

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC and MOTOROLA MOBILITY LLC
Petitioners

v.

MULTIFOLD INTERNATIONAL INCORPORATED PTE. LTD.,
Patent Owner

IPR2025-00058
Patent No. 9,158,494

**DECLARATION OF DR. SANDEEP CHATTERJEE
IN SUPPORT OF PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 9,158,494**

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I, Sandeep Chatterjee, declare as follows:

I. INTRODUCTION

1. I have been retained as an independent expert consultant in this proceeding before the United States Patent and Trademark Office (“PTO”) regarding U.S. Patent No. 9,158,494 (“the ’494 patent”) (EX1001).¹ I have been asked to consider whether prior art references disclose or suggest the features recited in claims 1, 2, 4, 6, 9, 10, 12–14, and 18–20 (“the challenged claims”) of the ’494 patent. My opinions are set forth below.

II. BACKGROUND AND QUALIFICATIONS

2. My qualifications are stated more fully in my curriculum vitae, which is attached as EX1003. Below is a summary of my education, work experience, and other qualifications.

3. I am the Chief Executive Officer of Experantis LLC (“Experantis”), a technology consulting company. Previously, I was the Co-founder, Executive Vice President and Chief Technology Officer of SourceTrace Systems, Inc., a

¹ In this Declaration, I refer to exhibits that I understand are to be attached to the petition for *Inter Partes* Review of the ’494 patent.

technology and services company enabling the delivery of secure remote electronic services over landline and wireless telecommunications networks.

4. I received my Bachelor's degree in Electrical Engineering and Computer Science from the University of California, Berkeley in 1995. I received my Master's degree in Computer Science from the Massachusetts Institute of Technology (MIT) in 1997, and my Doctorate in Computer Science from MIT in 2001. I received a certificate of completion for an executive education program on global leadership from Harvard University in 2011.

5. My doctoral dissertation at MIT, entitled "Composable System Resources for Networked Systems," involving networked and distributed computer systems and architectures, was selected as one of the top inventions in the history of MIT's Laboratory for Computer Science. This invention is showcased in a time capsule at the Museum of Science in Boston, Massachusetts. Other recipients of this honor include Bill Gates, the founder of Microsoft, and Tim Berners-Lee, the inventor of the World Wide Web.

6. As part of applications of my doctoral research, I developed hardware and software systems for intelligent environments within homes and offices. Some of these devices included televisions, digital picture frames, refrigerators and children's toys. The distributed computing system of these intelligent

environments included distributed data storage and retrieval, as well as coordinated display of relevant data on one or more device screens. This system also supported both physical user interfaces (e.g., physical buttons) as well as graphical user interfaces (GUIs) that were displayed on device screens.

7. In 2011, I was named a Young Global Leader. This honor, bestowed each year by the World Economic Forum, recognizes and acknowledges the top leaders—all below the age of 40—from around the world for their professional accomplishments, commitment to society, and potential to contribute to shaping the future of the world. In 2016, I was appointed to the World Economic Forum's expert network as an expert in technology and innovation.

8. From 1997, I was the Entrepreneur-in-Residence at FidelityCAPITAL, the venture capital arm of Fidelity Investments. In 1999, I founded and served as President and Chief Technology Officer (CTO) of Satora Networks, which developed tools and technologies for building appliances and services for the Internet using wireless and other technologies to extend it beyond the desktop.

9. In 2001, I joined Bluestone Software's Mobile Middleware Labs as a Senior Engineer developing applications and systems infrastructure for enterprise Java/J2EE, Web services, and enterprise mobile solutions. After the completion of

Hewlett-Packard's (HP) acquisition of Bluestone, I became a Senior Member of the Technical Staff at HP's Middleware Division. I was responsible for architecting and developing the company's next-generation Web services platform for enterprise as well as mobile environments, known as the Web Services Mediator.

10. I was part of the Expert Group that developed the JSR-00172 J2ME (Java 2 Platform, Micro Edition) Web Services Specification, the worldwide industry standard for mobile Web services. I am the co-author, with James Webber, of the book "Developing Enterprise Web Services: An Architect's Guide" (published by Prentice-Hall in 2004). This book has been adopted by over 100 universities and colleges around the world, and has been translated or reprinted in a number of countries around the world.

11. I have significant experience in developing complex computing systems. For example, through a contract between HP and the United States Agency for International Development (USAID), I architected and led the development of one of the first mobile banking solutions. This system enabled customers to use their mobile phones and other wireless handsets to connect with the core banking systems of banks and other financial institutions, and perform transactions without having to travel to bank branches. This system supported

many banking transactions, including deposits, withdrawals, loan applications, loan disbursements and loan repayments.

12. Later, after SourceTrace Systems' acquisition of this technology, I led the expansion of this solution into multiple countries and into multiple industries. Banks and other financial services companies utilized this technology to make their tellers more efficient, to provide self-service ATMs within branches, and to provide remote access to banking services. Additionally, through our licensing agreement with Telefonica, one of the largest cellular and telecommunications companies in the world, this solution was deployed in various other industries, including logistics and asset management and customer relationship management. Bloomberg Television selected and featured this technology and the company I co-founded to commercialize this technology on Bloomberg TV's "Bloomberg Innovators" program.

13. I have been a retained expert witness for various disputes that involved significant technology issues, and I have been qualified as a technology expert by U.S. District and State Courts, including in California, Delaware, Florida and Texas in technology areas that are relevant to this case, including but not limited to: computer software systems, distributed computing systems, and mobile and wireless systems. I have previously testified through declaration or expert

report, at deposition, and at trial in numerous intellectual property and commercial litigation matters, including for patent litigation, copyright and trade secret misappropriation litigation, and contract dispute cases. I have submitted more than one hundred and fifty expert declarations and expert reports, testified at deposition more than eighty times, and testified at trial or at hearings at least twelve times. I have been identified as one of the top 1000 patent professionals in the world, and I am listed in the IAM Patent 1000, which identifies the world's leading patent litigation and prosecution attorneys, as well as damages and technology expert witnesses.

14. Experantix is being compensated for my time on this matter at my standard hourly rate and reimbursed for any expenses that I incur related to my work in this matter. Neither Experantix nor I have any financial interest in the outcome of this matter, and Experantix will be paid for my time regardless of the outcome of this matter.

III. MATERIALS REVIEWED

15. The opinions contained in this Declaration are based on the documents I reviewed, my professional judgment, as well as my education, experience, and knowledge regarding systems and processes in the field of graphics interface technology.

16. In forming my opinions expressed in this Declaration, I reviewed the following materials:

EX1001	U.S. Patent No. 9,158,494 (“the ’494 patent”)
EX1004	Prosecution History of U.S. Patent App. No. 13/366,483
EX1005	U.S. Patent Application Publication No. 2012/0306782 (“Seo”)
EX1006	U.S. Provisional Patent Application No. 61/441,491, Certified Translation of U.S. Provisional Patent Application No. 61/441,491 into English, and Translation Certificate (“Seo Provisional”)
EX1007	U.S. Patent Application Publication No. 2010/0248788 (“Yook”)
EX1010	U.S. Patent No. 8,649,824 (“Choi”)
EX1011	U.S. Patent No. 8,566,301 (“Rueben”)
EX1012	Mobile Phone Museum, Nokia 9000 Communicator (https://www.mobilephonemuseum.com/phone-detail/nokia-9000-communicator)
EX1013	U.S. Patent No. 6,912,664 (“Ranganathan”)
EX1014	U.S. Patent No. 8,265,705 (“Lee”)
EX1015	U.S. Patent No. 9,692,881 (“Jyonoshita”)
EX1016	An Introduction to Graphical User Interfaces with Java Swing, Paul Fisher, Addison Wesley, 2005 (excerpt)

I also considered any other documents and materials I refer to in this Declaration.

17. My opinions contained in this declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also

been guided by my appreciation of how a person of ordinary skill in the art would have understood the state of the art, the prior art, and the claims and the specification of the '494 patent at the time of the alleged invention, which I discuss below.

18. I have been asked to consider that the time of the alleged invention of the '494 patent was around 2011 (including and up to September 27, 2011), which corresponds to the filing date of the earliest application associated with the '494 patent. (EX1001, Cover.)

19. Based on my experience and expertise, it is my opinion that certain references disclose and/or suggest all the features recited in challenged claims of the '494 patent, as I discuss in detail below.

IV. PERSON OF ORDINARY SKILL IN THE ART AND THE TIME OF THE ALLEGED INVENTION

20. I am familiar with the level of ordinary skill in the art regarding the '494 patent as of around September 27, 2011. Considering the '494 patent, the technology, the educational level and experience of workers in the field relating to the patent, and problems and solutions in that field, and drawing on my own experience, I believe a person of ordinary skill in the art at the time of the alleged invention (around September 27, 2011) would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field

along with two years of work experience in the field of user interface technologies, including *e.g.*, graphical user interface technologies, or a related field. More education can supplement practical experience and vice versa.

21. My opinions in this Declaration regarding the '494 patent and the prior art (including the state of the art) are from the perspective of one of ordinary skill in the art as I defined above, during the relevant timeframe (*e.g.*, the time of the alleged invention), which I discussed above as being around September 27, 2011.

V. TECHNICAL BACKGROUND

22. Below, I present a brief overview of certain aspects of systems and processes relating to graphical user interface technology at the time of the alleged invention for the '494 patent. The functionalities and concepts I describe below in this technical background section reflect the state of the art that a person of ordinary skill in the art would have had knowledge of and understood prior to and at the time of the alleged invention of the '494 patent. I rely on, and incorporate as applicable (even if not expressly mentioned below in Section IX), the following disclosures and opinions to support my opinions in this Declaration, including those opinions relating to how the prior art discloses and/or suggests the challenged claims of the '494 and how and why a person of ordinary skill in the art

would have been motivated to consider and combine the disclosures and suggestions from that prior art as I explain below in Section IX. The concepts below would have been within the knowledge and mindset of a person of ordinary skill in the art at the time.

A. Multi-Display Mobile Devices

23. Multiple display portable computer devices were well known prior to 2010. For example, the Nokia 9000 Communicator was announced at the CeBIT exhibition in 1996. It was the first product in its Communicator range. Six further Communicator devices followed over the next 11 years. (EX1012.) As shown below, the Nokia 9000 portable device included an exterior screen and an interior screen for displaying information.



(EX1012.)

24. The 9000 Communicator had two interfaces. When closed it looked like an oversized conventional mobile phone with strong similarities to the Nokia 2110. However, when opened it revealed a full QWERTY keyboard and a large screen.

25. Nokia referred to “interfaces” to stress the point that these two functions were being provided by the same underlying hardware and that this device was not simply two devices enclosed within the same case. For example, the address book on the phone interface was the same as the contacts within the Communicator interface. Accordingly, a single application could display information on either of the two displays/screens.

26. Internally it had 8MB of memory of which 4 MB was used for its GEOS 3.0 operating system, 2 MB for programs and 2 MB for user data and it was powered by an Intel 24MHz 386 microprocessor. The GEOS 3.0 operating system had several breakthrough features including the ability to support third-party applications built using a software development kit (SDK).

27. In addition to the basic phone, address book (contacts) and SMS functions, the Nokia 9000 Communicator had a document handling and editing feature called Notes, a fully featured calendar and diary application, a clock

showing world time and an alarm, a calculator, Composer for creating your own ringtones and alerts, a currency converter and connection to a PC via an Infra-red port through which documents could be exchanged and software downloaded and installed.

28. Other disclosures confirm the common knowledge and understanding of technologies relating to computing systems (including portable computer systems) that provided multiple display and/or multiple application execution and display functionalities. For example, U.S. Patent No. 6,912,664 (“Ranganathan”) (EX1013) discloses a portable computing device with multiple displays (EX1013, Figs. 4A-5B, 2:45-4:21, 12:53-13:23, 14:44-17:19.) U.S. Patent No. 8,265,705 (“Lee”) (EX1014) also discloses a mobile computer that includes a plurality of touchscreens and various graphical user interfaces. (EX1014, Abstract, Figs. 3(a)-4(b), 6(a)-15(b), 1:13-59, 7:3-12:46.) U.S. Patent No. 9,692,881 (“Jyonoshita”) (EX1015) likewise describes a portable computer device that includes multiple displays for displaying information related to applications executed by the device, including indications regarding active applications. (EX1015, Abstract, Figs. 4(a)-6(a), 8(a)-19(b), 7:60-10:44, 11:31-20:57.) U.S. Patent No. 8,649,824 (“Choi”) similarly discloses mobile devices with multiple touch screen displays. (*See generally* EX1010 (discussed below in Section VII.C).)

B. Graphics Interface Technology (GUI)

29. It was well known to those of ordinary skill that modern operating systems such as Microsoft's Windows, Apple's MacOS, and the different Unix-based versions such as Linux or Solaris use a graphical interface to communicate with the user. The communication consists of information displayed by programs and actions and commands issued by the user. (EX1016, 12.)

30. Programs with graphical user interfaces (GUIs) were known to be event driven. This means that the program reacts to actions of the user; these actions are called events. Examples of events are pressing a key, moving the mouse, pressing a button and selecting a menu item. (*Id.*, 14.)

31. After a program with a GUI has started and the GUI has been displayed on the screen, the program is now controlled by events. A person of ordinary skill in the art would have known to configure the program to react only to a few types of events, not all. Such a skilled person would have programmed the interface to specify those events to which the program has to react and, of course, what the reaction should be. For example, in Java, this was typically done by implementing so-called listeners which wait for specific kinds of events to occur. It was known that once a listener was programmed for a specific type of event, the

runtime system would automatically inform the listener when such an event occurs. The listener then would perform the desired action. (*Id.*)

VI. THE '494 PATENT

32. The '494 patent broadly relates to “methods and devices for minimizing and maximizing displayed output associated with applications.” (EX1001, Abstract.) It explains that “[t]here is a need for a dual multi-display handheld computing device that provides for enhanced power and/or versatility compared to conventional single display handheld computing devices.” (*Id.*, 1:46-49.) And further explains that “it is desirable to have a multiple-display device that can selectively display pages of information in response to a minimization operation or a maximization operation.” (*Id.*, 1:54-57.) Accordingly, the alleged invention concerns presenting one or more of multiple pages of an application across the displays. (*Id.*, 1:57-2:11.) “More particularly, an application presented as two or more pages in a portrait mode can be minimized to present one of the two or more pages following a minimization operation.” (*Id.*, Abstract.) And “[t]he page that continues to be displayed can comprise a primary or preferred page, while the page that is dismissed can comprise a secondary or ancillary page.” (*Id.*)

33. For example, with reference to figure 40 (shown below), the '494 patent discusses presenting two pages from an application (step 4008), receiving a

user input to minimize an application (step 4012) after which the “primary page” continues to be presented and an “ancillary page” is no longer presented (step 4016). (*Id.*, 48:1-41, Fig. 40.) Thereafter, another user input maximizes the application (step 4020), after which the first and second pages are again presented, just like step 4008 (step 4024). (*Id.*, 48:42-62, Fig. 40.)

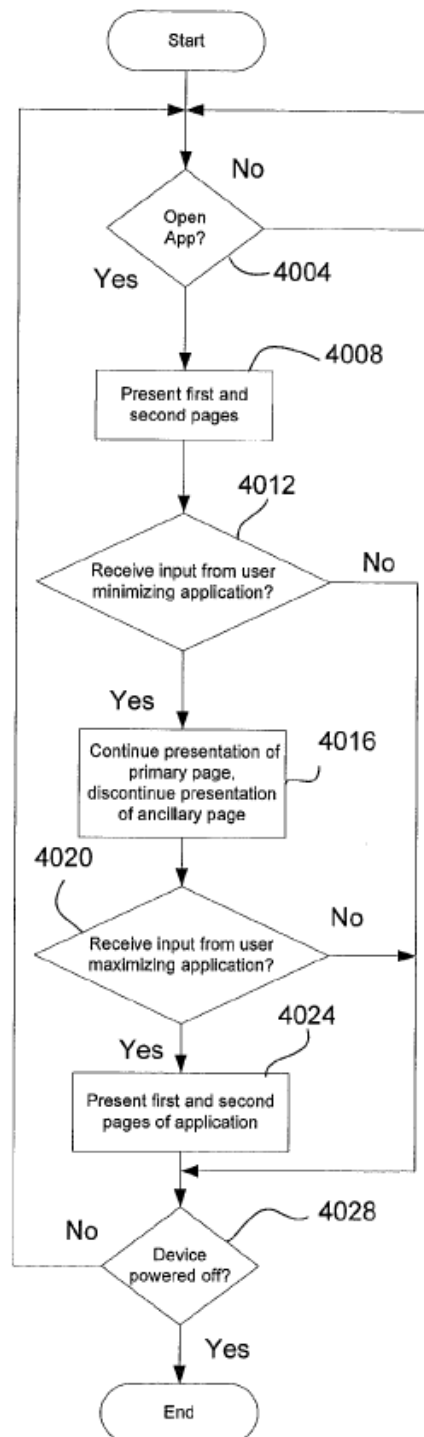
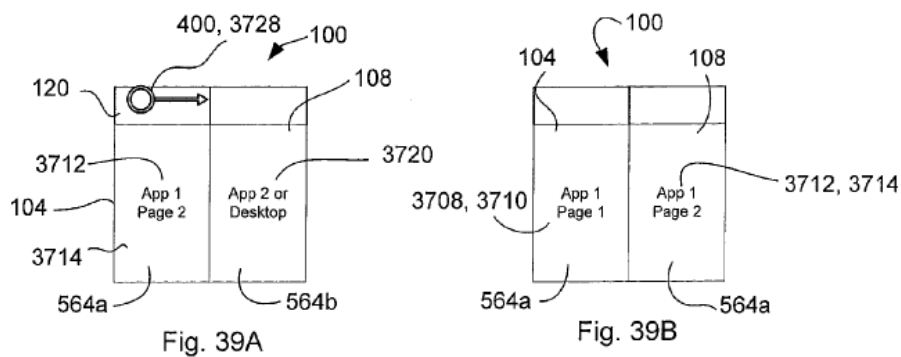
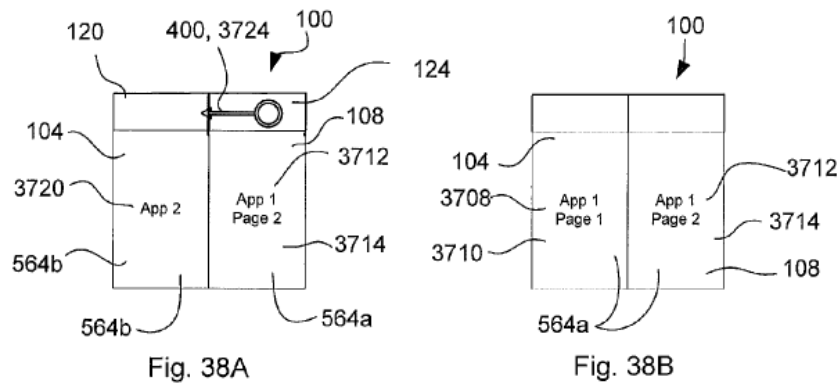
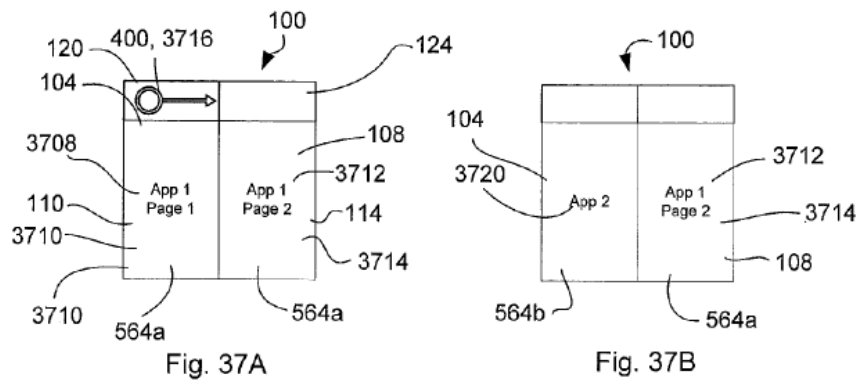


Fig. 40

(EX1001, Fig. 40.)

