

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

Case IPR2025-00059
Patent No. 9,141,135

**DECLARATION OF DR. SANDEEP CHATTERJEE
IN SUPPORT OF PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 9,141,135**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	BACKGROUND AND QUALIFICATIONS	1
III.	MATERIALS REVIEWED	7
IV.	PERSON OF ORDINARY SKILL IN THE ART AND THE TIME OF THE ALLEGED INVENTION	8
V.	TECHNICAL BACKGROUND	9
	A. Multi-Display Mobile Devices	10
	B. Graphics Interface Technology	12
VI.	THE ‘135 PATENT	20
	A. Description	20
VII.	OVERVIEW OF THE PRIOR ART	24
	A. Yook (EX1005)	24
	B. Bauer (EX1007)	24
	C. Lee (EX1008)	25
VIII.	CLAIM CONSTRUCTION	26
IX.	THE PRIOR ART DISCLOSES AND/OR SUGGESTS ALL RECITED FEATURES OF CLAIMS 1-3, 5-9, 15, 16, 19, and 20 OF THE ‘135 PATENT	27
	A. Yook Discloses and/or Suggests Claims 1, 5-6, 9, 15, and 20	27
	1. Claim 1	27
	i) [1.pre] “A method of displaying information on a mobile multi-display device including a plurality of desktops and/or applications each having at least one window, and an annunciator window, the method comprising:”	27
	ii) [1.a] “placing the multi-display device in an open state with a first display and a second display facing in a same direction;”	39

- iii) [1.b] “receiving, by a processor, a first input that represents an instruction to reveal one of a first desktop or application on the first display of the multi-display device and selecting the first desktop or application to display on the first display;” 40
- iv) [1.c] “receiving, by the processor, a second input that represents an instruction to reveal one of a second desktop or application on the second display of the multi-display device and selecting the second desktop or application to display on the second display;” 48
- v) [1.d] “displaying, by the processor, the selected first and second desktops or applications on the first and second displays;” 51
- vi) [1.e] “displaying, by the processor, a pre-configured annunciator window having information therein showing at least one of a device status, a connectivity status, and a messaging status;” 52
- vii) [1.f] “configuring, by the processor, the annunciator window to extend across a first portion of the first display and a second portion of the second display, wherein the first portion and the second portion do not degrade the display of information by the selected first and second desktops or applications; and” 57
- viii) [1.g] “modifying, by the processor, the display of the annunciator window in response to a changed state of at least one of the device status, connectivity status, and messaging status, wherein the modified display of the annunciator window

	displays information selectively across the annunciator window.”.....	59
2.	Claim 5: “The method of claim 1, wherein said annunciator window is located across adjacent upper or lower edges of said first and second displays.”	60
3.	Claim 6.....	62
i)	[6.pre] “A non-transitory computer-readable medium having stored thereon instructions executable by a processor of a mobile multi- display device, the instructions causing the processor to execute a method, the instructions comprising:”	62
ii)	[6.a] “instructions to receive a first input to reveal one of a first desktop or application on a first display of the multi-display device and to select the first desktop or application to display on the first display;”	62
iii)	[6.b] “instructions to receive a second input to reveal one of a second desktop or application on a second display of the multi-display device and to select the second desktop or application to display on the second display, wherein the multi-display device is in an open state with the first display and the second display facing in a same direction;”	62
iv)	[6.c] “instructions to display the selected first and second desktops or applications on the first and second displays;”	62
v)	[6.d] “instructions to display a pre-configured annunciator window having information therein showing at least one of a device status, a connectivity status, and a messaging status;”	62

vi)	[6.e] “instructions to configure the annunciator window to extend across a first portion of the first display and a second portion of the second display, wherein the first portion and the second portion do not degrade the display of information by the selected first and second desktops or applications; and;”	62
vii)	[6.f] “instructions to modify the display of the annunciator window in response to a changed state of at least one of the device status, connectivity status, and messaging status, wherein the modified display of the annunciator window displays information selectively across the annunciator window.”	63
4.	Claim 9: “The non-transitory computer-readable medium of claim 6, wherein the instructions to configure the annunciator window further comprise instructions to display the annunciator window across adjacent upper or lower edges of the first and second displays, wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device.”	65
5.	Claim 15: “The device of claim 1, wherein the first and second displays are both in a portrait mode.”	66
6.	Claim 20: “The device of claim 1, wherein modifying the display of the annunciator window does not include changing a size of the annunciator window, and wherein the annunciator window appears to be a unitary window displayed on each of the first portion of the first display and the second portion of the second display.”	70
B.	Yook in View of Bauer Discloses and/or Suggests Claims 2-3, 7-8, and 19	72

1. Claim 2: “The method of claim 1, wherein modifying the display of the annunciator window includes displaying the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message, and wherein the first display and the second display are on a common first screen of the multi-display device.” 72
2. Claim 3: “The method of claim 1, wherein modifying the display of the annunciator window further includes: displaying the changed state across a portion of the annunciator window; and masking at least one icon representing the device status, connectivity status, or messaging status, wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device.” 81
3. Claim 7: “The non-transitory computer-readable medium of claim 6, wherein the instructions to modify the display of the annunciator window further comprise instructions to display the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message.” 82
4. Claim 8: “The non-transitory computer-readable medium of claim 6, wherein the instructions to modify the display of the annunciator window further comprise: instructions to display the changed state across a portion of the annunciator window; and instructions to mask at least one icon representing said device status, connectivity status, or messaging status, wherein the first display and the second display are on a common first screen of the multi-display device.” 82
5. Claim 19: “The device of claim 1, wherein the information showing the device status and the connectivity status are in physical proximity.” 83

Declaration of Dr. Sandeep Chatterjee
U.S. Patent No. 9,141,135

C.	Yook in View of Lee Discloses and/or Suggests Claims 1, 5-6, 9, 15, and 20	86
1.	Claims 1 and 6.....	86
2.	Claims 5, 15, and 20	95
3.	Claim 9: “The non-transitory computer-readable medium of claim 6, wherein the instructions to configure the annunciator window further comprise instructions to display the annunciator window across adjacent upper or lower edges of the first and second displays, wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device.”	95
D.	Yook in View of Bauer and Lee Discloses and/or Suggests Claims 2-3, 7-8, 16, and 19	96
1.	Claims 2-3 and 7-8.....	96
2.	Claim 16: “The device of claim 3, further comprising a hinge configured to connect the first screen with the second screen.”	99
3.	Claim 19: “The device of claim 1, wherein the information showing the device status and the connectivity status are in physical proximity.”	101
X.	CONCLUSION.....	103

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. 9,141,135 (“the ’135 patent”) (EX1001).¹ I have been asked to consider whether prior art references disclose or suggest the features recited in claims 1-3, 5-9, 15, 16, 19, and 20 (“the challenged claims”) of the ’135 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 technology and services company enabling the delivery of secure remote electronic services over landline and wireless telecommunications networks.

¹ In this Declaration, I refer to exhibits that I understand are to be attached to the petition for *Inter Partes* Review of the ’135 patent.

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. Experantis 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 Experantis nor I have any financial interest in the outcome of this matter, and Experantis 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 user interface technologies.

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

EX1001	U.S. Patent No. 9,141,135 (“the ’135 patent”)
EX1004	Prosecution History of U.S. Patent App. No. 13/247,708
EX1005	U.S. Patent Application Publication No. 2010/0248788 (“Yook”)
EX1007	U.S. Patent No. 7,996,045 (“Bauer”)
EX1008	U.S. Patent No. 8,265,705 (“Lee”)
EX1009	U.S. Patent Application Publication No. 2007/0085759A1
EX1012	<i>An Introduction to GUI with Java Swing</i> by P. Fischer
EX1013	Mobile Phone Museum - Nokia - 9000 Communicator

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 '135 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 '135 patent was around 2010 (including and up to October 1, 2010), which corresponds to the filing date of the earliest application associated with the '135 patent.

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 '135 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 '135 patent as of around October 1, 2010. Considering the '135 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 October 1, 2010) 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 '135 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 October 1, 2010.

V. TECHNICAL BACKGROUND

22. Below, I present a brief overview of certain aspects of systems and processes relating to user interface technologies at the time of the alleged invention for the '135 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 '135 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 '135 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. (EX1013.) As shown below, the Nokia 9000 portable device included an exterior screen and an interior screen for displaying information.



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 8 MB 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 24 MHz 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.

B. Graphics Interface Technology

28. 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. (EX1012, 12.)

29. 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.)

30. 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 event, 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 will automatically inform the listener when such an event occurs. The listener then would perform the desired action. Events were known to be typically processed in the order of their occurrence. (*Id.*)

31. There are many types of events known at the time in Java that were associated with the different event sources, such as buttons, menus or the mouse. Events were known to contain information on what has happened, e.g. what

triggered the event (a button, a menu) and where it occurred (the coordinates of the mouse). This information is then exploited by the listener. (*Id.*)

32. A person of ordinary skill in the art would have understood that in Swing, some relevant methods include, *e.g.*,:

- JFrame() is the default constructor. It generates an untitled frame.
Generate here means that the information for drawing the frame is provided. The frame is, however, not shown on the screen. This is done by calling the method setVisible, which is further explained below.
- setVisible (boolean b) makes the frame appear on the screen if b = true. If a frame is visible then setVisible (false) makes it disappear but does not destroy the information for drawing it. So, calling setVisible (true) on this frame another time will make it visible again; we do not have to use the constructor a second time.
- setTitle(String title) sets the title appearing in the title bar to title.
- setSize(int width, int height) sets the width of the frame to width and the height to height. These are outer measures in screen pixels.
- setLocation(int horizontal, int vertical) moves the frame, so that its upper left corner is at position (horizontal,vertical). (*Id.*, 21-22.)

33. GUIs are also used on mobile devices, allowing users to interact with mobile devices and readily review information thereon. For efficiency and ease of obtaining information associated with mobile device operations and status (such as mobile/radio signal strength, device battery level, time, Bluetooth connectivity, WiFi...etc.), the associated information and status are typically displayed as icons on a status bar on one or more mobile device displays. For example, Bauer discloses,

In some implementations, the **status bar 107 is a standard area where various system status information can be displayed**. As an example of typical system status information, a **signal-strength indicator 110** that graphically includes four bars is shown, which may correspond to a **detected strength of a wireless communication signal** that is currently available to the mobile device 101. As the strength of the signal changes, the number or character of the bars may change. For example, detection by the mobile device 101 of a small decrease in signal strength may cause the device to display only the three smallest bars, or to display outlines of all four bars but only fill in the smallest three bars. A **“DATA” indicator** is shown below the four bars and may indicate a **type of wireless signal that is available or a**

current mode of the device. In other modes, other indicators may be displayed (e.g., “VOICE,” “ANALOG,” “DIGITAL,” “CDMA,” “GSM,” etc.). As another example of a type of system status information, a **battery icon 113** is depicted. **A fraction of the battery icon 113 that is filled in may correspond to a fraction or percentage of power remaining in a battery that is included in the mobile device 101.** The lightning bolt icon that is displayed over the battery icon may indicate that the power source is currently charging (e.g., that the mobile device may be connected to a charging device, such as an alternating current (AC) power adapter). As another example of a type of system status information, an analog clock icon 116 is displayed that may apprise the user of the current time.

(EX1007, 5:12-38.)

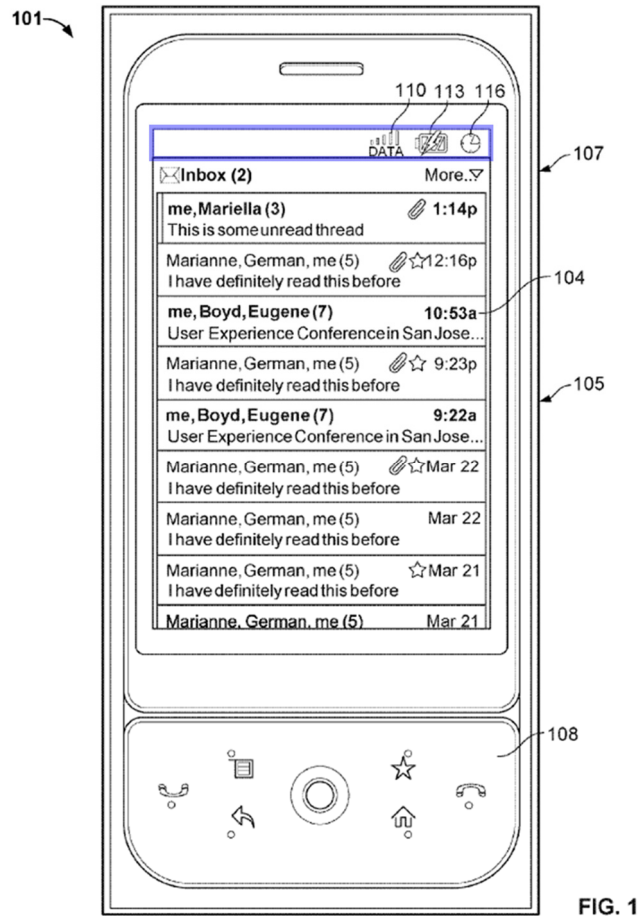


FIG. 1

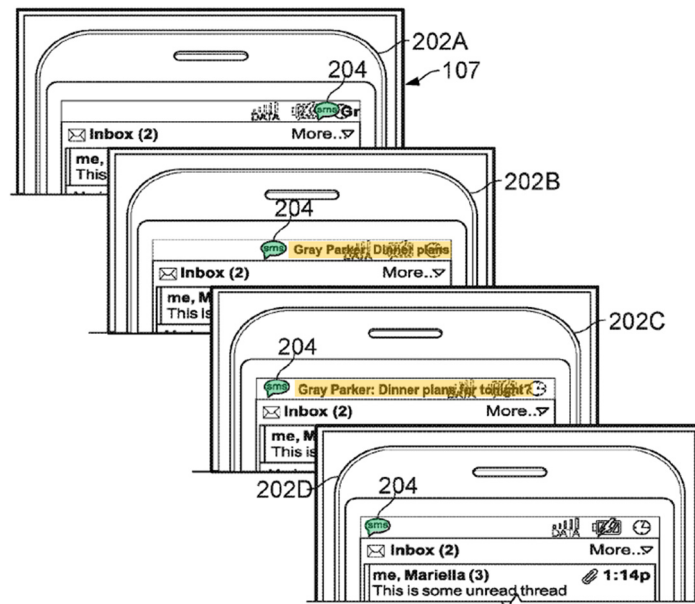
(EX1007, FIG. 1)

34. Bauer also explains that certain GUIs, such as an “interactive indicator,” would allow preview of information, and such an indicator may be superimposed over other indicators/icons:

FIG. 2A illustrates time-sequenced screenshots from a portion of the display screen 104 that depict an example interactive indicator that provides a first level of

information. The example depicted in FIG. 2A is one in which **receipt of a short message service (SMS) message is announced with an icon 204 and preview content that are scrolled across the status bar 107.** As shown in screenshot 202A, an “SMS” balloon 204 begins to appear at the right side of the status bar 107. The SMS balloon 204 scrolls to the left of the status bar, as depicted by screenshots 202B and 202C. In this example, **a sender and message preview is provided during a user review period.** The message preview may include the full text of very short messages, or it may include a first portion or snippet of the message (e.g., the first sentence, or an amount of the message that fits in the status bar, after the sender or a portion of identifying information for the sender is provided). **After a short period of time (e.g., a user review period), the sender and message preview may be removed from the status bar, as depicted by screenshot 202D.**

(EX1007, 6:14-32.)



(EX1007, FIG. 2A.)

