

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOTOROLA MOBILITY LLC AND GOOGLE, LLC

Petitioners,

v.

MULTIFOLD INT'L INC. PTE. LTD.,

Patent Owner

Case No.: IPR2025-00041

U.S. Patent No. 9,058,153

Issue Date: June 16, 2015

Title: Minimizing Application Windows

**DECLARATION OF JEFFREY J. RODRIGUEZ
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 9,058,153**

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I, Jeffrey J. Rodriguez, declare as follows:

I. INTRODUCTION

1. I have been retained by counsel for Petitioners Motorola Mobility LLC and Google LLC as an expert in this *inter partes* review to examine whether claims 1, 3-7, 9, 10, 17, 18, and 20 of U.S. Patent No. 9,058,153 (the '153 patent or Patent in Suit) are patentable over certain prior art.

2. I am being compensated for my work in this matter at my usual consulting rate for the time I spend on this matter. Neither my engagement nor my compensation depends on the particular opinions I express, the testimony I give, or the outcome of this or any other proceeding. I have been informed that the alleged owner of the '153 patent is Multifold Int'l Inc. Pte. Ltd. ("Patent Owner"). To the best of my knowledge, I have no financial interest in Patent Owner or Petitioners.

3. I expect to be available for deposition and to testify at the evidentiary hearing in this *inter partes* review to the extent required.

4. This declaration contains a summary of my conclusions; an overview of my qualifications as an expert; an overview of the scope and terms of my engagement for this declaration; an overview of the materials I have considered in arriving at my conclusions; an overview of the terminology and legal principles that I applied in my analysis; an overview of the technical background of the subject matter; an overview of the Patent in Suit; an analysis of the level of ordinary skill in the art related to the

Patent in Suit; an analysis of the asserted references; and a patentability analysis of the challenged claims.

5. This declaration is based on information currently available to me. I may continue my investigation and study, which may include a review of documents and information that may yet be produced, as well as deposition testimony from depositions for which transcripts are not yet available or that may yet be taken in this review. Therefore, I expressly reserve the right to expand or modify my opinions as my investigation and study continue, and to supplement my opinions in response to any additional information that becomes available to me, any matters raised by Petitioners or Patent Owner and/or other opinions provided by their expert(s), or in light of any relevant orders from the Patent Trial and Appeal Board or other authoritative body.

II. QUALIFICATIONS, PUBLICATIONS, AND PRIOR TESTIMONY

6. My curriculum vitae is attached hereto as Ex. 1009, which provides an accurate identification of my relevant background and experience. I am a professor at The University of Arizona in the Department of Electrical & Computer Engineering, where I hold or have held the following positions: (a) Associate Professor of Electrical & Computer Engineering, with tenure (1997–present), (b) Associate Professor of Biomedical Engineering, with tenure (2017–present), (c) Director of ECE Online Programs (2023–present), (d) Director of the Signal and Image Laboratory (1990–

present), (e) Director of Image Analysis, Cancer Imaging Shared Services, Arizona Cancer Center (2009–2014), (f) Co-Director of Connection One, a National Science Foundation industry/university cooperative research center for wired and wireless communication circuits and systems, (g) Director of Graduate Studies for the Department of Electrical & Computer Engineering (2000–2003, 2005–2016).

7. My formal education includes a Bachelor of Science degree in Electrical Engineering from the University of Texas at Austin in May 1984, a Master of Science degree in Electrical Engineering from the Massachusetts Institute of Technology in June 1986, and a Ph.D. Degree in Electrical Engineering from the University of Texas at Austin in May 1990.

8. I teach courses at both the graduate and undergraduate level through the Dept. of Electrical & Computer Engineering and the College of Optical Sciences. The courses I have taught include Digital Image Processing, Digital Image Analysis, Digital Signal Processing, Advanced Digital Signal Processing, Signals and Systems, and Circuit Analysis. I have been awarded the Outstanding Teaching Award by the IEEE and Eta Kappa Nu (IEEE-HKN), given by students at The University of Arizona to one outstanding professor each year.

9. My research activity focuses on systems for digital signal/image/video processing and analysis. My research activities include automated algorithms for detection/analysis/classification of objects using machine learning and conventional

methods, efficient management of large image databases for training machine learning systems, quality assessment of medical image display devices, and applications in medical image analysis, automobile tracking, driver distraction detection, animal species classification, and real-time video processing for motion analysis.

10. One project involved determining the modulation transfer function (MTF) of medical image display devices. The prior methods typically involved measuring the response to square waves, white noise, and/or line stimuli, but these methods can be tedious and sensitive to noise. We proposed two novel methods: (1) subtracting a shifted edge-spread function from the edge-spread function followed by Fourier analysis, and (2) applying a low-pass differentiator to the edge-spread function followed by Fourier analysis. Experimental performance analysis demonstrated that the new methods were less labor-intensive and reduced the high-frequency noise associated with prior methods.

11. Another project involved the design and development of a real-time image and video processing system for automated detection and behavioral analysis of zebrafish for use in ototoxicity assessment of drugs. The system we designed and built includes an array of Raspberry Pi microcomputer systems configured for parallel video capture of sixteen zebrafish populations. Each Raspberry Pi features a system on a chip, which includes a CPU, a video graphics processing unit (GPU), a disk storage system, and a memory system. Our zebrafish analysis system includes hardware and

software to automatically capture and transmit compressed MPEG video data to a local personal computer or to a high-performance computing cluster to decode the video and implement customized algorithms for detection of zebrafish pose and motion using multi-scale edge map analysis, resulting in automated assessment of zebrafish swimming behavior.

12. I am a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) and the IEEE Signal Processing Society. I served as Treasurer of the 2024 IEEE Southwest Symposium on Image Analysis and Interpretation (SSIAI), General Chair of SSIAI 2016, and General Chair of the 2007 IEEE International Conference on Image Processing (ICIP). In addition, I served on the IEEE Signal Processing Society Technical Committee on Image, Video, and Multidimensional Signal Processing (2005–2011) and served as Associate Editor of the *IEEE Transactions on Image Processing* (1996–2000). Over the years, I have served on numerous other professional committees, and I have served as a technical reviewer for numerous journals and professional conferences.

13. I am named as an inventor on a patent involving polar dynamic programming for automated image segmentation. I have authored or co-authored over 140 technical publications. Over the past 30 years, I have trained hundreds of students in signal/image/video processing, including directing the research of numerous graduate students, resulting in more than 50 graduate theses and dissertations. I have

served as an expert in patent cases since 2005, involving signal/image/video processing, data compression systems, video receivers, document cameras, cellular camera phones, signal/image/video transmission over wireless networks, etc.

14. My current curriculum vitae is attached as Exhibit A, which includes a detailed listing of my education, work experience, honors, awards, professional associations, publications, and a list of expert consulting activities during the past five years in which I have testified as an expert at deposition or trial.

III. MATERIALS REVIEWED

15. In forming my opinions, I have relied on my own knowledge and experience, including my education, training, and work experience in the field of electrical & computer engineering, my research and teaching experience, my experience in working with others in this field, and my experience in the design, development, and operation of relevant systems. I have relied on the documents and materials recited herein as well as those identified in this declaration, including the '153 patent, the prosecution history of the '153 patent, the prior art references, and information discussed and any other references specifically identified in this declaration, including the materials identified in the chart below.

Exhibit	Description
Ex. 1001	U.S. Pat. No. 9,058,153 to Sirpal
Ex. 1002	File History for U.S. Pat. No. 9,058,153 to Sirpal

Ex. 1004	U.S. Pub. 2010/0248788 A1 to Yook
Ex. 1005	U.S. Pub. 2008/0085759 A1 to Lee
Ex. 1006	U.S. Patent No. 8,677,284 B2 to Aguilar
Ex. 1007	U.S. Pub. 2007/0084645 A1 to Purcell
Ex. 1008	Features at a Glance - Windows XP Professional Features for IT Professionals, Microsoft Learn (Sep. 11, 2009); available at https://learn.microsoft.com/en-us/previous-versions/windows/it-pro/windows-xp/bb490858(v=technet.10) .
Ex. 1009	Curriculum Vitae of Dr. Jeffrey J. Rodriguez

16. To the best of my knowledge, I have listed all the materials I considered and reviewed. I may have inadvertently left some materials off the above list that I cited in my analysis below. Such materials, if any, should be included in the above list of materials I considered and reviewed. I reserve the right to supplement, amend, or modify the opinions set forth in this declaration or in any other declaration, report, witness statement, deposition, or in testimony.

IV. LEGAL PRINCIPLES

17. I am not an attorney and offer no legal opinions. For the purposes of this declaration, I have been informed about certain aspects of the law that are relevant to my analysis, as summarized below.

A. Interpretation of Claims

18. I have been advised that, for purposes of this *inter partes* review proceeding, the words of the claims should be given their ordinary and customary

meaning according to a person of ordinary skill in the art in question at the time of the invention. I have further been advised that the prosecution history is relevant to determining the correct construction of claim terms and that extrinsic evidence also may be relevant to establish the meaning of terms to the extent it is consistent with the specification and prosecution history.

B. Anticipation

19. I have been advised that a patent claim is “anticipated” and therefore invalid when a single prior art document describes, or a prior art product includes, every element recited, either expressly or inherently, in the claim. I have further been advised that, to be considered anticipatory, a written prior art reference must be enabling and describe the invention of the claim sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention.

20. I have further been advised that a prior art reference may anticipate a claim without disclosing an element of the claim if that missing element is necessarily present, or inherent, in the single anticipating reference as would be understood by one of ordinary skill in the art. I have been advised that inherency cannot be established by probabilities or possibilities; the mere fact that a certain thing may result from a given set of circumstances is not sufficient.

21. I have been advised that a patent claim is invalid if the claimed invention “was known or used by others in this country ... before the invention

thereof by the [patent] applicant.” 35 U.S.C. § 102(a). I have been advised that, to be invalidating, knowledge or use must be accessible to the public. I have been advised that whether use or knowledge is “public” is a fact-intensive question, the answer to which depends on such factors as whether some or all of the prior use or knowledge was maintained in confidence or as a trade secret, the existence of non-disclosure agreements or other confidentiality obligations imposed on members of the public who observed the use, the number of people involved, and the extent to which the use of the product informs an observer about the features of the claimed invention.

22. I have been advised that a patent claim is invalid if the claimed invention was “patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent” (35 U.S.C. § 102(a)) or the claimed invention was described in “a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent” (35 U.S.C. § 102(e)). I have been advised that the date of “the invention . . . by the applicant” in both § 102(a) and § 102(e) refers to the conception date of the claimed invention by the patent applicant.

23. I have been advised that a reference does not qualify as prior art under § 102(a) or § 102(e) if (1) the inventor conceived of the invention prior to the effective date of the reference and showed reasonable diligence in reducing the

invention to practice from a time just prior to the effective date of the reference or (2) the inventor reduced the invention to practice prior to the effective date of the reference. I have been advised that conception requires an inventor to form in his or her mind a definite and particular idea of a complete and operative invention, including every feature of the claim at issue. I have further been informed that there are two types of reduction to practice: actual reduction to practice (i.e., when all limitations of the claimed invention are embodied in a physical or tangible form that has been sufficiently tested to demonstrate it works for its intended purpose) and constructive reduction to practice (i.e., by the filing of a patent application).

24. I have been advised that a patent claim is invalid if the claimed “invention was patented or described in a printed publication in this or a foreign country . . . more than one year prior to the date of the application for patent in the United States” (35 U.S.C. § 102(b)). I have been advised that, to qualify as prior art, a printed publication must be shown to be accessible to the public (i.e., disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it).

C. Obviousness

25. I have been advised that a patent claim is “obvious” and therefore invalid when the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which the subject matter pertains.