34. A similar method is depicted in figures 37A-38B, where pages 1 and 2 of app 1 are presented on the two displays in figure 37A, then after a user input page 1 of app 1 on the left display is replaced by app 2 in figure 37B. (*Id.*, 46:38-47:22, Figs. 37A-37B). Then, in figure 38A, a different user input is received, which returns the device's two displays to their original content of pages 1 and 2 of app 1. (*Id.*, 47:47:23-49, Figs. 38A-38B.)



(*Id.*, Figs. 37A-39B.)

VII. OVERVIEW OF THE PRIOR ART

A. Seo

35. U.S. Patent Application No. 2012/0306782 to Seo was filed on February 10, 2012 and published on December 6, 2012. (EX1005, Cover.) It claims priority to the Seo Provisional (provisional application No. 61/441,491), which is incorporated by reference into Seo (*id.* ¶[0001]), and thus I have considered the Seo Provisional as part of Seo in my analysis.

36. Seo generally relates to

An apparatus and method of changing screens using multiple touch screens. The method includes displaying a first screen in a first touch screen; displaying a second screen in a second touch screen; detecting multiple touches in the first touch screen; detecting continuous movements of the multiple touches from the first touch screen to the second touch screen; and changing the second screen of the second touch screen in response to the continuous movements of the multiple touches.

(EX1005, Abstract.)

37. Seo provides “an apparatus and method for changing screens, which includes multiple touch screens and changes screens using movements of continuous multiple touches,” where the device can “change a screen by using a

movement of at least one touch” such as “a touch gesture corresponding to a screen change.” (EX1005 ¶¶[0008]–[0009], [0011]–[0012].) Seo discloses an exemplary multi-screen mobile device, apparatus 100, having touch two screen displays 190a and 190b. (*id.* ¶¶[0018], [0030]–[0050], Figs. 1-2C.)

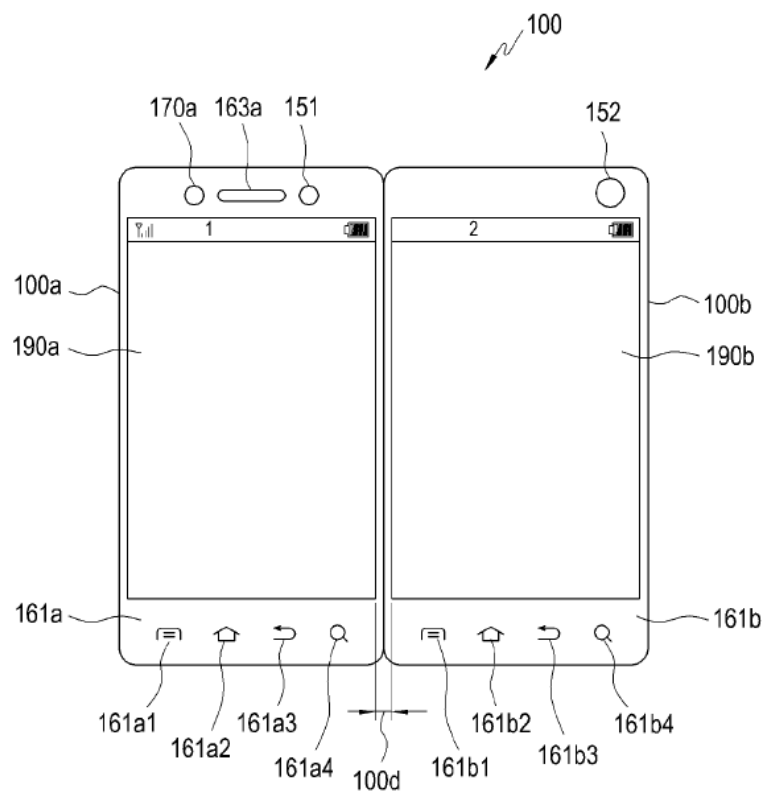


FIG.1

(EX1005, Fig. 1.)

38. With reference to figures 8A and 8B, Seo describes an exemplary method of operation using a multi-touch (e.g., two-finger) user input to control applications presented on the two touch screens 190a and 190b. (EX1005, ¶¶[0097]–[0140], Figs. 8A–8B.) In that embodiment, a user input in the form of a touch gesture can alternatively open or close a sub-window of an application such as the example messaging application depicted, by swiping one direction or the other on the touch screens 190a/190b. (*Id.*)

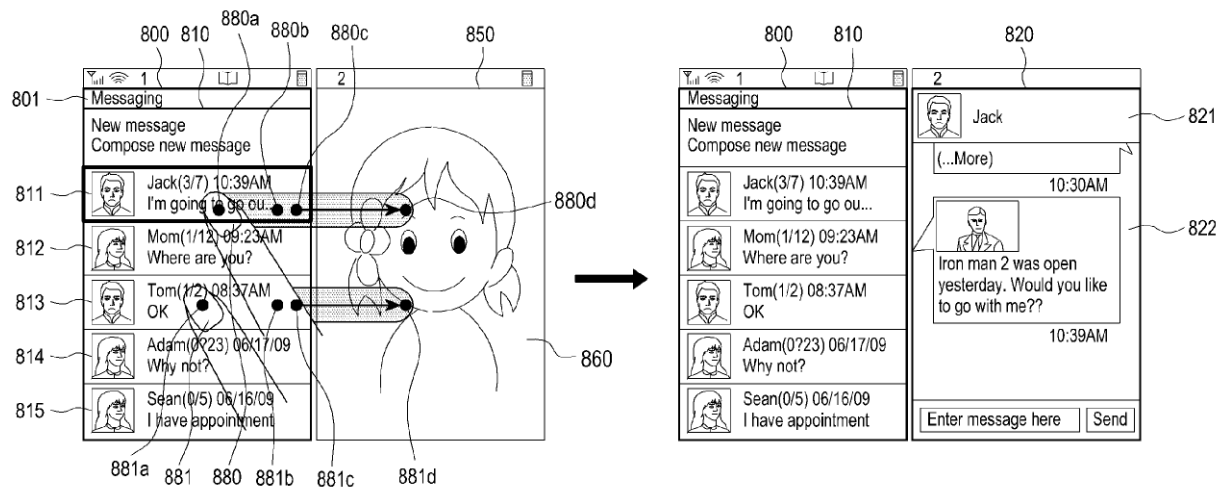


FIG. 8A

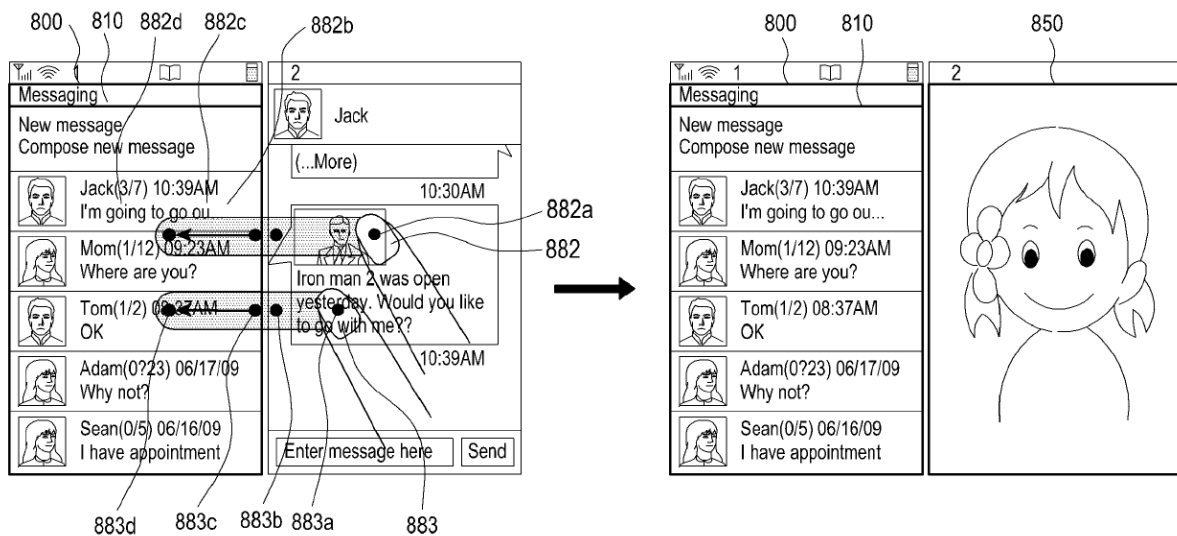
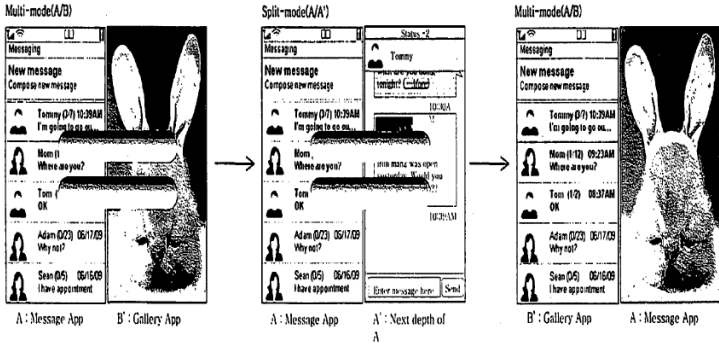
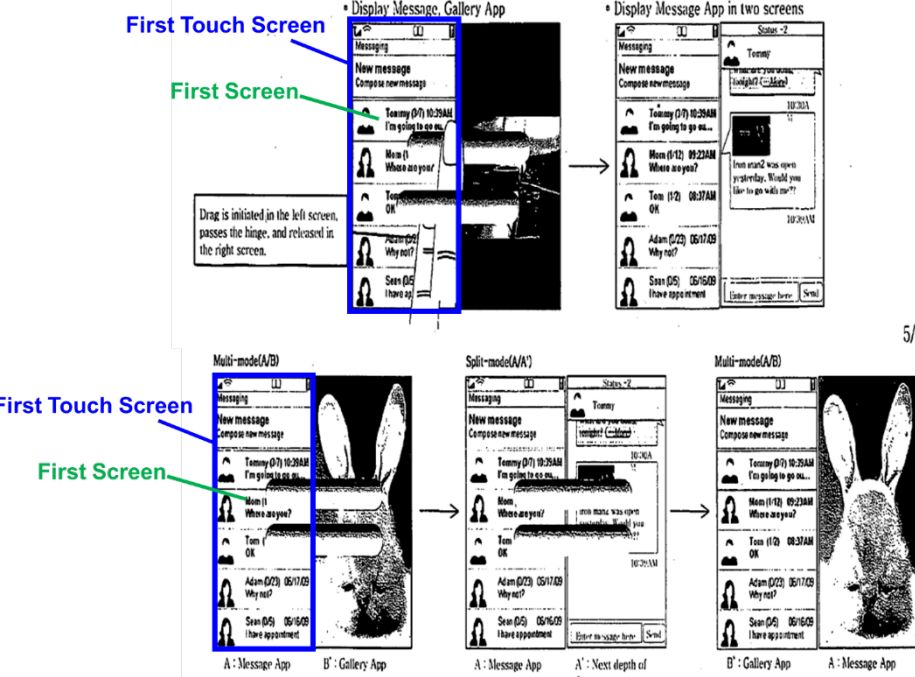


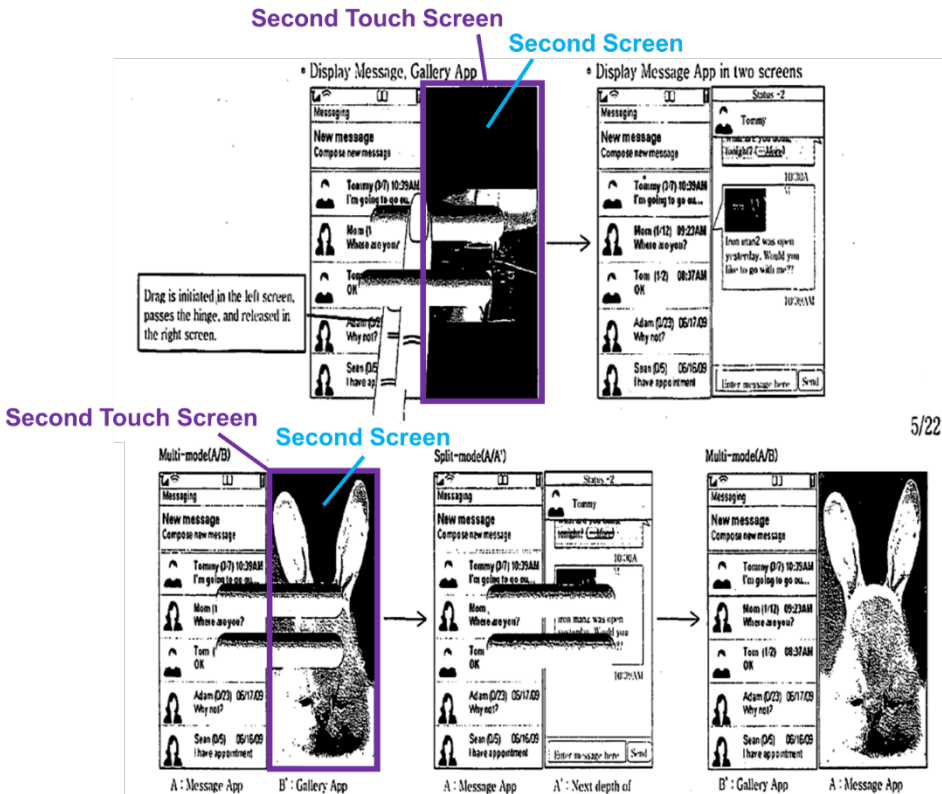
FIG. 8B

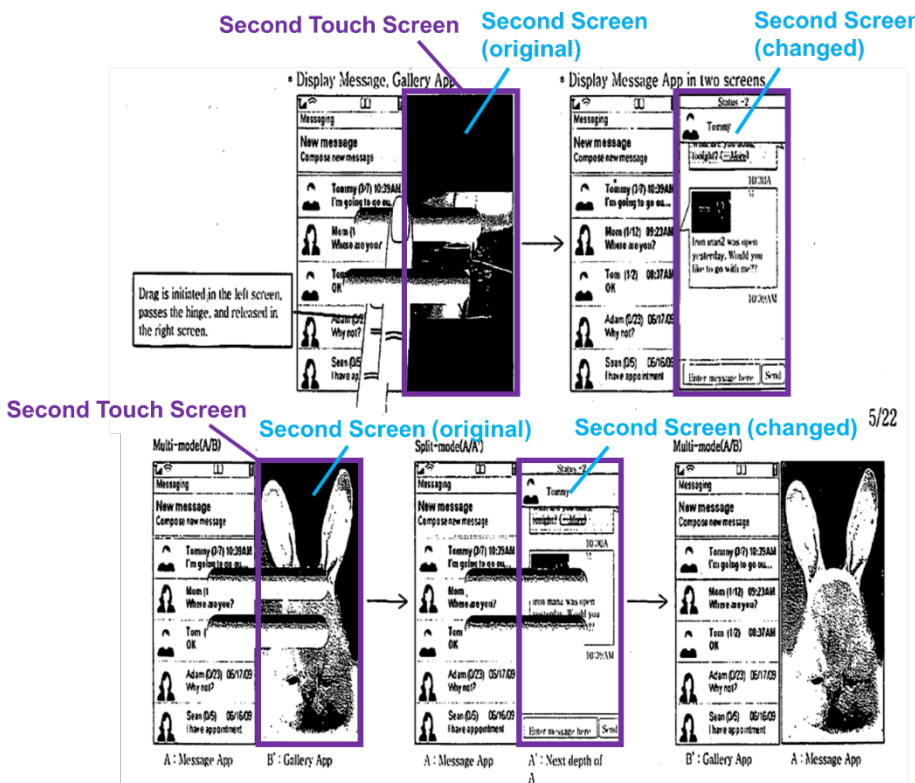
(EX1005, Figs. 8A (top; showing a gesture that opens a window of the messaging application for a specific contact), 8B (bottom; showing a gesture that closes a window of the messaging application for a specific contact, revealing a window for a different application 850.)

39. I have also considered the Seo Provisional application (EX1006), which is incorporated by reference into Seo (EX1005 ¶[0001]), as I noted above. The following chart demonstrates the enabling support found in the Seo Provisional for at least one claim of Seo. Additionally, throughout my analysis in this declaration, I cite to enabling support in the Seo Provisional for each portion of Seo that I rely on in my analysis.

Seo Claim 1	Exemplary Disclosures of the Seo Provisional
1. A method of changing screens in an apparatus including multiple touch screens, the method comprising:	I have been asked to assume the preamble is limiting, the Seo Provisional discloses this limitation. The Seo Provisional discloses in the summary of the invention a “[t]ouch screen input device,” where “touch input gestures input in dual touch screens have connectivity and are operated, an input controller receives the touch input gestures as a single input,” “[e]ach touch input is processed through recognizing a motion direction and the number of touch inputs,” and “[s]creens are changed in accordance with a motion direction based on an analyzed touch input.” (EX1006, 34 (emphasis added).) Seo Provisional provides examples of changing screens: •Case: In a case of different Apps displayed in two screen, two screen touch gestures are input in the two screens and then one App is displayed in the two screens. (Id.)

Seo Claim 1	Exemplary Disclosures of the Seo Provisional
	 (<i>Id.</i> at 38.)
displaying a first screen in a first touch screen;	The Seo Provisional discloses this limitation. For example, it discloses a screen with a message gallery from a messaging application (“first screen”) in a touch screen (“first touch screen”). (<i>E.g.</i>, EX1006, 34-41.)  (<i>Id.</i> at 34 (top), 38 (bottom) (annotated).)
displaying a second screen in a second touch screen;	The Seo Provisional discloses this limitation. For example, it discloses a screen with an image from a gallery application (“second screen”) in a touch screen (“second touch screen”). (<i>E.g.</i>, EX1006, 34-41.)

Seo Claim 1	Exemplary Disclosures of the Seo Provisional
	 (<i>Id.</i> at 34 (top), 38 (bottom) (annotated); <i>see also id.</i> at 34 (“different Apps displayed on two screens”).)
detecting multiple touches in the first touch screen;	The Seo Provisional discloses this limitation. For example, it discloses “two screen gestures are input in the two screens” (“multiple touches”), “an input controller receives the touch input gestures as a single input” and “[e]ach touch input is processed through recognizing a motion detection and the number of touch inputs,” (“detecting”). (<i>E.g.</i>, EX1006, 34; <i>see also id.</i> at 37 (“Touch Sensor”).) The touch inputs start on the first screen. (<i>Id.</i> (two fingers shown on the left-side touch screen and text in the figure on page 34 reading “[d]rag is initiated in the left screen, passes the hinge, and released in the right screen”).)
detecting continuous movements of the multiple	The Seo Provisional discloses this limitation. For example, the Seo Provisional figures show the two-finger touch input going past the hinge onto the second (right-side) screen. (<i>E.g.</i> EX1006, 34 (figure text reading “Drag is initiated in the left

Seo Claim 1	Exemplary Disclosures of the Seo Provisional
touches from the first touch screen to the second touch screen; and	screen, passes the hinge, and released in the right screen.”), 38; <i>see also id.</i> at 36 (describing touch recognition on both screens).) The Seo provisional also discloses that the input “is performed in a direction of the hinge” to change the display, but “[w]hen the two touch drag is not passed the hinge, the view mode is not changed.” <i>Id.</i> at 34.
changing the second screen of the second touch screen in response to the continuous movements of the multiple touches.	The Seo Provisional discloses this limitation. For example, the Seo Provisional’s figures show the second touch screen changing in response to the continuous movements of the multiple touches (past the hinge). (<i>E.g.</i>, EX1006, 34, 38; <i>see also id.</i> at 34 (“Screens are changed in accordance with a motion direction based on an analyzed touch input.”), 35 (“When drag is performed in a direction of the hinge in a state of input of the two touches, an effect of shifting of a screen is displayed as a feedback for a mode change.”).)  (<i>Id.</i> at 34 (top), 38 (bottom) (annotated).)

B. Yook

40. U.S. Patent Application Publication No. 2010/0248788 (“Yook”) was published September 30, 2010, from an application filed March 22, 2010.

(EX1011, Cover.) Yook explains in the Abstract:

A method of supporting divided screen areas and a mobile terminal employing the same are disclosed. The method includes: generating input signals for one of sequentially and simultaneously activating a plurality of user functions; activating the user functions according to generated input signals; dividing a screen into divided screen areas that correspond to activated user functions; and outputting functional view areas associated with the activated user functions to the corresponding divided screen areas.