In some implementations, **while the interactive indicator 204 scrolls across the status bar 107, the prominence of other status information may be reduced.** For example, as shown in one implementation in screenshots 202A-C, the intensity of the static indicators 110, 113 and 116 is reduced, and **the interactive indicator (e.g., the icon 204 and the corresponding preview) are superimposed over the static indicators.** Once the preview content associated with the interactive indicator 204 is removed, the intensity of the static indicators may be restored, as depicted in screenshot 202D. Additional levels of detail or information may be displayed upon receipt of user input

associated with the interactive indicator 204, as will be described in greater detail, with reference to FIGS. 3A and 3B.

(EX1007, 6:33-46.)

VI. THE '135 PATENT

A. Description

35. The '135 patent describes a mobile device 100, as shown in Figure 1 below, that includes a primary screen 104 and a secondary screen 108, where screen 104 includes display 110 and screen 108 includes display 114. (EX1001, 7:60-8:8.)

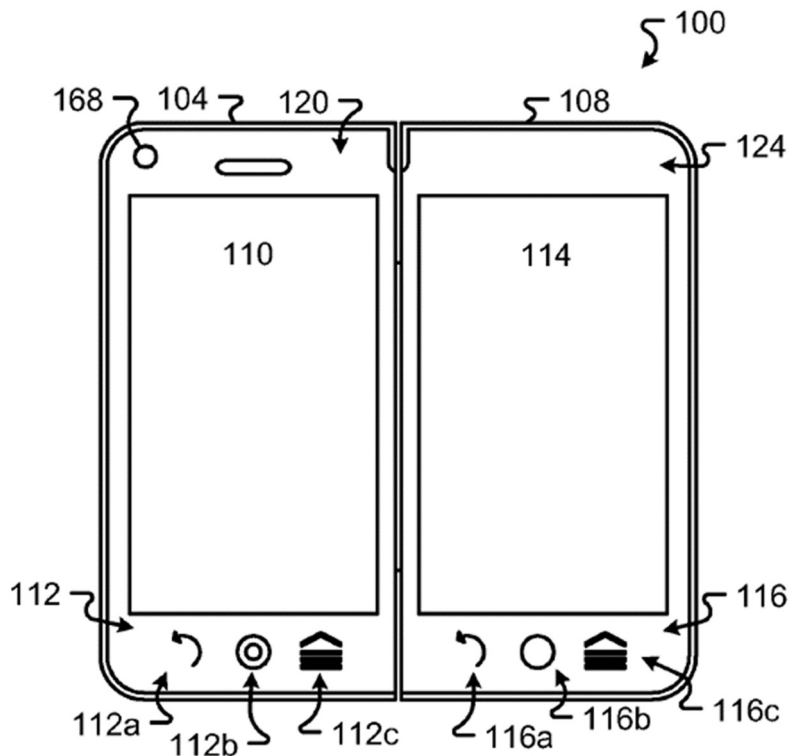
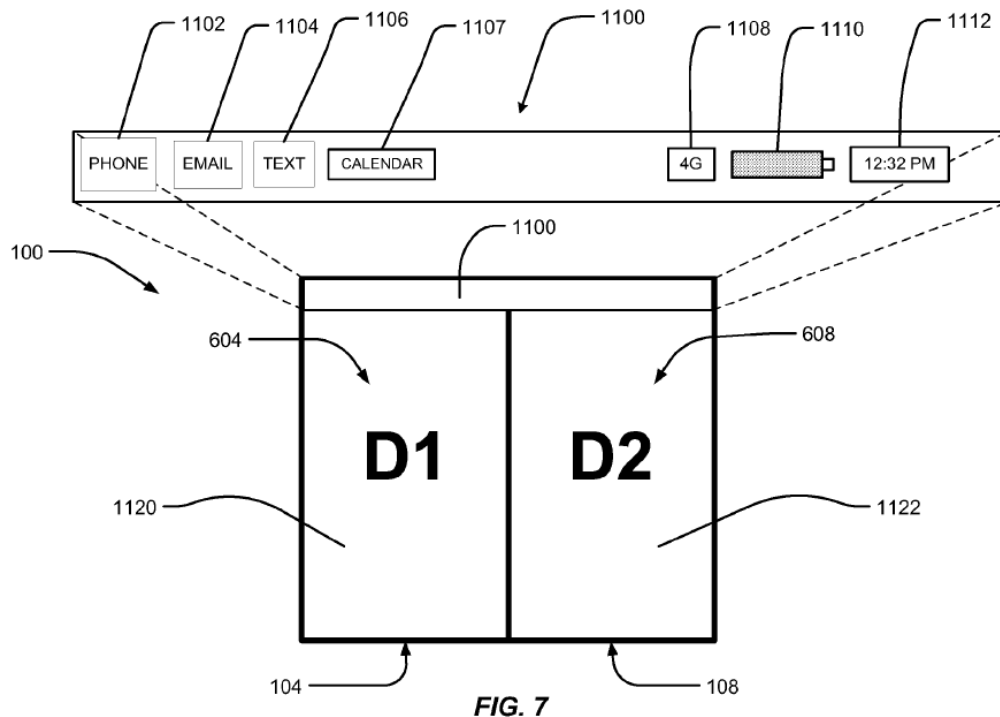


FIG. 1B

(EX1001, FIG. 1B.)

36. As shown in Figure 7 below, device 100 includes “the primary screen 104 and the secondary screen 108 displaying desk tops D1 and D2 on pages 1120 and 1122.” (EX1001, 26:1-3.) “An annunciator display or window 1100 is shown as extending continuously across both of the screens 104 and 108” (*id.*, 26:5-7) and “is further illustrated as being a unitary display window or display, as opposed to being a separate display on each screen” (*id.*, 26:7-9).



(EX1001, FIG. 7.) “This annunciator window 1100 can serve many purposes to include the display of messages, alerts, statuses of the device, and other information.” (*Id.*, 26:9-15.) Boxes 1102, 1104, 1106 and 1107 of annunciator window 1100 “display[] notifications such as incoming phone calls, emails, text messages, and calendar items, respectively.” (*Id.*, 26:16-31.)

37. As shown in Figure 8 below, notification 1124, e.g., a notification for a calendar item 1107 that includes text content, is displayed directly within window 1100. (*Id.*, FIG. 8, 26:39-42.) The notification may “thereby temporarily

mask[] or cover[] the other icons for a period of time until the alert or message is cleared by the user.” (*Id.*, 26:43-50.)

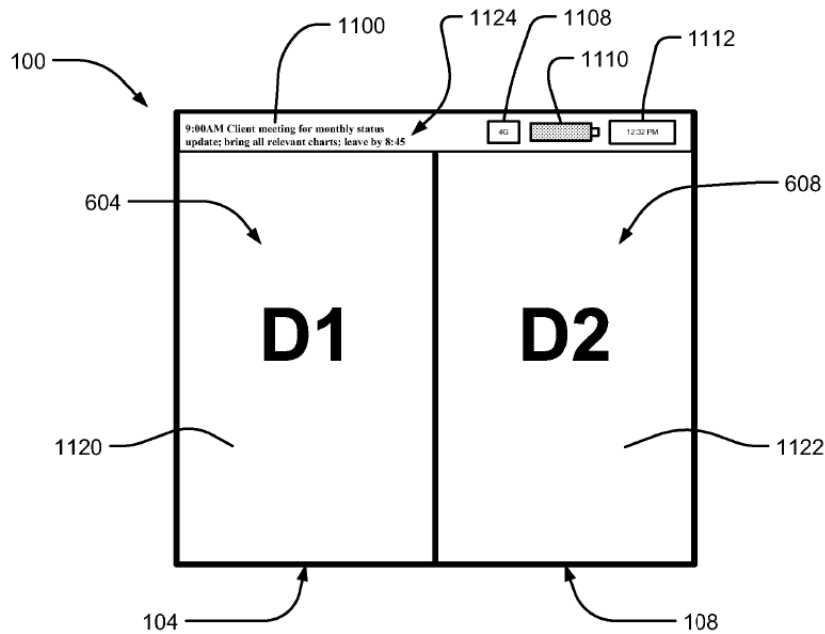


FIG. 8

(EX1001, FIG. 8.)

38. As I discuss below, the challenged claims are simply a compilation of conventional components/features disclosed/suggested by the prior art combinations discussed herein.

VII. OVERVIEW OF THE PRIOR ART

A. Yook (EX1005)

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

(EX1005, Cover.) Yook explains in the Abstract that,

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.

(EX1005, Abstract.)

B. Bauer (EX1007)

40. U.S. Patent No. 7,996,045 (“Bauer”) was patented August 9, 2011, from an application filed November 9, 2007. (EX1007, Cover.) Bauer explains in the Abstract that,

In some implementations, a computer-implemented method of displaying alert information with a mobile

communication device includes displaying **device status indicators** to a user of a mobile device in a status area; receiving information from an application to display an alert in the status area; displaying in the status area a first level of information for the alert and a user-selectable control; and displaying, in response to a selection of the user-selectable control, a second level of information for the alert that provides greater detail than the first level of information.

(EX1007, Abstract.)

C. Lee (EX1008)

41. U.S. Patent No. 8,265,705 (“Lee”) was patented September 11, 2012, from an application filed October 22, 2009. (EX1008, Cover.) Lee explains in the Abstract that,

A mobile terminal and a method of executing a call function using the mobile terminal are provided such that the call function is executed in the mobile terminal including **a plurality of touch screens**, and various graphic user interfaces with respect to the call function are displayed to a user such that the user can conveniently use the call function.

(EX1008, Abstract.)

VIII. CLAIM CONSTRUCTION

42. 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 '135 patent, as I explained above in Section IV, the relevant time that I have been asked to consider is around October 1, 2010. 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 '135 patent and the prior art. Additionally, I have also been asked to consider how the prior art meets certain claim limitations based on certain assumptions as discussed below in Section IX.

IX. THE PRIOR ART DISCLOSES AND/OR SUGGESTS ALL RECITED FEATURES OF CLAIMS 1-3, 5-9, 15, 16, 19, and 20 OF THE ‘135 PATENT

43. In my opinion, the prior art discussed below discloses and/or suggests the limitations of claims 1-3, 5-9, 15, 16, 19, and 20.²

A. Yook Discloses and/or Suggests Claims 1, 5-6, 9, 15, and 20

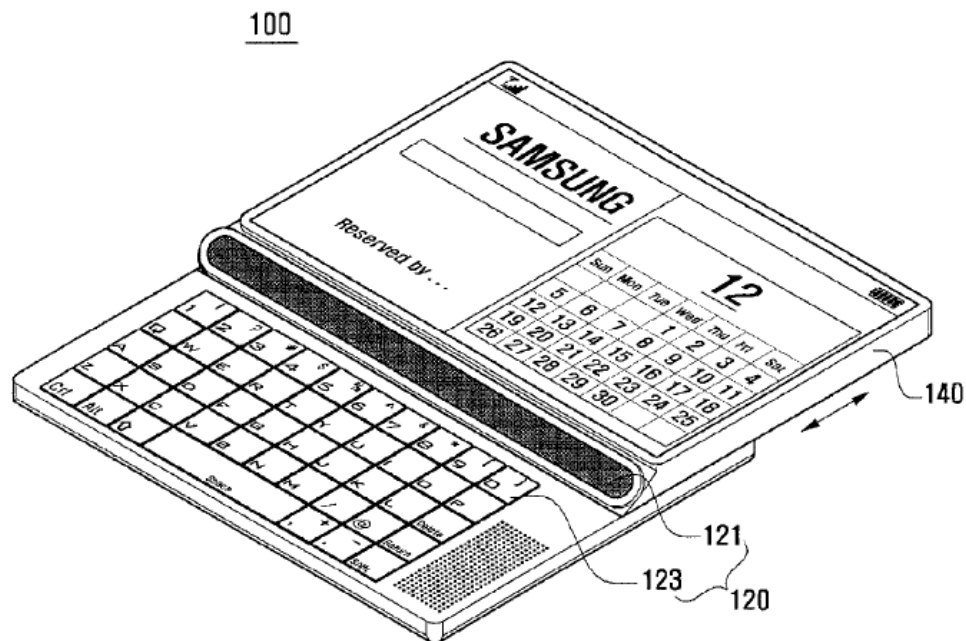
1. Claim 1

- i) **[1.pre] “A method of displaying information on a mobile multi-display device including a plurality of desktops and/or applications each having at least one window, and an annunciator window, the method comprising:”**

44. 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, Yook discloses the preamble of claim 1. Yook discloses “[a] method of displaying information on a mobile multi-display device.” Yook discloses mobile terminal 100 including input unit 120 and touch screen 140, where screen

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.

140 comprises display unit 141 and touch panel 143. (EX1005, [0025] (“the mobile terminal 100 includes...a touch screen 140”), [0028], [0030] (“The touch screen 140 includes a display unit 141 and a touch panel 143.... the touch screen 140 can be a full touch screen completely covering the front of the display unit 141.”), [0031] (“the touch screen 140 including the touch panel 143 can act as an input means. In particular, under the control of the control unit 160, the display unit 141 can divide the screen into a plurality of divided screen areas and output functional view areas related to user functions to the individual divided screen areas.”), FIG. 1, FIG. 2.)



(EX1005, FIG. 1.) Screen 140 displays “various information items” (*id.*, [0027]) and the screen is divided into “divided screen areas...and output functional view areas related to activated user functions on the individual divided screen areas” (*id.*, [0026]-[0027]). (*See also id.*, [0003] (“mobile terminal that can divide the screen into individual divided screen areas and simultaneously present user functions on the individual divided screen areas”), [0006] (“mobile terminal having a screen that can divide the screen into a plurality of divided screen areas and simultaneously present user functions on each of the individual divided screen areas according to usage conditions”), [0007] (“dividing the screen into corresponding divided screen areas; and outputting functional view areas associated with the activated user functions to the corresponding divided screen areas”), [0008] (“a mobile terminal capable of supporting a plurality of divided screen areas, including...a control unit...for output of functional view areas associated with the user functions to be on the plurality of divided screen areas”), [0031] (“The display unit 141 displays at least one of each of menus, information input by the user, and information to be provided to the user.”; “the display unit 141 can divide the screen into a plurality of divided screen areas and output functional view areas related to user functions to the individual divided screen

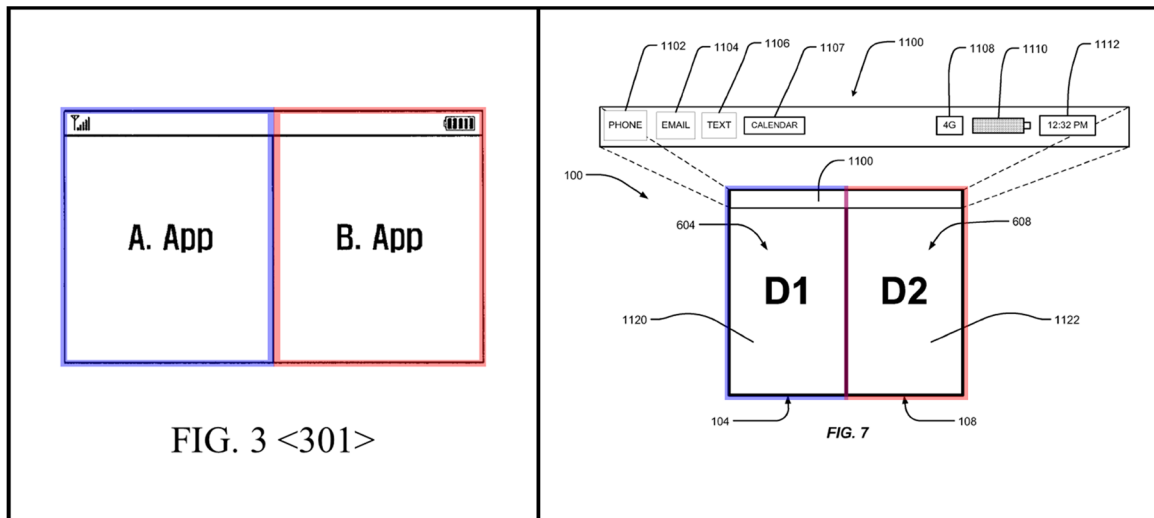
areas.”), [0035] (“The screen area management program is a control program that, when divided screen area formation is requested during execution of a user function, divides the screen of the display unit 141 into a plurality of **divided screen areas** and outputs functional view areas related to active user functions to the individual divided screen areas.”), [0037] (“control unit 160 controls an operation to **demarcate the display unit 141 into two areas** according to properties of activated user functions, and outputs functional view areas related to the user functions to the two areas.”).)