26. In making an obviousness determination, I have been advised that there are several factors to consider: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art at the time the invention was made; (3) the differences between the claimed invention and the prior art, if any, and (4) objective considerations, if any exist, such as any commercial success, copying, prior failure by others, licenses, longstanding need, and unexpected results.

27. I have been advised that prior art used to show that a claimed invention is obvious must be “analogous art.” Prior art is analogous art to the claimed invention if (1) it is from the same field of endeavor as the claimed invention (even if it addresses a different problem) or (2) the reference is reasonably pertinent to the problem faced by the inventor (even if it is not from the same field of endeavor as the claimed invention).

28. I have been advised that a patent claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was independently known in the prior art, whether those references were set forth in a single reference or in a combination of references. Instead, it must have been obvious to arrange those elements in the same way as the elements in the claim.

29. I have been advised a single reference may be the basis for finding that a claim is obvious. When the obviousness determination relies on the combination of two or more references, however, the patent challenger must show that there is a reason, suggestion, or motivation that would lead one of ordinary skill in the art to combine prior art references.

30. I have been advised that there is no single way to define the line between true inventiveness on the one hand (which is patentable) and the application of common sense and ordinary skill to solve a problem on the other hand (which may not be patentable). For example, market forces or other design incentives may be what produced a change in the technology of the prior art, rather than true inventiveness. I have further been advised that explicit teachings or suggestions in the prior art to make the modification or combination of elements claimed in the patent may be evidence of obviousness. Further, an innovation may be obvious if it applies a known technique that had been used to improve a similar device or method in a similar way. I have been advised that a claimed invention may be found to be obvious to try if the claimed innovation was one of a relatively small number of possible approaches to the problem with a reasonable expectation of success by those skilled in the art.

31. However, I also been advised that it is improper to engage in hindsight when trying to determine the obviousness of a patent claim. Many true inventions

might seem obvious with the benefit of hindsight. I have been advised that the obviousness inquiry must be conducted from the standpoint of a person of ordinary skill in the field at the time the claimed invention was made. What is known today, and what is learned from the teachings and disclosures of the patent itself containing the claim under analysis, should not be considered. Nor should one use the patent claim as a guide to picking out elements of the prior art for combination.

32. I have been informed that various “secondary considerations” (sometimes referred to as objective indicia of non-obviousness) may support a determination of non-obviousness and that such secondary considerations must be considered as part of an obviousness analysis. I have been informed that secondary considerations of nonobviousness may include:

- commercial success of a product due to the merits of the claimed invention;
- a long felt need for the solution provided by the claimed invention;
- unsuccessful attempts by others to find the solution provided by the claimed invention;
- copying of the claimed invention by others;
- unexpected and superior results from the claimed invention; and
- acceptance by others of the claimed invention as shown by praise from others in the field or from the licensing of the claimed invention.

33. I have been advised that in order for such “secondary considerations” evidence to be relevant to the obviousness inquiry, there must be a relationship or

“nexus” between the advantages and features of the claimed invention and the evidence of secondary considerations.

34. I have been advised that if a claim element is not obvious, then the claims that depend from it are not obvious.

V. THE '153 PATENT

A. Synopsis of the '153 Patent

35. The '153 patent, titled “Minimizing Application Windows,” issued to Sanjiv Sirpal et al. on June 16, 2015. The '153 patent derives from U.S. Patent Application No. 13/249,103 (“Application”), which was filed on Sept. 29, 2011, and from U.S. Provisional Patent Application No. 61/389,087 (“Provisional”), which was filed on Oct. 1, 2010. The '153 patent is directed to a device and methods for minimizing application windows displayed on one or more displays of a multi-screen device. Ex. 1001, Abstract.

36. The '153 patent discloses that the alleged invention addresses “a need for a dual-multi-display handheld computing device that provides for enhanced power and/or versatility compared to conventional single display handheld computing devices.” Ex. 1001, 1:52-55.

37. The '153 patent identifies a method of organizing windows on a display. The method describes a process whereby a window is automatically minimized to a smaller area of a display when an input to open a second window is received. *Id.*, 1:60-

2:2. The end result is that where one window was displayed initially, now two windows can be simultaneously displayed. The '153 patent further claims the “non-transitory computer readable medium storing computer executable instructions that when executed by at least one processor perform” the method, as well as a dual screen communication device containing the same executable instructions. *Id.*, 2:3-25.

38. Figure 11 of the '153 patent is illustrative of the claimed method. In this flow, 1008 is described as an optional step where “a user may input any information that affects how a device may handle input gestures,” or in other words, it is an optional step for configuring a user’s individual settings. *Id.*, 28-31-32.

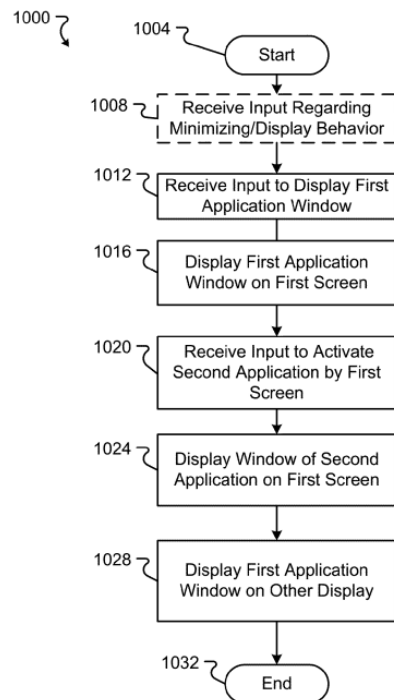


Fig. 11

B. Prosecution History of the '153 Patent

39. I have been informed that during prosecution, the Challenged Claims were subject to several rejections over prior art, including U.S. App. Pub. No. 2011/0230178 A1 (“Jones”). I have been further informed that, Applicants, in a September 3, 2014 Applicant Amendment and Response, amended the asserted claims to include limitations related to a “hinge” that connected the two physically separate screens as well as the automatic minimization of the first window when reduced from full display, and the examiner allowed the claims based on this amendment.

40. I have been further informed that, in a December 24, 2015 Amendment and Request for Continued Examination, Patent Owner deleted the term “hinge” from independent claim 1, and replaced the term “screen” with the term “display” in all three independent claims, but the applicants stated that no new matter was added by these amendments. *Id.* at 6.

C. Challenged Claims of the '153 Patent

41. My understanding is that Petitioner is requesting *inter partes* review of claims 1, 3-7, 9, 10, 17, 18, and 20 (“Challenged Claims”) of the '153 patent. The claims are recited as follows, where I have added reference labels (P), (A), (B), etc. to individual portions of the claim for convenience:

Limitation	Claim Language
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1[P]	A method, comprising:
1[A]	providing a device having a first display and a second display;
1[B]	displaying a first window of a multi-display application on the first display and the second display;
1[1C]	receiving an input to launch a second application; in response to receiving the input: displaying a second window of the second application on the second display; and
1[D]	in response to opening the second window, automatically minimizing the first window to fit the first display; and displaying the minimized first window of the multi-display application on the first display.
3	The method of claim 1, wherein the second application is a second multi-display application
4	The method of claim 1, wherein the minimized first window displays only a portion of the content displayed on the window of the multi-display application
5	The method of claim 1, further comprising: placing a focus on the second window of the second application.
6	The method of claim 1, wherein the input comprises a tap on the at least one of the first display or the second display.
7	The method of claim 6, wherein the tap is on an icon representing the second application.
9	The method of claim 1, wherein the first window of the multi-display application is displayed in one of a portrait max configuration and a landscape max configuration.
10	The method of claim 1, wherein the first and second displays are logical portions of a single screen.
17[P]	A dual display communication device, comprising:

17[A]	a first display of a first screen; a second display of a second screen;
17[B]	a non-transitory computer readable medium that stores computer executable instructions that when executed by at least one processor perform a method comprising:
17[C]	displaying a first window of a multi-screen application on the first display and the second display;
17[D]	receiving, by the first display, input to activate a second application; and in response to receiving the input: displaying a second window of the second application on the first display; and
17[E]	in response to opening the second window, automatically minimizing the first window to fit the second display; and displaying the minimized first window of the multi-display application on the second display.
18	The device of claim 17, wherein the minimized first window displays only a portion of the content displayed on the first window of the multi-display application, when the first window was displayed on the first and second touch sensitive displays.
20	The device of claim 17, further comprising: receiving second input to open a third application; opening a third window on the second display; and in response to receiving the second input, displaying the third window on the second display, wherein the first window is no longer displayed on the second display.

VI. LEVEL OF ORDINARY SKILL IN THE ART

42. For my analysis, I have been asked to assume that the date of the claimed invention is the filing date of the Provisional, but my opinions would be the same if the date of the claimed invention is determined to be the date of the Application. In

my opinion, the field of art pertaining to the '153 patent includes information display using a handheld computing device. In my opinion, a person of ordinary skill in the art at the time of the alleged invention would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with two years of experience in the field of user interface technologies, including e.g., graphical user interface technologies, or a related field. Additional education could offset a lesser amount of experience and vice versa.

43. In determining the characteristics of a POSITA, I considered several factors, including the type of problems encountered in the art, the solutions to those problems, the rapidity with which innovations are made in the field, the sophistication of the technology, and the education level of active workers in the field. I also placed myself back in the time frame of the claimed invention and considered the students and colleagues with whom I had worked at that time.

44. I am qualified as a person having at least this level of skill. Based on my education, training, and professional experience, I am familiar with the level and abilities of a POSITA. Indeed, I have participated in professional organizations and have taught, trained, and worked closely with many such persons over the course of my career, including prior to and around the time of the claimed invention.

45. I provide my analysis and opinions in this declaration from the perspective of a POSITA, as I have defined it above, during the relevant time frame stated above, where appropriate.

VII. CLAIM CONSTRUCTION

46. The '153 patent, including the claims at issue, use the terms “screen” and “display” as nouns. A POSITA would have understood that these terms can be used in the art in different ways. For example, the Yook reference discussed below uses the term “functional view area” to refer to a portion of a physical screen that can output an image to a user, while the Aguilar reference discussed below uses the term “display segment” to refer to the same, and so on.

47. The '153 patent expressly defines both “screen” and “display” (when used as a noun. “The term ‘screen,’ ‘touch screen,’ or ‘touchscreen’ 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.” Ex. 1001, 3:30-33. “The term ‘display’ refers to a portion of one or more screens used to display the output of a computer to a user.” Ex. 1001, 3:62-63. I have used these meanings of the terms “screen” and “display” in my analysis, and in my opinion, a POSITA would have used these same meanings in light of the clear definitions provided in the specification.

48. For all other claim terms, I have assumed the meaning as understood by a POSITA at the time of the claimed invention, where appropriate, in light of the patent's specification, claims, and file history.

VIII. TECHNOLOGY BACKGROUND

49. I rely on, and incorporate, the understandings below regarding such known concepts and technologies, to support my opinions regarding the knowledge of a POSITA at the time of the invention, where appropriate, and the motivations relating to the application of the prior art. The concepts, technologies, processes, and understandings discussed in this section would have been in the mind of a POSITA when contemplating the disclosures and/or suggestions in the prior art and when considering combining features from that prior art.

A. General Technology Background

50. When the Information Age began mid-20th century, portable handheld computers were a not-too-distant dream. As technology progressed, computing devices began to fluctuate in size as people became increasingly dependent on them and portability became a necessity. Devices began to race for smaller form factors that could fit in a pocket, then once such a size was achievable, the race turned around and began for larger and more powerful devices, but still handheld and portable. By the first decade of the 21st century, cellular phones, “personal digital assistants,” and e-readers had rooted themselves into everyday life and become household items.