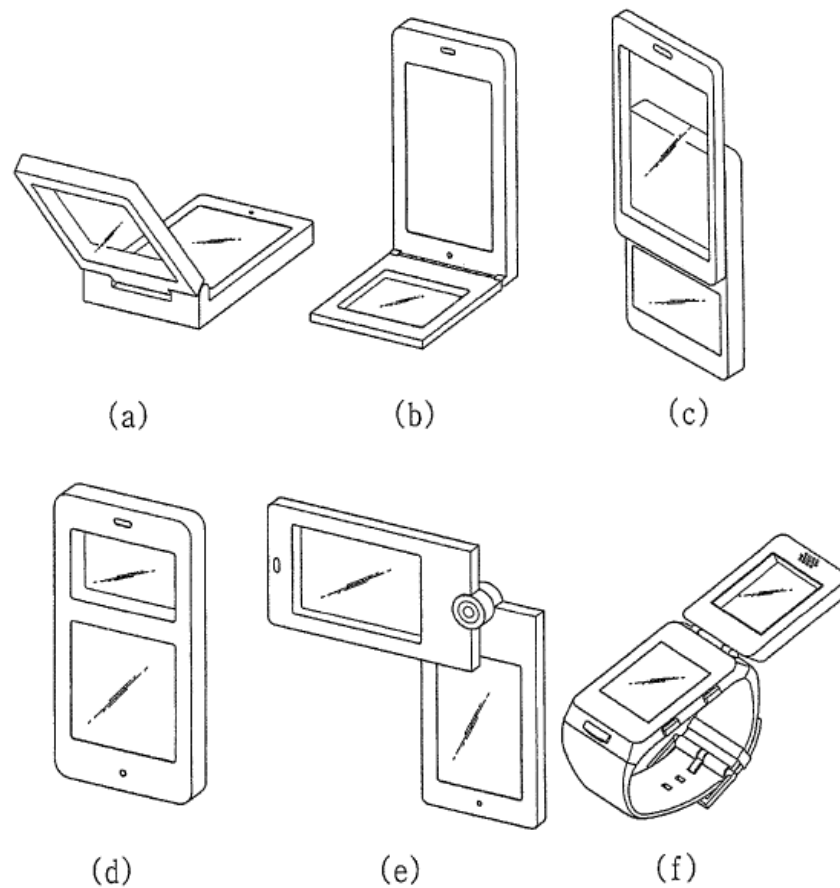
(EX1007, Abstract.)

C. Choi

41. Choi is directed to methods for controlling display of content on mobile terminals. (EX1010, Abstract, 1:15-19, 1:32-36 (describing that “the mobile terminals can be further classified into **handheld** terminals . . .”), 5:45-50, (describing that the mobile terminal can include “**smart phones**”), 8:13-35 (describing single or multiple display devices).)

42. Choi discloses various examples of mobile terminals with single or multiple touch-sensitive displays. (EX1010, 8:13-27, 13:52-65, 14:47-52, Figs. 5-6.) Figure 6 below shows various mobile terminals having a dual display configuration.

FIG. 6



(EX1010, Fig. 6.)

43. Choi discloses that a multiple display configuration for its mobile terminals can be implemented with two separate physical display units. (EX1010, 14:24-33, Figs. 7A–7B.) For example, with reference to figures 7A and 7B below, Choi discloses that its mobile terminal includes a folding-type mobile terminal with LCD 151 that “may operate as a main display” and “TOLED 154 [that] may operate as a sub display.” (*Id.*, 14:25-35.) Choi discloses that each of these displays is a touch screen. (*Id.*, 14:47-52 (“the TOLED 154 and the LCD 151 function as a touchscreen”).)

FIG. 7A

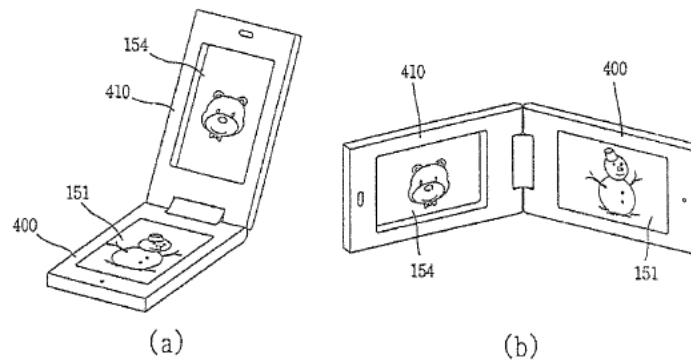
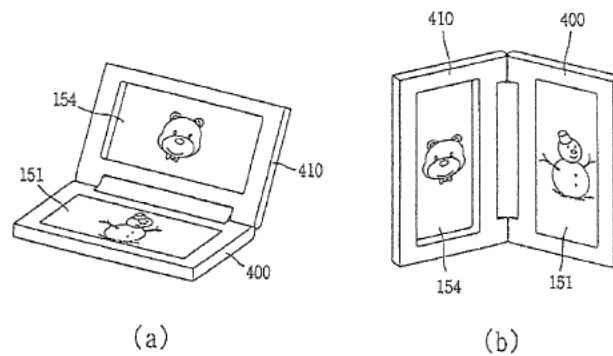


FIG. 7B



(EX1010, Figs. 7A-7B.)

44. Choi explains the operation of the two-screen device with reference to the use of a web browser and exemplary figures 48–49B.

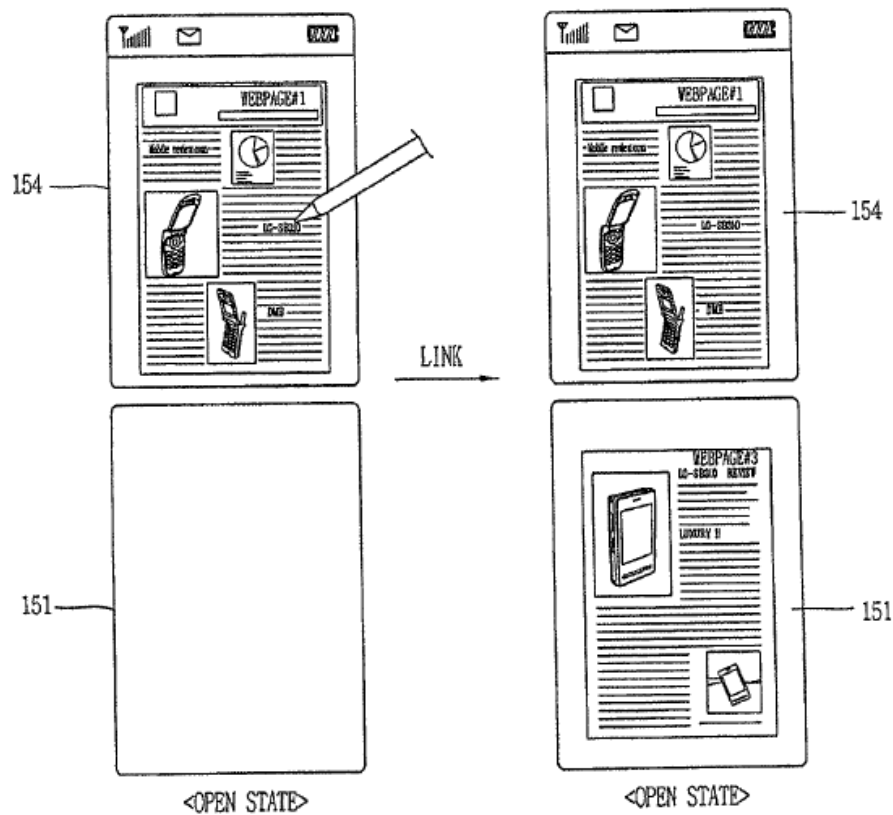
As discussed above, the present invention can operate displays such that the LCD 151 and the TOLED 154 can operate as a main window (or first window) and a sub

window (or second window). For better understanding of a displaying method employing Such concepts of the main/sub windows, an Internet browsing method will be described as one example. Further, the main and Sub windows may be applied to a mobile terminal having a dual display (e.g., folder-type, slide-type, rotating-type (e.g., Swivel-type, Swing-type), watch-type or the like).

(EX1010, 28:39-48; *see also id.* 28:49-29:17.)

45. For example, two pages of a website may be displayed on different screens or windows of a device, and a user selecting a link from a webpage in the browser on the first screen can open a sub-window of the browser in the second screen displaying the linked content as shown in figure 49A. (EX1010, 29:1-17).

FIG. 49A



(EX1010, Fig. 49.)

VIII. CLAIM CONSTRUCTION

46. I understand that when considering the meaning of patent claims, one must consider the language of the claims, the specification, and the prosecution history of the patent. I also understand that claim terms are typically given their ordinary and customary meanings as would have been understood by a person of ordinary skill in the art at the time of the invention for the patent. For the '494

patent, as I explained above in Section IV, the relevant time that I have been asked to consider is around September 27, 2011. For purposes of my opinions in this declaration, I have been asked to consider the challenged claims under their plain and ordinary meanings as understood by a person of ordinary skill in the art at the time of the alleged invention, and I have applied such understandings in my analysis of the '494 patent and the prior art.

IX. THE PRIOR ART DISCLOSES AND/OR SUGGESTS ALL RECITED FEATURES OF CLAIMS 1, 2, 4, 6, 9, 10, 12–14, and 18–20 OF THE '494 PATENT

47. In my opinion, the prior art discussed below discloses and/or suggests the limitations of claims 1, 2, 4, 6, 9, 10, 12–14, and 18–20.²

² In this section (Section IX), I refer to exhibits other than those identified prior art reference(s) that disclose and/or suggest the claimed limitations. Such exhibits reflect the state of the art known to a person of ordinary skill in the art at the time of the alleged invention.

A. Seo Discloses Claims 1, 2, 4, 6, 10, and 12

1. Claim 1

i) [1.pre] “A method for controlling a display of a device, comprising:”

48. I understand that this limitation is a preamble of the claim and I have been asked to assume that the preamble of claim 1 is limiting. Under that assumption, Seo discloses the preamble of claim 1. For example, Seo provides a

method of changing screens using multiple touch screens.

The method includes displaying a first screen in a first touch screen; displaying a second screen in a second touch screen; detecting multiple touches in the first touch screen; detecting continuous movements of the multiple touches from the first touch screen to the second touch screen; and changing the second screen of the second touch screen in response to the continuous movements of the multiple touches.

(EX1005, Abstract; *see also* EX1006, 34 (summary of the invention).)

49. As shown in figures 8A and 8B, the “multiple touches” 880/881 (figure 8A) and 882/883 (figure 8B) are gestures that control a display of device 100 (not labeled in those figures). (EX1005, Figs. 8A, 8B.) For example, figure 8A starts with a “screen 800 displayed in the first touch screen 190a” showing a friend list screen 810 of a messenger application on the left, and a second screen

850 displaying a photo screen 860 in the second touch screen 190b on the right,³ where the first screen 800 and second screen 850 correspond to separate applications. (EX1005 ¶¶[0099], [0101]-[0102]; EX1006, 34, 38 (figures showing the same).) Following the multiple touch gesture input 880/881, the second screen 850 changes to a third screen 820 corresponding to the first screen 800 (messenger application), such as a detailed messaging screen for a selected friend, so that both screens correspond to the same application. (EX1005 ¶¶[0125]-[0126], Fig. 8A; *see also id.* ¶¶[0103]-[0124] (explaining that the screen change results from the multiple touch gesture input); EX1006, 34 (“[s]creens are changed . . . based on an analyzed touch input), 38 (figures showing the same).)

³ The labels for the two touch screens 190a (left screen) and 190b (right screen) are shown in figure 1 and referenced throughout the specification. (EX1005, Fig. 1; *see also id.* ¶¶[0032]-[0033].) I use those labels to denote the left and right touch screen displays for convenience and clarity because the specification refers to several different “screens.”

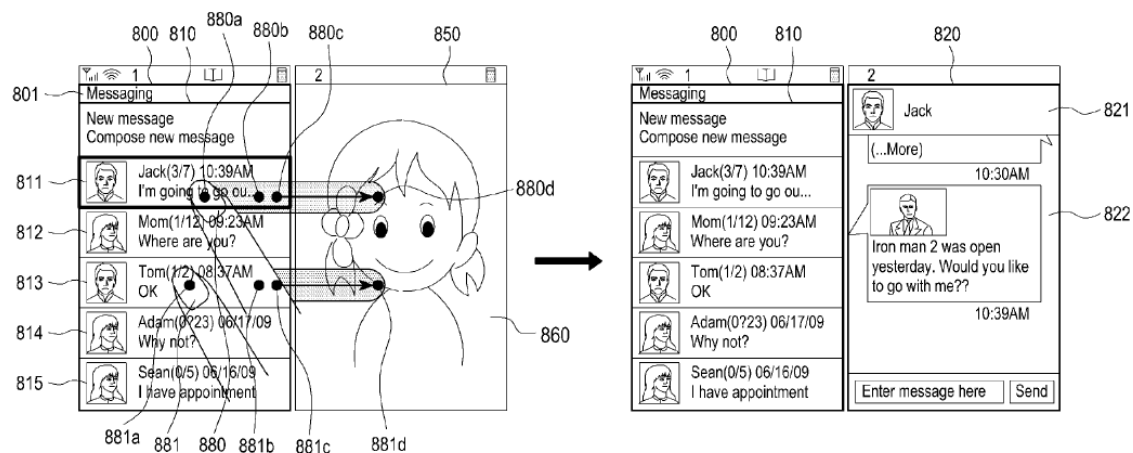


FIG. 8A

(EX1005, Fig. 8A; *see also* EX1006, 34, 38.)

50. Figure 8B shows the reverse operation, where multiple touch gesture 882/883 in the opposite direction minimizes the messaging screen 820 in the touch screen 190b, so that the device again shows the second screen 850 corresponding to the photo screen 860 displayed in figure 8A. (EX1005 ¶¶[0130]-[0140], Fig. 8B; EX1006, 38 (figure showing the same).)

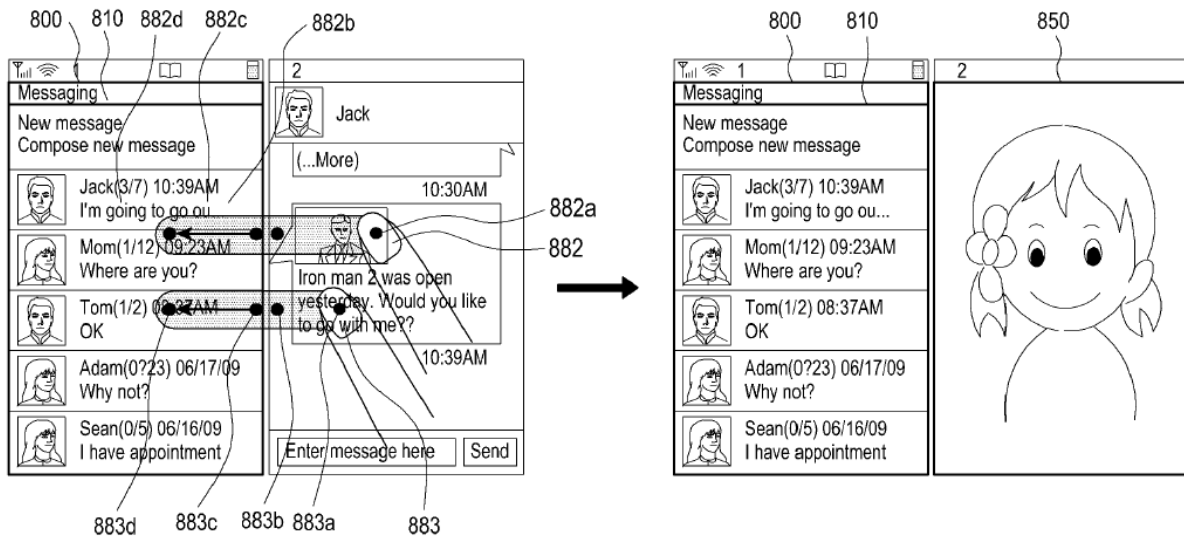


FIG. 8B

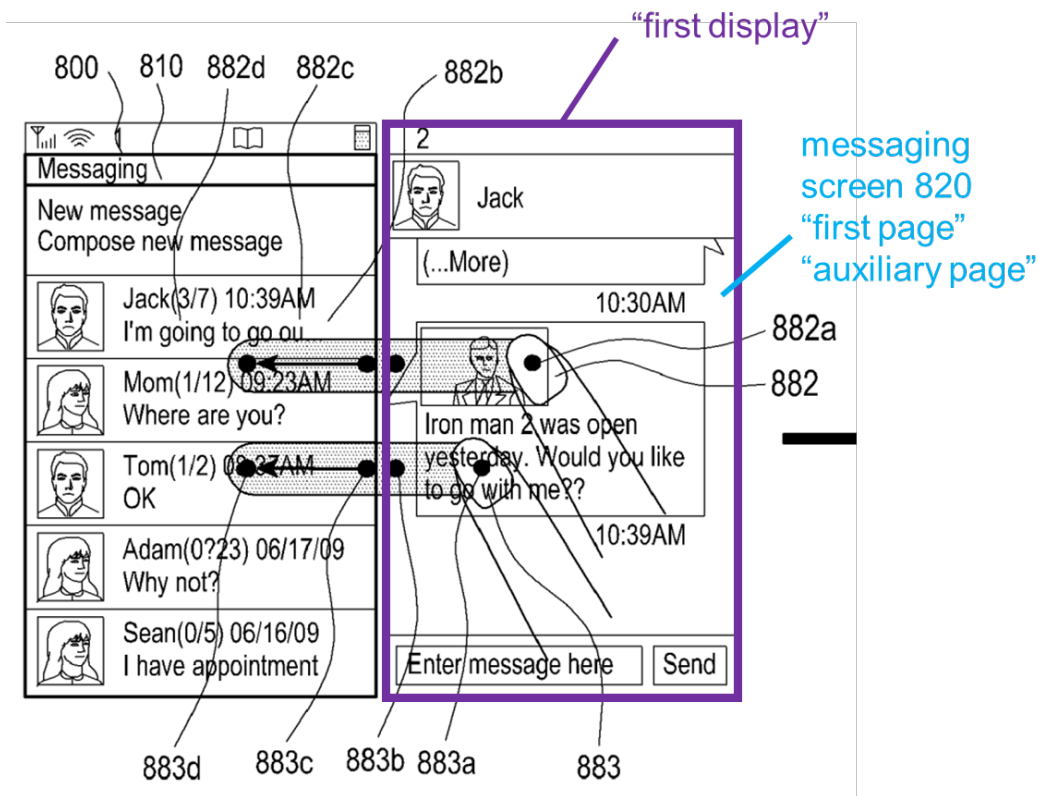
(EX1005, Fig. 8B; *see also* EX1006, 38.)

- ii) [1.a] “presenting a first page of a first application on a first display of the device, wherein the first page is an auxiliary page;”

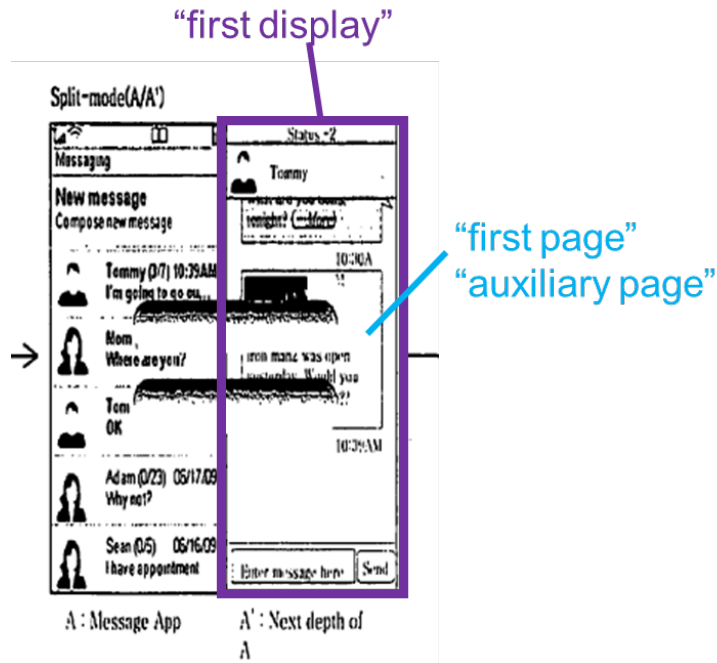
51. Seo discloses this limitation. For example, in figure 8B, Seo discloses a messaging screen 820 (labeled in figure 8A; “first page”) in a portion of the right-side touch screen 190b (“first display”)⁴ for a specific contact in the main messaging screen 800 on left-side touch screen 190a. (EX1005, Fig. 8B; *see above*

⁴ The '494 patent explains that “[t]he term ‘display’ refers to a portion of one or more screens used to display the output of a computer to a user.” (EX1001, 4:22-23.) Here, the mapping to “display[s]” in Seo corresponds to a portion of Seo’s multiple screens (i.e., each mapped “display” is one of the two screens).

