separate hyperlink preview functionality, which Blumenberg describes as distinct from and independent of its browser interface. *See* EX1004, ¶[0045] ("The hyperlink information may be displayed in any of a variety of contexts, not necessarily limited to a browser."). Thus, any alleged benefits Bhumkar brings to browser-based interactions do not provide a relevant or credible motivation to modify Blumenberg's hyperlink preview feature.

147. Moreover, Dr. Cockburn does not adequately explain how adding Bhumkar's toolbar—designed for use with a fully functional browser window—to Blumenberg's limited hyperlink preview functionality would actually improve Blumenberg's system, let alone in the same way Bhumkar's toolbar enhances a full web browser. EX1003, ¶76; Pet. 16. Bhumkar's "window to display a preview of a target webpage" (EX1003, ¶76; Pet., 16) is, by its own disclosure, a navigable, fully interactive browser window. *See* EX1005, ¶[0070] ("The preview window 54 may include a fully functioning web page."). By contrast, Blumenberg's preview is non-interactive—it displays only a magnified hyperlink and, optionally, a snippet of page content. *See* EX1004, ¶[0048] ("[I]nformation associated with the link ... may be displayed on the touch screen."). A POSITA would have recognized that these two features differ fundamentally in function, design, and purpose. One enables full-page interaction; the other facilitates quick identification of a target hyperlink on a small

screen.

148. In attempting to justify the combination, Dr. Cockburn cherry-picks superficial similarities—such as the presence of a preview window in both references—without addressing the broader and materially different contexts in which those features operate. This selective treatment ignores the overarching design goals and interface models each reference teaches, which are directly relevant to whether a POSITA would have been motivated to combine them.

d) Dr. Cockburn's Fourth Purported Motivation Fails

149. Fourth, Dr. Cockburn contends that a POSITA would have been motivated to combine Bhumkar's toolbar functionality with Blumenberg's hyperlink preview in view of Blumenberg's third operational scenario, in which the hyperlink preview remains displayed after the user's initial contact is broken and requires a second, confirmatory contact to activate the hyperlink. EX1003, ¶¶77-82; Pet., 17-18; EX1004, ¶[0049]. Dr. Cockburn asserts that this scenario reflects “competing interests” on the part of the user—namely, “potentially interacting with the candidate target webpage” or “leaving the current webpage”—and that a POSITA would have sought to resolve this ambiguity by adding a menu to assist the user in choosing and completing their next step. EX1003, ¶¶77-82; Pet., 17–18.

150. However, this rationale lacks support and is inconsistent with the disclosures in the prior art. From the perspective of a POSITA, the notion that

extended contact duration reflects “competing interests” is speculative. A POSITA would understand Blumenberg’s third scenario to provide an interaction that is intentionally simple and focused on enhancing the user’s ability to confirm link selection (*i.e.*, through a “confirmatory tap”). Adding a menu to the hyperlink preview, as Dr. Cockburn suggests, would unnecessarily complicate the user interaction.

151. Further, Dr. Cockburn’s proposed modification to Blumenberg is limited to incorporating only two features from Bhumkar’s toolbar: (1) a “share” function and (2) a “full-screen” mode. *See* EX1003, ¶¶79–80; Pet., 17–28. Dr. Cockburn, however, fails to explain how adding either of those options would help resolve the purported “competing interests” he identifies. Specifically, neither the “share” nor “full-screen” functionality facilitates the kind of decision-making implied by the competing interests of either engaging with or leaving the target webpage.

152. Regarding the “share” function, Bhumkar teaches that selecting the share icon in its toolbar “may open an interface 68 through which a user can share (*e.g.*, via email or other means) the web page currently displayed in preview window 54 with others.” EX1005, ¶[0074]. But this merely enables the user to forward or otherwise distribute a hyperlink, not to interact with the webpage itself. It does not provide navigation, selection, interaction with page elements, or any deeper

engagement with the underlying content. Accordingly, a POSITA would understand that this functionality does not meaningfully assist a user in deciding whether to explore or exit a target webpage—nor does it relate to the kind of interaction suggested by Blumenberg’s third scenario. From a usability standpoint, a POSITA would recognize that enabling a user to share a URL they have not yet navigated to or reviewed in full does not support the decision-making process and may actually encourage premature sharing of irrelevant or incorrect content. This outcome would be contrary to the user experience goals that Blumenberg and Bhumkar each attempt to address.