51. By October 2010, the earliest claimed priority date of the '153 patent, handheld devices such as cell phones and personal digital assistants had long been known in the art and were in widespread use in society. Many of these devices, like those that are the subject of the '153 patent, had the capability to divide a screen area into multiple displays. Various prior art references describe these types of devices with some or all of these characteristics, most notably Yook, Lee, Aguilar, and Purcell, which are the focus of my declaration and discussed at length below.

52. U.S. Patent Application Publication No. 2010/0248788 A1 to Yook is directed to a multi-display and multi-screen device that includes a touch screen user interface. Ex. 1004, Figs. 1-13, ¶¶[0006]-[0009]. In particular, Yook discloses a method of “supporting divided screen areas and a mobile terminal employing the same.” Ex. 1004, Abstract. Yook further discloses a split-screen management program that is stored on the device for the purpose of “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.” *Id.* Yook provides multiple examples of how a user of the device can interact with the device and stored program in order to display multiple applications at once. *See, e.g.*, Figs. 3-13. For example, Yook describes several examples of opening two applications on two

separate displays and then switching between that view and one application displaying across both displays. *See, e.g., Id.*, ¶¶[0046]-[0047].

53. U.S. Patent Application Publication No. 2007/0085759 A1 to Lee is directed to a multi-display and multi-screen device that includes a touch screen user interface. Ex. 1005, Figs. 1-13, ¶¶[0006]-[0009]. In particular, Lee discloses a method of “displaying multi-media data and providing multitasking features and a mobile communications terminal capable of implementing the same.” *Id.*, Abstract. Lee further discloses a split-screen management program that is stored on the device for the purpose of “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.” *Id.* Lee provides an example of displaying one application across two separate displays and then switching to displaying two applications, one per separate display. *Id.*, ¶¶[0053]-[0054].

54. U.S. Patent No. 8,677,284 A1 to Aguilar is directed to a multi-display device that is able to display a single application across the entire screen, or divide the screen into multiple displays for multiple applications. Ex. 1006, Abstract, Figs. 4-9. Aguilar describes its invention and disclosure as directed to overcoming advances in computer technologies that have placed limitations on the use and functionality of smaller touchscreen devices. *Id.*, 1:14-22. To overcome these limitations, Aguilar

describes a touchscreen device that can be divided into multiple logical displays and display content from different applications at once, allowing a user to be able to multitask. *Id.*, 2:1-5, 26-41, 5:5-19, 6:48-7:63.

55. U.S. Patent Application Publication No. 2007/0024645 A1 to Purcell directed a system with multiple display monitors that is used to display multiple applications at the same time to a user. Ex. 1007, Abstract. Purcell notes that its multiple display system may be operated with the Windows operating system, which supported multiple application displays. *Id.*, ¶[0003]. Purcell notes that “to permit another application to execute concurrently and display an image window adjacent to an image window of the primary application, system 100 dynamically changes the primary application image window size to match that of a left monitor (monitor 115).” *Id.*, ¶[0016]. The system then “initiates execution of a secondary application that displays an associated image window on the right monitor (117).” *Id.* As part of the dynamic resizing described in Purcell, the primary application window changes size and is reduced to a portion of the amount of pixels it displays. *Id.*, ¶¶[0016], [0019].

IX. SUMMARY OF OPINIONS

56. Based on my knowledge and experience and the materials I have reviewed, I have formed the following opinions.

57. It is my opinion that claims 1, 3-7, 9, 10, 17, 18, and 20 (the “Challenged Claims”) of the ’153 patent are unpatentable over the prior art.

X. GROUND 1: ALL CHALLENGED CLAIMS ARE ANTICIPATED BY YOOK

58. I have reviewed and am familiar with U.S. Patent Pub. App. No. 2010/0248788 A1 (“Yook”) filed on March 22, 2010, claiming priority to provisional application number 61/163,259 filed on March 25, 2009, and published on September, 30, 2010.

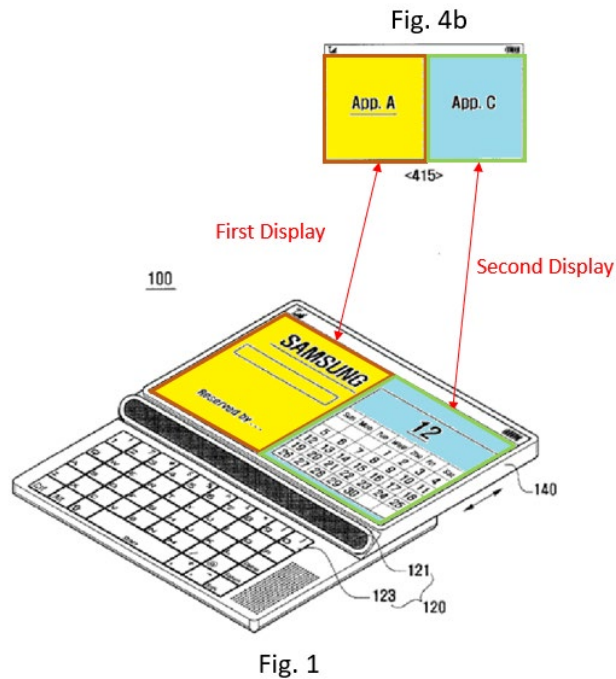
59. In my opinion, based on the following analysis, all Challenged Claims of the ’153 patent are invalid as anticipated by Yook.

A. Claim 1

1. [1P]: A method, comprising:

60. To the extent the preamble is limiting, in my opinion, Yook discloses this limitation at least because it discloses each element of the claimed method as described below.

61. Yook describes its system as implementing a “method of supporting divided screen areas” on a mobile terminal or similar device. Ex. 1004, Abstract. Yook provides an example device and then explains how a user may interact with the touchscreen displays of the device in order to display multiple applications at the same time. Ex. 1004, ¶[0024]. For example, the following annotated figure shows how Yook describes its system and methods:



Ex. 1004, ¶¶[0024]-[0033], [0047]-[0048].

62. As shown in the annotated figure above, Yook has at least two displays, shown in the orange and green boxes above, which are logical divisions of a single screen. For purposes of my analysis, and because the displays are logical areas that may move, I will denote a first display with an **orange** box and a second display with a **green** box. I note that this meets the definition provided by the '153 patent below for displays.

63. Yook also provides many examples of how a user can interact with the touchscreen displays to view a single application window across both displays, or divide an application window to display two windows for the same application across

both displays, or divide the screen into two displays so that the user can view two different applications across the two displays. Ex. 1004, Figs. 3-13.

2. [1A] providing a device having a first display and a second display:

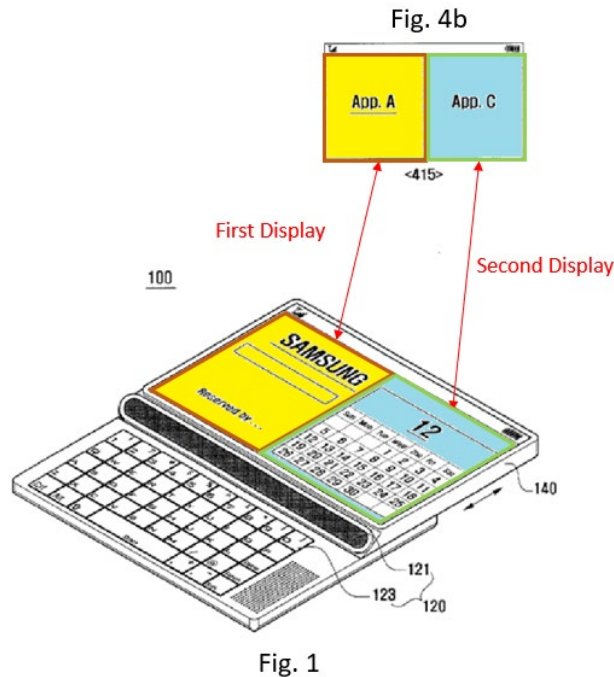
64. In my opinion, Yook discloses this limitation.

65. The '153 patent specification defines “display” at 3:62-4:3:

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.*

66. Yook squarely meets this definition and discloses both a first display and a second display. As shown below, Yook’s device has two displays, each “a portion of one or more screens that is used to display an image to a user,” as shown by a browser on the first display in the orange box, and a calendar application on the second display in the green box in annotated Figs. 1 and 4b below. In other words, Yook’s device has “[a] single physical screen,” which has been divided into “multiple displays that are managed as separate logical displays,” and it has “different content [] displayed

on the separate displays although part of the same physical screen.” Ex. 1004, Figs. 1 and 4b.

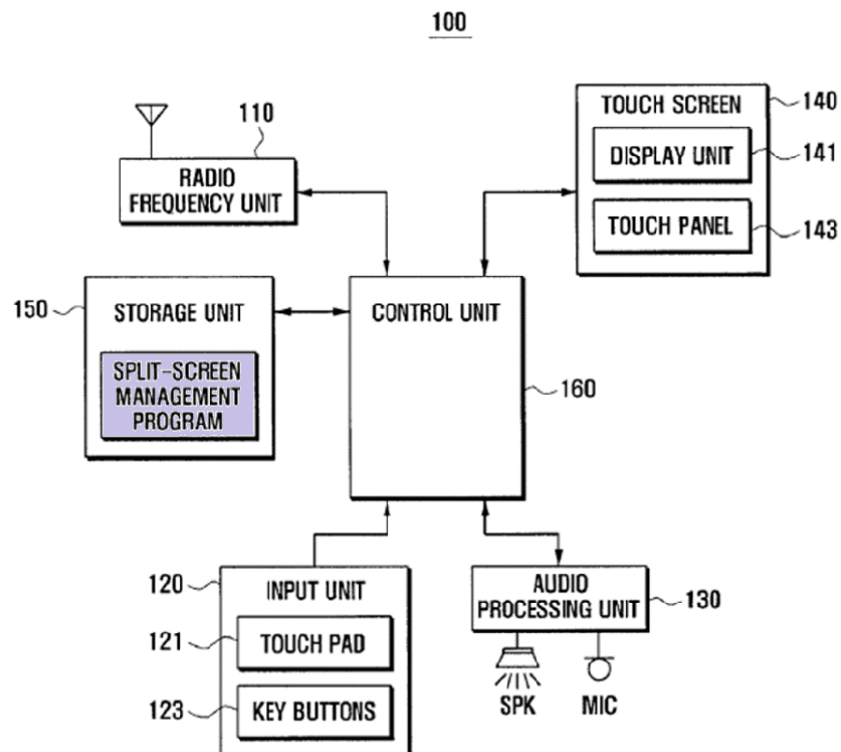


67. Yook also discloses that its system includes a control unit, or processor, which can activate a split-screen management program from the computer’s storage unit. Ex. 1004, ¶¶[0026], [0033]. This program divides the screen into individual “screen areas,” or logical displays, and controls those logical displays as requested by a user.

The mobile terminal 100 having the above configuration can 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 if necessary, and output functional view areas related to activated user functions on the individual divided screen

areas. The mobile terminal 100 can support information exchange between the functional view areas and perform subsequent operations using the exchanged information. Next, each component of the mobile terminal 100 is described in more detail.

Ex. 1004, ¶[0026].



Ex. 1004, Fig. 2.