§IX.A.1(i.) The messaging screen 820 is a screen of the messaging application (“first application”). (EX1005, Fig. 8B.)



(EX1005, Fig. 8B (annotated excerpt).)



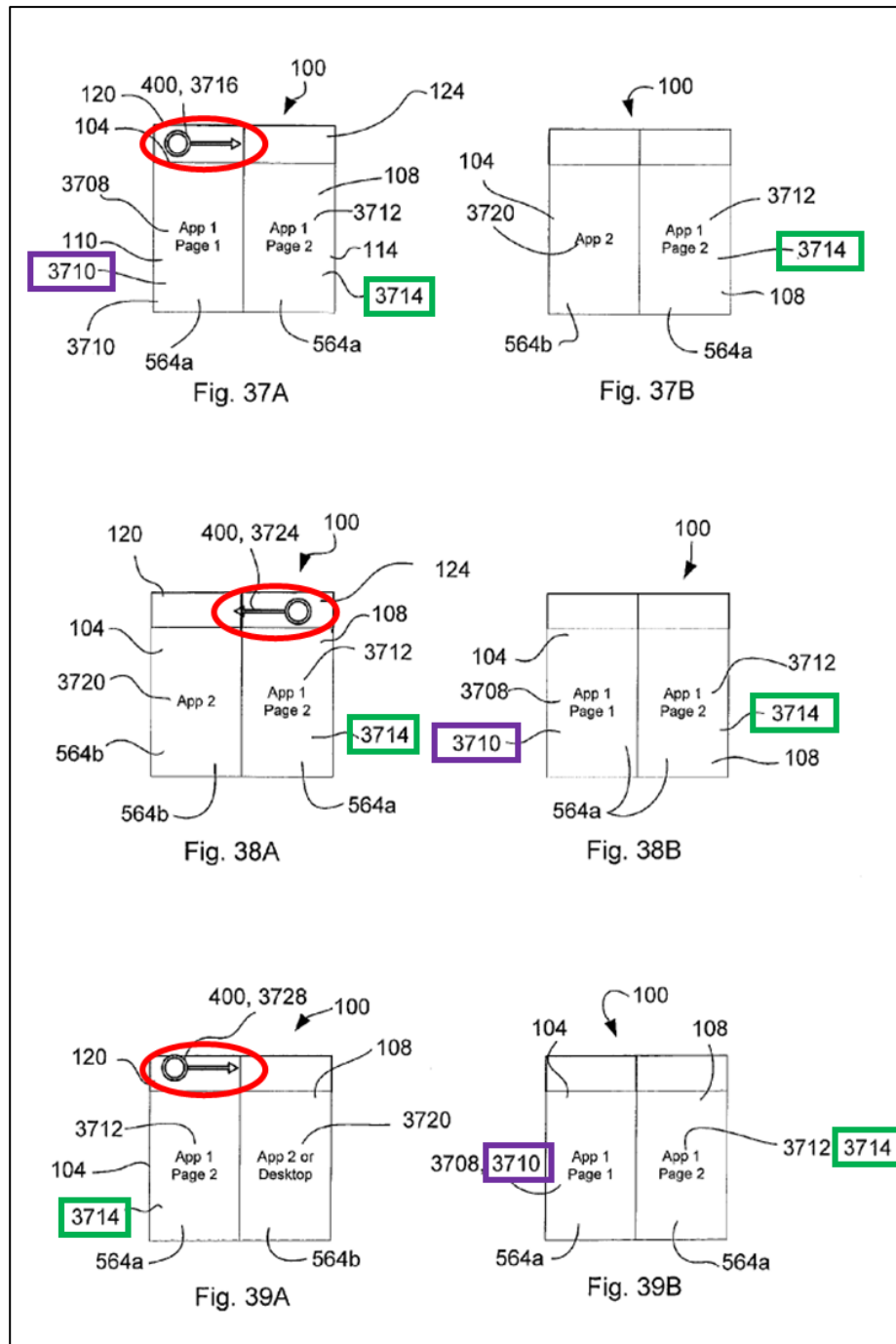
(EX1006, 38 (annotated excerpt).)

52. A person of ordinary skill in the art would have understood that Seo's messaging screen for a specific contact 820 is an "auxiliary page" to the main messaging screen 800 at least because it is alternatively displayed or hidden in response to a user input, whereas screen 800 is always displayed. The '494 patent's figures 37A-37B and 40, and their related description confirm that Seo's messaging screen 820 is an "auxiliary" page like the '494 patent's "auxiliary" page 3710, which is similarly displayed or hidden in response to a user input.⁵

⁵ The '494 patent refers only once to an “auxiliary page,” with reference to “page 3710 [being] displayed” along with “the primary [page] 3714” “when the

53. For example, the '494 patent's figure 40 is a flow chart that describes (1) minimizing the auxiliary page 3710 in response to user input for minimizing an application while continuing to display a primary page 3714 (step 4016), and then (2) maximizing the auxiliary page 3710, which is displayed alongside primary page 3714, in response to a user input for maximizing an application (step 4024). (EX1001, 48:1-56, Fig. 40.) Similar methods of operation are illustrated in figures 37-39. (EX1001, 47:5-17 ("[T]he minimization operation command entered . . . has the effect of discontinuing or dismissing the first page 3708 of the first application 564a. The display of the second page 3712 of the first application 564a continues."), 47:17-22 ("[A]ny minimization operation performed with respect to the first application 564a while the first 3708 and second 3712 pages are displayed results in the first page 3708 (in this example the control or ancillary page 3710) being closed, while the second page 3712 (in this example the content or primary page 3714) persists.").

maximization command was received" at step 4020 in figure 40. (EX1001, 48:42-56.) But in describing the figure 40 embodiment, the '494 patent alternatively references page 3710 as a "secondary" or "ancillary" page. (EX1001, 48:21, 26, 49-50). I treat those terms as equivalents in the specification for the purposes of my analysis here because they all refer to the same page 3710 in the embodiments I discuss.

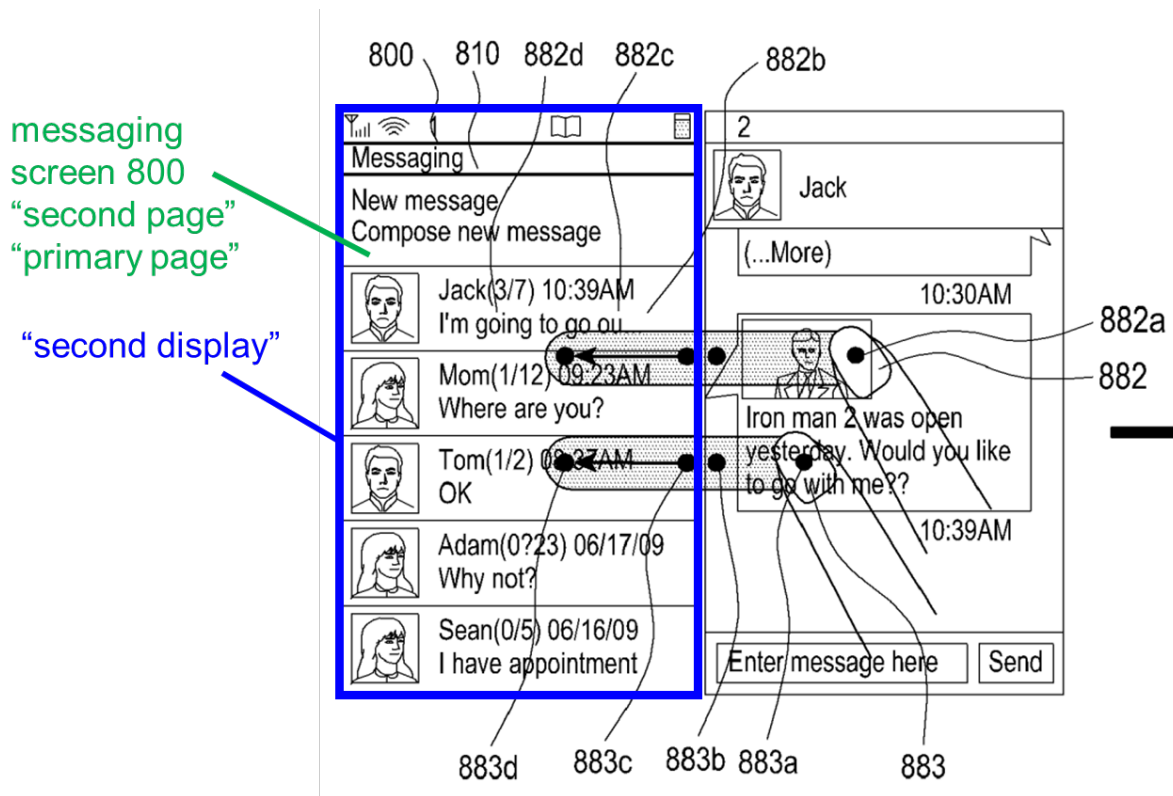


(EX1001, Figs. 37-39 (showing secondary page 3710 (purple) is displayed or hidden in response to a user input (red), but primary page 3714 (green) is always displayed).)

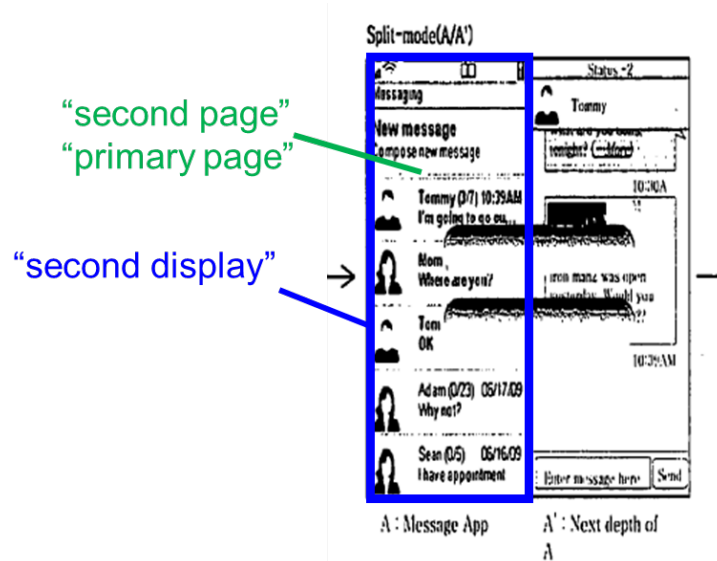
54. This method of operation where an “auxiliary” page is displayed or hidden in response to a user input, while a “primary” page remains displayed, is the same method of operation disclosed by Seo. Like the ’494 patent, Seo discloses hiding or displaying screen 820 in response to a user input, while screen 800 remains displayed during the user inputs that hide/display screen 820. (EX1005, Figs. 8A, 8B; *see above* §IX.A.1(i); EX1006, 34-40 (also discussed above at §VII.A).) Thus, Seo’s messaging screen for a specific contact 820 is an “auxiliary page” to the main messaging screen 800 at least because it is alternatively displayed or hidden in response to a user input, whereas screen 800 remains displayed during what the ’494 patent calls “minimization” and “maximization” operations, discussed above.

iii) [1.b] “presenting a second page of the first application on a second display of the device, wherein the second page is a primary page,”

55. Seo discloses this limitation. For example, in figure 8B, Seo discloses a main messaging screen 800 (“second page”) including a title bar 801 and friend list screen 810 in the left-side touch screen 190a (“second display”). (EX1005 ¶[0099], Fig. 8B; *see above* §IX.A.1(i); *see also* EX1006, 34, 38.) The main messaging screen 800 is a screen of the messaging application (“first application”). (EX1005 ¶[0099], Fig. 8B; *see above* §IX.A.1(ii).)



(EX1005, Fig. 8B (annotated excerpt).)



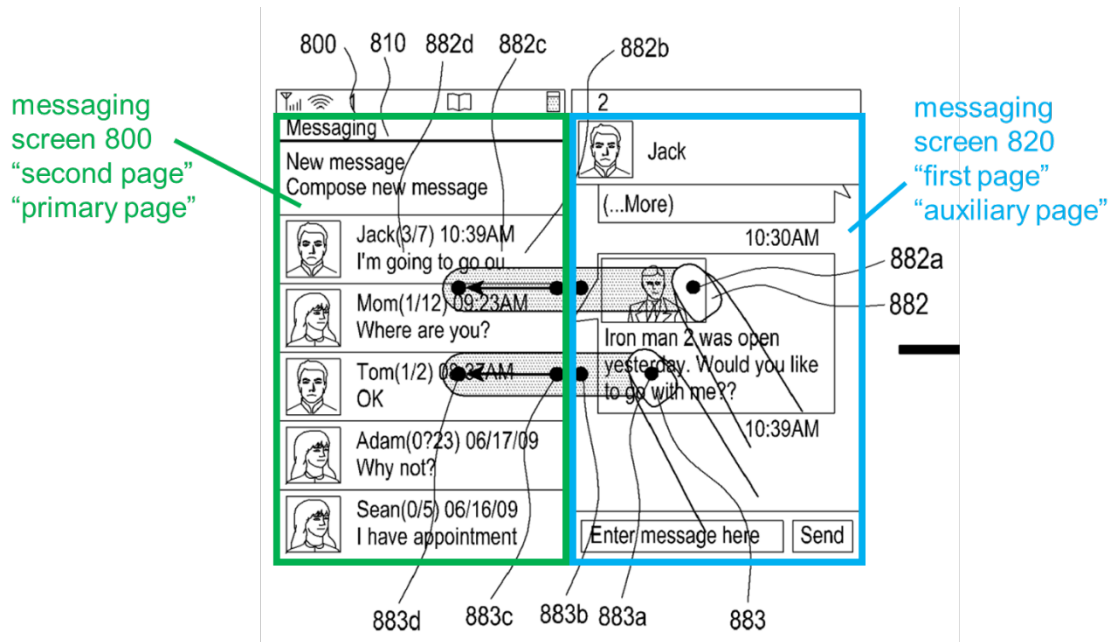
(EX1006, 38 (annotated excerpt); *see also id.*, 34.)

56. A person of ordinary skill in the art would have understood that Seo's main messaging screen 800 with the contact list is a "primary page" for similar reasoning described above for the "auxiliary" page. (*See above* §IX.A.1(ii).) Messaging screen 800 remains displayed—does not close and open during what the '494 patent calls minimization and maximization operations—like the auxiliary screen 820. (EX1005, Figs. 8A, 8B; EX1006, 34, 38; *see also* EX1001, 47:17-22 ("the second [primary] page . . . persists").) Additionally, from figures 8A and 8B, it would have been apparent to a person of ordinary skill in the art that a user could select a contact from the primary messaging screen 800 to view that contact's detailed chat window on an auxiliary messaging screen 820. (EX1005, Fig. 8A (gesture input 880/881), Fig. 8B; *see also* EX1006, 34, 38 (figures showing the same gesture input as EX1005).) Thus, the auxiliary screen 820 opens from an input (gesture) started on the messaging screen 800. Accordingly, a person of ordinary skill in the art would have understood that screen 800 is the primary screen of the two screens (or "pages").

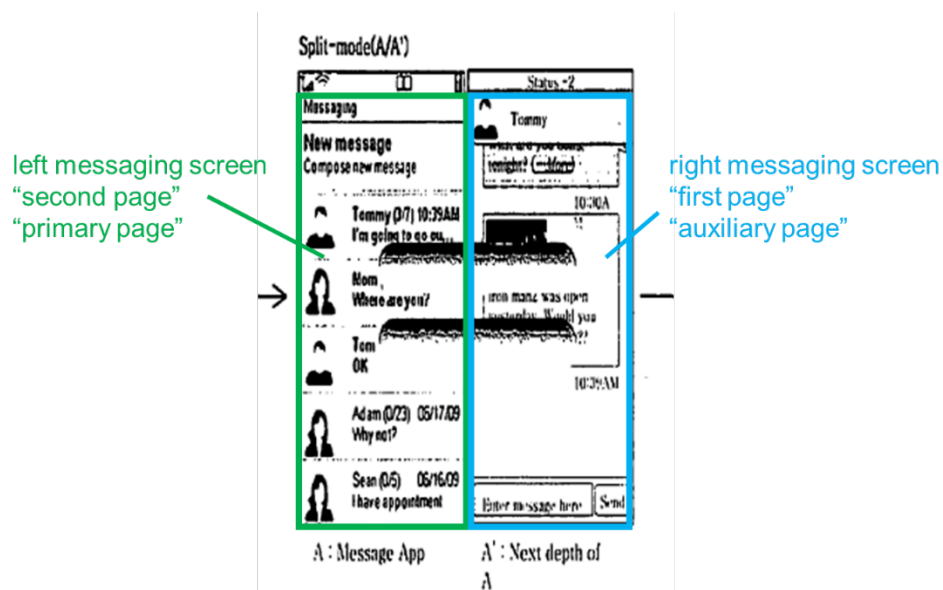
iv) [1.c] "wherein the first and second pages present different content and are distinct pages, and wherein the auxiliary page is a child of the primary page;"

57. Seo discloses this limitation. Seo's first page (messaging screen 820) presents a detailed messaging window for a particular contact, whereas the second

page (messaging screen 800) presents a list of contacts, which is different content in distinct pages. (EX1005, Fig. 8B; *see above* §§IX.A.1(i)-(iii); *see also* EX1006, 34, 38.)

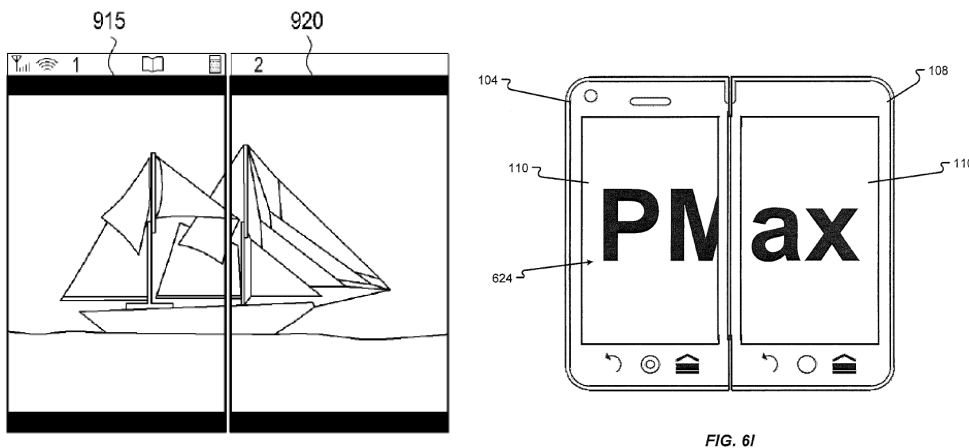


(EX1005, Fig. 8B (annotated excerpt).)



(EX1006, 38 (annotated excerpt).)

58. The pages in figure 8B above are in contrast to Seo's figure 9A, or the '494 patent's figure 6I, where the same content—a single continuous image—is spread across two displays so that the two pages are not distinct and display portions of the same content (the image). (EX1005, ¶¶[0159]-[0160], Fig. 9A; EX1001, 26:35-44, Fig. 6I.) This contrast confirms that a person of ordinary skill in the art would have recognized Seo's figure 8B embodiment as disclosing “distinct pages” with “different content,” as opposed to indistinct pages or pages with the same content.



(EX1005, Fig. 9A (left; excerpt); EX1001, Fig. 6I (right).)