45. Mobile terminal 100 is a “mobile multi-display device” because screen 140, as discussed above and below, is divided into two screen areas (two “display[s]”) and each displays a functional view area related to an activated user function. (EX1005, [0037] (“**demarcate the display unit 141 into two areas** according to properties of activated user functions, and outputs functional view areas related to the user functions to the two areas”); *see also id.*, Abstract (“outputting functional view areas associated with the activated user functions to the corresponding divided screen areas”), [0007] (same), [0008] (“output of functional view areas associated with the user functions to be on the plurality of divided screen areas; and a display unit for display of the functional view areas.”),

[0026] (“output functional view areas related to activated user functions on the individual divided screen areas.”), [0027] (“The functional view area related to the radio frequency unit 110 can be displayed on one of divided screen areas”; “output a functional view area related to operation of the radio frequency unit 110 on another divided screen area.”), [0031] (“output functional view areas related to user functions to the individual divided screen areas.”), [0035] (“divides the screen of the display unit 141 into a plurality of divided screen areas and outputs functional view areas related to active user functions to the individual divided screen areas.”; “The screen area management program can further include any of an output routine for outputting two functional view areas related to a user function and the input signal to the corresponding divided screen areas”).) This is consistent with the ’135 patent’s disclosure that “[a] single physical screen can include multiple displays that are managed as separate logical displays.” (EX1001, 4:48-49; *see also id.*, 4:11-14 (the term “screen” refers to “a physical structure that includes one or more hardware components that provide the device with the ability to render a user interface and/or receive user input”), 4:43-51 (“The term ‘display’ refers to a portion of one or more screens used to display the output of a computer to a user. A display may be a single-screen display or a multi-screen display,

referred to as a composite display. A composite display can encompass the touch sensitive display of one or more screens. A single physical screen can include multiple displays that are managed as separate logical displays. Thus, different content can be displayed on the separate displays although part of the same physical screen.”.)

46. For example, consistent with Yook’s disclosure associated with Figure 3 (EX1005, [0038] (“[r]eferring to FIG. 3...divid[ing] the screen into two areas”)), Yook’s screen 140 includes two screen areas, including one “display” in blue and another “display” in red, as shown in annotated Figure 3 (below left). (*Id.*, FIG. 3.) This is consistent with the ’135 patent’s description of displays in a mobile device (EX1001, 4:43-51 (“display,” i.e., “*a portion of one or more screens* used to display the output of a computer to a user”)) and the ’135 patent’s description associated with Figure 7 disclosing two displays (*id.*, 7:60-8:8, 26:1-15; *see also* Section VII).



(EX1005, FIG. 3 <301> (left); EX1001, FIG. 7 (right) (both annotated).)

47. Yook discloses displaying information including “a plurality of desktops and/or applications each having at least one window” on mobile terminal 100 (“mobile multi-display device”). For example, as shown in Figure 3 below, when a first user function (an “application[.]”) and a second user function (another “application[.]”) are activated, screen 140 is divided into two screen areas (two “display[s]” as annotated in blue and red), where “a functional view area A. App” (a “window” in green) for “the first user function [is] displayed on one area” and “a functional view area B. App” (another “window” in yellow) for “the second user function [is] displayed on the other area.” (EX1005, [0038] (“when a first user function and a second user function...are activated at one of the same time and in sequence, as illustrated in screen 301, the control unit 160 can control the

display unit 141 to divide the screen into two areas, and cause a functional view area A.App for the first user function to be displayed on one area and cause a functional view area B.App for the second user function to be displayed on the other area.”), FIG. 3 (<301>.)

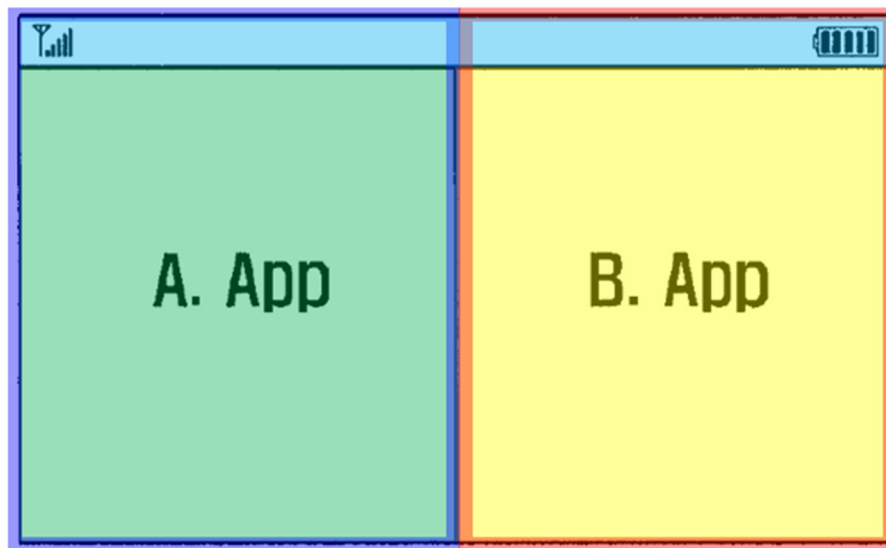


FIG. 3 <301>

(EX1005, FIG. 3 (<301>); *see also id.*, FIG. 1, [0033] (storage 150 of device 100 “can store any of **application programs** related to the present invention”), [0034], FIG. 4A, [0045] (device 100 “can activate **application programs** related to the

menu items A and B, display a functional view area App. A as to the **application program** related to the menu item A on a divided screen area and display a functional view area App. B as to the **application program** related to the menu item B on the other divided screen area”).) The functional view areas A. App and B. App (each being a “window”) may include an image and/or a text string depending on the user functions being activated/displayed, e.g., functional view area A. App includes “a control key map for controlling music playback and an image depicting the music file being played back” and functional view area B. App includes “a key map and a message composition view area for composing a message.” (*Id.*, [0038] (“if the first user function is related to music playback, the functional view area A. App can include a control key map for controlling music playback and an image depicting the music file being played back. If the second user function is related to message composition, the functional view area B. App can include a key map and a message composition view area for composing a message.”).) Each of the first and second user functions (“applications”) has at least one “window” because, as shown in Figure 3 above, each application has a rectangular functional view area, e.g., functional view area A. App or B. App in Figure 3, providing content/image/options associated with music playback or

message composition, different from the rest of the screen. (*Id.*; *see also id.*, [0039] (screen 140 divided into two areas when two instances of a user function are activated), [0040] (screen 140 divided into two areas when related user functions are activated), [0041] (screen 140 divided into two areas when a user function is activated first and then a sub function thereof is activated), [0043]-[0045] (displaying functional view areas of two applications each on a divided screen area based on user input), [0046]-[0047] (similar), [0048]-[0050] (displaying functional view areas of an application and a sub-application/task each on a divided screen area), [0051]-[0054] (displaying functional view areas of an application and an event handling application), [0055]-[0057] (displaying functional view areas of a listing function and a listed item), [0058]-[0072] (describing with reference to FIGS. 5A-5D transitions between divided screen areas associated with user functions), [0072]-[0076] (describing with reference to Figure 6 user interactions with user functions displayed in divided screen areas), [0077]-[0087] (describing with reference to Figures 7A-7C user interactions that cause transferring information between functional view areas displayed on divided screen areas), [0088]-[0092] (describing with reference to Figure 8 user interactions relating to copying and transferring information, between functional

view areas), [0093]-[0095] (describing with reference to Figure 9 user interaction relating to file transfer between functional view areas), [0096]-[0101] (describing with reference to Figure 10 user interaction relating to interworking between functional view areas supporting Web access), [0101]-[0103] (describing with reference to Figure 11 displaying two applications on corresponding divided screen areas), [0104]-[0107] (describing with reference to Figure 12 user interaction relating to interaction between a file search function and a twitter function), [0108]-[0112] (describing with reference to Figure 13 user interaction relating to splitting/dividing the screen into divided screen areas).) Thus, consistent with the '135 patent, Yook discloses “a plurality of desktops and/or applications each having at least one window.” (EX1001, 5:66-6:2 (“The term ‘**window**’ refers to a typically rectangular, displayed image on at least part of a display that contains or provides content different from the rest of the screen.”).)

48. Yook discloses displaying information including “an annunciator window” on the mobile multi-display device. For example, Yook discloses displaying a status bar (“annunciator window”) on screen 140, highlighted in blue, as shown in the examples below.

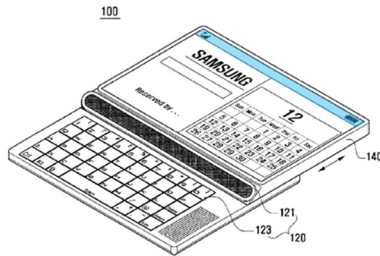


FIG. 1

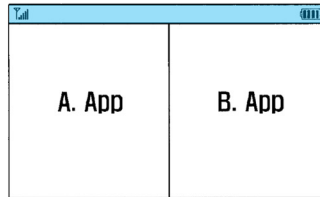


FIG. 3 <301>

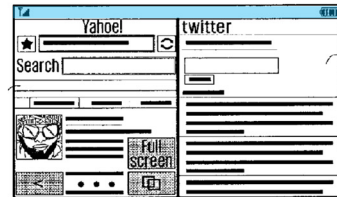


FIG. 10 <1001>

(EX1005, FIGS. 1, 3, 10.) Yook discloses similar status bars throughout its disclosure. (*See generally* EX1005.) Consistent with the disclosed status bar shown in the figures, a person of ordinary skill in the art would have understood that the status bar includes information indicating device status, e.g., battery status (top right of the figures), and connectivity status, e.g., mobile device signal reception status (top left of the figures). Such an understanding is consistent with Yook's terminal using a radio frequency unit to establish mobile voice/video/data communication and the terminal being a "mobile" device, which, as a person of ordinary skill in the art would have understood, is powered by a battery. (EX1005, FIGS. 1, 3, 10, [0027].) Yook's disclosures are consistent with the '135 patent's discussions of an "annunciator window." (EX1001, FIGS. 7-8, 26:1-27:5.)

ii) **[1.a] “placing the multi-display device in an open state with a first display and a second display facing in a same direction;”**

49. Yook discloses this limitation. For example, as shown in the figures below and discussed for limitation [1.pre], screen 140 includes two screen areas (“first display” (e.g., in blue) and “second display” (e.g., in red)) each displaying a functional view area for an activated user function. (Section IX.A.1(i); EX1005, [0003]-[0008], [0026]-[0027], [0031], [0035], [0037].)

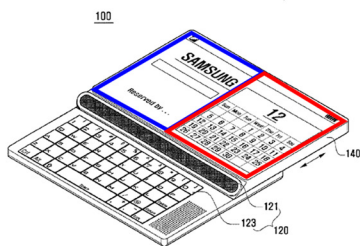


FIG. 1

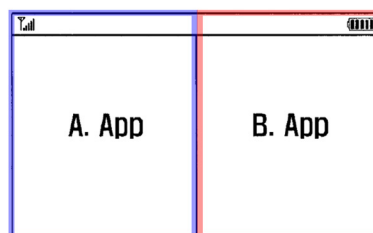


FIG. 3 <301>

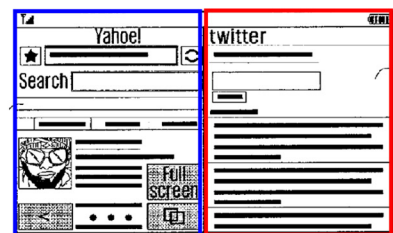


FIG. 10 <1001>

(EX1005, FIGS. 1, 3, 10.)

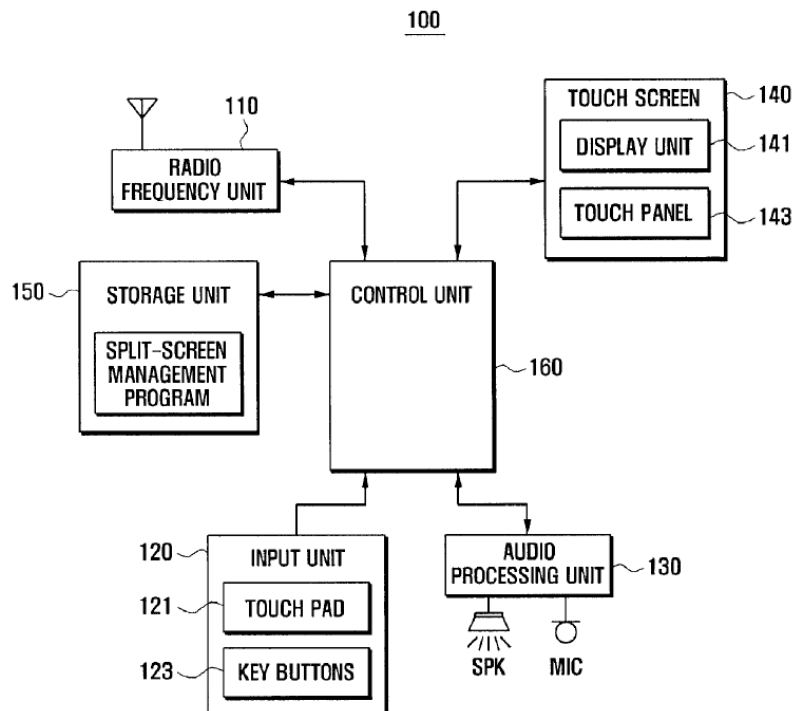
50. As shown in Figure 1, mobile terminal 100 is placed in an “open state” because the upper slide body (containing screen 140) is slid open against the lower slide body (containing input unit 120). (EX1005, [0025] (“the mobile terminal 100 composed of an upper slide body and a lower slide body.”).) Terminal 100 is in an “open state” also because its two screen areas (“first display” in blue and “second display” in red) are on the same plane. (EX1005, FIG. 1;

EX1001, 9:58-59, 14:35-36 (“State 320 is the open state where the primary screen 104 and the secondary screen 108 are generally on the same plane.”).)

Additionally, Yook’s disclosed “first display” and “second display” face the same direction as shown in Figure 1. (EX1005, FIG. 1.)

- iii) **[1.b] “receiving, by a processor, a first input that represents an instruction to reveal one of a first desktop or application on the first display of the multi-display device and selecting the first desktop or application to display on the first display;”**

51. Yook discloses this limitation. As shown in Figure 2 below, mobile terminal 100 includes radio frequency unit 110, input unit 120, audio processing unit 130, touch screen 140, storage unit 150, and control unit 160. (EX1005, [0025], FIG. 2.)



(EX1005, FIG. 2.) Terminal 100 may “activate a screen area management program stored in the storage unit 150 in response to a user request, divide the screen into divided screen areas..., and output functional view areas related to activated user functions on the individual divided screen areas.” (*Id.*, [0026].)

Input unit 120 includes alphanumeric and function keys “for inputting alphanumeric information and for setting various functions” and also includes touch pad 121 that “generate[s] an input signal corresponding to a touch of the user and send the input signal to the control unit 160.” (*Id.*, [0028].) Screen 140 may “act as an input means” and display “menus, information input by the user, and

information to be provided to the user,” e.g., “screens related to utilization of the mobile terminal 100, such as any screen selected from the group consisting of an idle screen, menu screen, message composition screen, and call handling screen.” (*Id.*, [0031]; *see also id.*, [0025] (“The touch screen 140 with a key map can act as an input means for the bar type mobile terminal.”), [0032] (disclosing screen 140 sending touch inputs to control unit 160), [0035] (screen area management program executed by control unit 160 includes “a routine for detecting an input signal generated during execution of a user function”).)