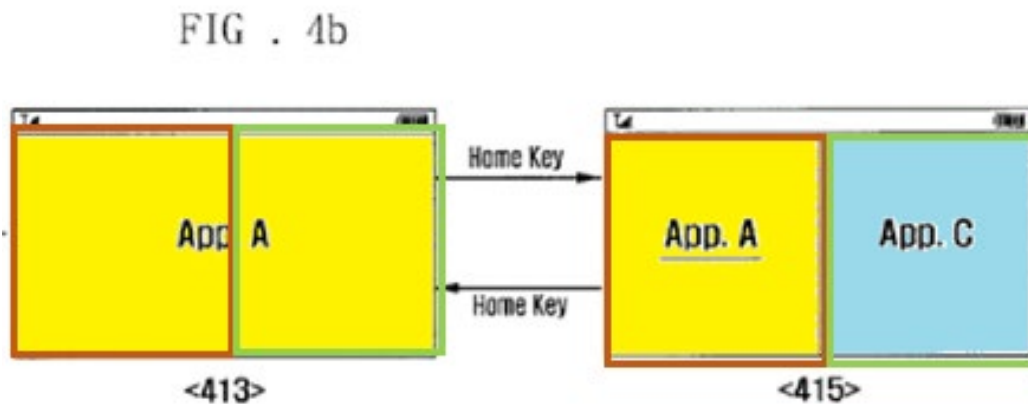
3. [1B] displaying a first window of a multi-display application on the first display and the second display;

68. In my opinion, Yook discloses displaying a first window of a multi-display application on the first display and the second display.

69. The '153 patent specification defines “window” at 5:18-21:

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. The window may obscure the desktop.

70. Fig. 4b, annotated below, shows a multi-display application “A” in full screen mode (element 413), presenting a single window across two logical displays. Upon user input, such as touching a “Home Key,” Yook’s device can then manage the logical displays separately and display a second multi-display applications in split-screen mode, where both applications are simultaneously displayed. Ex. 1004, ¶[0046]. Upon another user input, such as re-actuating a “Home Key,” Yook’s device can revert one of the applications into full screen mode, such that a user can toggle between split-screen and full screen mode. Ex. 1004, ¶¶[0046]-[0047]. In this example, the first display (orange box) displays application “A” (App.A) and the second display (green box) displays application “C” (App.C).



Referring to FIG. 4B, when the user generates an input signal to activate a menu ‘C’ or a function ‘C’, the mobile terminal 100 can

display a functional view area App.C as to the menu ‘C’ or function ‘C’ on the screen, as illustrated in screen 411. Thereafter, when the user generates an input signal to activate a function ‘A’ in screen 411, the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 413. For example, when the user activates a Web browser, the mobile terminal 100 can access a Web server using a preset Web address and display a Web access view area received from the Web server as illustrated in screen 411. Thereafter, when the user generates an input signal to select an item having a link from the Web access view area, the mobile terminal 100 can display a linked Web access view area on the display unit 141, as illustrated in screen 413.

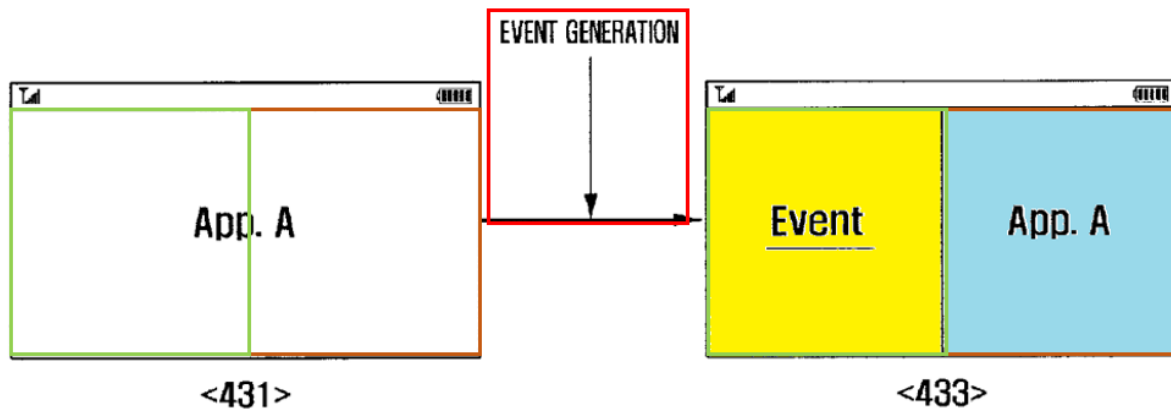
The mobile terminal 100 can provide simultaneous presentation of two pieces of data related by an event history. For example, when the user generates an input signal corresponding to one of a particular key and a touch event like the ‘Home’ key in screen 413, the mobile terminal 100 can simultaneously output two functional view areas App.C and App.A to the display unit 141 as illustrated in screen 415, where the functional view area App.C is related by an event history to the functional view area App.A. In this case, the mobile terminal 100 can control the display unit 141 to divide the screen into two areas, and cause functional view areas to be displayed on the corresponding areas. That is, the mobile terminal 100 can display the functional view area App.A (presented immediately before pressing the ‘Home’ key) on the left divided

screen area, and display the functional view area App.C (presented in relation to the function ‘C’ before the function ‘A’) on the right divided screen area. The mobile terminal 100 can move a functional view area to another divided screen area in response to occurrence of, for example, a drag event. When the ‘Home’ key is pressed again during display of divided screen areas, the mobile terminal 100 can return to the previous screen as illustrated in screen 413. As described above, when two functional view areas are related to each other through an event history, the mobile terminal 100 can simultaneously present the two functional view areas on the divided screen areas.

Ex. 1004, ¶ [0046]-[0047].

71. Yook further discloses an example in Fig. 4d where multi-display application “A” is initially in full screen mode, and upon an “Event Generation,” is automatically switched to split-screen mode where the second application launched by the event occupies a logical display so that App.A and application “Event” each are displayed on one logical display and are simultaneously outputted to the user. Ex. 1004, ¶ [0051]. As Yook explains, App.A has been minimized to the first logical display area (orange) and application “Event” has occupied second logical display area (green).

FIG . 4d

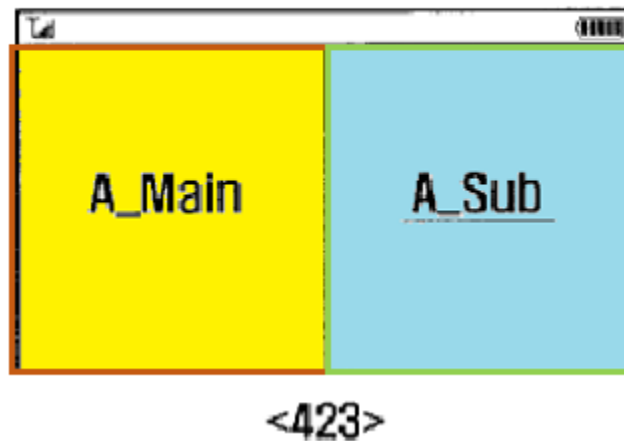


Referring to FIG. 4D, the user of the mobile terminal 100 can generate an input signal for activating a function 'A', the mobile terminal 100 can display a functional view area App.A as to the function 'A' on the display unit 141, as illustrated in screen 431. Thereafter, when an event corresponding to one of a schedule and a condition is generated, the mobile terminal 100 can activate an application program for handling the event and output a functional view area as to the event handling application program to the display unit 141. Here, as illustrated in screen 433, the mobile terminal 100 can display the functional view area App.A as to the function 'A' on one divided screen area through resizing, and display a functional view area Event as to the event handling application program on the other divided screen area.

Ex. 1004, ¶ [0051]; Fig. 4d.

72. Yook further discloses an example where multi-display application “A” is initiated in full screen mode displayed on two logical displays, but application “A” divides into two windows of information upon a user input signal activating a subtask of App.A. Ex. 1004, ¶¶[0048]-[0050]. Each window then occupies its own logical display.

FIG . 4c



Referring to FIG. 4C, when the user generates an input signal to activate a function ‘A’, the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 421. Thereafter, when the user generates an input signal to activate a sub task of the function ‘A’ in screen 421, the mobile terminal 100 activates the sub task, and can display a functional view area A_Main as to the function ‘A’ on one divided screen area and display a functional view area A_Sub as to the sub task on the other divided screen area as

illustrated in screen 423. Here, the functional view area A_Main in screen 423 is one of a resized and a simplified version of the functional view area App.A in screen 421. The divided screen areas to which the functional view area A_Main and functional view area A_Sub are output can be any of fixed, altered, and randomly determined according to user settings.

Ex. 1004, ¶[0048].

73. It is therefore my opinion that Yook discloses a multi-display application (e.g, App.A) with the capability to be displayed on separate logical displays, and that Yook's device displays a first window of such a multi-display application on the first display and the second display.

4. 1[C] receiving an input to launch a second application; in response to receiving the input: displaying a second window of the second application on the second display; and

74. In my opinion, Yook discloses receiving an input to launch a second application, and in response to that input, displaying a second window of a second application on the second display.

75. In addition to the examples I have already previously discussed, Yook further discloses an example of receiving an input to launch a second application; and in response to that input, displaying a second window of the second application on the second display. Ex. 1004, Fig. 10 (annotated below); ¶¶[0096]-[0097].



Ex. 1004, Fig. 10.

FIG. 10 illustrates a screen representation for a fifth exemplary of user interaction according to the present invention, of interworking between functional view areas supporting Web access.

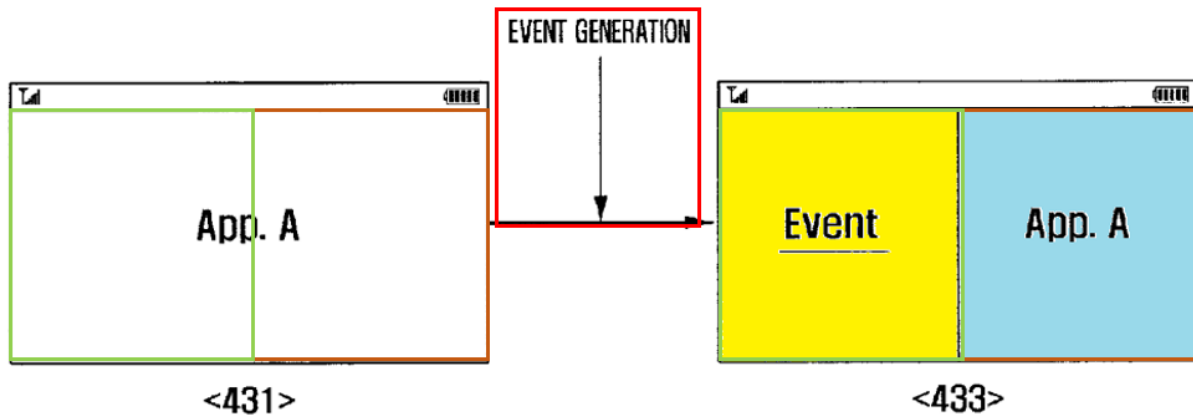
Referring to FIG. 10, when the user generates an input signal for activating a Web access function, the mobile terminal 100 can connect to a Web server using one of a preset address and an input address and display a Web access view area for outputting data provided by the Web server on the display unit 141. When the user generates an input signal for activating the “Twitter” function, the mobile terminal 100 can connect to a Twitter server and display a Twitter view area for outputting data provided by the Twitter server on the display unit 141. Hence, as illustrated in screen 1001, the mobile terminal 100 can display a Web access view area 101 and a Twitter view area 102 on corresponding divided screen areas of the display unit 141.

Ex. 1004, ¶¶[0096]-[0097].

Yook discloses that a user generate an input signal to launch a first application such as a web browser, which Yook's device receives and in response to it, launches the web browser to be displayed on the first display (orange). *Id.* The user then generates an input signal to launch a second application such as Twitter, which Yook's device receives and in response to it, launches Twitter to be displayed on the first display (orange). *Id.* The two applications are then simultaneously displayed to the user, each one displaying a separate logical display. *Id.*

76. Fig. 4d, as I explain above, shows Yook's device controlling an application "Event" and App.A on two separate logical displays. Yook provides an example of App.A being a video playback program, and application "Event" being an incoming phone call. Ex. 1004, ¶[0052]. Upon receiving an incoming phone call input, and in response to it, Yook's device then proceeds to "display a functional view area Event as to call event handling on the other divided screen area." *Id.*, ¶[0053]. In other words, Yook's device receives an input to launch a second application "Event", and in response to receiving the input, displays a second window of the application "Event" on a second display. *See* Fig. 4d.