59. For the limitation “wherein the auxiliary page is a child of the primary page,” Seo's first/auxiliary page (messaging screen 820) opens via interactions with Seo's primary page (messaging screen 800) that cause the messaging

application to expand or maximize onto the second display to show the auxiliary page (messaging screen 820). (EX1005, Fig. 8A; *see also* EX1006, 34, 38.) In effect, the messaging screen 820 is “born” from messaging screen 800, and is part of the same messaging application, giving them a parent-child relationship.

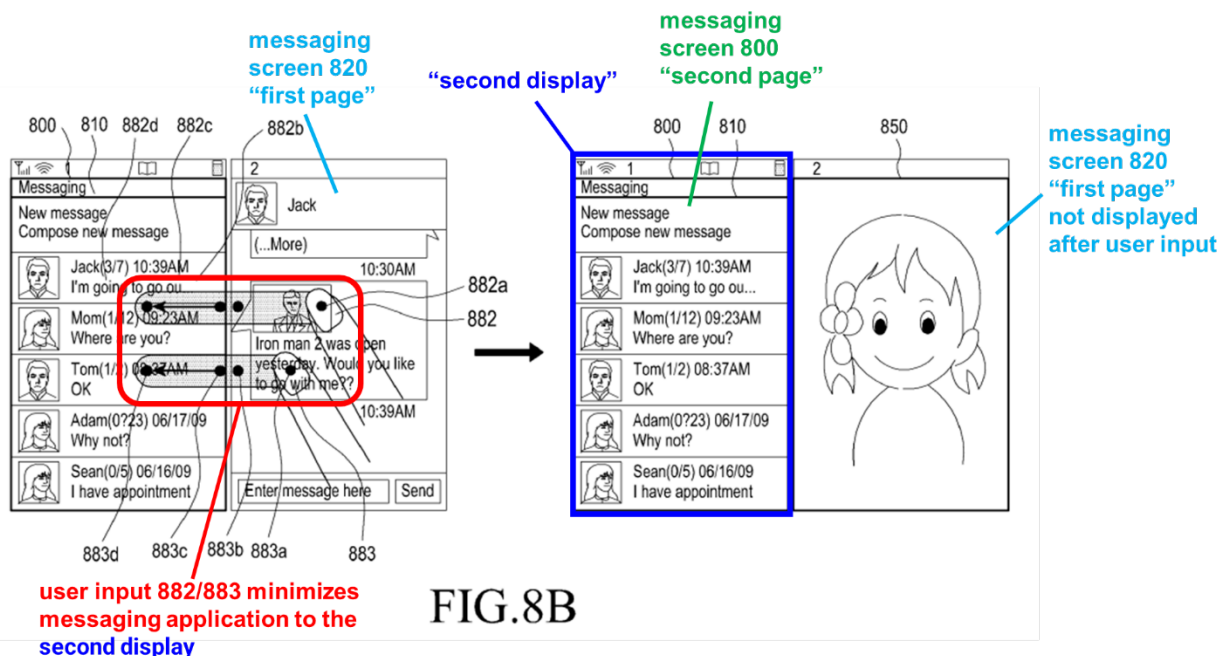
Accordingly, a person of ordinary skill in the art would have recognized messaging screen 820 as “a child of the primary page” 800.⁶

- v) **[1.d] “receiving a first input from a user, wherein the first input includes an input to minimize the first application to one of the first and second displays of the device, wherein the second page of the first application is displayed by one of the first display of the device and the second display of the device, and wherein the first page of the first application is not displayed.”**

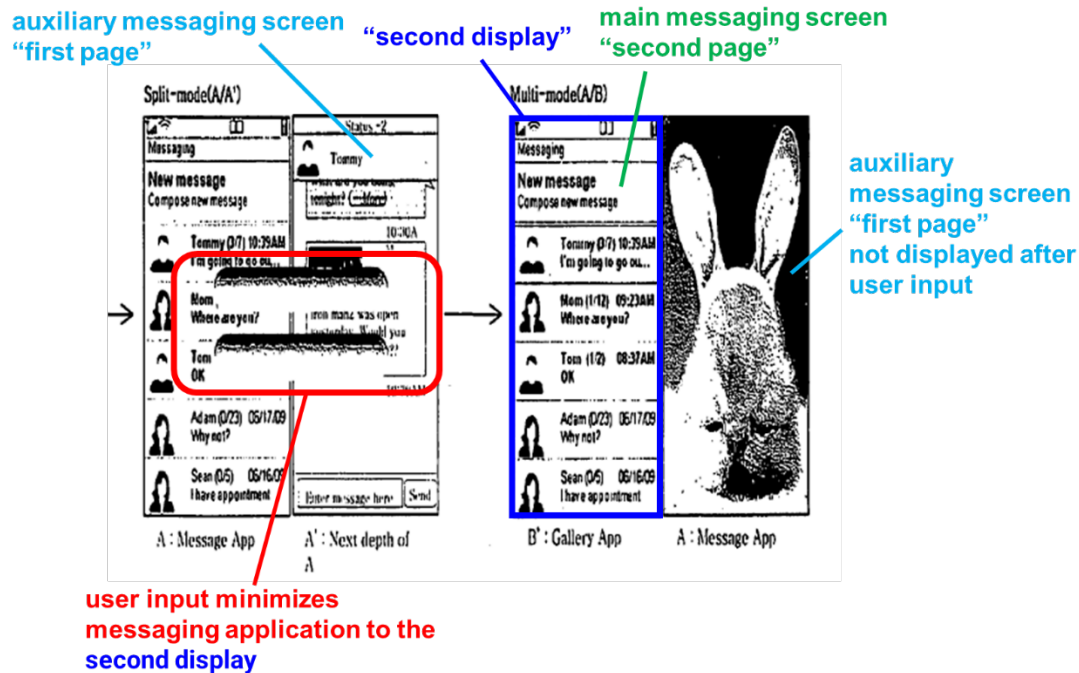
60. Seo discloses this limitation. For example, figure 8B discloses gesture input 882/883 (“a first input from a user”) that minimizes the messaging application to the left-side touch screen 190a (“the second display[] of the device”), such that the main messaging screen 800 remains displayed on the left-side touch screen 190a (“second page of the first application is displayed by . . . the second display of the device”) and the messaging screen 820 is no longer displayed

⁶ The ’494 patent does not use the term “child” page and provides no indication of what the scope of the term “child” encompasses. However, for the reasons described here, the term is met by the prior art under any reasonable interpretation.

on the right-side touch screen 190b (“the first page of the first application is not displayed.” (EX1005, ¶¶[0129]-[0130], [0137]-[0140], Fig. 8B; *see also* EX1006, 38 (showing gesture inputs in the middle figure that minimize the messaging application to the left-side touch screen such that the main messaging screen remains displayed on that screen and the other messaging screen is no longer displayed on the right-side touch screen.)



(EX1005, Fig. 8B (annotated).)



(EX1006, 38 (annotated excerpt).)

61. With reference to figure 8B, Seo explains that "the user inputs the multiple touches 882 and 883" in the "screen 820 of . . . touch screen 190b" (EX1005 ¶[0130]) which changes "screen 820 to . . . screen 850 in response to the arrivals of the multiple touches 882 and 883 at the positions 882c and 883c in . . . touch screen 190a" (*id.* ¶[0137]). (See also, e.g., EX1006, 34 ("Screens are changed in accordance with a motion direction based on an analyzed touch input."), 38 ("When drag is performed in a direction of the hinge in a state of input of the two touches, an effect of shifting of a screen is displayed as a feedback for a

mode change.”) This method of operation is shown in annotated figure 8B above.

(EX1006, 38.)

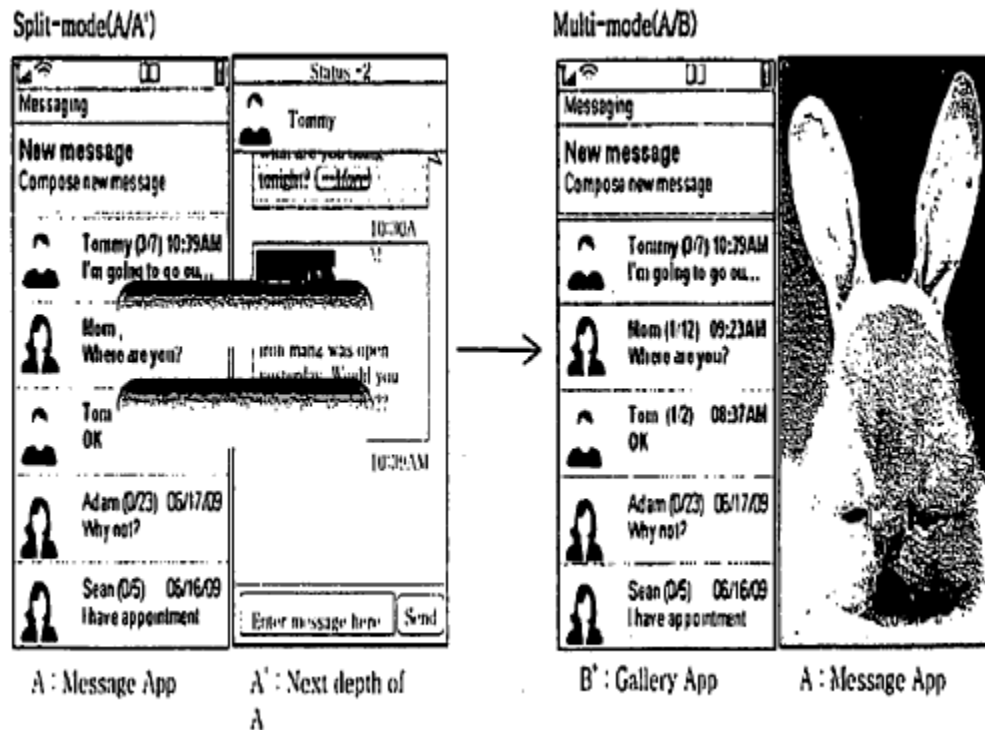
2. **Claim 2: “The method of claim 1, wherein the first input from the user is received in a gesture capture region of the device, and wherein the gesture capture region is included as part of at least one of the first and second displays of the device.”**

62. Seo discloses these limitations. The multiple touch input 882/883 (“first input from the user”) is received by the device starting in touchscreen 190b and continuing into touchscreen 190a (“received in a gesture capture region of the device . . . included as part of at least one of the first and second displays of the device”). (EX1005, Fig. 8B; *see above* §IX.A.1(v) (discussing user inputs 882/883); *see also* EX1006, 34, 38.) A person of ordinary skill in the art would have understood that the multiple touch input 882/883 is a two-finger gesture (e.g., a swiping or drag & drop motion) as illustrated in figure 8B. (*See also* EX1006, 34, 38 (describing a two touch drag & drop gesture).) Additionally, Seo calls the identical but reverse-direction multiple touch input 880/881 shown in figure 8A “drag & drop gestures or flick gestures,” confirming such an understanding. (EX1005 ¶[0108] (emphasis added), Fig. 8A; *see also* EX1006, 34 (“touch input gestures”), 38 (“Drag & Drop”).) A person of ordinary skill in the art would have also understood the area where the gesture input is made is a “gesture capture

region” because the gesture input within that region is detected (“captured”) by the device. This is consistent with examples in the ’494 patent. (*See, e.g.*, EX1001 3:60-61, 5:4-9, 9:28-38.)

3. Claim 4: “The method of claim 1, wherein after receiving the first input a first page of a second application is presented by the first display.”

63. Seo discloses this limitation. After receiving the multiple touch input 882/883 (“first input”) the right-side touch screen 190b (“first display”) presents screen 850, which is a photo screen from a second application that is different from the messenger application (“a first page of a second application is presented by the first display”). (EX1005 ¶¶[139]–[140], Fig. 8B; *see above* §IX.A.1(v); *see also* EX1006, 38 (figure showing that after receiving the two-finger input gesture, a photo screen from a gallery application is displayed on the right-side (“first”) display) (excerpted below).) Seo further discloses that screen 800 and screen 850 “again correspond to different applications,” after receiving the user input. (EX1005 ¶[0140]; *see also id.* ¶¶[0102] (800 and 850 “are screens corresponding to separate applications”), [0137]–[0139] (screens 800 and 850 “correspond to different applications”); EX1006, 34 (“different Apps displayed in two screen[s]”), 38 (identifying the screens as “Gallery App” and “Message App” in the far-right figure after the user input).)



(EX1006, 38.)

4. Claim 6:

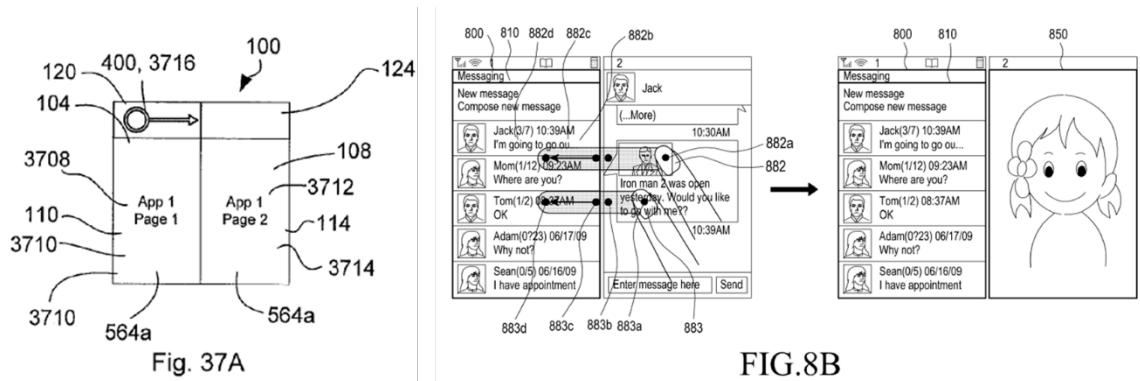
- i) [6.a] “The method of claim 1, wherein the device is oriented such that the first and second displays are presented in a dual portrait format,”

64. Seo discloses this limitation. Seo discloses orienting the device such that touch-screen displays 190b and 190a (“the first and second displays”) are presented with each display in a portrait orientation (“in a dual portrait format”).

(EX1005, Fig. 8B; *see also* EX1006, 38 (showing the same).)

65. For example, the '494 patent explains that “FIG 37A depicts a device 100 with first 104 and second 108 screens . . . in a dual portrait mode or

orientation.” (EX1001, 46:38-40, Fig. 37A.) This screen configuration, with side-by-side screens each in a portrait orientation, is the same as that disclosed by Seo.
(Compare EX1001, Fig. 37A, with EX1005, Fig. 8B and EX1006, 38.)



(EX1001, Fig. 37 (left); EX1005, Fig 8B (right); *see also* EX1006, 38 (same disclosure as Seo’s Fig. 8B).)

- ii) **[6.b] “and wherein the first input includes a gesture that is input from a side of the device corresponding the first display towards a side of the device corresponding to the second display.”**

66. Seo discloses this limitation. For example, the arrows on figure 8B disclose that the gesture input 882/883 (“the first input includes a gesture”) (*see above* §IX.A.2) is input starting from the right-side touchscreen display 190b (“input from a side of the device corresponding to the first display”) indicated by positions 882a/883a, and moving towards and onto the left-side touchscreen display 190a (“towards a side of the device corresponding to the second display”) indicated by positions 882d/883d. (EX1005, Fig. 8B; *see also id.* ¶[0134])

(“movements from initial positions 882a and 883a . . . to last positions 882d and 883d”); EX1006, 34 (“Drag is initiated in the left screen, passes the hinge, and released in the right screen.”), 38 (“drag is performed in a direction of the hinge”).)

5. **Claim 10: “The method of claim 1, further comprising: after receiving the first input, receiving a second input from the user, wherein the second input includes an input to maximize the first application to both of the first and second displays of the device, wherein the first page of the first application is presented on the first display of the device and the second page is displayed on the second display of the device.”**

67. Seo discloses these limitations. For example, Seo discloses input 880/881 (“receiving a second input from the user”) to maximize the messaging application to fill both the right-side touchscreen 190b and left-side touch screen 190a (“wherein the second input includes an input to maximize the first application to both of the first and second displays of the device”), reverting back to presenting the messaging screen 820 of the messaging application on right-side touchscreen 190b (“wherein the first page of the first application is presented on the first display of the device”) and the main messaging screen 800 on left-side touch screen 190a (“the second page is displayed on the second display of the device”). (EX1005, Fig. 8A; *see also* EX1005 ¶¶[0125]–[0126]; *see above* §IX.A.1(i); EX1006, 34, 38 (first two figures on left).) For example, in figure 8A, multi-touch user input 880/881 causes the device to maximize the messaging application and

display the detailed messaging screen 820 on the right-side touchscreen 190b.

(EX1005, Fig. 8A; *see also* EX1006, 34, 38.)

68. Although Seo discloses first opening the detailed messaging screen 820 (figure 8A) and then closing it (figure 8B), a person of ordinary skill in the art would have understood from Seo that this is not a one-time process where the messenger window cannot then again be opened, but is instead a repeatable loop. (EX1006, 38.) Accordingly, a person of ordinary skill in the art would have readily recognized from Seo's disclosures that the device would have been configured to re-open the detailed messaging screen for a specific contact 820 after closing it (e.g., to review the chain of messages with that contact). And of course the method for closing it would have been the same, should the user want to close it again. Thus, a person of ordinary skill in the art would have understood Seo's method as a repeatable loop, where the user can continually close and open the detailed messaging screen 820 as desired or needed, and as shown in figures 8A and 8B. (EX1005, Figs. 8A, 8B.) Indeed, it would have been strange and unintuitive if Seo's user interface could only open a detailed messaging window once or close it once, without ever being able to re-open or re-close that same window again.

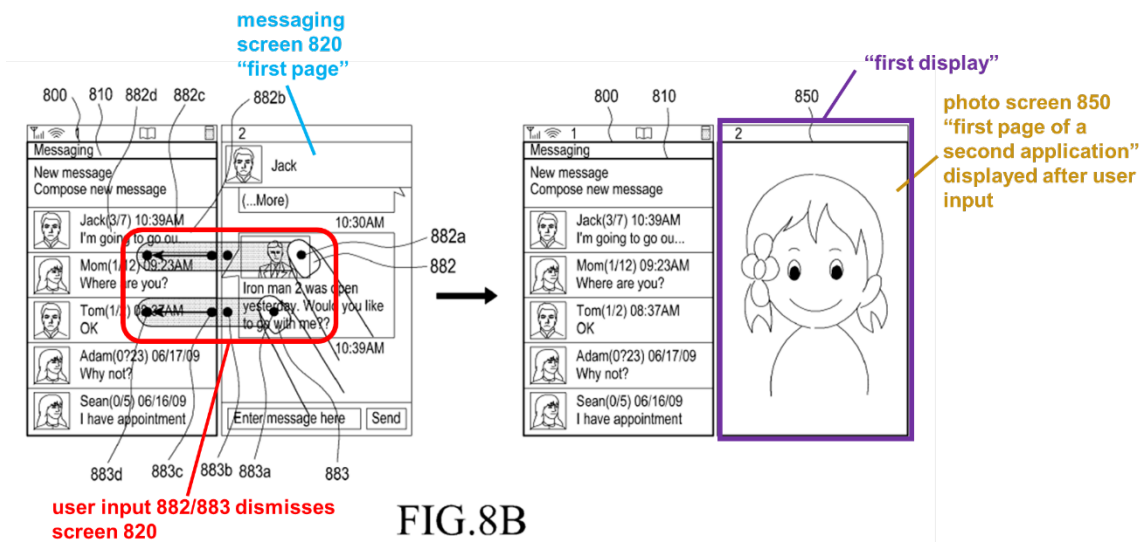
69. Thus, a person of ordinary skill in the art would have understood that Seo discloses receiving a second input “after” receiving a first input.