153. The same is true for Dr. Cockburn’s proposal to add “full-screen” mode from Bhumkar to Blumenberg’s system. In Bhumkar, the full-screen mode is useful because the preview window displays an entire, fully functioning web page, often with scrollable content that cannot be fully viewed within the confines of a small preview panel. EX1005, ¶[0073]; *see also* FIG. 5. In contrast, Blumenberg’s hyperlink preview includes only minimal information—a magnified URL and optionally a brief text snippet—which is already displayed in a large and legible format intended to be quickly and easily read. *See* EX1004, ¶[0053] (“text is displayed at a legible size, such as 14 point or larger, and may include 18 point text.”). A POSITA would understand that displaying such a minimal preview in full-screen mode would not present any usability improvement. Rather, it would occupy

valuable screen real estate on a portable device without offering the user any additional substantive content. From a design perspective, such a modification would be inefficient and contrary to the constraints that Blumenberg is expressly intended to overcome—namely, those imposed by small screen sizes on portable electronic devices. *See* EX1004, ¶[0004].

154. For these reasons, Dr. Cockburn’s assertion that a POSITA would modify Blumenberg’s hyperlink preview based on perceived “competing interests” during extended contact is not supported by the record, contradicts the structure and intent of Blumenberg’s disclosure, and does not reflect how a POSITA would interpret the cited prior art.

X. DEPENDENT CLAIMS 2, 21, 29-30, 43, 54, 62-63

A. Claims 2 and 43

155. Dr. Cockburn’s mapping fails to show that Blumenberg discloses a hyperlink preview that is “not configured for performing the operation in response to...contact movement,” as required by Claims 2 and 43. The challenged claims recite that “the user interface of the network browser is configured for performing an operation in response to ... contact movement,” whereas “at least a portion of the second web page is displayed in a view that is not configured for performing the operation in response to ... contact movement.” Pet., viii. Dr. Cockburn maps the claimed “operation” to Blumenberg’s disclosure that contact movement updates the

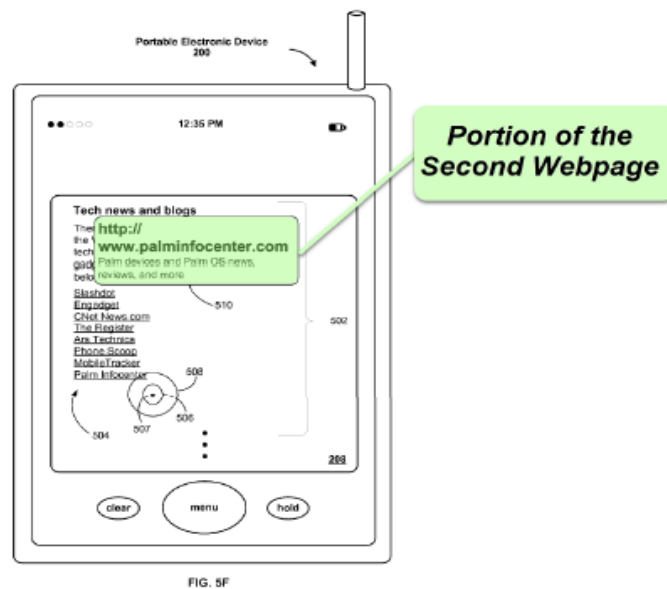
selected link (*i.e.*, “the link that satisfies the one or more criteria...may change”). EX1003, ¶¶160-161, 181; Pet., 53 (citing EX1004, [0052]. He further asserts that Blumenberg’s hyperlink preview satisfies the claim limitation requiring a view “not configured for performing the operation” because it purportedly displays only “a snippet of content” and is not a fully interactive webpage. EX1003, ¶¶162-165; Pet., 54 (citing EX1004, ¶¶[0040], [0048]).

156. This interpretation mischaracterizes both the disclosure of Blumenberg and the requirements of the claims. In particular, Blumenberg expressly teaches that movement across the hyperlink preview causes a change in the link selection and the associated displayed content. As Blumenberg explains, “[a]s the contact area 506 and the point 507 have moved downward in FIG. 5E, the link ‘Phone Scoop’ becomes the link that satisfies the shortest distance criterion. Thus, the information associated with the link ‘CNet News.com’ is no longer displayed and information 510 associated with the link ‘Phone Scoop,’ such as its URL, is displayed.” EX1004, ¶[0051]. In other words, the hyperlink preview remains fully responsive to contact movement, as contact movement across the display dynamically updates the display so that hyperlink preview for the previously selected link is removed and the link selection is updated.

157. Thus, the hyperlink preview (which Dr. Cockburn maps to the “portion of the second web page”) fails to satisfy Claims 2 and 43.