FIG . 4d



As an example for the case in FIG. 4C, when the user generates an input signal to activate a function ‘A’ for moving image playback, the mobile terminal 100 can display a functional view area App.A as to moving image playback on the display unit 141 in a full screen format, as illustrated in screen 431. Thereafter, when an incoming call is received, the mobile terminal 100 can generate an alert for call reception, and output a functional view area related to call event handling to the display unit 141. Here, as illustrated in screen 433, the mobile terminal 100 can display the functional view area App.A as to the function ‘A’ on one divided screen area, and display a functional view area Event as to call event handling on the other divided screen area.

Ex. 1004, ¶[0052].

Yook further expressly teaches that “the mobile terminal can display the functional view area related to the event and the functional view area related to the user function

on divided screen areas.” Ex. 1004, ¶[0054]. In other words, the application “Event” and the application “A” are expressly taught to be displayed on separate logical displays. *Id.*

In response to a schedule alert event, the mobile terminal 100 can output a functional view area (an alert message) related to schedule alert handling to the left divided screen area, as illustrated in screen 433. Here, as handling of a schedule alert event is not in conflict with playback of moving images, the functional view area related to playback of moving images can be retained. Options for playback of moving images including continue and pause can be set by the design and changed by the user. As described above, in response to occurrence of one of an external and internal event when a functional view area related to a user function is output in a full screen format, the mobile terminal can display the functional view area related to the event and the functional view area related to the user function on divided screen areas.

Ex. 1004, ¶[0054].

77. It is therefore my opinion that Yook discloses receiving an input to launch a second application (e.g., from a user), and in response to such input, displaying a second window of a second application on the second display (e.g., Twitter or an incoming phone call application).

5. [1D] in response to opening the second window, automatically minimizing the first window to fit the first display; and displaying the minimized first window of the multi-display application on the first display.

78. In my opinion, Yook discloses that, in response to opening the second window, the first window is automatically minimized to fit the first display and then displayed on the first display.

79. In addition to the examples I previously discussed where a window is automatically minimized to fit a first display and outputted to the user, Yook further discloses a “resizing” step in various situations, typically when an application undergoes a change in aspect ratio to be displayed on a single logical display. *See, e.g.*, ¶¶[0039], [0048].

When two instances of a user function are activated, the control unit 160 can control the display unit 141 to divide the screen into two areas, and cause two functional view areas to be displayed on the corresponding areas as illustrated in screen 302. For example, when a first user function being a message composition function is activated, the control unit 160 can control the display unit 141 to display one of a message composition view area in a full screen format and to display a message composition view area and a key map in a full screen format. Thereafter, when the user activates a second user function being the message composition function, the control unit 160 controls the display unit 141 to divide the screen into two areas, to display a functional view area A1.App (i.e.,

resized message composition view area) for the first user function on one area, and to display a functional view area A2.App for the second user function on the other area. For another example, when the user activates an application requiring two Web connections, the control unit 160 can control the display unit 141 to display a functional view area A1.App as to one Web connection and a functional view area A2.App as to the other Web connection on the corresponding areas.

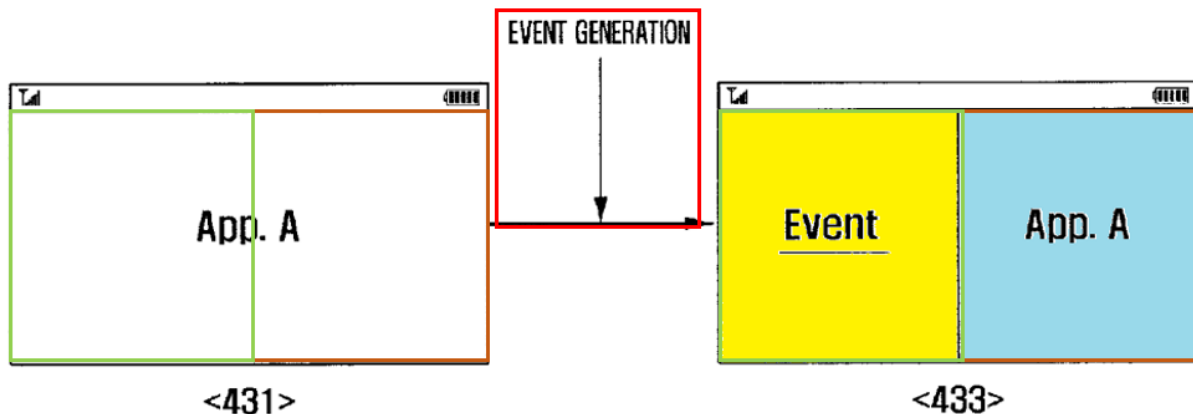
Ex. 1004, ¶[0039].

Referring to FIG. 4C, when the user generates an input signal to activate a function ‘A’, the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 421. Thereafter, when the user generates an input signal to activate a sub task of the function ‘A’ in screen 421, the mobile terminal 100 activates the sub task, and can display a functional view area A_Main as to the function ‘A’ on one divided screen area and display a functional view area A_Sub as to the sub task on the other divided screen area as illustrated in screen 423. Here, the functional view area A_Main in screen 423 is one of a resized and a simplified version of the functional view area App.A in screen 421. The divided screen areas to which the functional view area A_Main and functional view area A_Sub are output can be any of fixed, altered, and randomly determined according to user settings.

Id., ¶[0048].

80. Fig. 4d, below, as I explained earlier, is an example where a multi-display application “A” undergoes an automatic transformation from full screen mode to split-screen mode, in response to receiving an input to launch a second “Event” application. Ex. 1004, ¶[0051]. Yook discloses that App.A transforms to single display mode “through resizing,” which is identical to minimizing the application “A” window to fit a single logical display. *Id.* Both App.A and application “Event” are then simultaneously outputted to the user in minimized windows. *Id.*

FIG . 4d



Referring to FIG. 4D, the user of the mobile terminal 100 can generate an input signal for activating a function ‘A’, the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 431. Thereafter, when an event corresponding to one of a schedule and a condition is generated, the mobile terminal 100 can activate an application program for handling the event and output a functional

view area as to the event handling application program to the display unit 141. Here, as illustrated in screen 433, the mobile terminal 100 can display the functional view area App.A as to the function 'A' on one divided screen area through resizing, and display a functional view area Event as to the event handling application program on the other divided screen area.

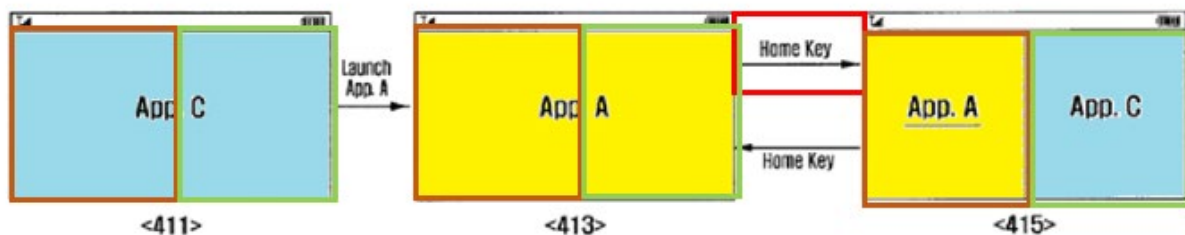
Id., ¶[0051].

81. Fig. 10, as I explained earlier, is an example where two applications are simultaneously displayed, each displaying one logical display. In this figure, the user has selected a first application to launch (e.g., Twitter), and then a second application to launch (e.g., a web browser). Ex. 1004, ¶[0097]. These windows are “resized” windows which have been minimized to fit a single logical display, evidenced by the “full screen” button available to revert them back to full screen mode, where a single window occupies two or more logical displays. *See id.*, Fig. 10 below and the “Full Screen” button on the first display. Yook describes how when two applications are selected to be opened, each application is sized “on corresponding divided screen areas of the display unit 141.” *Id.* Yook also discloses that Fig. 10 is a product of its split-screen management program disclosed in Fig. 2. *Id.*, ¶[0096].



82. As another example, Fig. 4b also demonstrates the automatic minimization of App.A to fit on the first display (orange).

FIG. 4b



83. It is therefore my opinion that Yook discloses automatically minimizing and displaying the first application window of a multi-display application (e.g., a web browser) on the first display.

B. Claim 3 - The method of claim 1, wherein the second application is a second multi-display application

84. In my opinion, Yook discloses that the second application is a second multi-display application.

85. Fig. 4b, as I explained, demonstrates a second application “A” displayed on the first and second displays of a screen. Ex. 1004, ¶¶[0046]-[0047]. Yook discloses that in order to “support divided-screen area transition, the mobile terminal 100 can perform any one or more of display a separate search view area, select a desired icon in the search view area, and replace one functional view area being output with a functional view area related to the selected icon.” Ex. 1004, ¶[0061]. As shown in Fig. 4b, upon user input, Yook’s device responds by transitioning to display a “separate search view area” for both App.A and App.C , rendering them into single display applications. *Id.*, ¶[0047]. App.A. can then occupies both displays. *Id.*

FIG . 4b

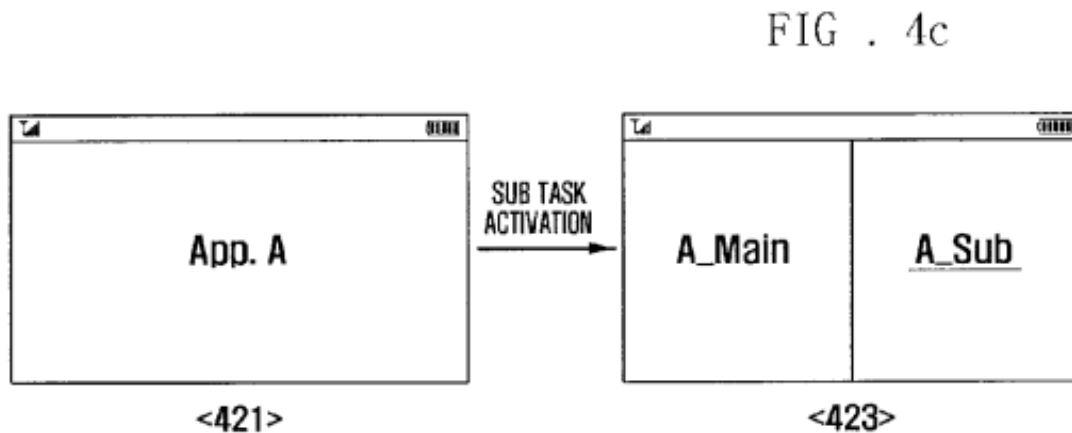


86. It is therefore my opinion that Yook discloses that the second application (e.g., App.A) is a second multi-display application.

C. Claim 4 - The method of claim 1, wherein the minimized first window displays only a portion of the content displayed on the window of the multi-display application

87. In my opinion, Yook discloses a minimized first window displaying only a portion of the original content compared to the full screen display.

88. For example, Yook discloses that the A_Main window pane in Fig. 4c below “is one of a resized and a simplified version of the functional view area App.A.” Ex. 1004, Fig. 4c, ¶[0048]. As the terms are commonly defined, a “resized and simplified window” is one that necessarily displays only a portion of the content of the original window.