52. Consistent with as shown in Figure 2, inputs, e.g., user requests, to activate/select user functions are provided to control unit 160, which controls screen 140 to divide the screen into divided screen areas and output **functional view areas related to user functions to the individual divided screen areas**. (EX1005, [0007] (“generating **input signals for one of sequentially and simultaneously activating a plurality of user functions**; activating the plurality of user functions according to the generated input signals; in accordance with the activated functions, dividing the screen into corresponding divided screen areas; and outputting functional view areas associated with the activated user functions to the corresponding divided screen area”), [0008] (“an input unit for generation of a

plurality of input signals for one of sequential and simultaneous activation of user functions; a control unit for activation of user functions according to the plurality of generated input signals”), [0026] (“activate a screen area management program stored in the storage unit 150 in response to a user request, divide the screen into divided screen areas..., and output functional view areas related to activated user functions on the individual divided screen areas.”), [0028] (Input unit 120 includes alphanumeric and function keys “for inputting alphanumeric information and for setting various functions” and also includes touch pad 121 that “generate[s] an input signal corresponding to a touch of the user and send the input signal to the control unit 160.”), [0031] (“under the control of the control unit 160, the display unit 141 can divide the screen into a plurality of divided screen areas and output functional view areas **related to user functions** to the individual divided screen areas.”), [0032] (“The touch panel 143 is installed on the display unit 141, and can **generate a touch event corresponding to a touch on one of a specific image and item displayed on the display unit 141**. For example, in response to a touch on a displayed instrument image, the touch panel 143 **generates a corresponding touch event and sends the touch event to the control unit 160**. A displayed image or item can be **associated with a user function**.”), [0035] (screen area

management program executed by control unit 160 includes “a routine for detecting an input signal generated during execution of a user function”).)

53. For example, as shown in Figure 3, a user may activate (or select) a first user function (“first...application”) and a second user function (“second...application” recited in limitation [1.c]) sequentially. (EX1005, [0038] (“when a first user function and a second user function, which are independent of each other, are activated at one of the same time and **in sequence**”).) In response to activating or selecting the user functions, control unit 160 controls screen 140 to divide the screen into two screen areas (“first display” in blue and “second display” in red), and display a functional view area A. App (in green) for the first user function (e.g., music playback) in one screen area (“first display” in blue) and display a functional view area B. App (in yellow) for the second user function (e.g., message composition) on another screen area (“second display” in red). (*Id.* (“when a first user function and a second user function, which are independent of each other, are activated at one of the same time and in sequence, as illustrated in screen 301, the control unit 160 can control the display unit 141 to **divide the screen into two areas**, and cause a functional view area A. App for the first user function to be displayed on one area and cause a functional view area B. App for

the second user function to be displayed on the other area.”); *see also id.*, [0039]-[0042] (describing control unit 160 controlling screen 140 to divide the screen into different areas, and cause functional view areas associated with any of independent user functions, instances of the same user function, related user functions, and main and subordinate user functions, to be displayed on the corresponding areas).)

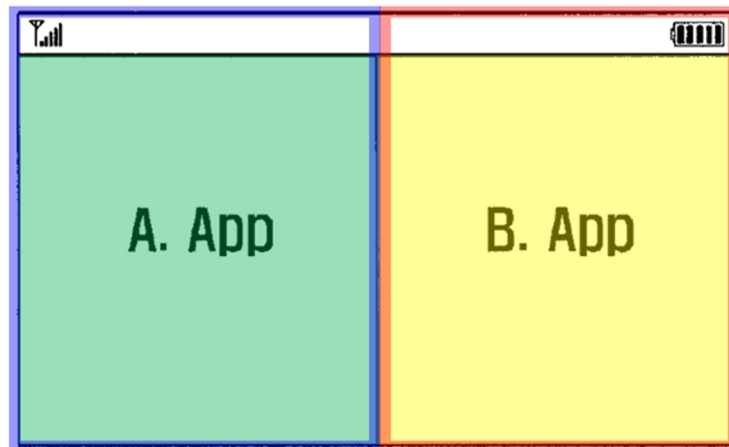


FIG. 3 <301>

(EX1005, FIG. 3.)

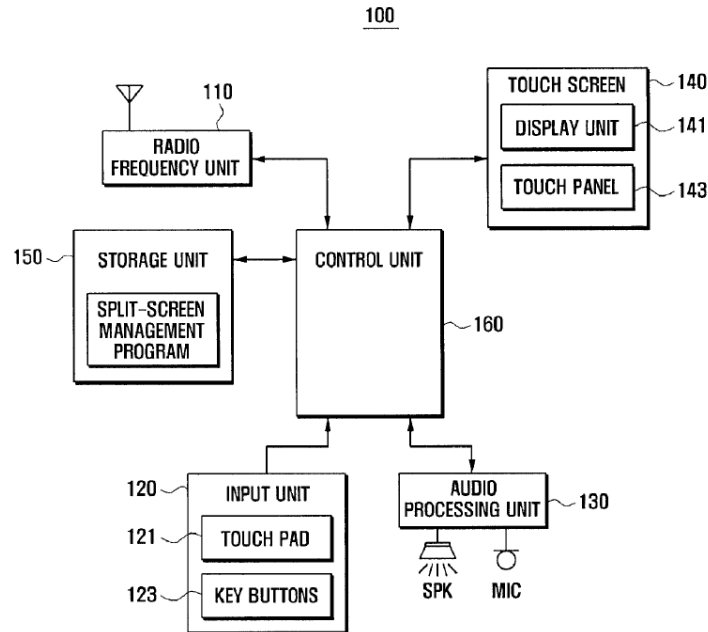
54. A person of ordinary skill in the art would have understood that control unit 160 corresponds to the claimed “processor” given that it controls, e.g., operations of user functions and displays of the same on screen 140, consistent with as described in the ’135 patent. (EX1001, 11:63-12:10 (“The processor 204

may comprise a general purpose programmable processor or controller for executing application programming or instructions”; “The processor 204 generally functions to run programming code or instructions implementing various functions of the device 100”).) Indeed, Yook explains that the disclosed methods “can be realized in hardware or as software or computer code...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....” (EX1005, [0117].) Moreover, given that Yook discloses, in response to an input for activating or selecting user functions, control unit 160 (“processor”) loads/executes the screen area management program that then divides screen 140 into divided screen areas and outputs/displays functional view areas (e.g., green portion in Figure 3) related to user functions (e.g., first user function or the “first...application”) to the individual divided screen areas (e.g., blue portion in Figure 3), Yook discloses receiving, by control unit 160 (“processor”), a first input that represents an instruction to reveal a first user function (“first...application”) on the first screen area (blue portion in Figure 3 or “first display”) of mobile terminal 100 and selecting the first user function to display on the first screen area. Thus, Yook discloses limitation [1.b]. (*See also* EX1005, [0035] (“The **screen area**

management program can be loaded on the control unit 160 in response to activation of a particular user function. The screen area management program is a control program that, **when divided screen area formation is requested during execution of a user function, divides the screen of the display unit 141 into a plurality of divided screen areas and outputs functional view areas related to active user functions to the individual divided screen areas**"; “the screen area management program can include any of a routine for **detecting an input signal generated during execution of a user function**, a routine for determining whether an input signal corresponds to a condition preset for divided screen area formation, and a routine for **dividing the screen if the input signal corresponds to a condition preset for divided screen area formation**”; “The screen area management program can further include any of an **output routine for outputting two functional view areas related to a user function and the input signal to the corresponding divided screen areas**”), [0036] (storing “screen data related to user functions, and descriptive information regarding divided screen areas after divided screen area formation **in response to a specific input signal**”).)

- iv) **[1.c] “receiving, by the processor, a second input that represents an instruction to reveal one of a second desktop or application on the second display of the multi-display device and selecting the second desktop or application to display on the second display;”**

55. Yook discloses this limitation for reasons similar to those discussed above. As discussed for limitation [1.b], Yook discloses receiving inputs for activating a first user function (“first...application”) and a second user function (“second...application”) **sequentially**. (Section IX.A.1(iii).) For example, consistent with as shown in Figure 2 below, inputs, e.g., user requests, to activate/select user functions are provided to control unit 160 (“processor”), which controls screen 140 to divide the screen into divided screen areas and output functional view areas related to user functions to the individual divided screen areas. (EX1005, [0007], [0008], [0026], [0028], [0031], [0032], [0035].)



(EX1005, FIG. 2.)

56. Consistent with as shown in Figure 3 below, Yook discloses that a user may activate (or select) a first user function (“first...application” recited in limitation [1.b]) and a second user function (“second...application”) **in sequence**. (EX1005, [0038] (“when a first user function and a second user function...**are activated...in sequence**, as illustrated in screen 301”).) In response to activating or selecting the user functions, control unit 160 controls screen 140 to divide the screen into two areas, and display a functional view area A. App for the first user function (e.g., music playback) in one area (blue) and display a functional view

area B. App for the second user function (e.g., message composition) on another area (red). (*Id.*)

57. Given that Yook discloses, in response to a second input (a subsequent input to the first input) for activating or selecting a second user function (e.g., message composition), control unit 160 (“processor”) loads/executes the screen area management program that outputs/displays a functional view area (e.g., yellow portion in Figure 3) related to the second user function (“second ...application”) to the second divided screen area (e.g., red portion in Figure 3), Yook discloses receiving, by control unit 160 (“processor”), a second/subsequent input that represents an instruction to reveal a second user function (“second...application”) on the second screen area (red portion in Figure 3 or “second display”) of mobile terminal 100 and selecting the second user function to display on the second screen area. (Section IX.A.1(iii); *see also* EX1005, [0058]-[0064] (disclosing with reference to Figure 5b that the divided screen areas in screen 511 display two user functions associated with A. App and B. App. “in response to selection of an icon App. A and icon App. B” and “[i]n response to the user actions, as illustrated in screen 513, the mobile terminal 100 can replace the functional view area A. App with a functional view area C. App related to the icon

App. C, and replace the functional view area B. App with a functional view area F.
App related to the icon App. F.”).)

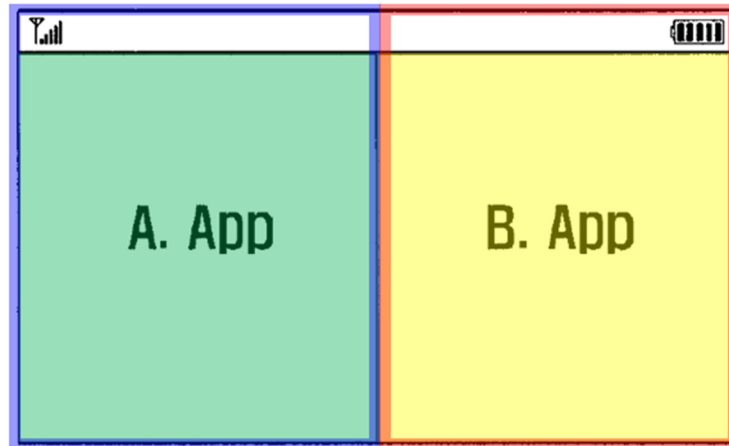


FIG. 3 <301>

(EX1005, FIG. 3.) Thus, Yook discloses limitation [1.c].

- v) **[1.d] “displaying, by the processor, the selected first and second desktops or applications on the first and second displays;”**

58. Yook discloses this limitation. As discussed for limitations [1.b] and [1.c], control unit 160 (“processor”) executes the screen area management program that then divides screen 140 into two divided screen areas and outputs/displays functional view areas (e.g., green and yellow portions in Figure 3) related to user

functions (e.g., first user function or the “first...application” and second user function or the “second...application”) to the individual divided screen areas (e.g., blue and red portions in Figure 3). (See also ,e.g., EX1005, FIGS. 5A-5B, 7A-8, 10-11, [0058]-[0064], [0077]-[0092], [0096]-[0102].) Yook discloses limitation [1.d].

FIG . 7a

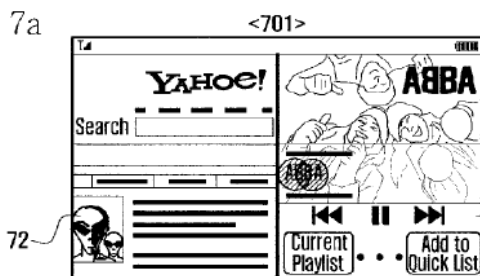


FIG . 8

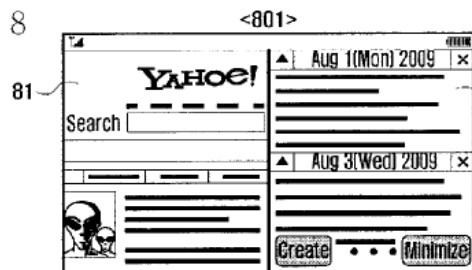
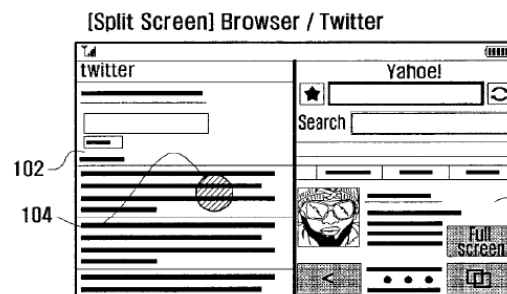
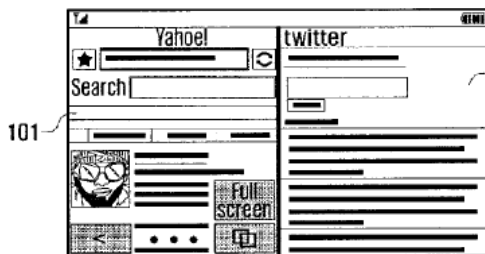


FIG . 10



(EX1005, FIGS. 7A, 8, 10-11 (excerpted).)

- vi) [1.e] “displaying, by the processor, a pre-configured annunciator window having information therein showing at least one of a device status, a connectivity status, and a messaging status;”

59. Yook discloses and/or suggests this limitation. As discussed for limitation [1.pre], Yook discloses a status bar (“annunciator window”) highlighted

in blue as shown in Figure 3 below, displaying information that indicates “device status,” e.g., battery status (top right of the figure), and “connectivity status,” e.g., mobile device signal strength status (top left of the figure). (Section IX.A.1(i).)

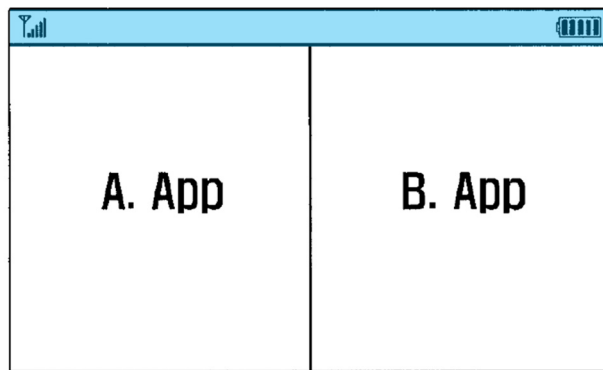


FIG. 3 <301>

(EX1005, FIG. 3.)

60. As discussed for limitations [1.b]-[1.c], control unit 160 (“processor”) **controls** displays of screen 140. (Sections IX.A.1(iii)-(iv); EX1005, FIG. 2.) As such, a person of ordinary skill in the art would have understood that, in order to display the status bar on screen 140 that indicates “a device status” and “a connectivity status” (e.g., as shown in figures of Yook), the status bar would have been pre-configured, and would be controlled and displayed by control unit 160. Accordingly, Yook discloses or at least suggests displaying, by control unit 160 (“processor”), a status bar (“annunciator window”) that is pre-configured to display

information showing “a device status” and “a connectivity status.” I have been asked to consider a scenario where Yook does not expressly disclose limitation [1.e]. In that scenario, a person of ordinary skill in the art would have been motivated to implement the recited features therein.