6. Claim 12:

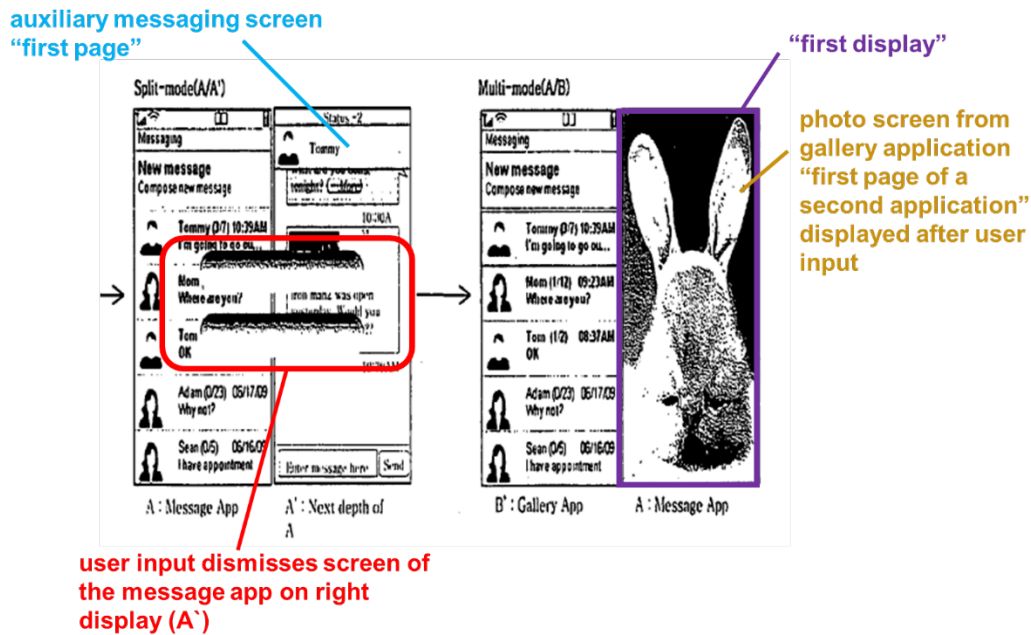
- i) **[12.a] “The method of claim 10, further comprising: after receiving the first and second inputs, receiving a third input from the user dismissing the first page of the application, wherein one of a first page of a second application or a desktop is presented by the first display of the device;”**

70. Seo discloses these limitations. For example, Seo discloses gesture input 882/883 (“a third input from a user”) that dismisses messaging screen 820 (“the first page of the [first] application”) by minimizing the messaging application to the left-side touch screen 190a (the second display) as discussed for claim 1. (*See above* §IX.A.1(v); EX1005, ¶¶[0129]-[0130], [0137]-[0140], Fig. 8B; *see also* EX1006, 38 (showing gesture inputs in the middle figure that minimize the messaging application to the left-side touch screen and displays a gallery application on the right-side touch screen).) That method reveals a photo screen from a second application (“a first page of a second application”) on the right-side touch screen 190b (“first display”), as discussed for claim 4. (*See above* §IX.A.1(v); EX1005 ¶¶[139]-[140], Fig. 8B; EX1006, 38 (figure showing that after receiving the two-finger input gesture, a photo screen from a gallery application is displayed on the right-side (“first”) display). Seo further discloses

that screen 800 and screen 850 “again correspond to different applications,” after receiving the user input. (EX1005 ¶[0140], Fig. 8B; *see also id.* ¶[0102] (800 and 850 “are screens corresponding to separate applications”), [0137]–[0139] (screens 800 and 850 “correspond to different applications”); *see also* EX1006, 34 (“different Apps displayed in two screen[s]”), 38 (identifying the screens as “Gallery App” and “Message App” in the far-right figure after the user input).)



(EX1005, Fig. 8B (annotated).)



(EX1006, 38 (annotated excerpt).)

71. With reference to figure 8B, Seo explains that “the user inputs the multiple touches 882 and 883” in the “screen 820 of . . . touch screen 190b” (EX1005 ¶[0130]) which changes “screen 820 to . . . screen 850 in response to the arrivals of the multiple touches 882 and 883 at the positions 882c and 883c in . . . touch screen 190a” (*id.* ¶[0137]). (See also *e.g.*, EX1006, 34 (“Screens are changed in accordance with a motion direction based on an analyzed touch input.”), 38 (“When drag is performed in a direction of the hinge in a state of input of the two touches, an effect of shifting of a screen is displayed as a feedback for a mode change.”)) This method of operation is shown in annotated figure 8B above. (EX1006, 38.)

72. This claim element effectively requires repeating the method steps of claim 1 (e.g., an input to minimize the first page of the first application). As discussed for claim 10, a person of ordinary skill in the art would have understood from Seo that the disclosed process of opening messaging screen for a particular contact 820 (EX1005, Figure 8A) and closing the messaging screen for a particular contact (*id.*, Figure 8B) is not a one-time process where the messenger window cannot then again be opened, but is instead a repeatable loop. (*See above* §IX.A.5; *see also* EX1006, 38.) Thus, such a person would have understood that Seo discloses receiving a third input “after” receiving the first and second inputs.

- ii) **[12.b] “after receiving the third input, receiving a fourth input from the user to maximize the first application to the first and second displays of the device, wherein the second display of the device presents the second page of the first application, and wherein the first display of the device presents the first page of the first application.”**

73. Seo discloses these limitations. For example, Seo discloses the limitations of this claim element for the same reasons discussed for claim 10. (*See above* §IX.A.5.)⁷ For instance, Seo discloses input 880/881 (“receiving a fourth

⁷ Taken together, claim elements 12[a] and 12[b] generally repeat claim element 1[d], claim 4, and claim 10 and thus claim 12 in its entirety is disclosed for the

input from the user”) to maximize the messaging application to fill both the right-side touchscreen 190b and left-side touch screen 190a (“maximize the first application to the first and second displays of the device”), reverting back to presenting the a messaging screen 820 of the messaging application on right-side touchscreen 190b (“wherein the first display of the device presents the first page of the first application”) and the main messaging screen 800 on left-side touch screen 190a (“wherein the second display of the device presents the second page of the first application”). (EX1005, Fig. 8A; *see also* EX1005 ¶¶[0125]–[0126]; *see above* §§IX.A.1(i), IX.A.5; EX1006, 34, 38 (first two figures on left).) For example, in figure 8A, multi-touch user input 880/881 causes the device to maximize the messaging application and display the detailed messaging screen 820 on the right-side touchscreen 190b. (EX1005, Fig. 8A; *see also* EX1006, 34, 38.)

74. A person of ordinary skill in the art would have understood from Seo that the detailed messaging screen 820 can be opened (figure 8A) and then closed again (figure 8B), in a repeatable loop. (EX1005, Figs. 8A, 8B; EX1006, 38.) As explained for Claim 10, this is not a one-time process where the messenger

same reasons discussed for those claims. (*See above* §§IX.A.1(d), IX.A.3, IX.A.5.)

window cannot then again be opened, but is instead a repeatable loop. (*See above* §IX.A.5.) Accordingly, a person of ordinary skill in the art would have readily recognized from Seo's disclosures that the device would have been configured to re-open the detailed messaging screen for a specific contact 820 after closing it (e.g., to review the chain of messages with that contact). And of course the method for closing it would have been the same, should the user want to close it again. Thus, a person of ordinary skill in the art would have understood Seo's method as a repeatable loop, where the user can continually close and open the detailed messaging screen 820 as desired or needed, and as shown in Figures 8A and 8B. (EX1005, Figs. 8A, 8B; EX1006, 34–40.) Indeed, it would have been strange and unintuitive if Seo's user interface could only open or close a detailed messaging window once, without ever being able to re-open or re-close that same window again. Thus, a person of ordinary skill in the art would have understood that Seo discloses receiving a fourth input "after" receiving a third input.

B. Seo Discloses and/or Suggests Claims 1, 2, 3, 6, 10, 12, and 13

75. As discussed in Section IX.A, Seo discloses claims 1, 2, 4, 6, 10, and 12. I have been asked to consider a scenario where Seo does not expressly disclose one or more limitations of those claims. In such a scenario, it is my opinion that a person of ordinary skill in the art would have been motivated to modify Seo in

view of the same disclosures cited and a such a person's understanding of those disclosures including what they would have suggested. (*See above* §IX.A.) A person of ordinary skill in the art would have had a reasonable expectation of success in any modification given the simplicity of the technology at issue, such a person's ordinary skill and creativity, among other factors. I address Claims 10, 12, and 13 below in more detail.

1. **Claim 10: “The method of claim 1, further comprising: after receiving the first input, receiving a second input from the user, wherein the second input includes an input to maximize the first application to both of the first and second displays of the device, wherein the first page of the first application is presented on the first display of the device and the second page is displayed on the second display of the device.”**

76. Seo discloses and/or suggests these limitations. As described in Section IX.A, Seo discloses every limitation of claim 10. (*See above* §IX.A.5.) Seo discloses and/or suggests claim 10 for the same reasons discussed. (*Id.*)

77. I have been asked to consider a scenario where Seo does not expressly disclose receiving the second input “after” receiving the first input. Under that scenario, in my opinion a person of ordinary skill in the art would have been motivated to make such a trivial modification to Seo's disclosed method in view of such a person's knowledge and understanding of the art, including how users would interact with an electronic device like that disclosed in Seo, and common

sense. A person of ordinary skill in the art would have understood that typical users of a device want the ability to both *open* and *close* a window or screen of an application (e.g., open a desired window if it was previously closed, or close an unwanted window that is open). Seo discloses both closing the messaging screen for a specific contact 820 (figure 8B) and opening the messaging screen for a specific contact (figure 8A). (EX1006, 38.)

78. Accordingly, a person of ordinary skill in the art would have readily recognized that a user running Seo's messenger application would have wanted to be able to re-open the detailed messaging screen for a specific contact 820 after closing it (e.g., to review the chain of messages with that contact). And of course a user would have wanted to be able to close the detailed messaging screen 820 again after re-opening it. Thus, a person of ordinary skill in the art would have understood Seo's method as a repeatable loop, where the user can continually close and open the detailed messaging screen 820 as desired or needed. Therefore, it would have been readily apparent to a person of ordinary skill in the art that the device is able to receive the second input (opening messaging screen 820) "after" receiving the first input (closing messaging screen 820). Indeed, it would have been strange and unintuitive to design a user interface for a messaging application

where the detailed messaging screen for a particular contact can only be closed and not opened again after it has been closed.

79. Accordingly, a person of ordinary skill in the art would have been motivated to make this modification to Seo, in the scenario that this claim feature is not already present in Seo's disclosures, to address the foreseeable issues arising from a user interface where a detailed messaging application screen could not be re-opened or re-closed after it was used the first time. Because such a modification is merely repeating already-disclosed method steps to perform the same function in the same way, a person of ordinary skill in the art would have had a reasonable expectation of success.

2. Claim 12

[12.a] “The method of claim 10, further comprising: after receiving the first and second inputs, receiving a third input from the user dismissing the first page of the application, wherein one of a first page of a second application or a desktop is presented by the first display of the device;”

[12.b] “after receiving the third input, receiving a fourth input from the user to maximize the first application to the first and second displays of the device, wherein the second display of the device presents the second page of the first application, and wherein the first display of the device presents the first page of the first application.”

80. Seo discloses and/or suggests the limitations of claim elements 12[a] and 12[b]. As discussed for Section IX.A, these claim elements generally require repeating the method steps of claim element 1[d], claim 4, and claim 10, as disclosed by Seo. (*See above* §IX.A.6.) I have been asked to consider a scenario where these claim elements are not already disclosed by Seo. Under that scenario, my discussion for claim 10 explains why a person of ordinary skill in the art would have been motivated to make the method steps for opening and closing the detailed messaging window repeatable in a loop instead of a one-time process, and would have had good reason to do so. (*See above* §IX.B.1.) That same rationale applies to claim 12, the details of which are discussed above. (*See above* §IX.A.6.) Accordingly, for those same reasons, A person of ordinary skill in the art would

have been motivated to modify Seo, in the scenario where claim 12 is not already present in Seo's disclosures, to address the foreseeable issues arising from a user interface where a detailed messaging application screen 820 could not be closed or re-opened after it was closed for the first time (as required by claim element 1[d]). (*See above* §IX.A.6.) Because such a modification is merely repeating already-disclosed method steps to perform the same function in the same way, a person of ordinary skill in the art would have had a reasonable expectation of success.

3. Claim 13: “The method of claim 1, wherein the first display of the device is the left hand display while the device is in a dual-portrait mode, and wherein the second display of the device is the right hand display while the device is in the dual-portrait mode.”

81. Seo discloses and/or suggests these limitations. Seo's touch screen 190b (“first display”) is the right-hand display and Seo's touch screen 190a (“second display”) is the left-hand display, as mapped to claim 1. That claim links the first display to the display containing the application page that is closed in the claimed method. A person of ordinary skill in the art would have been motivated to switch the application pages between Seo's touch screens 190a and 190b, such that the first display (presenting the first page) is on the left-hand side instead of the right-hand side. This change would not have impacted the functionality of

Seo's device or disclosed method. Indeed, Seo already discloses swapping the pages presented on its displays. (*See below*, §IX.C.4.)

82. There are only two known and predictable options to choose from: (1) the first display is Seo's touch screen 190a on the left or (2) the first display is Seo's touch screen 190b on the right. A person designing a user interface would have had to make a decision between the two options based on factors such as aesthetics, personal preference, and their view of which may have been more user-friendly, among other design considerations. The result of either option would have been readily predictable—either the first screen is on the left or on the right. Thus, a person of ordinary skill in the art would have had a reasonable expectation of success in the modification. Indeed, Seo (via its incorporation by reference of the Seo Provisional (EX1005 ¶1)) discloses a gesture input to swap the pages presented on its two displays (EX1006, 21, 25). That further demonstrates that which application screen is shown on which display is unimportant because it can be changed by the user, and it confirms that a person of ordinary skill in the art would have known to and been able to configure application screens to be presented on either of Seo's two touch screens. Ultimately, there is nothing novel about deciding to put one screen of an application on a right-hand display and

another on a left-hand display, or vice-versa, when there are just two known and equally viable options, and the result of either is entirely predictable.

83. Confirming as much, the '494 patent specification does not provide any explanation for why the inventors claimed the first display is the left hand display or identify any benefit to that configuration. And in fact claim 11 recites “moving the second page of the first application to the first display,” confirming there is nothing special about having one particular page of the first application on either the first or the second display. (EX1001, claim 11.) As such, nothing indicates that having the first display as the left hand display is central to, or even important to, the alleged invention. That fact is further confirmed by this feature’s inclusion only in a dependent claim, where claim 1 permits either display to be the first display.

C. Seo in View of Yook Discloses and/or Suggests Claims 14 and 18–20

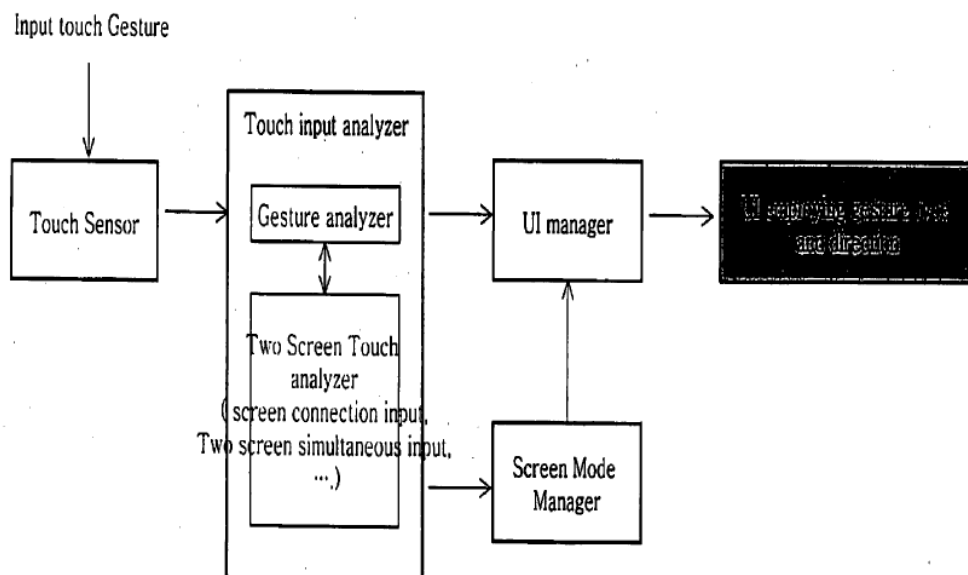
1. The Seo-Yook Combination

84. Seo discloses a device 100 including touch screens 190a and 190b. (EX1005, Fig. 1; *see also* EX1006, 31 (“a terminal employing dual displays”), 33 (“dual touch screens”). Through touch inputs, the user can change the information displayed on the dual touch screens. (EX1005, Figs. 5–9B, ¶¶[0097]–[0176])

(describing Figs. 5–9B); *see also, e.g.*, EX1006, 6–73 (describing changing information displayed on dual touch screens through user interaction).)

85. The Seo Provisional provides a flowchart of the “S/W [software] construction diagram,” showing how touch inputs are detected and processed to change the displays. (EX1006, 37.)

3.2 Construction of the invention: S/W construction diagram



(EX1006, 37.)⁸

86. Much of this is carried over to Seo (and all of it is expressly incorporated by reference into Seo (EX1005 ¶[0001])), which similarly describes an algorithm for changing the screens of the touch screen displays in response to user inputs on the touch screens. (*See, e.g.*, EX1005, ¶¶[0097]–[0140] (describing the figure 5 algorithm in conjunction with figures 8A and 8B).) Seo adds more details regarding the hardware that controls this algorithm. For example, in figures 3 and 4 disclose a controller with a “central Processing Unit (CPU) 111” operatively connected to “a Read Only Memory (ROM) 112 that stores a control program for controlling the apparatus 100” ([0055]) and also a “storage unit 175” that “stores a control program for controlling the apparatus 100,” including “data input/output in response to the operation of . . . the first touch screen 190a and the second touch screen 190b” ([0080]). (EX1005, Figs. 3, 4.) Although these latter hardware elements of a “memory” and a “central processing unit” are only expressly disclosed in Seo, Seo evidences simultaneous invention of those

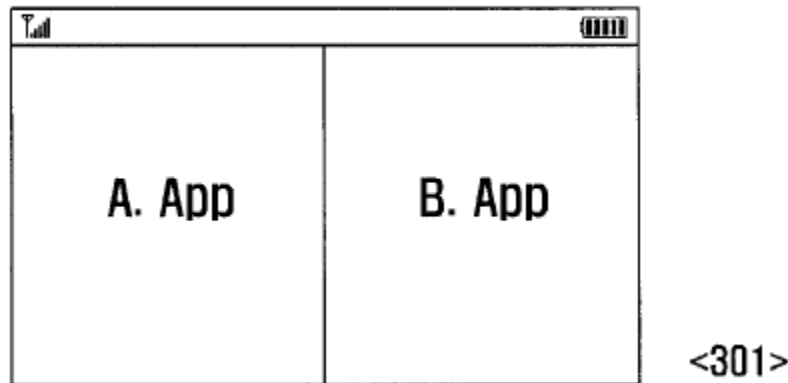
⁸ The dark box on the far-right side states “UI employing gesture type and direction.” The flow chart appears multiple times in the Seo Provisional translation and is more legible on other pages. (*E.g.*, EX1006, 24.)

hardware elements, which is a strong indicator that using those hardware elements is the product of ordinary skill instead of an inventive contribution to the field.

Thus, Seo's implementation of the software and method described in both Seo and the Seo provisional using conventional hardware including a processor and memory, confirms that a person of ordinary skill in the art would have been motivated to implement those features.

87. Similar to Seo and the '494 patent, Yook relates to "dividing a screen into divided screen areas that correspond to activated user functions; and outputting functional view areas associated with the activated user functions to the corresponding divided screen areas." (EX1007, Abstract.) For example, Yook discloses a portable computer system providing divided screen areas to simultaneously present application content/images and user functions on respective displays. (EX1007, Abstract, Figs. 1-2, ¶¶[0006]-[0009], [0024]-[0026], [0030]-[0036].) The device can selectively display application functional areas on separate displays on the device. (*Id.*, ¶¶[0038]-[0042] (Fig. 3), [0043]-[0057] (Figs. 4A-4E).)

FIG . 3



(EX1007, Fig. 3.)

88. Such features allow the portable computer device to enable a user to simultaneously view different applications on the device's screen, and allow efficient interaction with a respective active application and between applications.

(*Id.*)

89. Yook provides examples of various types of multi-application/display configurations and functionalities. (*See, e.g.*, EX1007, ¶¶[0077]-[0080] (Fig. 7A (Web access and Music playback applications)), [0081]-[0083] (Fig. 7B (mail and map applications)), [0084]-[0087] (Fig. 8C (mail and phone applications)), [0088]-[0091] (Fig. 8 (Web access and memo applications)), [0094]-[0103] (Figs. 10-11 (Web access and Twitter applications)), [0104]-[0107] (Fig. 12 (file search and Twitter applications)), [0108]-[0112] (split twitter application)).)