Referring to FIG. 4C, when the user generates an input signal to activate a function ‘A’, the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 421. Thereafter, when the user generates an input signal to activate a sub task of the function ‘A’ in screen 421, the mobile terminal 100 activates the sub task, and can display a functional view area A_Main as to the function ‘A’ on one divided screen area and display a functional view area A_Sub as to the sub task on the other divided screen area as illustrated in screen 423. ***Here, the functional view area A_Main in screen 423 is one of a resized and a simplified version of the***

functional view area App.A in screen 421. The divided screen areas to which the functional view area A_Main and functional view area A_Sub are output can be any of fixed, altered, and randomly determined according to user settings.

89. Yook further discloses an example of App.A being a message composition program, and A_Sub being a file search function for attachments to the message. Ex. 1004, Fig. 4d, ¶[0050]. Yook discloses that when the A_Sub window is launched, App.A is “resized and changed in attribute into the functional view area A_Main.” *Id.* As the terms are commonly defined, a “resized” window “changed in attribute” is one that displays different content than the original window. Because A_Main (minimized window) occupies a smaller display than App.A (original window), it is assumed that A_Main displays only a portion of the content of App.A.

90. Similarly, Yook notes that when a display is outputted to the user, the device’s control unit can include reformatting the display or adjusting the functional view area of the display. Ex. 1004, ¶[0035].

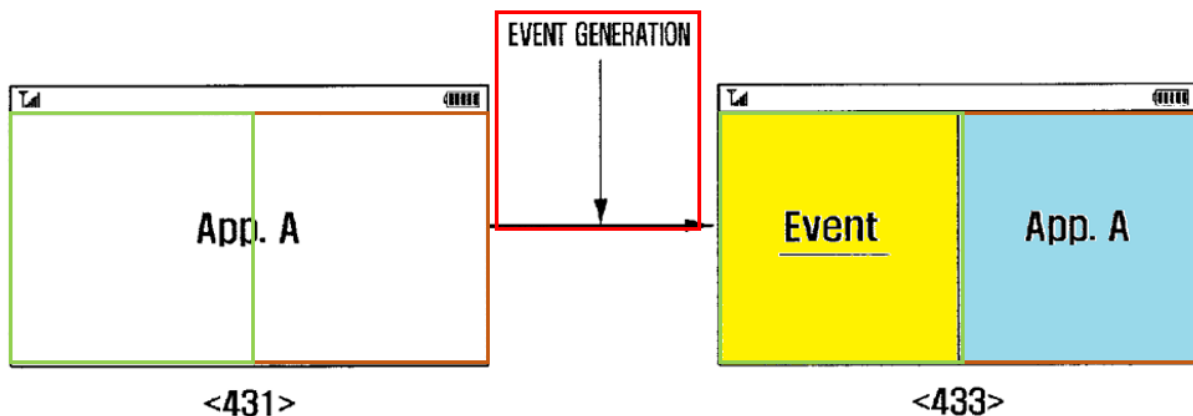
The screen area management program can further include any of an output routine for outputting two functional view areas related to a user function and the input signal to the corresponding divided screen areas of the display unit 141, and an action routine for performing any of inserting, setting, searching, copying, moving, and invoking one of a data item in and a data item between the two displayed functional view areas for information exchange. ***The***

output routine can include any of a subroutine for reformatting the functional view area related to the user function according to the corresponding divided screen area, and a subroutine for adjusting the functional view area related to the input signal according to the corresponding divided screen area. The action routine is described in more detail later.

Ex. 1004, ¶[0035].

91. Further, as I have explained previously, Yook frequently describes an original full screen window as being “resized” to fit a smaller split-screen display area, as demonstrated in Fig. 4d. Ex. 1004, ¶[0051].

FIG . 4d

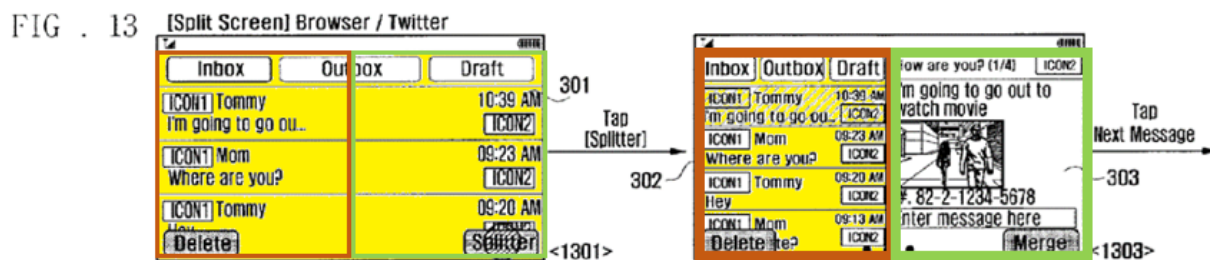


Referring to FIG. 4D, the user of the mobile terminal 100 can generate an input signal for activating a function ‘A’, the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 431.

Thereafter, when an event corresponding to one of a schedule and a condition is generated, the mobile terminal 100 can activate an application program for handling the event and output a functional view area as to the event handling application program to the display unit 141. Here, as illustrated in screen 433, the mobile terminal 100 can display the functional view area App.A as to the function 'A' on one divided screen area through resizing, and display a functional view area Event as to the event handling application program on the other divided screen area.

Ex. 1004, ¶[0051].

92. As another example, Fig. 13 below shows that the “Inbox,” “Outbox,” and “Draft” icons are a portion of their original content, and the Splitter icon is deleted. *Id.*



93. Yook also discloses how a “view area can be adjusted” by moving the boundary of the display “upwards or downwards according to a touch and drag event,” such that information on a display can be revealed or hidden. Ex. 1004, ¶[0083].

Here, the size of the email handling view area 73 and the map viewing view area 76 can be adjusted according to one of an input

signal from the input unit 120 and according to a touch event from the touch screen 140. For example, the boundary region between the email handling view area 73 and the map viewing view area 76 can be moved upwards or downwards according to a touch and drag event, and the email handling view area 73 and the map viewing view area 76 can be adjusted in size according to movement of the boundary region. *In response to size adjustment of a view area, one of additional information can be displayed in the view area, and a portion of information displayed on the view area can be hidden.*

Ex. 1004, ¶[0083].

D. Claim 5 - The method of claim 1, further comprising: placing a focus on the second window of the second application.

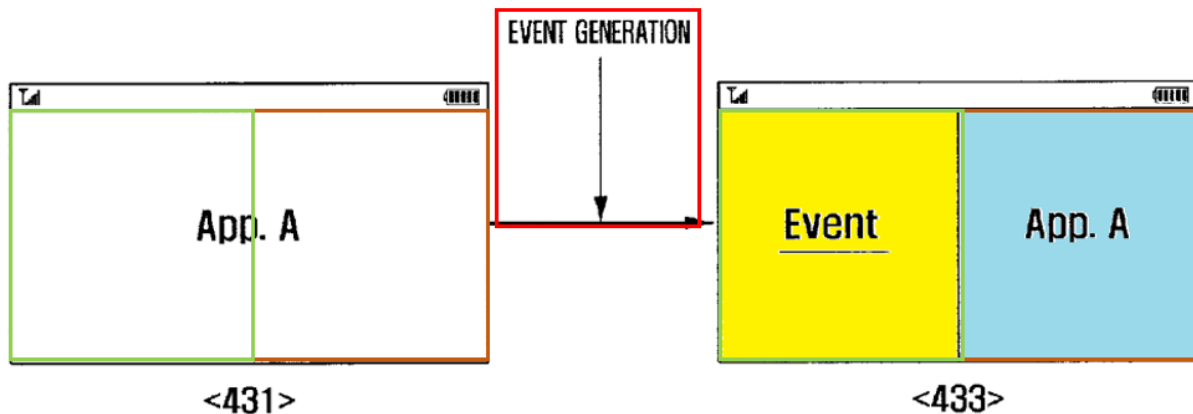
94. In my opinion, Yook discloses that the focus can be placed on the second window of the second application.

95. The '153 patent defines “focus” at 5:35-41:

The term “focus” refers to being active and/or selected to receive input. A screen, a display, or a component (e.g., displayed image) of a displayed graphical user interface may have “focus.” Non-limiting examples of displayed images on a graphical user interface that may have “focus” include an icon of an application, an open window of an application, and/or a desktop/portion of a desktop.

96. Yook discloses in Fig. 4d that an incoming event displaying the second display alerts the user to an incoming call and is actively accepting input (e.g., accepting or declining the call, or responding to a schedule alert event). Ex. 1004, ¶¶[0051], [0054].

FIG . 4d



Referring to FIG. 4D, the user of the mobile terminal 100 can generate an input signal for activating a function 'A', the mobile terminal 100 can display a functional view area App.A as to the function 'A' on the display unit 141, as illustrated in screen 431. Thereafter, when an event corresponding to one of a schedule and a condition is generated, the mobile terminal 100 can activate an application program for handling the event and output a functional view area as to the event handling application program to the display unit 141. Here, as illustrated in screen 433, the mobile terminal 100 can display the functional view area App.A as to the function 'A' on one divided screen area through resizing, and

display a functional view area Event as to the event handling application program on the other divided screen area.

Ex. 1004, ¶[0051].

In response to a schedule alert event, the mobile terminal 100 can output a functional view area (an alert message) related to schedule alert handling to the left divided screen area, as illustrated in screen 433. Here, as handling of a schedule alert event is not in conflict with playback of moving images, the functional view area related to playback of moving images can be retained. Options for playback of moving images including continue and pause can be set by the design and changed by the user. As described above, in response to occurrence of one of an external and internal event when a functional view area related to a user function is output in a full screen format, the mobile terminal can display the functional view area related to the event and the functional view area related to the user function on divided screen areas.

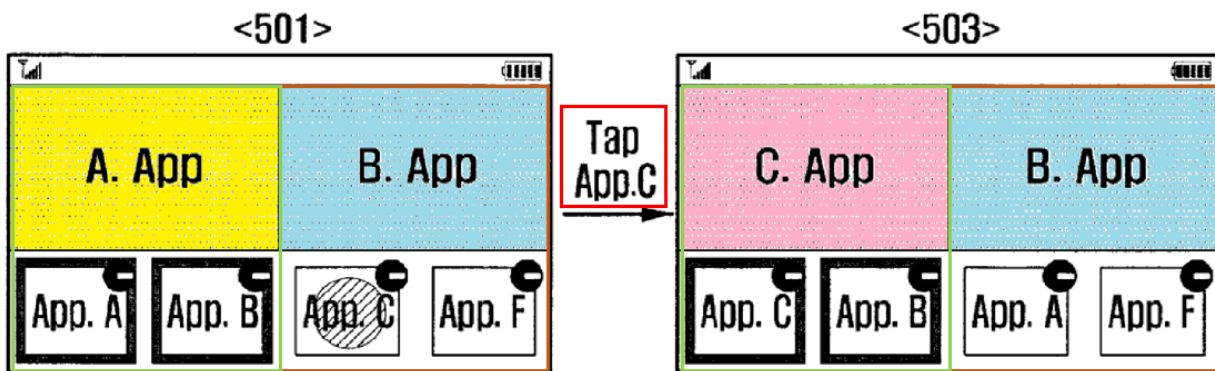
Ex. 1004, ¶[0054].

E. Claim 6 - The method of claim 1, wherein the input comprises a tap on the at least one of the first display or the second display.

97. In my opinion, Yook discloses that the input to launch the second application can be a tap on either display.

98. For example, in Fig. 5a shown below, the user “taps” an icon representing an application (e.g., an icon of the second application, App.C) on either of the displays, so as to open it on either display. Ex. 1004, ¶[0058].