61. Yook discloses “storage unit 150 can store *any* of application programs” (EX1005, [0033]), including a screen area management program that “divides the screen of the display unit 141 into a plurality of divided screen areas and outputs functional view areas related to active user functions to the individual divided screen areas” (*id.*, [0035]). Yook explains that the screen area management program is loaded on control unit 160 to control screen 140. (*Id.*) A person of ordinary skill in the art would have understood that displaying the status bar may likewise be controlled by a program, such as a sub-program or an applet that determines various features of the status bar, e.g., size, position, content...etc., and executed by control unit 160. (*See* my discussions above in Section V.B.) Accordingly, when implementing or configuring Yook’s system/process, which includes the implementation of a status bar (e.g., as shown in figures of Yook), a person of ordinary skill in the art would have been motivated to implement an applet for displaying the status bar, where the applet is executed by a processor,

such as control unit 160, consistent with Yook's disclosure of a screen area management program executed by control unit 160 to control the displays on screen 140.

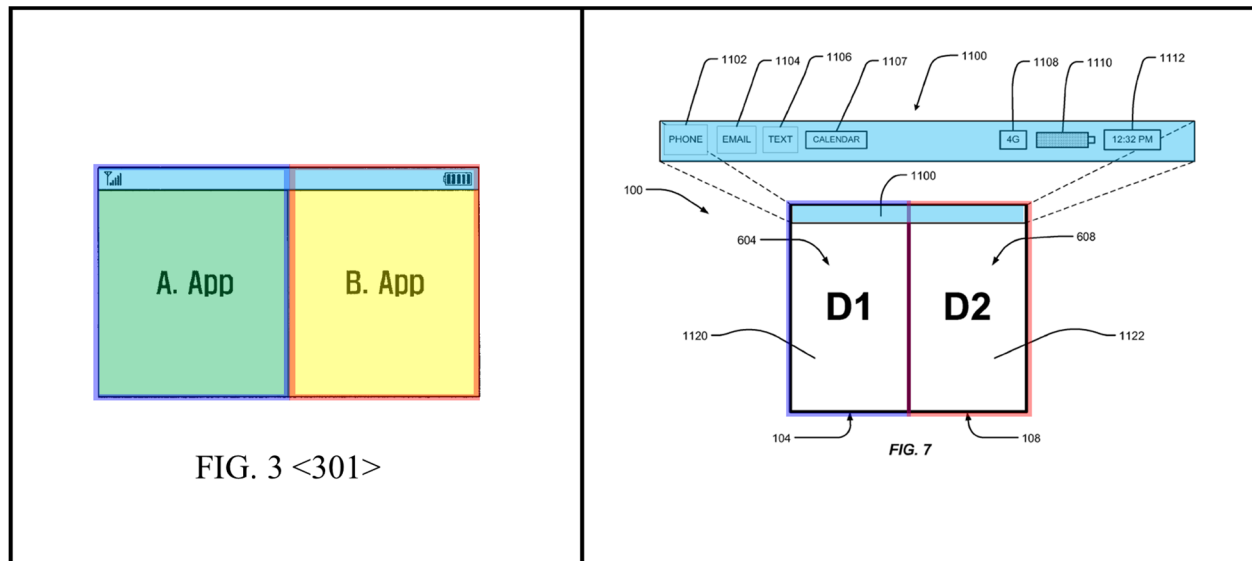
62. Additionally, a person of ordinary skill in the art would have been motivated to implement and pre-configure the status bar (including associated program(s)/applet(s)) such that device status (e.g., battery status) and connectivity status (mobile device signal strength status) dynamically reflect the battery and mobile device signal strength status (as opposed to displaying them as static icons) in order to provide updated device usage/connectivity information to the user. The state of art informed a person of ordinary skill in the art at the time of such features. (EX1007, 1:13-33 (confirming that it was known to "display status indicators associated with various system resources" of a mobile device, e.g., "a device may display a battery-shaped power meter that graphically depicts how much power remains in a battery included in the device; as power is consumed by the device, the power meter may change shape or character (e.g., the power meter may appear less 'shaded' or filled-in as power is consumed)"; "the device may display an antenna-shaped graphic having a number of 'bars' that depict a relative strength of a signal that the device is capable of receiving from a corresponding

wireless communication network; a stronger signal may be associated with more bars in the antenna graphic, and a weaker signal may be associated with fewer bars in the antenna graphic.”.)

63. Implementing the above-discussed features in a mobile terminal similar to Yook would have involved applications of known technologies (e.g., known use of processor, e.g., control unit 160, for executing a screen area management program for screen division and display of applications) according to known methods (e.g., known techniques for pre-configuring and displaying a status bar for indicating status of a mobile terminal associated with signal strength and battery level) to yield the predictable result of a processor controlling the display of a pre-configured status bar dynamically reflecting device status (e.g., remaining battery level) and connectivity status (e.g., mobile device signal strength) to provide updated status information to the user. Thus, a person of ordinary skill in the art would have had reasonable expectation of success in implementing the above features in Yook’s mobile device.

- vii) **[1.f] “configuring, by the processor, the annunciator window to extend across a first portion of the first display and a second portion of the second display, wherein the first portion and the second portion do not degrade the display of information by the selected first and second desktops or applications; and”**

64. Yook discloses and/or suggests this limitation. To begin, Yook discloses “the annunciator window to extend across a first portion of the first display and a second portion of the second display.” As shown in Figure 3 (*see below left*), the status bar (“annunciator window” in blue) extends across a first portion of the first display (the status bar portion within the blue area) and a second portion of the second display (the status bar portion within the red area) in a manner consistent with the ’135 patent’s description of an annunciator window (which may extend across displays similar to Yook’s disclosures). (EX1001, FIG. 7 (*below right*), 26:1-15); *see above* Section VII.).



(EX1005, FIG. 3 (left); EX1001, FIG. 7 (right).) Furthermore, the first and second portions (where the status bar resides) do not occupy the functional view areas of the first and second applications (green and yellow). Thus, Yook discloses “wherein the first portion and the second portion do not degrade the display of information by the selected first and second desktops or applications.”

65. For reasons similar as discussed for limitation [1.e], a person of ordinary skill in the art would have been motivated to implement and configure the status bar (“annunciator window”) such that it is controlled and configured by control unit 160 (“processor”) executing an associated applet for the status bar. Thus, Yook discloses and/or suggests limitation [1.f] for similar reasons and teachings. (Section IX.A.1(vi).)

viii) [1.g] “modifying, by the processor, the display of the annunciator window in response to a changed state of at least one of the device status, connectivity status, and messaging status, wherein the modified display of the annunciator window displays information selectively across the annunciator window.”

66. Yook discloses and/or suggests this limitation. As discussed for limitation [1.e], a person of ordinary skill in the art would have been motivated to implement an applet for displaying the status bar, where the applet is executed by a processor, such as control unit 160, consistent with Yook’s disclosure of a screen area management program executed by control unit 160 to control the displays on screen 140. (Section IX.A.1(vi).) Moreover, also discussed for limitation [1.e], a person of ordinary skill in the art would have been motivated to configure the status bar such that the device status (e.g., battery status) and connectivity status (e.g., signal strength status) dynamically reflect the updates/changes of the battery level and signal strength in order to provide accurate information to the user. (*Id.*) Thus, for similar reasons, Yook discloses and/or suggests “modifying, by the processor, the display of the annunciator window in response to a changed state of at least one of the device status, connectivity status, and messaging status.”

67. Additionally, consistent with the reasons and teachings addressed above, given that the updates of the status are dynamically reflected in the status

icon(s) where the associated status has changed, Yook discloses and/or suggests “wherein the modified display of the annunciator window displays information *selectively* across the annunciator window.”

2. Claim 5: “The method of claim 1, wherein said annunciator window is located across adjacent upper or lower edges of said first and second displays.”

68. Yook discloses this limitation. As shown in Figure 3, the status bar is located across adjacent upper or lower edges of the first display (blue) and second display (red).

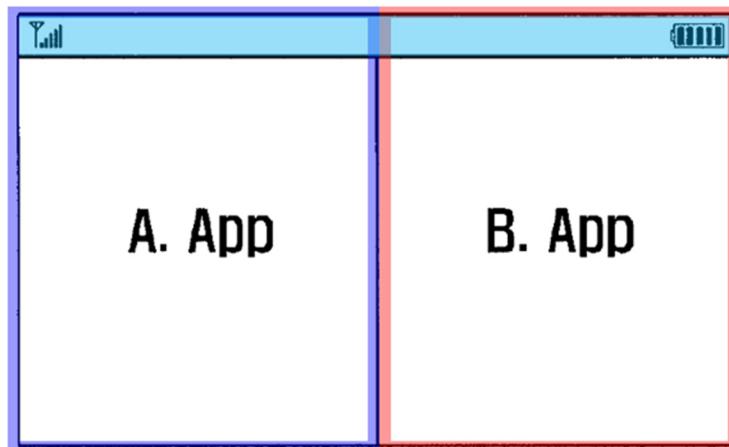
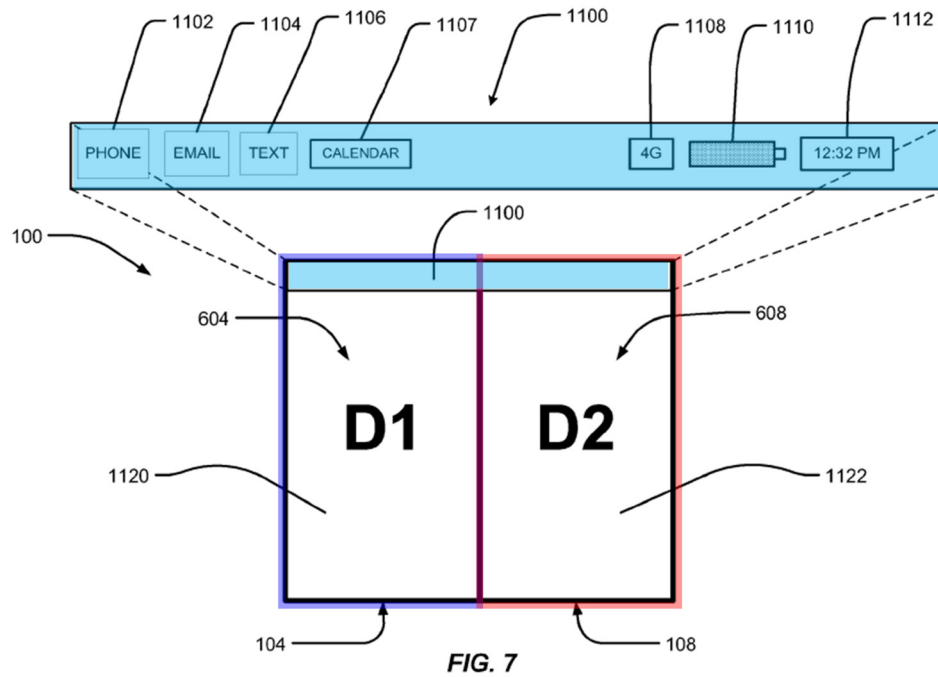


FIG. 3 <301>

(EX1005, FIG. 3.) Such teachings are similar to the '135 patent's descriptions.



(EX1001, FIG. 7 (annotated).)

3. Claim 6

- i) [6.pre] “A non-transitory computer-readable medium having stored thereon instructions executable by a processor of a mobile multi-display device, the instructions causing the processor to execute a method, the instructions comprising:”**
- ii) [6.a] “instructions to receive a first input to reveal one of a first desktop or application on a first display of the multi-display device and to select the first desktop or application to display on the first display;”**
- iii) [6.b] “instructions to receive a second input to reveal one of a second desktop or application on a second display of the multi-display device and to select the second desktop or application to display on the second display, wherein the multi-display device is in an open state with the first display and the second display facing in a same direction;”**
- iv) [6.c] “instructions to display the selected first and second desktops or applications on the first and second displays;”**
- v) [6.d] “instructions to display a pre-configured annunciator window having information therein showing at least one of a device status, a connectivity status, and a messaging status;”**
- vi) [6.e] “instructions to configure the annunciator window to extend across a first portion of the first display and a second portion of the second display, wherein the first portion and the second portion do not degrade the display of information by the selected first and second desktops or applications; and;”**

- vii) **[6.f] “instructions to modify the display of the annunciator window in response to a changed state of at least one of the device status, connectivity status, and messaging status, wherein the modified display of the annunciator window displays information selectively across the annunciator window.”**

69. I understand that limitation [6.pre] is a preamble of the claim and I have been asked to assume that the preamble of claim 6 is limiting. Under that assumption, Yook discloses the preamble of claim 6. As discussed for limitation [1.b], mobile terminal 100 having multiple displays includes control unit 160 (“processor”) that executes a screen area management program (“instructions executable by a processor of a mobile multi-display device”) stored in storage 150 to perform various operations recited in claim 1. (Sections IX.A.1(iii) and IX.A.1.) A person of ordinary skill in the art would have understood that storage 150 is a “non-transitory computer-readable medium” given that Yook at least implies that the programs stored in storage 150 remain available through power cycles. (EX1005, [0036] (“The control unit 160 controls supply of power to the components of the mobile terminal 100 for initialization, and controls the components to provide a user interface for supporting divided screen areas and to perform requested operations. In particular, the control unit 160 controls an operation to demarcate the display unit 141 into two areas according to properties

of activated user functions, and outputs functional view areas related to the user functions to the two areas.”.) Moreover, consistent with such an understanding, Yook discloses that software/code “can be stored in a recording medium such as a CD ROM,...a hard disk...so that the methods described herein can be executed by such software using a general purpose computer, or a special processor.” (*Id.*, [0117].) Given that each of CD ROM and hard disks is an example of a “non-transitory computer-readable medium,” Yook discloses “non-transitory computer-readable medium having stored thereon instructions executable by a processor of a mobile multi-display device, the instructions causing the processor to execute a method.”

70. Similar to the reasons provided for claim 1, Yook discloses and/or suggests the remaining limitations of claim 6, which recite “instructions” to perform operations substantially similar to as those recited in claim 1. (*See IX.A.1* (limitation [1b] is similar to limitation [6a], limitations [1.a] and [1.c] collectively are similar to limitation [6.b], limitation [1.d] is similar to limitation [6.c], limitation [1.e] is similar to limitation [6.d], limitation [1.f] is similar to limitation [6.e], limitation [1.g] is similar to limitation [6.f]).)

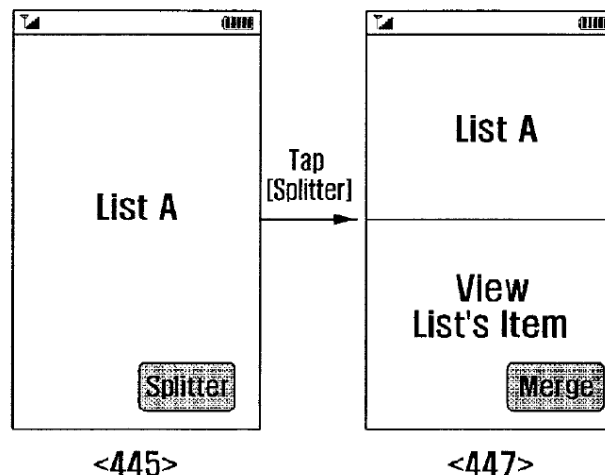
4. **Claim 9: “The non-transitory computer-readable medium of claim 6, wherein the instructions to configure the annunciator window further comprise instructions to display the annunciator window across adjacent upper or lower edges of the first and second displays, wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device.”**

71. Yook discloses this limitation. Yook discloses “the instructions to configure the annunciator window further comprise instructions to display the annunciator window across adjacent upper or lower edges of the first and second displays” for the same reason as discussed for claim 5. (Section IX.A.2.)