B. Claims 21 and 54

158. Limitations [21.b] and [54.b] require that “the at least portion of the second web page...is configured for not displaying:...the opening of the one or more hyperlinks of the second web page in response to detection of the selection thereof.” Dr. Cockburn maps the “at least portion of the second webpage” to the hyperlink preview disclosed in Blumenberg. *See* EX1003, ¶¶170-171, 181; Pet., 49 (citing EX1004, ¶¶[0047]–[0048]), 59 (citing EX1003, ¶¶172–173). However, this mapping fails to satisfy the limitations of the dependent claims.



EX1004, Figure 5F (annotated).

159. Contrary to Dr. Cockburn’s position, Blumenberg expressly teaches that its hyperlink preview allows activation of a hyperlink based on user selection. As discussed in Section VIII.A, Blumenberg’s hyperlink preview includes “the URL

of the link” and “a snippet” or “summary of content from the page to which the link points.” EX1004, ¶¶[0047]–[0048], [0053]. Further, Blumenberg teaches that the user may activate the hyperlink shown in the preview by “break[ing] contact and tap[ping] the link information.” EX1004, ¶[0051]. In other words, Blumenberg’s hyperlink preview is configured to enable “the opening of the one or more hyperlinks of the second web page in response to detection of [a] selection” ([21.b], [54.b]). A POSITA would recognize that this disclosure directly contradicts the requirement that the displayed portion of the second web page be configured not to permit opening of its hyperlinks in response to selection.

160. To the extent Dr. Cockburn shifts his mapping to Bhumkar’s preview window to satisfy these limitations (*see* EX1003, ¶¶172–173; Pet., 59), that approach also fails. As discussed in Section VIII.B, while Bhumkar discloses multiple embodiments of its preview window—including one that is nonfunctional—it also teaches that the preview window may contain “a fully functioning web page.” EX1005, ¶¶[0071]–[0072], [0040]. Bhumkar explicitly states that, in such embodiments, “all of the links are active and a user can navigate within the preview window 54 just as he/she would in a regular window displayed in a browser.” EX1005, ¶[0071]. Thus, this embodiment clearly allows for hyperlink activation, which is inconsistent with Limitations [21.b] and [54.b].

161. Dr. Cockburn provides no reason for why a POSITA would choose the

nonfunctional embodiment of Bhumkar over the fully functional version. This omission is significant because Bhumkar repeatedly emphasizes the utility of the preview window in supporting interactive browsing functionality. A POSITA would understand that the purpose of the preview window in Bhumkar is to provide an interactive, efficient means of evaluating a web page. Selecting a nonfunctional preview window would undermine that objective and provide no technical benefit that would justify its use the nonfunctional version in Blumenberg.

C. Claims 29-30 and 62-63

162. The dependent claims at issue recite that “in response to detection of a selection of the at least portion of the second web page,” the portion of the second web page “is enlarged.” Dr. Cockburn attempts to satisfy this limitation by mapping it to Bhumkar’s disclosure of a “full-screen mode.” EX1003, ¶¶174-178, 181; Pet., 60–64. However, for the reasons discussed above, a POSITA would not have been motivated to incorporate Bhumkar’s full-screen mode into Blumenberg’s hyperlink preview window. *See* Section IX.B.1.b).

163. Bhumkar’s full-screen mode is intended to enable full-page interaction with a fully functional web page displayed in the preview window, which includes dynamic content and interactive features requiring a larger viewport for practical usability. EX1005, ¶[0073] (“the content of the preview window may be more easily consumed in the full screen mode”). In contrast, Blumenberg’s hyperlink preview is

limited in scope and content—it displays only the hyperlink’s URL and a short text snippet from the linked page, and it is designed specifically for small screens with limited real estate. EX1004, ¶[0053] (“The text in hyperlink information 510 is displayed at a legible size, such as 14 point or larger (e.g., 18 point text) so that it is easily readable by the user”); *see also* EX1004, FIGs. 5E–5H. A POSITA would understand that Blumenberg’s preview window already optimizes for readability and screen space constraints by magnifying the most essential link information, making full-screen display unnecessary and redundant.

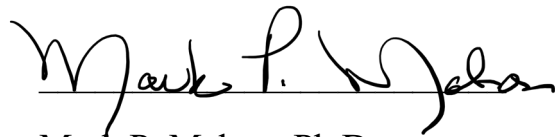
164. Moreover, Blumenberg’s focus is on presenting concise, easily readable hyperlink preview information within the constraints of a portable electronic device—not on previewing displays of entire pages and navigating within previews. Adding Bhumkar’s full-screen functionality would increase interface complexity and fail to provide a clear benefit in the context of Blumenberg’s hyperlink preview functionality.

XI. CONCLUSION

165. All statements made herein of my 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 statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code

Dated: 4/16/25

Respectfully submitted,


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