FIG . 7a

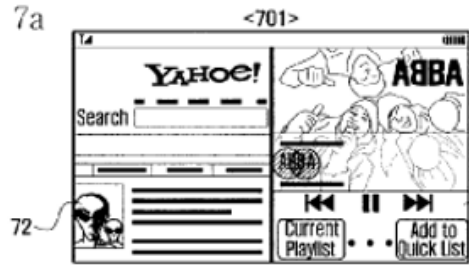


FIG . 10

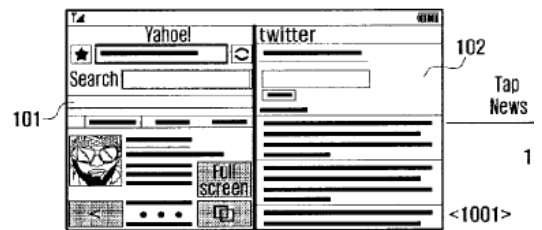


FIG . 7b

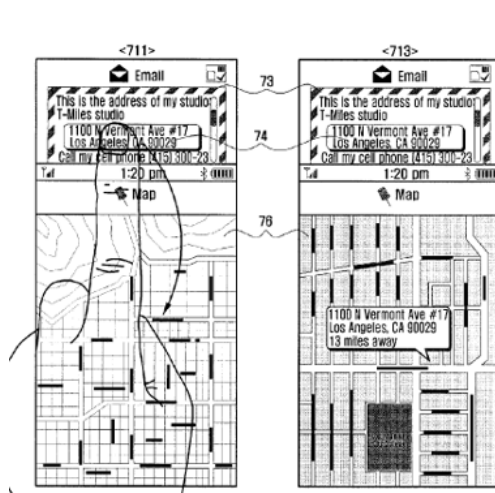


FIG . 7c

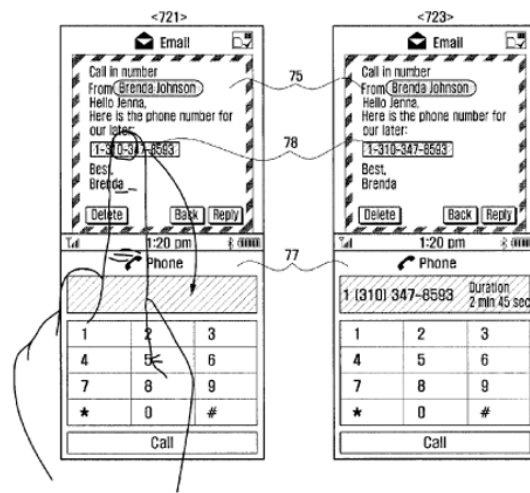


FIG . 11

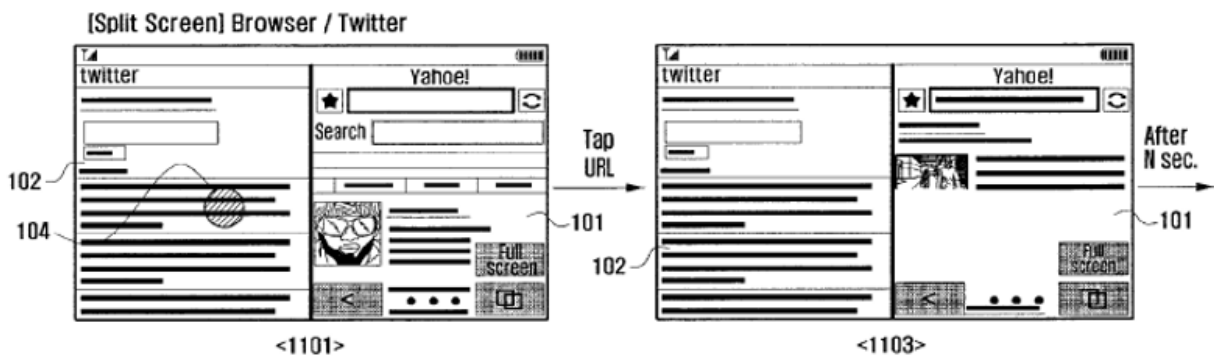
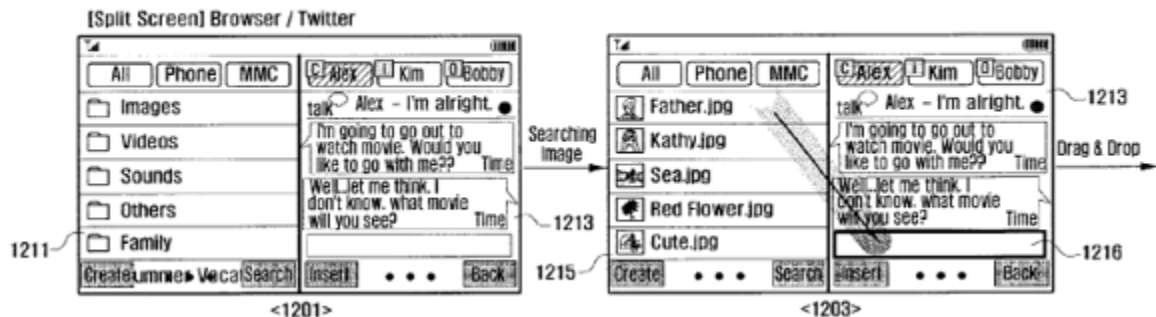


FIG . 12



(EX1007, Figs. 7A-7C, 10-12, (some excerpted).)

90. Yook discloses that its device (mobile terminal 100) includes a control unit 160 coupled to and in communication with the touch screen 140 and a storage unit 150 comprising the split-screen management program. (See, e.g., EX1007, Fig. 2; ¶¶[0025], [0028] (“touch pad 121 arranged at the touch screen 140 can generate an input signal corresponding to a touch of the user and send the input signal to the control unit 160”), [0031] (control unit 160 controls display unit 141 of touch screen 140), [0033]–[0034] (“storage unit 150 stores a screen area management program”), [0035] (“screen area management program can be loaded on the control unit 160 in response to activation of a particular user function”), [0039] (“control unit 160 can control the display unit 141 to divide the screen into two areas”). Yook also discloses:

The above-described methods according to the present invention can be realized in hardware or as software

or computer code that can be stored in a recording medium such as a CD ROM, a RAM, a floppy disk, a hard disk, or a magneto-optical disk or downloaded over a network, **so that the methods described herein can be executed by such software using a general purpose computer, or a special processor** or in programmable or dedicated hardware, such as an ASIC or FPGA. As would be understood in the art, the computer, the processor or the programmable hardware include memory components, e.g., RAM, ROM, Flash, etc. that may store or receive software or computer code that when accessed and executed by the computer, processor or hardware implement the processing methods described herein.

(EX1007 ¶[0117] (emphasis added).)

91. A person of ordinary skill in the art would have appreciated that like the '494 patent, both Seo and Yook disclose systems and methods for controlling the display of a mobile device, including controlling the display of multiple screen areas and multiple applications in response to user inputs. A person of ordinary skill in the art addressing the technology of the '494 patent therefore would have had reason to look to Seo and Yook. Although Seo provides systems and methods for controlling multiple displays, applications, and screens in response to user inputs on touch screens, the Seo Provisional does not provide the specific internal

hardware components on which such methods should be implemented. Yook provides those components, including a control unit or processor, a memory, and software stored on the memory for controlling a touch screen display in response to user inputs. Given the similarity of Seo and Yook, such a person would have had reasons to consider combining their teachings, and implementing Seo's systems and methods using the generic hardware components disclosed by Yook including the processor, memory, and software stored on the memory for controlling a touch screen display in response to user input. Indeed, the '494 patent admits that such "hardware [was] known in the art." (EX1001, 49:64-50:4 (listing exemplary known hardware that can be used for the disclosed embodiments including "processors" and "memory [or] nonvolatile storage"). A person of ordinary skill in the art would have been motivated to look to Yook and incorporate its teachings in Seo at least because Seo lacks pertinent details (e.g., the internal hardware components) that would have been needed to implement the disclosed methods, and Yook provides those components for a similar device with similar functionality.

92. Therefore, the Seo-Yook combination would have been a routine and conventional implementation of known methods using known hardware components performing their known functions, well within a person of ordinary

skill in the art's skills and ability to accomplish. Accordingly, a person of ordinary skill in the art would have been capable of such an implementation of Seo and would have had a reasonable expectation of success in the combination. Based on the teachings of Yook, the modified Seo device would have been configured to perform the same methods as disclosed by Seo in the same way, using a processor to execute instructions stored on software in a memory with instructions for implementing the methods as disclosed by Yook, where the processor upon executing such software instructions would change the touch screen displays as disclosed by Seo.

2. Claim 14

i) [14.pre] "A device comprising:"

93. I understand that this limitation is a preamble of the claim and I have been asked to assume that the preamble of claim 14 is limiting. Under that assumption, Seo in view of Yook discloses the preamble of claim 14. For example, Seo discloses an apparatus 100 ("a device," depicted as a mobile computing device having two touch screens 190a and 190b. (EX1005, Figs. 1, 8A, 8B; *see also e.g.*, EX1006, 34, 38.) Consistent with the explanation above (*see above* §IX.C.1) and below (*see below* §IX.C.2(iv)–(vi)), when combined with the teachings of Yook, the Seo-Yook device comprises a memory, processor, and

application programming (e.g., software) for performing the same methods as Seo discloses.

ii) [14.a] “a first display, including:”

[14.b] “a touch display, wherein the touch display is located within a first area of the first display;”

[14.c] “a gesture capture region, wherein the gesture capture region is located within a second area of the first display;”

94. Seo discloses and/or suggests these limitations. For example, Seo discloses right-side touch screen 190b (“a first display, including: a touch display”). (EX1005, Fig. 8B; EX1006, 34 (right-side touch screen), 38 (right-side touch screen); *see above* §IX.A.1(i)–(ii).) Being a touch screen display, a person of ordinary skill in the art would have understood that the entire area of the right-side touch screen 190b is “a touch display,” and thus “located within a first area of the first display.”

95. Seo further discloses that the multiple touch gesture input 882/883 is received by the device starting in touchscreen 190b (analysis and citations *see above* §IX.A.2), and thus Seo’s “first display” necessarily contains a “gesture capture region [that] is located within a second area of the first display” because gestures input on the first display are received by Seo’s device. (EX1005, Fig. 8B; *see above* §IX.A.1(v) (discussing user inputs 882/883); *see also* EX1006, 34, 38.)

A person of ordinary skill in the art would have understood that the multiple touch input 882/883 is a two-finger gesture (e.g., a swiping or drag & drop motion) as illustrated in figure 8B. (EX1005, Fig. 8b; *see also* EX1006, 34, 38 (describing a two touch drag & drop gesture).)

96. Claim 14 does not require the “first area” to be separate from the “second area.” Principles of claim differentiation confirm this interpretation because claim 15, which depends from claim 14, adds that additional requirement. (EX1001, Claim 15 (requiring the gesture capture region to be “included in at least one of the first and second displays in an area outside of the first touch display and the second touch display”).)

iii) [14.d] “a second display, including:”

[14.e] “a second touch display, wherein the second touch display is located within a first area of the second display;”

[14.f] “a second gesture capture region, wherein the second gesture capture region is located within a second area of the second display”

97. Seo discloses and/or suggests these limitations. For example, Seo discloses left-side touch screen 190a (“a second display, including: a second touch display”). (EX1005, Fig. 8B; EX1006, 34 (left-side touch screen), 38 (left-side touch screen); *see above* §IX.A.1(i)–(iii).) Being a touch screen display, a person of ordinary skill in the art would have understood that the entire area of the left-

side touch screen 190a is “a touch display,” and thus “located within a second area of the second display.”

98. Seo further discloses that the multiple touch gesture input 882/883 received by the device starting in touchscreen 190b (discussed for claim element 14[c]) continues into and is also received by touchscreen 190a (analysis and citations *see above* §IX.A.2), and thus Seo’s “second display” necessarily contains a “gesture capture region [that] is located within a second area of the second display” because gestures input on the second display are received by Seo’s device. (EX1005, Fig. 8B; *see above* §IX.A.1(v) (discussing user inputs 882/883); *see also* EX1006, 34, 38.)

iv) [14.g] “memory;”⁹

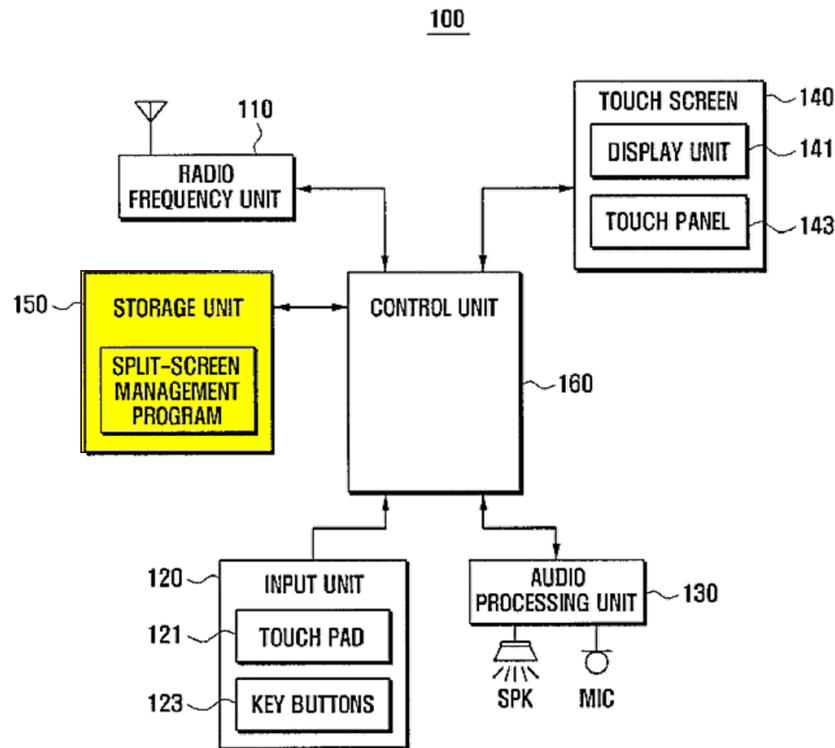
99. Seo in view of Yook discloses and/or suggests this limitation. Seo discloses a device that implements various processes including changing the pages

⁹ Although the claim 14 confusingly recites “the second display memory,” the prosecution history shows the word “memory” on its own line separate from “the second display,” suggesting the applicant may have forgotten to include punctuation between “second display” and “memory.” (EX1004, 742.)

and/or applications displayed on its touch screens in response to user inputs on those touch screens. (*See generally* §§IX.A-C; EX1005, Figs. 8A, 8B; EX1006, 34-40.)

100. Yook discloses a storage unit 150 (“memory”) (EX1007 ¶[0025]), where the device “can activate a screen area management program stored in the storage unit 150 in response to a user request . . . [to] output functional view areas related to activated user functions on the individual divided screen areas” (*id.* ¶[0026]; *see also id.* ¶[0034] (“storage unit 150 stores a screen area management program”)).

Accordingly, I treat “memory” as a distinct limitation here, consistent with the formatting of the claims submitted and allowed during prosecution.



(EX1007, Fig. 2.)

101. Yook further discloses that “methods according to the present invention can be realized . . . as software or computer code that can be **stored in a recording medium** such as [a RAM or a hard disk] . . . so that the methods . . . can be executed by such software using a general purpose computer, or a special processor” and that “[a]s would be understood in the art, the computer [or] the processor . . . **include memory components**, e.g., RAM, ROM, Flash, etc. that may **store or receive software or computer code** that when accessed and executed by the computer, processor or hardware implement the processing

methods described herein.” (EX1007 ¶[0117] (emphasis added).) Thus, Yook discloses a memory to store software for executing methods for managing multiple touch-screen display areas.

102. Consistent with such teachings and the discussion above in §IX.C.1, a person of ordinary skill in the art would have been motivated to implement Seo’s device with the software instructions for its methods stored on a memory in the device, as disclosed by Yook. Indeed, a person of ordinary skill in the art would have understood that such instructions would need to be stored somewhere in order for Seo’s methods to be executed on Seo’s device, and would have been motivated to store them on Seo’s device itself as disclosed by Yook. In such an implementation, the programming would have been executed by a processor, as also disclosed by Yook. (EX1007 ¶[0117] (disclosing that the methods described can be realized as software or computer code stored in a medium for execution by a processor as understood in the art); *see also id.* at Fig. 1 (control unit 160).) The Seo-Yook device would have provided the same features as Seo, with the additional aspect that the programming for those features is stored on a memory implemented in Seo’s device so that they can be executed to perform Seo’s disclosed methods. (*See above* §IX.C.1.)

103. A person of ordinary skill in the art would have had a reasonable expectation of success because the combination is no more than using a known and conventional memory on an electronic device to perform its conventional function of storing information. Such an implementation would have been well within a person of ordinary skill in the art's skills and abilities.

v) **[14.h] “a processor in communication with the first display, second display, and memory;”¹⁰**

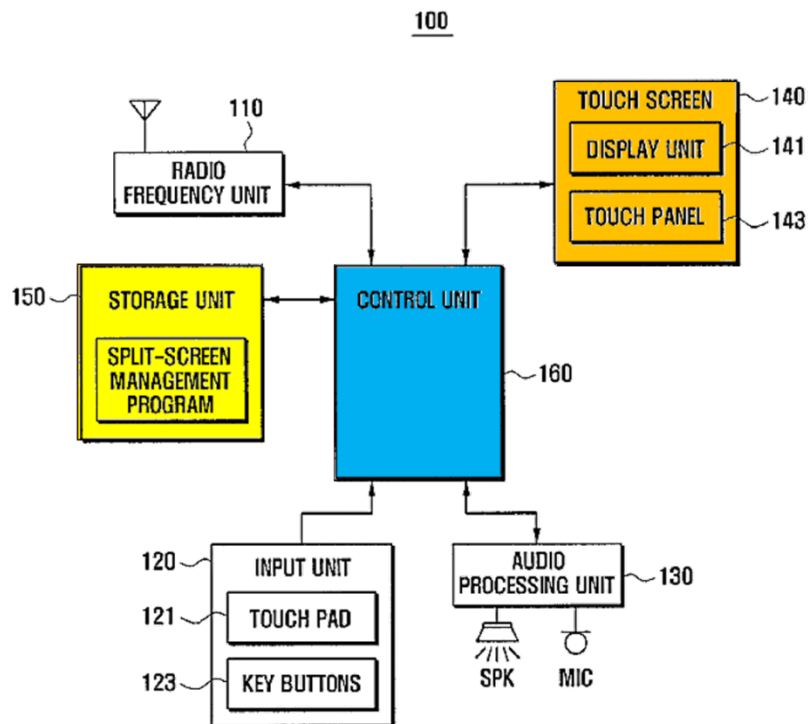
104. Seo in view of Yook discloses and/or suggests these limitations. The Seo Provisional discloses a software touch input analyzer that receives inputs from the touch sensor on Seo's touch screens to manage the screen modes and UI. (EX1006, 37). Seo similarly discloses a ROM 112 and storage unit 175 connected to a controller 110 with CPU 111 that receives inputs from the touch screens 190a and 190b (“first display, second display”) to manage the screen modes and UI. (*See, e.g.*, EX1005, ¶¶[0053], [0055] (“(CPU) 111, the ROM 112 and the RAM 113 are connected through an internal bus”), [0056] (“controller 110 controls the touch screen controller 195”), [0128] (“the controller 110 . . . change[s] at least one

¹⁰ The claim does not indicate whether “memory” is a second memory, or whether it refers to the “memory” of claim element 14[g]. I have been asked to assume that it refers to the memory of claim element 14[g].

of the first screen 800 of the first touch screen 190a and the second screen 850 of the second touch screen 190b in response to the arrival of at least one of the multiple touches 880 and 881 in the second touch screen 190b”), Fig. 3; *see also above* §IX.C.1).) Thus, Seo and the Seo Provisional disclose at least that user inputs on the touch screens are recognized and processed by the device to change the displays.