72. I have been asked to assume that the claimed “wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device” is met by *a single physical screen* that is divided into multiple displays. Under this assumption, Yook discloses the above-quoted limitation for the same reason discussed for limitation [1.a] as Yook discloses a single physical screen that is divided into two displays. (Section IX.A.1(ii).) I also explain how the Yook-Lee combination discloses and/or suggests the same limitation in the scenario where the claims are interpreted to require two physical screens. (See Section IX.C.3.)

5. Claim 15: “The device of claim 1, wherein the first and second displays are both in a portrait mode.”

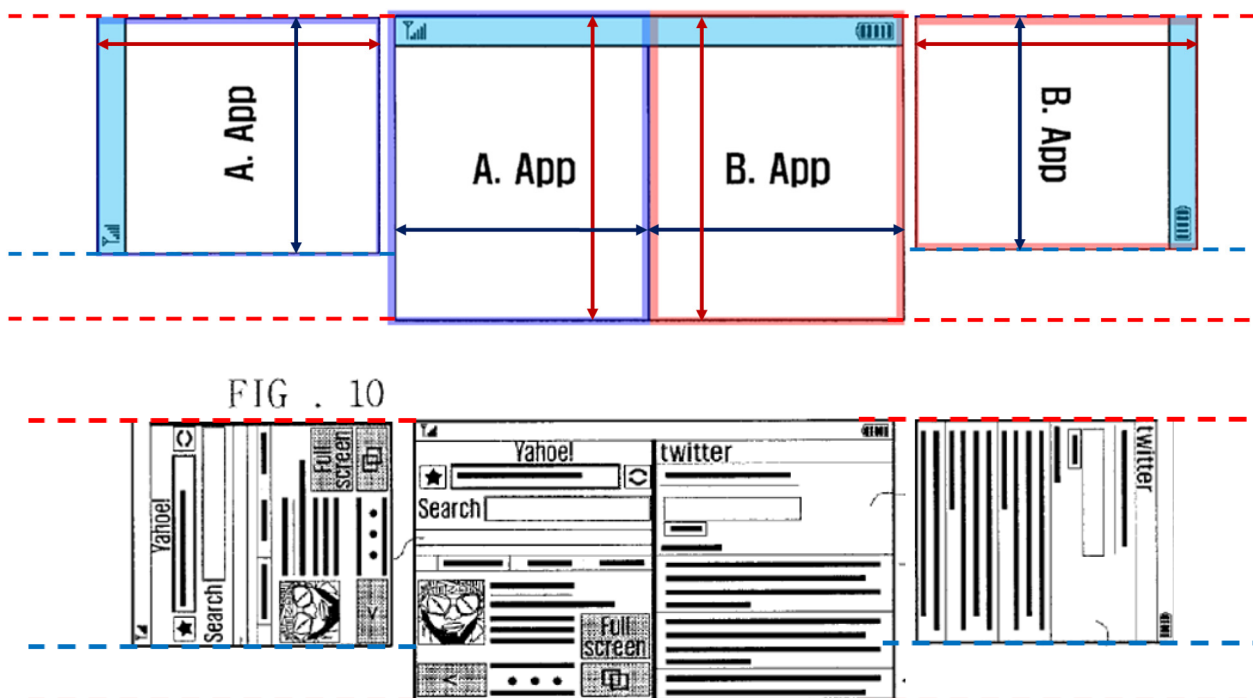
73. Yook discloses and/or suggests this limitation. Yook discloses configurations where the displays of the mobile device 100 show information in portrait and landscape modes. For example, with reference to Figure 4e below, Yook discloses that “divided screen areas can be formed in **portrait mode** as illustrated in screen 445 and screen 447.” (EX1005, [0055].)



(EX1005, FIG. 4e.) Yook also discloses the displays of device 100 discussed above for claim 1, which a person of ordinary skill in the art would have recognized as being consistent with being oriented in a portrait mode as discussed in the '135 patent. (EX1001, 4:56-5:4 (“The term ‘display orientation’ refers to the way in which a **rectangular display is oriented**.... In the portrait mode..., the

display is oriented such that the width of the **display** is less than the height of the **display**. Stated differently, the shorter dimension of the display is oriented substantially horizontal in the portrait mode while the longer dimension of the **display** is oriented substantially vertical.”)

74. For example, as demonstrated below, a person of ordinary skill in the art would have understood exemplary displays provided by device 100 (discussed above for claim 1) show each display having a width “less than the height of the display.” (Section IX.A.1.)



(EX1005, FIGS. 3 and 10 (annotated, revised with rotated copies of first/second displays next to respective oriented display to show “the shorter dimension of the

[first/second] display is oriented substantially horizontal in the portrait mode while the longer dimension of the **[first/second] display** is oriented substantially vertical”).) Thus, Yook discloses the device 100 where “**the first and second displays are both in a portrait mode,**” as claimed.

75. I have been asked to consider a scenario where Yook does not disclose that “the first and second displays are both in a portrait mode.” In that scenario, a person of ordinary skill in the art would have been motivated to configure device 100 such that the first and second displays are oriented in a portrait mode, depending on the dimensions and/or the natures of the image/content. For instance, if an image was captured in a portrait mode, a person of ordinary skill in the art would have been motivated to configure the displays to show the image in a portrait mode. (EX1005, [0034] (“application programs for viewing still images and moving images”).) This would have allowed the image to be displayed according to the format that it was captured and improved user experiences in viewing such image content. Likewise, if a document or a web page layout accessed by applications running in device 100 was originally formatted to a portrait mode, a person of ordinary skill in the art would have been

motivated to configure the displays to show the same document or web page in a similar portrait mode, for similar reasons above.

76. A person of ordinary skill in the art would have recognized that configuring the first/second displays in a portrait mode was one of a finite number of identified, predictable solutions for display mode configurations (e.g., landscape, portrait), and such a person would have had good reason to implement a portrait mode configuration as one of the known options (e.g., as opposed to the landscape mode) within such a person's capabilities and knowledge for reasons discussed above. (EX1001, 4:57-5:4 (“[t]he two most common types of display orientation are portrait and landscape.”).) Additionally, a person of ordinary skill in the art would have found such a configuration to be a straightforward implementation and would have had a reasonable expectation of success in achieving it. Accordingly, for reasons above, Yook discloses and/or suggests claim 15.

6. **Claim 20: “The device of claim 1, wherein modifying the display of the annunciator window does not include changing a size of the annunciator window, and wherein the annunciator window appears to be a unitary window displayed on each of the first portion of the first display and the second portion of the second display.”**

77. Yook discloses and/or suggests this limitation for similar reasons explained above for claim 1. For instance, as discussed for limitations [1.e] and [1.g], a person of ordinary skill in the art would have been motivated to modify the display of the status bar (“annunciator window”) such that device status (e.g., battery status) and connectivity status (e.g., mobile device signal strength status) dynamically reflect the corresponding status in order to provide accurate device usage/connectivity information to the user. (Sections IX.A.1(vi), IXA.1(viii).) A person of ordinary skill in the art would have been motivated to maintain the size of the status bar when updating the above-mentioned status because the display areas occupied by the status icons, as shown in Figure 3, are significantly smaller than display area occupied by the status bar.

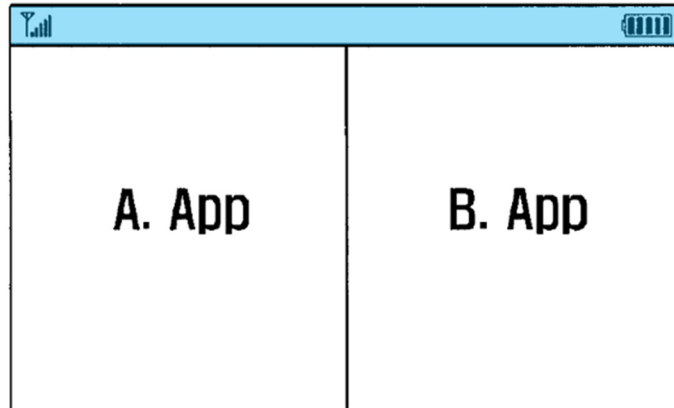


FIG. 3 <301>

(EX1005, FIG. 3.)

78. Moreover, the status bar, as shown in Figure 3 below, is a “unitary window” displayed on “each of the first portion of the first display and the second portion of the second display.”

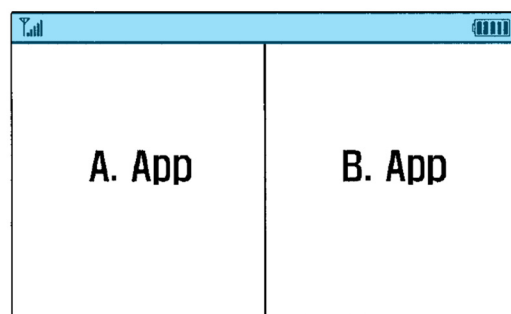


FIG. 3 <301>

(EX1005, FIG. 3.) Similar features are shown in the other examples provided by Yook. (*Id.*, FIGS. 7A-8, 10.) Thus, Yook discloses claim 20.

B. Yook in View of Bauer Discloses and/or Suggests Claims 2-3, 7-8, and 19

- 1. Claim 2: “The method of claim 1, wherein modifying the display of the annunciator window includes displaying the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message, and wherein the first display and the second display are on a common first screen of the multi-display device.”**

79. Yook in view of Bauer discloses and/or suggests this limitation. First, for reasons discussed for limitation [1.a] in Section IX.A, and shown below in Figure 3, Yook discloses “the first display and the second display are on a common first screen of the multi-display device” because Yook discloses a single physical screen 140 of terminal 100 is divided into two screen areas (e.g., including the “first display” and the “second display”). (Section IX.A.1(ii).)

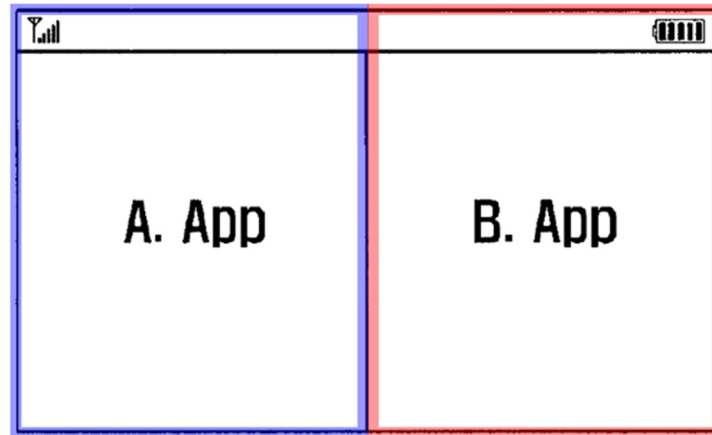


FIG. 3 <301>

(EX1005, FIG. 3.)

80. Second, as discussed for limitations [1.e] and [1.g], a person of ordinary skill in the art would have been motivated to modify the display of the status bar (“annunciator window”) such that the device status (battery status) and connectivity status (mobile device signal strength status) dynamically reflect the updated battery level and signal strength in order to provide updated status information to the user. (Sections IX.A.1(vi), IXA.1(viii).) Additionally, a person of ordinary skill in the art would have also been motivated to modify the display of the status bar such that it indicates a reception of a text message and provides a preview of the text contained in the message (“wherein modifying the display of

the annunciator window includes displaying the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message”) in view of Bauer.

81. Like Yook, Bauer relates to providing user interfaces on a mobile device. For example, Bauer discloses mobile device 101 that “provid[es] various computing resources that enable a user to interact with the device through input/output facilities, and in particular, to run applications that enable the user to process data or media in some manner” and “also provide[s] communication facilities, such as voice, data and messaging services.” (EX1007, 4:29-40, FIG. 1.)

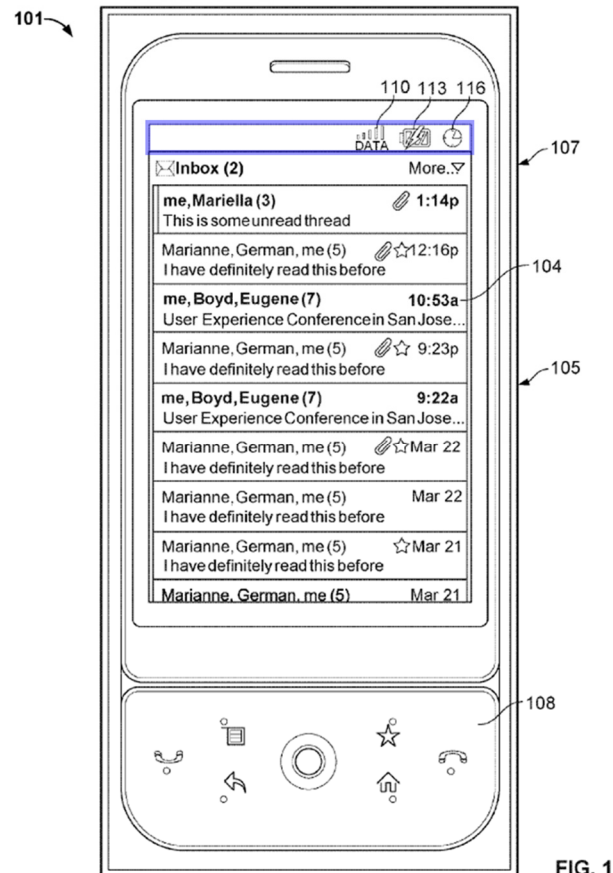
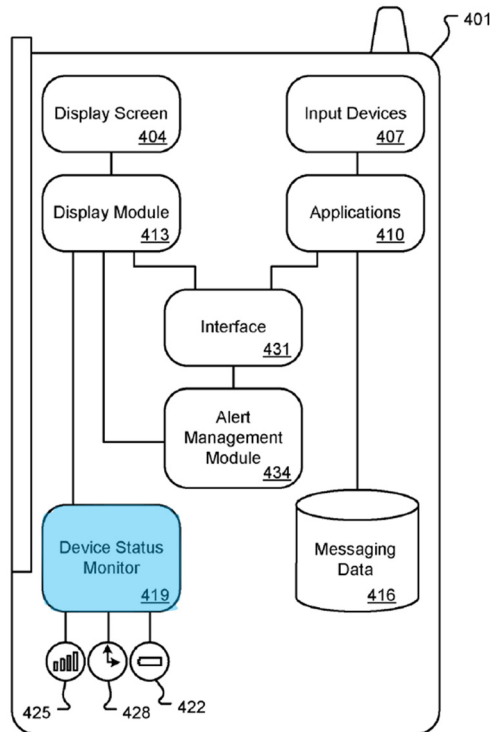


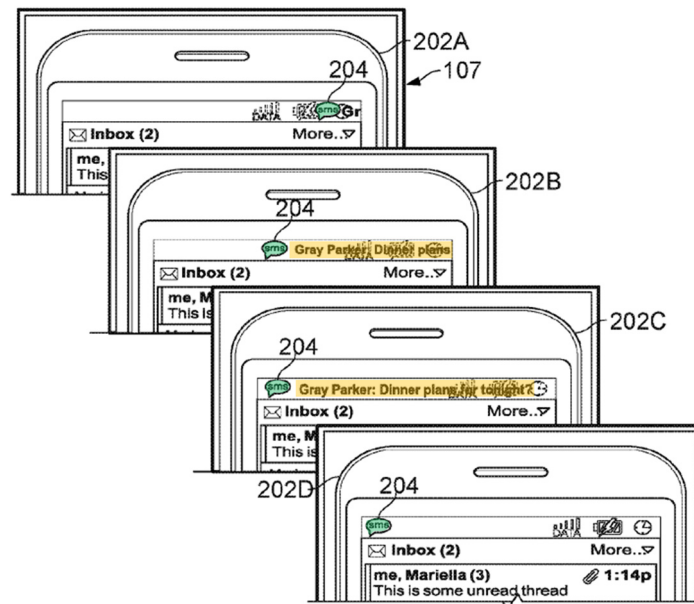
FIG. 1

(EX1007, FIG. 1.) Mobile device 101 includes a display screen 104 for displaying graphical information to the user (*id.*, 4:52-58), where screen 104 includes an application area 105 for, e.g., displaying a messaging application and a status bar 107 that displays various system status information, e.g., signal-strength indicator 110, battery icon 113 indicating the remaining battery power (*id.*, 5:3-38). Bauer also discloses a device status monitor 419 that monitors various system aspects described above. (*Id.*, 11:50-12:11, FIG. 4.)