FIG . 5a



F. Claim 7 - The method of claim 6, wherein the tap is on an icon representing the second application.

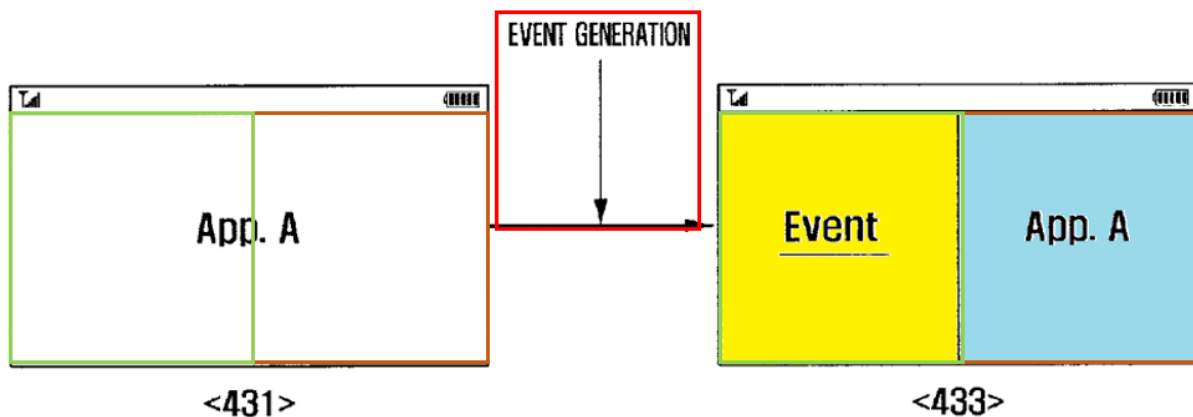
99. In my opinion, Yook discloses this limitation for at least the same reasons I discuss in Section X.E.

G. Claim 9 - The method of claim 1, wherein the first window of the multi-display application is displayed in one of a portrait max configuration and a landscape max configuration.

100. In my opinion, Yook discloses that the first window of the first multi-display application is displayed in a landscape max configuration, which is a landscape mode across both displays.

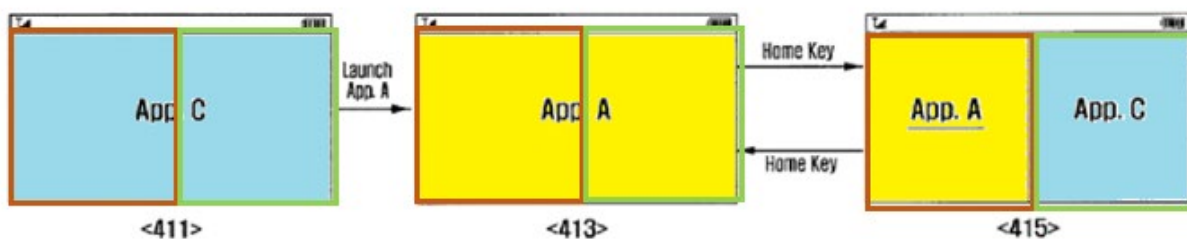
101. This claim limitation is taught by Yook in numerous examples. One such example is Fig. 4d, which demonstrates that App.A can be displayed in landscape max mode.

FIG . 4d



102. Another example is Fig. 4b, which demonstrates two applications that can both be displayed in landscape max mode as well.

FIG . 4b



H. Claim 10 - The method of claim 1, wherein the first and second displays are logical portions of a single screen.

103. In my opinion, Yook discloses this limitation for at least the reasons I discuss in Section X.A.2.

I. Claim 17

1. 17[P] A dual display communication device, comprising:

104. To the extent the preamble is limiting, in my opinion, Yook discloses a dual display communication device for the reasons I discuss in Sections X.A.1 and IX.A.2. As noted above, Yook's mobile communication device includes at least two logical displays, which makes it a dual display communication device. Yook's device "establishes a communication channel for voice, video and data communication." Ex. 1004, ¶[0027].

2. 17[A] a first display; a second display;

105. In my opinion, Yook discloses a first display and a second display on a communication device.

106. In Figs. 1 and 4b (annotated below), Yook shows a device having a screen divided into first and second displays (indicated by orange and green boxes, respectively), where each display is "a portion of one or more screens that is used to display an image to a user." Yook's device shows that these two displays can be managed as separate logical displays to display App.A and App.C. Yook also describes further examples of a first and second display. Ex. 1004, ¶¶[0024]-[0037].

FIG . 4b

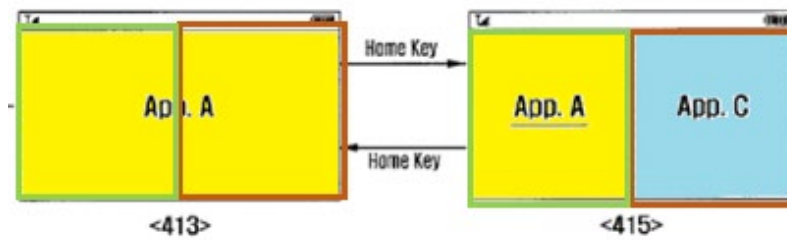


Fig. 4b

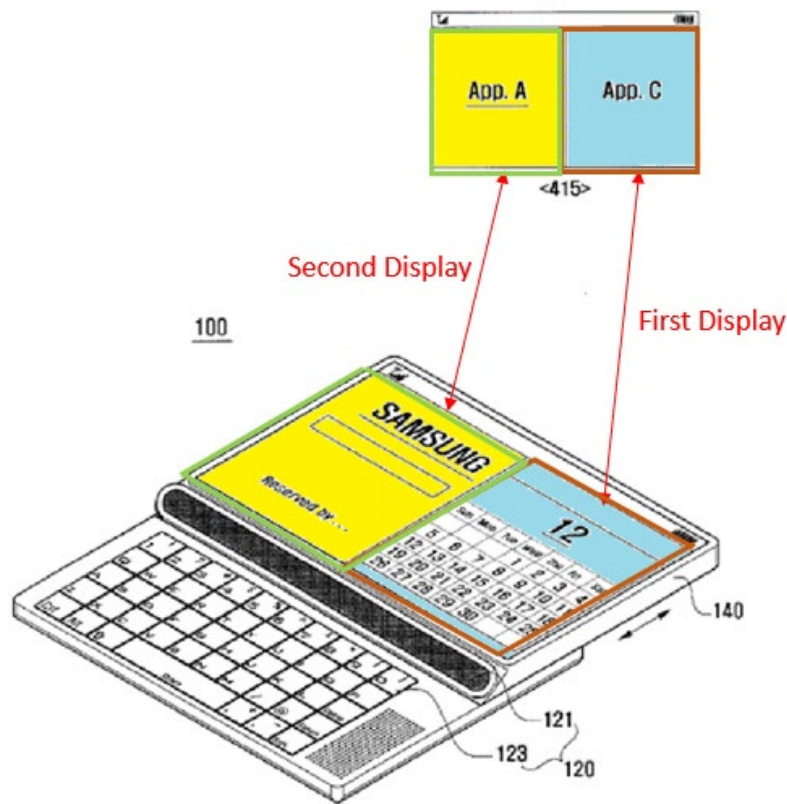
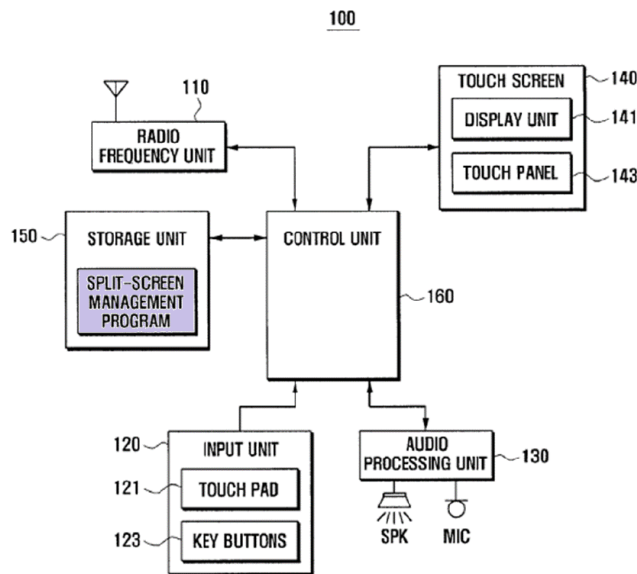


Fig. 1

107. Fig. 2 (annotated below) also discloses a split-screen management program for Yook's device, such that the program manages the physical screen on Yook's device and can split it into multiple logical displays as requested by a user. Ex. 1004, ¶[0026].

108. Yook discloses that “ROM ... may store ... software or computer code that when accessed and executed by the ... processor ... implement the processing methods described herein.” Ex. 1004, ¶[0117]; Fig. 2.

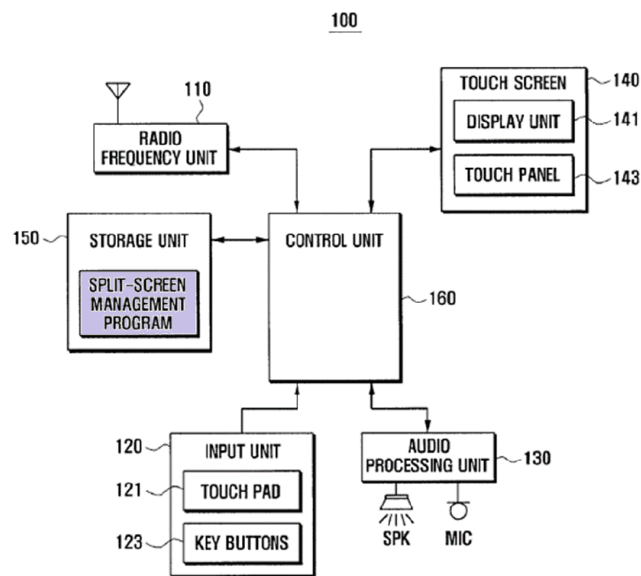


3. 17[B] a non-transitory computer readable medium that stores computer executable instructions that when executed by at least one processor perform a method comprising:

109. In my opinion, Yook discloses instructions that are stored in a computer readable medium and executed by a processor to perform the method recited in the remaining elements of the claim. Fig. 2 (annotated below) also discloses a split-screen management program for Yook’s device, such that the program manages the physical screen on Yook’s device and can split it into multiple logical displays as requested by a user. Ex. 1004, ¶[0026].

110. Yook discloses that “ROM ... may store ... software or computer code that when accessed and executed by the ... processor ... implement the processing

methods described herein.” Ex. 1004, ¶[0117]. ROM stands for “Read-only Memory” and it is a non-transitory computer readable medium (software or computer code) that comprises computer executable instructions.



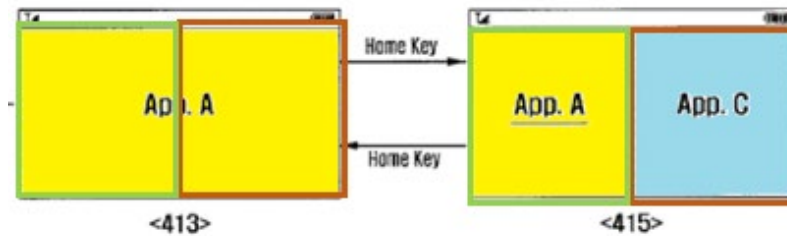
Ex. 1004, Fig. 2.

4. 17[C] displaying a first window of a multi-display application on the first display and the second display;

111. In my opinion, Yook discloses that a first window of a first application can be displayed on both the first display and the second display.

112. As previously discussed, Fig. 4b demonstrates that Yook’s device allows an application window to switch between full screen mode and split-screen mode. In split-screen mode, two application windows each displayed on one display.