105. I have been asked to consider a scenario where Seo does not expressly disclose a processor in communication with the first display, second display and memory. Under that scenario, a person of ordinary skill in the art would have been motivated to implement those features in view of Yook. (*See above* §IX.C.1.) Yook discloses and/or suggests a control unit (“a processor”) (or alternatively a “processor” (EX1007 ¶[0117])),¹¹ in communication with touch screen 140 and a storage unit 150 (“memory”). (EX1007, Fig. 2)

¹¹ A person of ordinary skill would have understood from Yook that a “control unit” is a processor, consistent with the ’494 patent’s discussion. (EX1001, 12:57-13:4). Indeed, Yook describes implementing the described system using a “processor,” as disclosed or suggested in paragraph 117. (EX1007 ¶[0117].)



(EX1007, Fig. 2 (annotated) (disclosing control unit 160 in communication with storage unit 150 and touch screen 140).)

106. Based on the disclosures discussed in this section, and also for the reasons and based on the additional disclosures discussed in sections IX.C.1 and IX.C.2(iv), a person of ordinary skill in the art would have been motivated to implement the Seo-Yook system with a processor in communication with the first display, the second display, and memory. Such a skilled person would have been motivated to do so and would have had a reasonable expectation of success for the reasons discussed in section IX.C.1.

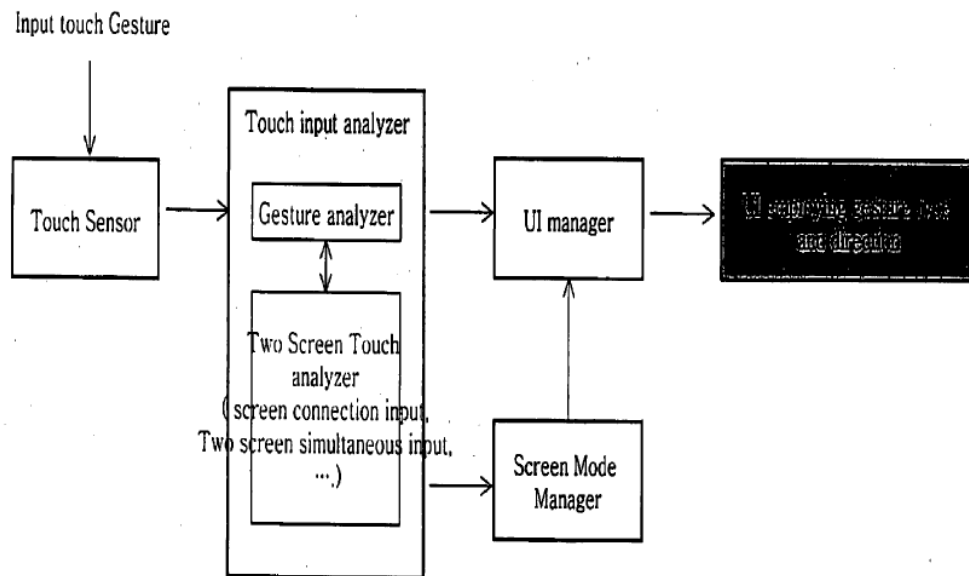
107. Whereas Yook has one touch screen that it can divide into multiple areas for different content, Seo has two touch screens that can display different content. Thus, a person of ordinary skill in the art would have understood that as implemented in Seo, the processor would need to be in communication with both the first touch screen and the second touch screen, or it could not control Seo's two touch screens, or receive touch inputs from both touch screens, as required to implement Seo's methods. (*See, e.g.*, EX1005, Figs. 8A, 8B; EX1006, 34, 38.) Accordingly, a person of ordinary skill in the art would have been motivated to implement such a feature, and depending on the configuration it may have even been necessary for the modified Seo-Yook system to have the processor in communication with both touch screens for the modified system to function as disclosed by Seo.

vi) [14.i] “application programming stored in the memory and executed by the processor, wherein the application programming is operable to:”

108. Seo in view of Yook discloses and/or suggests these limitations. As discussed for claim elements 14[g] and 14[h], and in accordance with the discussion of the combined Seo-Yook system discussed in section IX.C.1, a person of ordinary skill in the art would have been motivated to implement Seo's method as software (“application programming”) stored in the Seo-Yook system's memory

and executed by its processor to perform the methods disclosed by Seo for presenting applications and pages on Seo's touch screens. (*See above* §§IX.C.1, IX.C.2(iv)–(v).) Indeed, Seo discloses a “S/W [software] construction diagram,” showing how touch inputs are detected and processed to change the displays, which is “application programming.” (EX1006, 37.)

③ 3.2 Construction of the invention: S/W construction diagram



(*Id.*)

vii) [14.j] “present a first page of a first application in a first portion of the first display;”

109. Seo in view of Yook discloses and/or suggests this limitation. For example, Seo discloses and/or suggests this claim limitation for the same reasons

discussed for claim element 1[a]. (*See above* §IX.A.1(ii).) The analysis of the Seo-Yook system presented for claim elements 14[g]–[i] does not impact Seo’s disclosure of this claim element. Although claim 1 recites “on a first display,” whereas element 14[j] recites “in a first portion of the first display,” this distinction does not change the analysis of Seo. The ’494 patent explains that “[t]he term ‘display’ refers to a portion of one or more screens” (EX1001, 4:22-23) and thus a portion of a display can similarly be a portion of one or more screens (e.g., Seo’s touch screen 190(b)).

viii) [14.k] “present a second page of the first application in a second portion of the second display, wherein the first and second pages present different content and are distinct pages, and wherein the second page is a child of the first page;”

110. Seo in view of Yook discloses and/or suggests these limitations. For example, Seo discloses and/or suggests these claim limitations for the same reasons discussed for claim elements 1[b] and 1[c]. (*See above* §§IX.A.1(iii)–(iv).) The analysis of the Seo-Yook system presented for claim elements 14[g]–[i] does not impact Seo’s disclosure of this claim element.

ix) [14.l] “receive input entered by a user in the gesture capture region;”

111. Seo in view of Yook discloses and/or suggests these limitations. This claim element does not state whether the input should be in the first gesture capture

region or the second gesture capture region, but Seo discloses receiving an input in both gesture capture regions and thus discloses either option, as discussed for claim element 1[d] and claim 2. (*See above* §§IX.A.1(v), IX.A.2.) Thus, Seo discloses this claim element for the same reasons discussed therein. (*Id.*). The analysis of the Seo-Yook system presented for claim elements 14[g]–[i] does not impact Seo’s disclosure of this claim element.

- x) **[14.m] “in response to a first input entered by the user to minimize the first application to one of the first and second portions of the display, present the second page of the first application in one of the first and second portions of the display and discontinue the presentation of the first page of the application.”**

112. Seo in view of Yook discloses and/or suggests these limitations. For example, Seo discloses and/or suggests this claim limitation for the same reasons discussed for claim element 1[d]. (*See above* §§IX.A.1(iv).) The analysis of the Seo-Yook system presented for claim elements 14[g]–[i] does not impact Seo’s disclosure of this claim element.

3. Claim 18

- i) **[18.pre] “A non-transitory computer readable medium having stored thereon computer-executable instructions, the computer-executable instructions causing a processor to execute a method for selectively presenting an application across a display of a device, the computer-executable instructions comprising:”**

113. Seo in view of Yook discloses and/or suggests these limitations. As discussed for claim elements 14[g]–[i], a person of ordinary skill in the art would have been motivated to implement Seo’s methods in the Seo-Yook modified device via software stored on a memory (“[a] non-transitory computer readable medium”) (claim element 14[g]) which could be executed by a processor (“the computer-executable instructions causing a processor to execute a method”) to present a first and/or second page 820/800 of a messaging application on one of the first displays 190b and/or second displays 190a (“presenting an application across a display of a device”), as detailed in the analysis for at least claims 1 and 14. (*See above* §§IX.A.1, IX.C.1–2 (including IX.C.2(iv) regarding “memory”).) Thus, a person of ordinary skill in the art would have been motivated in view of Yook to store and execute instructions for Seo’s method steps discussed for the below claim elements on a non-transitory computer readable medium.

ii) [18.a] “instructions to display a first page of a first application on a first display portion of the device;”

114. Seo in view of Yook discloses and/or suggests these limitations. Seo discloses and/or suggests the claimed instructions for the reasons discussed for claim elements 1[a] and 14[j]. (*See above* §§IX.A.1(ii), IX.C.2(vii).) A person of ordinary skill in the art would have been motivated to implement the method discussed for those claim elements as “instructions” stored in a computer-readable medium of the Seo-Yook system for at least the reasons discussed for claim elements 14[g]–[i] and 18[pre]. (*See above* §§IX.C.2(iv)–(vi), IX.C.3(i).)

iii) [18.b] “instructions to display a second page of the first application on a second display portion of the device, wherein the first and second pages present different content and are distinct pages, and wherein the second page is a child of the first page; and”

115. Seo in view of Yook discloses and/or suggests these limitations. Seo discloses and/or suggests the claimed instructions for the reasons discussed for claim elements 1[b], 1[d], and 14[k]. (*See above* §§IX.A.1(iii), (v), IX.C.2(viii).) A person of ordinary skill in the art would have been motivated to implement the method discussed for those claim elements as “instructions” stored in a computer-readable medium of the Seo-Yook system for at least the reasons discussed for claim elements 14[g]–[i] and 18[pre]. (*See above* §§IX.C.2(iv)–(vi), IX.C.3(i).)

- iv) **[18.c] “in response to a first input received from a user to minimize the first application to one of the first and second display portions of the device, display the second page of the first application on one of the first and second display portions of the device and discontinue the display of the first page of the application.”**

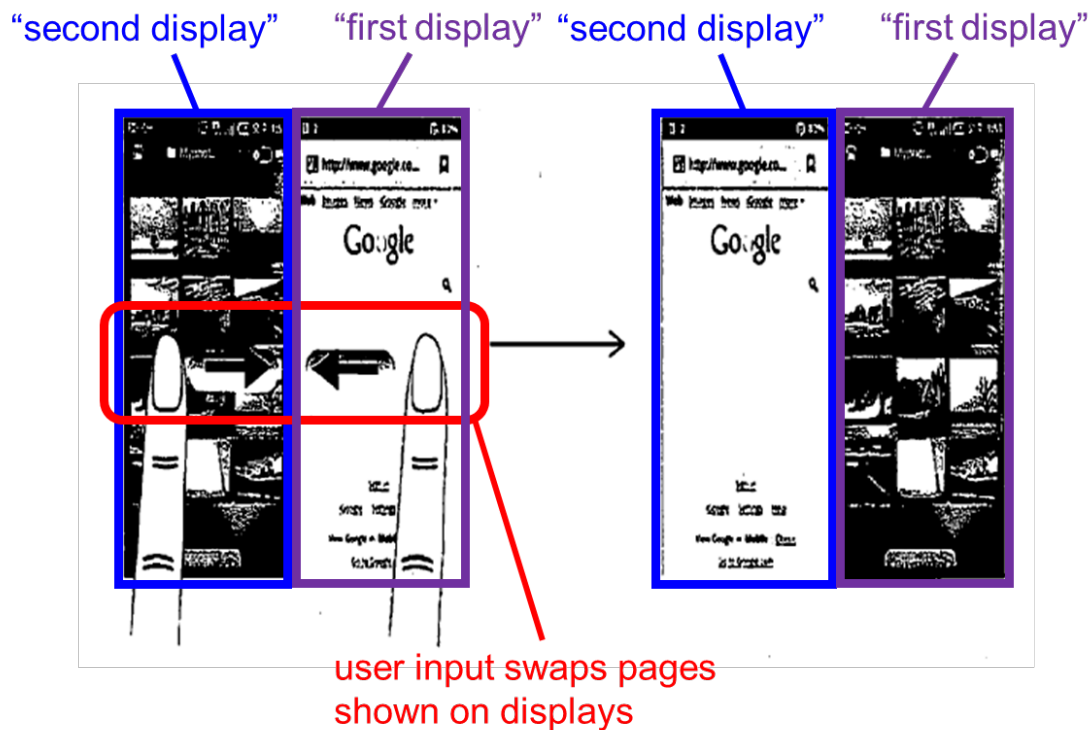
116. Seo in view of Yook discloses and/or suggests these limitations. Seo discloses and/or suggests the claimed instructions for the reasons discussed for claim elements 1[d] and 14[m]. (*See above* §§IX.A.1(v), IX.C.2(x).) A person of ordinary skill in the art would have been motivated to implement the method discussed for those claim elements as “instructions” stored in a computer-readable medium of the Seo-Yook system for at least the reasons discussed for claim elements 14[g]–[i] and 18[pre]. (*See above* §§IX.C.2(iv)–(vi), IX.C.3(i).)

- 4. **Claim 19: “The computer readable medium of claim 18, wherein the device includes multiple displays, wherein the first display portion of the device includes a first display of the multiple displays, wherein the second display portion of the device includes a second display of the multiple displays, and wherein in response to one of the first input and a second input received from the user the second page of the first application is displayed on the first display of the device.”**

117. Seo in view of Yook discloses and/or suggests these limitations. For example, Seo discloses a device having first and second displays (touch screens 190b and 190a, respectively) as discussed for claim limitations 1[a], 1[b], 14[a],

14[d], and 18[pre]–18[b] (*see above* §§IX.A.1(ii)–(iii), IX.C.2(i), (ii), IX.C.2(i)–(iii) (“device includes multiple displays”). Thus, the first display portion 190b “includes” a first display 190b of the multiple displays 190a and 190b, and the second display portion 190a similarly “includes” a second display 190a of the multiple displays. (*See id.*; *see above* §§IX.C.2(vii)–(viii); EX1006, 5–40 (describing controlling two displays of a single device).

118. Seo further discloses (via its incorporation of the Seo Provisional), receiving a user input to swapping the application pages displayed from one display to the other (“in response to . . . a second input received from the user the second page of the first application is displayed on the first display of the device”). (EX1006, 21 (“When a user simultaneously touches two displays and flicks/drag in a direction of the hinge, two displays are swapped.”), 25 (showing “2 Screen 2 Finger Pinch Close” gesture).)



(EX1006, 21)

119. Although Seo’s exemplary figures show swapping displays where there are pages of different applications shown on each page, the disclosure is not so limited. (EX1006, 21.) Seo discloses that “the two displays are swapped” (EX1006, 21), which a person of ordinary skill in the art would have understood from the context of Seo to disclose or suggest that whatever is shown on each of the device’s physical displays is swapped. Thus, when the first page of the first application is displayed on the first display portion and the second page of the first application is displayed on the second display portion as discussed for claim 18 (*see above* §§IX.C.3(ii)–(iii)), Seo discloses that a second input received from the

user (as shown in the above figure) would swap those pages between displays such that the second page of the first application is displayed on the first display of the device. (EX1006, 21–25.)

120. I have been asked to consider a scenario where Seo does not expressly disclose the limitations of claim 19. In that scenario, a person of ordinary skill in the art would have been motivated to combine the above embodiments from Seo. Seo (including its incorporated disclosures from the Seo Provisional) discloses several different ways a user can control the information shown on dual-screen portable devices. (*See generally* EX1006). Indeed, Seo’s relevant embodiments and others respond to a need Seo recognized for “a UI through which a user can excitingly and intuitively input instructions in a device [having dual displays] with various methods.” (*See, e.g.*, EX1006, 5, 19, 31.) Reviewing the disclosure as a whole, it is clear that Seo does not intend each of its separate gesture inputs to be exclusive of one another, but instead that they could all be incorporated into the same device and used in any order to control the display. (*See* EX1006, 5-40.)

121. Thus, a person of ordinary skill in the art would have been motivated to combine Seo’s embodiments so that a user could swap the pages shown on each display with a gesture, as disclosed by Seo, including when two pages of the same application are concurrently shown (one on each display), and had reasons to do

so. Doing so would have provided maximum usability because a user could intuitively control which screen they wanted a particular application page displayed on. Seo similarly explains that with the screen swap gesture, “[a] user can make more simple and full interaction according to [the] user’s intention.” (EX1006, 21.) The combination would have been nothing more than combining the functionality of multiple known device inputs (e.g., Seo’s input to minimize an application as discussed for claim 18 and Seo’s input to swap the displayed pages) into a single device to control the device’s displays in the same way as disclosed or suggested by the prior art. Therefore, a person of ordinary skill in the art would have been motivated to implement the features of claim 19 into the Seo-Yook combination. And the modified Seo-Yook device of claim 18, wherein certain instructions are stored on a computer readable medium, does not change this analysis.

5. **Claim 20: “The computer readable medium of claim 19, wherein in response to an input received from the user to maximize the first application the first page of the first application is displayed on the first display of the device and the second page of the application is displayed on the second display of the device.”**

122. Seo in view of Yook discloses and/or suggests these limitations. For example, for the reasons discussed for claim 12, Seo discloses and/or suggests the limitations of claim 20. (*See above* §§IX.A.6(ii), IX.B.2.) The modified Seo-

Yook device of claims 18 and 19 operates in the manner disclosed/suggested by Seo and thus that combination does not impact the analysis.

D. Seo in View of Choi Discloses and/or Suggests the Features of Claim 9

1. Claim 9: “The method of claim 1, wherein the first application is a web browser, and wherein the primary page is a content page that includes web content.”

123. Seo in view of Choi discloses and/or suggests these limitations. As described in Sections IX.A.1 and IX.B.1, Seo discloses and/or suggests all the limitations of claim 1. (*See above* §§IX.A.1, IX.B.1). For claim 1, the primary and auxiliary/child pages were mapped to a messaging application. (*Id.*)

However, Seo also discloses displaying pages from a web browser application including web content (*see* EX1006, 6 (“Google” webpage), 20–21 (same), 25–27 (same), 32 (same)), and when describing the PC-based background art, Seo shows what appears to be two pages from a web browser on a screen (*id.*, 33). Thus Seo at least suggests a browser application and a primary page including web content.

124. Choi discloses “a web browsing method for showing a method of operating main and sub windows in a mobile terminal,” wherein “a webpage (e.g., a main webpage) first opened when executing a web browser may be displayed on a main window (e.g., the TOLED 154), and a webpage or pop-up page linked to the first-opened webpage may be displayed on a sub window (e.g., the LCD 151).”

(EX1010, 28:49-56; Fig. 48.) Similar to how Seo's parent and child windows for the messaging application work, Choi also discloses that the pop-up page on the second LCD display 151 can be linked to the first webpage and opened from "a user's touch input." (EX1010, 29:1-9, Fig. 49A.) Thus, a person of ordinary skill in the art would have understood that Choi discloses a main or primary webpage on one display and child/auxiliary webpage on a secondary display, similar to Seo's primary and auxiliary pages discussed for claim 1. Choi's primary/parent window also displays web content at least because Choi discloses "certain text (or [a] certain object) on a webpage #1" displayed on the main window TOLED 154. (EX1010, 29:5.)

125. A person of ordinary skill in the art considering Seo's disclosures and the field of the '494 patent would have had reason to look to Choi at least because Choi is in the same field, as it relates to user interfaces and interactions with mobile devices having multiple displays (*e.g.*, EX1010, Figs. 5–25, 39–51), and would have been reasonably pertinent to the alleged problems the alleged inventors of the '494 patent sought to solve (*e.g.*, "a multi-display device that can selectively display pages of information in response to [a user input]") (EX1001, 1:54-56). Having looked to Choi, a person of ordinary skill in the art would have been motivated to implement Seo's method for controlling a display of a device wherein

the first application is a web browser, wherein the primary page is a content page that includes web content, in view of Choi and such a person's knowledge and ordinary skill and/or creativity. Web browser applications were common long before the time of the alleged invention, and the '494 patent does not purport to have invented them. (*See e.g.*, EX1011, 6:20-29 (disclosing a "web-browsing application on a mobile device (e.g. Blackberry® web browser or any other hand held/smart phone browser).") A person of ordinary skill in the art would have understood that a user of Seo's device would have wanted to use a known browser application on that device, like that disclosed by Choi and known in the state of the art. And such a person would have been motivated to provide that feature to users to address a clear user and market demand for basic computer functionality like a browser application. Accordingly, they would have been motivated to combine Seo and Choi to arrive at the alleged invention.

126. A person of ordinary skill in the art would have a reasonable expectation of success in the combination because it was no more than running a known application (a web browser application that could operate on multiple displays like Choi discloses) according to the known methods disclosed and/or suggested by Seo. Thus, Seo in view of Choi discloses and/or suggests the limitations of claim 9.

X. CONCLUSION

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

Dated: October 17, 2024

By: 

Sandeep Chatterjee