(EX1007, FIG. 4.) Thus, a person of ordinary skill in the art would have been motivated to consider the teachings of Bauer when implementing Yook’s system/method that likewise provides a screen for displaying applications and device status on a status bar.

82. Bauer additionally discloses that, when a short message service (SMS) message is received, an icon 204 and preview content are displayed and “scrolled across the status bar 107.” (EX1007, 6:14-25.) “The message preview may include the full text of very short messages, or it may include a first portion or snippet of the message....” (*Id.*, 6:25-29.)



(EX1007, FIG. 2A.) “[W]hile the interactive indicator 204 scrolls across the status bar 107, the prominence of other status information may be reduced,” e.g., “the intensity of the static indicators 110, 113 and 116 is reduced, and the interactive indicator (e.g., the icon 204 and the corresponding preview) are superimposed over the static indicators.” (*Id.*, 6:33-39.) “Once the preview content associated with the interactive indicator 204 is removed, the intensity of the static indicators may be restored.” (*Id.*, 6:39-42.) Likewise, when an email message is received, a preview of the email content is scrolled across status bar 107, similar to the preview of a SMS message discussed above. (*Id.*, 6:47-61; *see also id.*, 7:22-27

(disclosing that the preview/context of the SMS message may “may appear as soon as the corresponding SMS or email message is received”).)

83. Given that Bauer discloses displaying preview(s) of received SMS and/or email messages, including previewing textual content of the messages on a status bar, Bauer discloses “modifying the display of the annunciator window includes displaying the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message” as recited in claim 2. Moreover, because Bauer discloses the previewed text scrolling through the status bar are temporarily “superimposed over” other status indicator/icon, e.g., signal strength indicator (“connectivity status”) and battery icon (“device status”) (*see* FIG. 2A above), Bauer discloses “wherein modifying the display of the annunciator window further includes: displaying the changed state across a portion of the annunciator window; and masking at least one icon representing the device status, connectivity status, or messaging status” as recited in claim 3. (EX1001, 26:45-50 (“In another aspect of the invention,...a longer alert or message having greater text or data content can span across the entire annunciator window 1100, thereby *temporarily masking* or covering the other icons for a period of time until the alert or message is cleared by the user.”))

84. A person of ordinary skill in the art would have been motivated to implement the text preview features associated with the received messages (including providing preview of the message content and temporarily superimposing the previewed text over other status indicators/icons) similar to as discussed in Bauer (*see above*) when implementing Yook's system/method. A person of ordinary skill in the art would have found these features beneficial because previewing the message content would have allowed a user to quickly and efficiently parse the content of the message without requiring additional user input (e.g., to tap on the message icon in order to view its content). Superimposing the previewed text over other status indicators/icons would have allowed the status bar to display more content than providing preview only in the empty space of the status bar.

85. A person of ordinary skill in the art would have had the skill in implementing, and expectation of success in achieving, the above-discussed Yook-Bauer combination. It was well known to provide preview of message content and superimposing the previewed text over other status indicators/icons in a status bar. Moreover, the Yook-Bauer combination would have involved applications of known technologies (e.g., known use of a status bar to display indicator/icons to

show battery and/or signal strength status) according to known methods (e.g., known techniques for providing preview of text/email messages superimposed over other indicators/icons on a status bar) to yield the predictable result of modifying the status bar by providing a preview of message(s) superimposed over other indicators/icons to improve user experience. Accordingly, Yook in view of Bauer discloses and/or suggests “modifying the display of the annunciator window includes displaying the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message” as recited in claim 2 and “wherein modifying the display of the annunciator window further includes: displaying the changed state across a portion of the annunciator window; and masking at least one icon representing the device status, connectivity status, or messaging status” as recited in claim 3 below.

2. **Claim 3: “The method of claim 1, wherein modifying the display of the annunciator window further includes: displaying the changed state across a portion of the annunciator window; and masking at least one icon representing the device status, connectivity status, or messaging status, wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device.”**

86. Yook in view of Bauer discloses and/or suggests these limitations. As discussed for claim 2, the Yook-Bauer combination discloses and/or suggests “wherein modifying the display of the annunciator window further includes: displaying the changed state across a portion of the annunciator window; and masking at least one icon representing the device status, connectivity status, or messaging status.” (Section IX.B.1.)

87. Additionally, for reasons explained above for claim 9 in Section IX.A, under the assumption that the claimed “wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device” is met by *a single physical screen* that is divided into multiple displays, Yook discloses “wherein the first display is **on a first screen** of the multi-display device, and wherein the second display is on a **different second screen** of the multi-display device.” (Section IX.A.4.)

3. **Claim 7: “The non-transitory computer-readable medium of claim 6, wherein the instructions to modify the display of the annunciator window further comprise instructions to display the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message.”**

88. Yook in view of Bauer discloses and/or suggests this limitation. First, for reasons discussed for claim 6 (including limitation [6.f]), Yook discloses and/or suggests “instructions to modify the display of the annunciator window...” (Section IX.A.3(vii).) Second, for reasons discussed for claim 2 above, the Yook-Bauer combination discloses and/or suggests “modify[ing] the display of the annunciator window further comprise instructions to display the changed state including text corresponding to at least one of a calendar notification, a phone message, an email message, or a text message.” (Section IX.B.1.)

4. **Claim 8: “The non-transitory computer-readable medium of claim 6, wherein the instructions to modify the display of the annunciator window further comprise: instructions to display the changed state across a portion of the annunciator window; and instructions to mask at least one icon representing said device status, connectivity status, or messaging status, wherein the first display and the second display are on a common first screen of the multi-display device.”**

89. Yook in view of Bauer discloses and/or suggests this limitation. First, as discussed for claim 6 (including limitation [6.f]), Yook discloses and/or suggests

“instructions to modify the display of the annunciator window....” (Section IX.A.3(vii).) Second, for reasons discussed for claim 3 above, a person of ordinary skill in the art would have included in the “instructions” to “display the changed state across a portion of the annunciator window” and “mask at least one icon representing said device status, connectivity status, or messaging status.” (Section IX.B.2.)

90. Third, for reasons discussed for claim 2 above, Yook discloses “the first display and the second display are on a **common first screen** of the multi-display device.” (Section IX.B.1.)

5. Claim 19: “The device of claim 1, wherein the information showing the device status and the connectivity status are in physical proximity.”

91. Yook in view of Bauer discloses and/or suggests this limitation.³ As discussed for claim 1, Yook discloses displaying information that indicates “device

³ While the precise bounds of the claimed “the information showing the device status and the connectivity status are *in physical proximity*” are unclear, I have been asked to assume that they would at least encompass the arrangement of icons 1108 and 1110 shown in Figures 7 and 8 of the ’135 patent. (EX1001, FIGS. 7-8.)

status,” e.g., battery status (top right of Figure 3), and “connectivity status,” e.g., mobile device signal strength status (top left of the figure). (Section IX.A.1; EX1005, FIG. 3.)

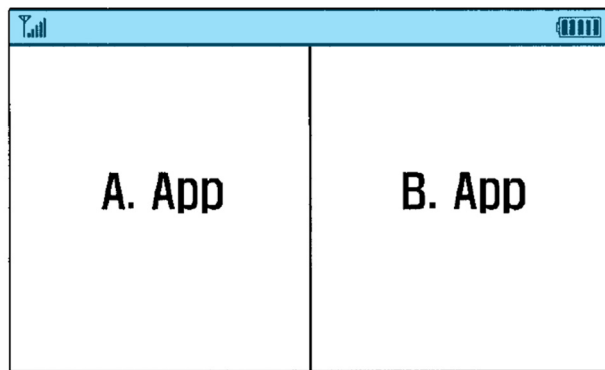


FIG. 3 <301>

(EX1005, FIG. 3.) To the extent that Yook does not disclose “the information showing the device status and the connectivity status are in physical proximity,” a person of ordinary skill in the art would have been motivated to implement this feature in view of Bauer.

92. For example, as discussed for claim 2, a person of ordinary skill in the art implementing Yook would have been motivated to consider Bauer’s teaching. (Section IX.B.1.) As shown in Figure 1 below, Bauer discloses that the “device status,” e.g., battery status (green), and the “connectivity status,” e.g., mobile device signal reception status (yellow) are next to each other, i.e., “in physical

proximity.” Thus, Bauer discloses “the information showing the device status and the connectivity status are in physical proximity.”

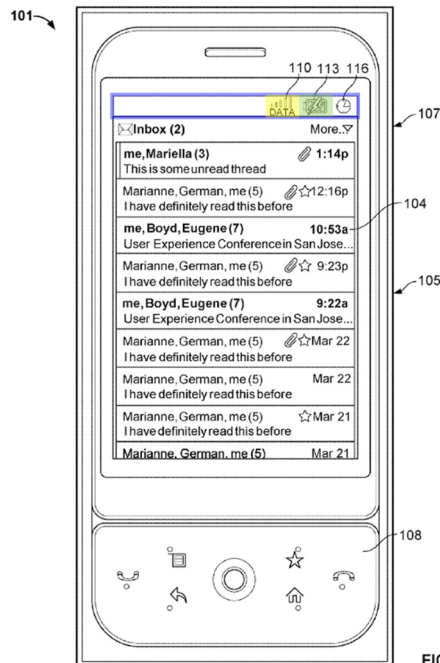


FIG. 1

(EX1007, FIG. 1.)

93. In addition to the reasons discussed above for claim 2 (Section IX.B.1), a person of ordinary skill in the art would have been motivated to modify Yook in view of Bauer to place the icons for “device status” and “connectivity status” in physical proximity as it would have allowed users to view the associated status information near a single location on a display, which improves efficiency and user experience.

94. A person of ordinary skill in the art would have had the reasons and skill in implementing, and reasonable expectation of success in achieving, the above-discussed Yook-Bauer combination. (*See* my discussions in Section V.B.) Indeed, the Yook-Bauer combination would have involved applications of known technologies (e.g., known use of a status bar to display indicator/icons to show battery and/or signal status) according to known methods (e.g., known techniques for configuring status icons, including its locations) to yield the predictable result of modifying the status bar such that the status icons are located in close physical proximity to improve user experience.

C. Yook in View of Lee Discloses and/or Suggests Claims 1, 5-6, 9, 15, and 20

1. Claims 1 and 6

95. For reasons explained in Section IX.A, Yook discloses and/or suggests claims 1 and 6. (*See* Sections IX.A.1 and IX.A.3) As discussed for claim 1, Yook discloses a single physical screen 140 including the “first display” and the “second display.” (E.g., Sections IX.A.1(i)-IX.A1(v).) I have been asked to consider a scenario where claims 1 and 6 are interpreted to require two physical screens, where, for example, the “first display” is shown on one screen and the “second display” is shown on the other screen. In that scenario, a person of

ordinary skill in the art would have been motivated to configure Yook in view of Lee to include such features. Thus, for reasons above for claims 1 and 6 in Section IX.A (Sections IX.A.1, IX.A.3) and those further below, the Yook-Lee combination discloses and/or suggests claims 1 and 6.

96. Like Yook, Lee discloses a mobile terminal providing graphical user interfaces for various applications, such as video broadcasting and call functions. (EX1008, Abstract (“executing a call function using the mobile terminal are provided such that the call function is executed in the mobile terminal including...various graphic user interfaces...displayed to a user...”), 8:37-38 (“provide the broadcasting application through the first touch screen 151a.”)) Thus, a person of ordinary skill in the art would have been motivated to consider Lee’s teachings when implementing Yook’s system/method that likewise provides graphical user interfaces with respect to various applications on a mobile terminal.

97. Lee additionally discloses that its terminal may include a first body 101 and a second body 102, each having a touch screen 151a or 151b, where the bodies are combined with each other through a combining part 195. (EX1008, 7:5-13, 7:29-34.)

Declaration of Dr. Sandeep Chatterjee
U.S. Patent No. 9,141,135

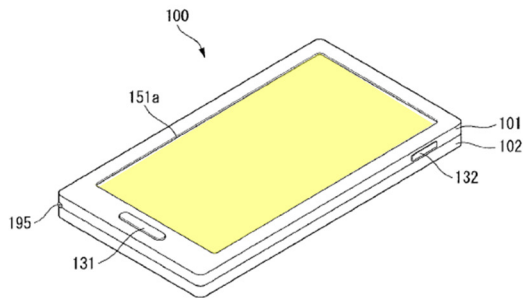


FIG. 2A

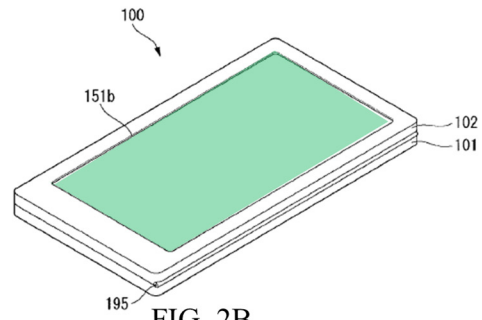


FIG. 2B

(EX1008, FIGS. 2A, 2B.)

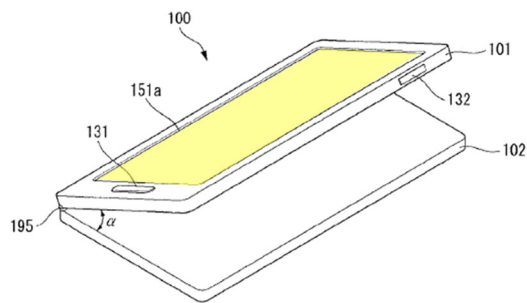


FIG. 3A

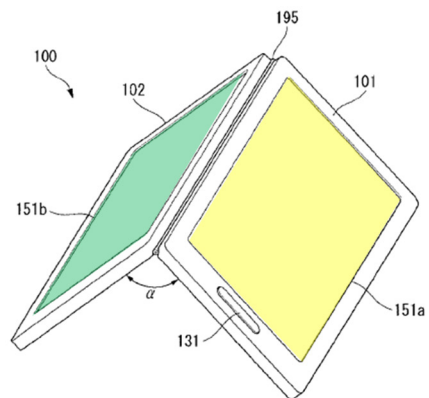


FIG. 3B

(EX1008, FIGS. 3A, 3B.)

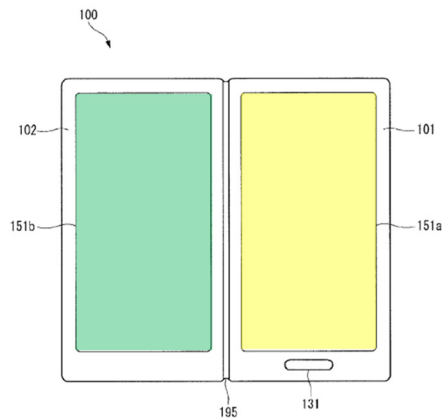


FIG. 4A

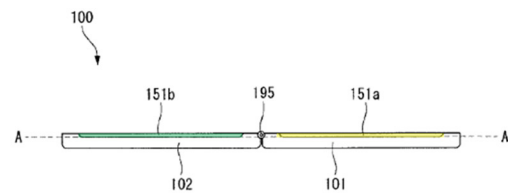
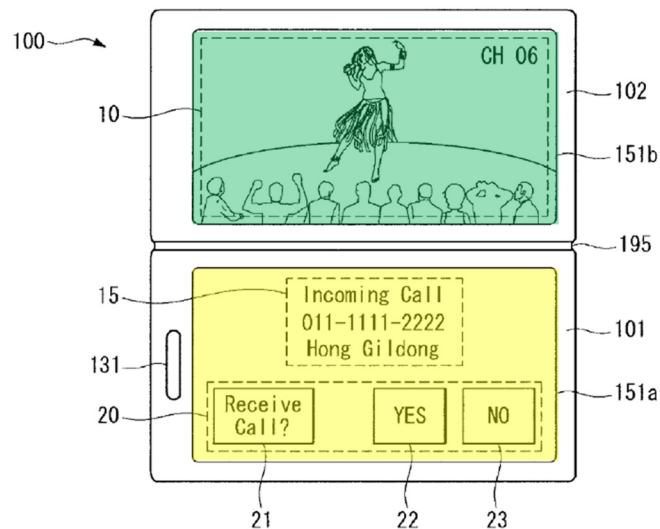


FIG. 4B

(EX1008, FIGS. 4A, 4B.) Lee explains that the first and second bodies may be placed in a “closed status” (Figures 2A, 2B), a “half open status” (Figures 3A, 3B), and a “fully open status” (Figures 4A, 4B). (*Id.*, 7:21-28.) Additionally, Lee discloses displaying different applications on different displays, where each display is on a different screen. (EX1008, 8:37-64 (displaying a broadcasting application on screen 151b and displaying a call application on screen 151a).)



98. A person of ordinary skill in the art would have been motivated to implement the dual screen feature similar to as discussed in when implementing Yook's system/method. For instance, a person of ordinary skill in the art would have found the dual screen feature beneficial because it would have increased the viewable area to users, allowing users to view text in larger font sizes, more or larger images, more information/detail, and/or interact with additional graphical user interfaces. Both Yook and Lee recognize and appreciate the benefits of expanding the screen size on a mobile device. (EX1005, [0005] ("A mobile terminal can have a touch screen embedding a touch pad, in which case the screen size can be expanded by removing the keypad. Thanks to advances in display technology, screen sizes of mobile terminals have been significantly increased."));

EX1008, 1:18-20 (“it is inconvenient for a user to operate the mobile terminal due to a restriction on size of the display of the mobile terminal.”); EX1009, [0048] (describing that expanding an image from a single screen to a dual screen setup allows “display[ing] any detail missing from the original main image”).)

99. Lee’s dual screen feature would have allowed, for example, increasing the viewable area when the mobile terminal is placed in the fully open position (EX1008, FIGS. 4A, 4B), where the two screens collectively display a single image (*id.*, FIG. 6B). Lee’s dual screen feature also allows placing the mobile terminal in a closed position (*id.*, 2A, 2B) that is more compact than the open position. Thus, Lee’s dual screen feature would not have compromised the mobile device’s portability. Additionally, when the terminal is placed in a half open position (*id.*, FIGS. 3A, 3B), it “provides convenience to the user since the mobile terminal may be placed on, e.g., a table, and the user can watch a broadcast without holding the mobile terminal.” (*Id.*, 8:37-47.) Accordingly, a person of ordinary skill in the art would have found implementing the dual screen feature, similar to that of Lee, beneficial.

100. A person of ordinary skill in the art would have had the skill in implementing, and expectation of success in achieving, the Yook-Lee combination.

Dual-screen mobile devices were well-known at the time of the alleged invention. (See, e.g., EX1009, [0048] (“mobile terminal displaying that a main image of the first display screen expands to the second display screen in accordance with an embodiment of the present invention.”).) It was also well known to display status information across two screens, similar to how the status bar is displayed across two displays on a single screen in Yook. (*Id.*, [0048] (disclosing auxiliary information shown across two screens/displays displaying status of a music player, such as “play time” of a music file), FIGS. 6-8.) Moreover, the Yook-Lee combination would have involved applications of known technologies (e.g., known use of multiple physical screens on a mobile terminal) according to known methods (e.g., known techniques for providing graphical user interfaces on multiple displays) to yield the predictable result of a mobile terminal having two physical screens, similar to as discussed in Lee, to provide improved user experiences.

101. Consistent with the above and as an example, a person of ordinary skill in the art would have been motivated to implement the Yook-Lee combination such that it displays a “first application” on a “first display” on one of the screens and displays a “second application” on a “second display” on the other screen

when the mobile terminal is placed in the fully open position, as this would have allowed the maximum viewable area for users. (*See, e.g.*, EX1008, FIGS. 4A, 4B.)

102. Moreover, a person of ordinary skill in the art would have likewise been motivated to implement the Yook-Lee combination such that the status bar is displayed in a way similar to Yook's teaching, i.e., displaying the status bar (including the status indicators/icons updated according to various status information) across "a first portion of the first display and a second portion of the second display" without "degrad[ing] the display of information by the selected first and second desktops or applications." Such a feature would have allowed users to track various statuses associated with the mobile device and allowed additional icons indicating statuses to be displayed on the status bar across the larger viewable area comprising two screens. Additionally, Lee discloses allowing a user to select between a single screen mode (EX1008, FIG. 6(a)) and a dual screen model (*id.*, FIG. 6(b)). (EX1008, 8:37-48, 12:27-37.) A person of ordinary skill in the art would have likewise been motivated to implement such a feature in the Yook-Lee combination as it would allowed additional flexibility in operation, e.g., allowing "a hands free display mode" (*id.*, 8:37-43), where multiple displays are shown on a single screens similar to as taught in Yook.

103. Moreover, the Yook-Lee combination discloses and/or suggests limitations [1.a] and [6.b] (limitations associated with “the multi-display device” being in “an open state” with first display and second display “facing in a same direction”) because Lee discloses (with reference to Figures 4A and 4B) screens 151a and 151b are facing the same direction, where the “the first body 101 and the second body 102 [of the mobile terminal] in a fully open status.” (EX1008, 7:24-26.)

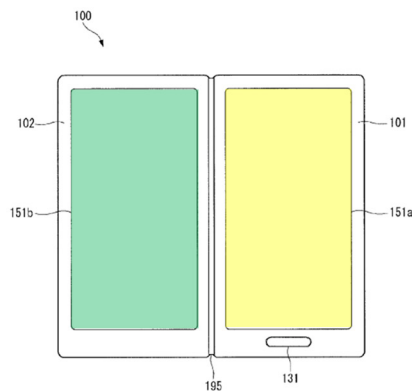


FIG. 4A

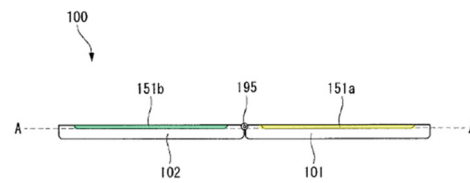


FIG. 4B

104. Accordingly, for the reasons above, and those for the remaining limitations of claims 1 and 6 above in Sections IX.A.1 and IX.A.3, Yook in view of Lee discloses and/or suggests claims 1 and 6.

2. Claims 5, 15, and 20

105. Yook discloses and/or suggests the limitations recited in claims 5, 15, and 20 for the same reasons discussed above for claim 1 (Section IX.C.1) and those above for claims 5, 15, and 20 in Section IX.A (Sections IX.A.2, IX.A.5, IX.A.6).

3. Claim 9: “The non-transitory computer-readable medium of claim 6, wherein the instructions to configure the annunciator window further comprise instructions to display the annunciator window across adjacent upper or lower edges of the first and second displays, wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device.”

106. Yook in view of Lee discloses and/or suggests this limitation. Yook discloses “wherein the instructions to configure the annunciator window further comprise instructions to display the annunciator window across adjacent upper or lower edges of the first and second displays” for the same reasons discussed above for claim 9 in Section IX.A. (Section IX.A.4.) The Yook-Lee combination discloses and/or suggests “wherein the first display is on a first screen of the multi-display device, and wherein the second display is on a different second screen of the multi-display device” because the combination discloses/suggests two physical

screens each include a “display” displaying an application as discussed above for claims 1 and 6 in Section IX.C. (Section IX.C.1.)

D. Yook in View of Bauer and Lee Discloses and/or Suggests Claims 2-3, 7-8, 16, and 19

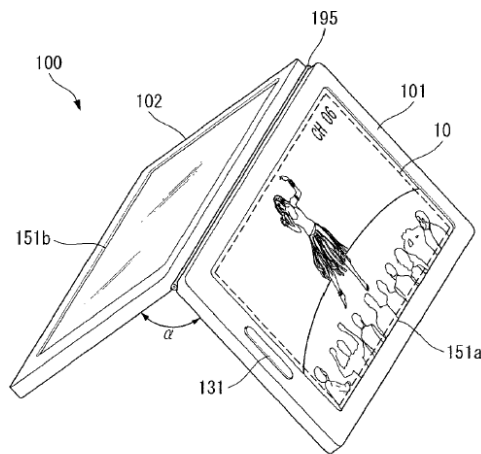
1. Claims 2-3 and 7-8

107. As explained in Section IX.B, Yook in view of Bauer discloses and/or suggests claims 2-3 and 7-8. (Sections IX.B.) Also as explained in Section IX.C.1, in the scenario where claims 1 and 6 are interpreted to require two physical screens, the Yook-Lee combination discloses/suggests those features and the remaining limitations of claims 1 and 6. (Section IX.C.1.) Moreover, given that the modification in view of Lee relates to use of two physical screens, the analysis in Section IX.C likewise applies to the Yook-Bauer combination.

108. To be sure, as discussed for claims 1 and 6 in Section IX.C, while the Yook-Bauer combination includes two physical screens, a user may select a single screen mode to allow “a hands free display mode,” where multiple displays may be shown on a single screen similar to as taught in Yook. (Section IX.C.1.) Thus, the Yook-Bauer combination discloses and/or suggests claims 2 and 8, including the limitation “wherein the first display and the second display are on *a common first*

screen of the multi-display device.” Accordingly, the Yook-Bauer-Lee combination discloses and/or suggests claims 2-3 and 7-8.

109. For instance, Lee teaches a mobile device having two physical screens but the user may choose to use one screen at a given time, as shown in Figure 6(a) below. (EX1008, 8:37-48, 12:27-37, FIGS. 6(a)-6(b); Section IX.C.1.)



(EX1008, FIG. 6(a).)

110. Yook discloses the known use of multiple displays on a common screen. (EX1005, [0036]-[0037]; Section IX.A.1.) For the same rationale and teachings discussed in Sections IX.B-IX.C, a person of ordinary skill in the art would have been motivated to configure the Yook-Bauer device (Section IX.B) to have multiple screens with the option of using a single screen at desired times (based on the teachings of Lee (Section IX.C)) to display information in multiple

displays on that single screen as taught by Yook. Accordingly, for similar motivations and expectation of success regarding the rationale for combining the teachings of Yook-Bauer and Yook-Lee, a person of ordinary skill in the art would have been motivated to configure the Yook-Bauer-Lee combination such that a single screen of the multiple screen modified device provides multiple displays (like taught in Yook), such as to allow hands-free operations as discussed above in Section IX.C.1. Thus, the combination discloses/suggests claim 2.

111. The analysis in Section IX.B demonstrates that the Yook-Bauer combination discloses and/or suggests the “modifying” limitations of claim 3. (Section IX.B.2.) As explained immediately above, and in Sections IX.B.2 and IX.C.1, a person of ordinary skill in the art, in light of Lee’s teachings, would have been motivated to configure the Yook-Bauer device to include two different screens. While a person of ordinary skill in the art would have been motivated to operate the Yook-Bauer-Lee device using one of the screens (e.g., hands-free mode as discussed for claim 2), such a person would have likewise been motivated to operate the combined device in a dual screen mode, where the first and second displays (as discussed above for claim 1) were provided on different respective screens as recited claim 3, e.g., to provide an increased viewable area to users.

(Section IX.C.1.) Moreover, for reasons explained here for claims 2-3 (and in Section IX.B), the Yook-Bauer-Lee combination discloses/suggests the limitations of claims 7-8. (*Id.*; Section IX.B.)

2. Claim 16: “The device of claim 3, further comprising a hinge configured to connect the first screen with the second screen.”

112. Yook in view of Bauer and Lee discloses and/or suggests this limitation. As explained above, a person of ordinary skill in the art would have been motivated to configure the Yook-Bauer combination to include separate screens in light of Lee, demonstrating how the Yook-Bauer-Lee combination discloses/suggests claim 3. (Section IX.D.1.) In addition to the teachings above, a person of ordinary skill in the art would have also recognized that Lee discloses a “hinge” may be used to connect the separate screens (e.g., the first touch panel and the second touch panel). (EX1008, 14:22-25.) In light of such teachings, and for similar rationale/teachings discussed above for claim 3 (Section IX.D.1), a person of ordinary skill in the art would have been motivated to configure the Yook-Bauer-Lee device such that the two physical screens were connected by using one or more hinges to facilitate efficient and user-friendly use of the multiple display device in a manner consistent with that taught by Lee. For example, consistent

with as disclosed in Lee, such a feature would have allowed the two screens to be folded for improving portability and opened for increasing viewable area(s).

(EX1008, 14:22-25 (“the first and second touch panels are connected to each other by at least one hinge such that the first and second touch panels are foldable relative to each other”); Section IX.C; EX1008, 7:21-28 (Lee explaining that the first and second bodies may be placed in a “closed status” (Figures 2A, 2B), a “half open status” (Figures 3A, 3B), and a “fully open status” (Figures 4A, 4B)).)

113. A person of ordinary skill in the art would have had the skill in implementing, and expectation of success in achieving, the above-discussed modification. Use of a hinge to connect a foldable motile device was well-known at the time of the alleged invention. (EX1009, [0028] (“the mobile terminal is a folder type comprising the first body 13, the second body 15 and a **hinge** or connector portion 17, wherein the first and second bodies are movable relative to each other and are configured to have a same display orientation.”).) Moreover, the implementation would have involved applications of known technologies (e.g., mobile terminal having two physical screens) according to known methods (e.g., known techniques of using a hinge to connect two screens/portions of a mobile device) to yield the predictable result of a mobile device having foldable screens.

3. Claim 19: “The device of claim 1, wherein the information showing the device status and the connectivity status are in physical proximity.”

114. As discussed for claim 19 in Section IX.B, the Yook-Bauer combination discloses and/or suggests “the information showing the device status and the connectivity status are in physical proximity.”⁴ (Section IX.B.) For similar reasons, a person of ordinary skill in the art would have been motivated to implement similar features in the Yook-Bauer-Lee combination discussed above in Section IX.D (e.g., relating to claims 2-3, and independent claim 1 (incorporated from Sections IX.B.1-B.2 and IX.A) likewise discloses and/or suggests claim 19 given that Lee’s teachings associated with implementing separate screen features would not have affected a person of ordinary skill in the art rationale for modifying the Yook-Bauer combination’s teachings relevant to the features discussed above for claim 19. (Section IX.B.1-2, IX.B.5.) As such, for similar collective reasons

⁴ While the precise bounds of the claimed “the information showing the device status and the connectivity status are *in physical proximity*” are unclear, I have been asked to assume that they would at least encompass the arrangement of icons 1108 and 1110 shown in Figures 7 and 8 of the ’135 patent. (EX1001, FIGS. 7-8.)

Declaration of Dr. Sandeep Chatterjee
U.S. Patent No. 9,141,135

and teachings, the Yook-Bauer-Lee combination discussed above (Section IX.D.1)
discloses/suggests claim 19.

Declaration of Dr. Sandeep Chatterjee
U.S. Patent No. 9,141,135

X. CONCLUSION

115. 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