FIG . 4b



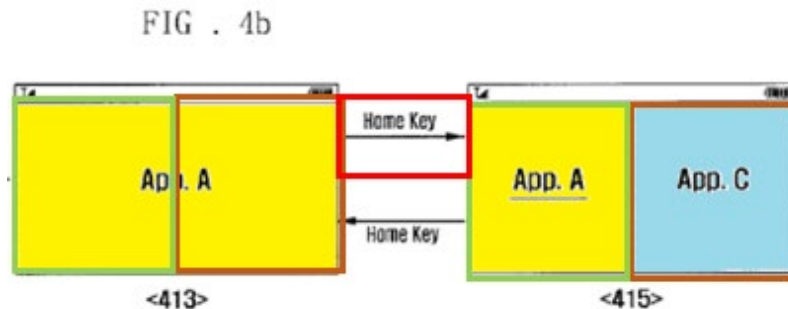
Id., Fig. 4b. Upon launch, App.A occupies both the first and second display of a screen, as shown in element 413. Upon user input such as touching a Home Key, App.A can switch between being displayed on one display (split-screen mode) or two displays (full screen mode), as shown in element 415. Ex. 1004, ¶[0046]-[0047]. Yook also discloses this in its other examples as explained for claim 1.

5. 17[D] receiving, by the first display, input to activate a second application; and in response to receiving the input: displaying a second window of the second application on the first display; and

113. In my opinion, Yook discloses receiving an input to activate a second application, and as a result, displaying a second window of the second application on the first display (orange box).

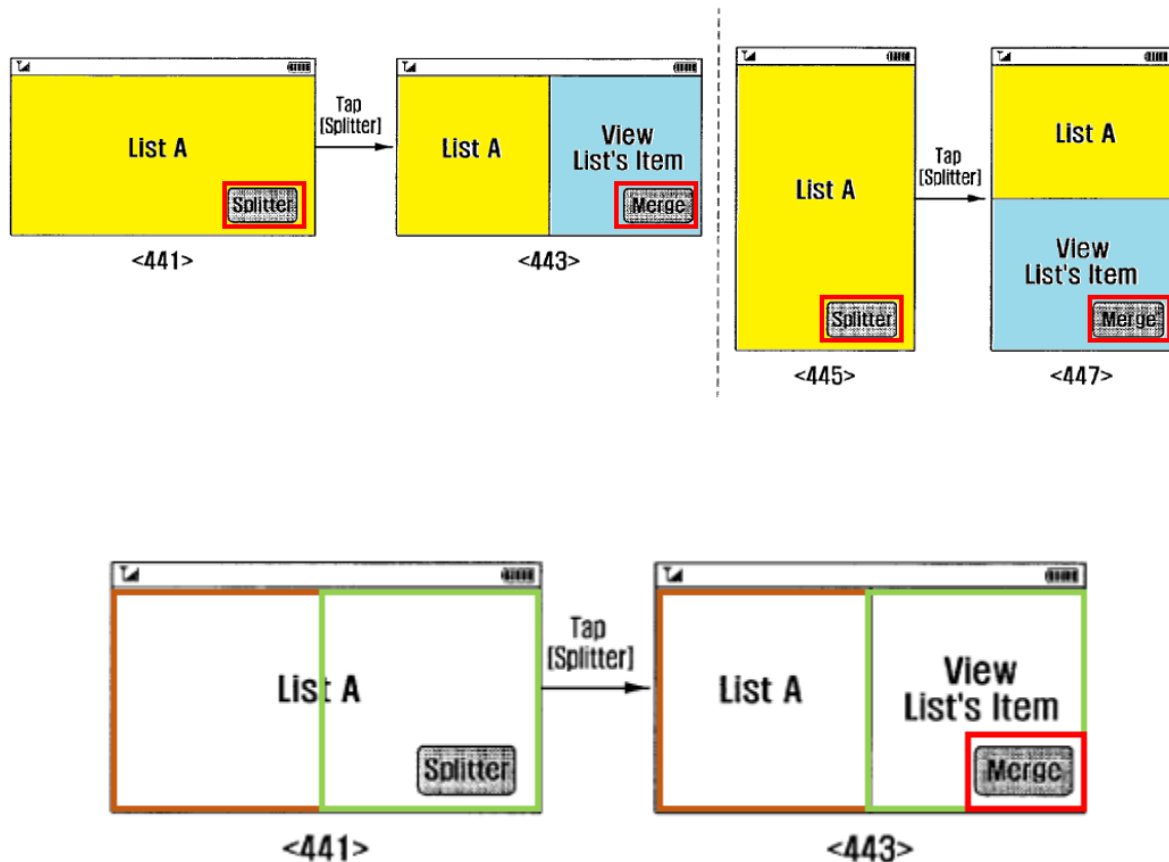
114. As mentioned previously, Yook discloses that in Fig. 4b, “a user generates an input signal to activate a function ‘A’ in screen 411, [and] the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 413.” Ex. 1004, ¶[0046]. Then a user can “generate an input signal corresponding to one of a particular key and a touch event

like the ‘Home’ key in screen 413...to simultaneously output two functional view areas App.C and App.A.” *Id.*, ¶[0047]. The result of the user input such as a touch event like the ‘Home’ key is that the first window from second application App.C is displayed on the first display. *Id.*, Fig. 4b.



115. Yook also provides examples of how the first input to activate a second application can be a touch screen input gesture, where the input causes a second application window to be displayed on the first display. For example, annotated Fig. 4e below shows splitter and merge input buttons (indicated by red boxes) that can be used to display a second application on the first display. Ex. 1004, ¶[0055]. Element 441 shows an application in full screen mode, displaying two displays marked in green and orange boxes. The application can then be divided into two displays upon touching the “Splitter” button. *Id.* Upon touching the “Merge” button, indicated with a red box, application “A” merges back into one window displaying two displays in full screen mode. *Id.*

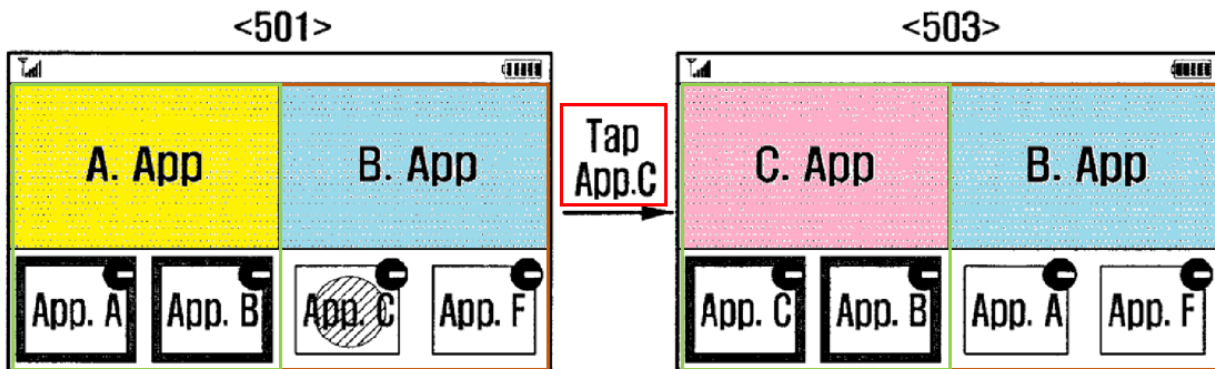
FIG . 4e



Ex. 1004, Fig. 4e (annotated).

116. Yook also demonstrates in Fig. 5a (annotated below) that Yook's device is capable of numerous on-screen input options for screen division and display division, such as tapping on an application icon (indicated by a red box). Ex. 1004, ¶[0059]; Fig. 5a.

FIG . 5a

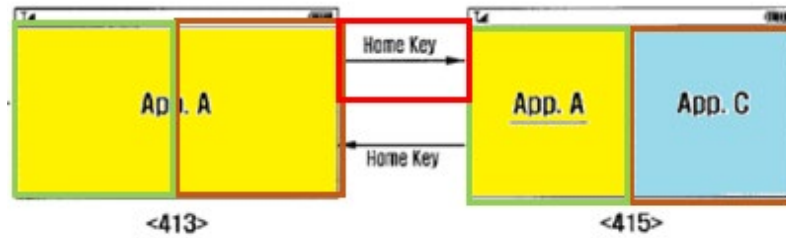


6. 17[E] in response to opening the second window, automatically minimizing the first window to fit the second display; and displaying the minimized first window of the multi-display application on the second display.

117. In my opinion, Yook discloses that in response to opening the second window on the first display, the first window is automatically minimized to fit the second display and then displayed on the second display.

118. Yook provides various examples of “resizing” a window to fit the second display in the split-screen display. One example is Fig. 4b, annotated below, where App.A is automatically minimized to a second display (indicated with a green box) in response to and upon the opening of a second window (App.C). Ex. 1004, ¶[0046]-[0047].

FIG . 4b



- J. Claim 18 - The device of claim 17, wherein the minimized first window displays only a portion of the content displayed on the first window of the multi-display application, when the first window was displayed on the first and second touch sensitive displays.**

119. In my opinion, Yook discloses this limitation for at least the reasons I discuss for claim 4.

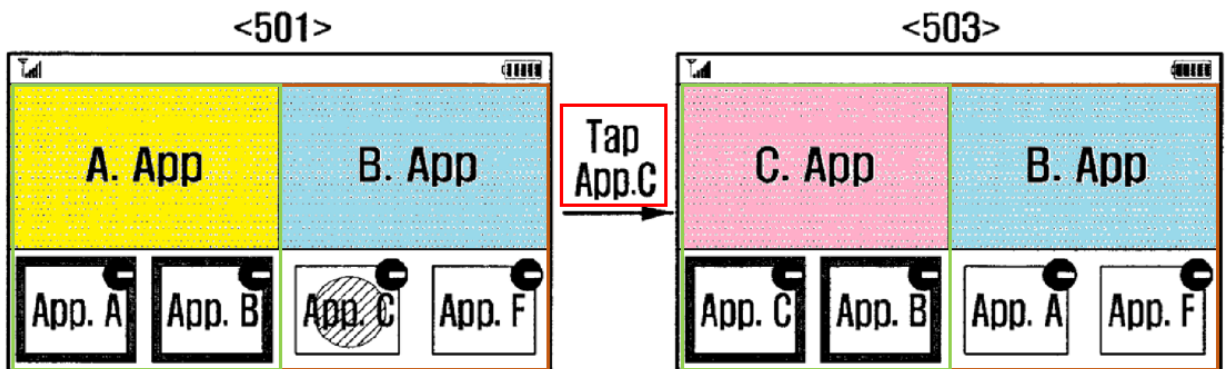
- K. Claim 20 - The device of claim 17, further comprising: receiving second input to open a third application; opening a third window on the second display; and in response to receiving the second input, displaying the third window on the second display, wherein the first window is no longer displayed on the second display.**

120. In my opinion, Yook discloses the ability to receive a second input and open a third application on the second display and display it in place of the first window.

121. In Fig. 5a (annotated below), App.A has a first window displayed on the second display (green box). App.B has a second window displayed on the first display (orange box). Upon user input to launch a third application, such as tapping an App.C icon (as indicated by a red box), Yook's device opens a third window on

the second display where App.A was previously displayed, so that App.A is no longer displayed. Ex. 1004, ¶¶[0059],[0060]; Fig. 5a.

FIG . 5a



XI. GROUND 2: ALL CHALLENGED CLAIMS ARE OBVIOUS OVER YOOK

122. It is my opinion that if the Board finds that Yook does not anticipate any of the Challenged Claims, then such Challenged Claims are rendered obvious by Yook.

123. Certain phrases used throughout Yook may differ from the terminology used in the '153 patent. My opinions take into account these differences. For example, Yook may refer to a “functional view area” or a “divided screen area,” but I understand these phrases as meeting the definition that the '153 patent gives to a “display.” See, e.g.:

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.***

Ex. 1004, Abstract

When two instances of a user function are activated, the control unit 160 can control the display unit 141 to divide the screen into two areas, and cause ***two functional view areas*** to be displayed on the corresponding areas as illustrated in screen 302. For example, when a first user function being a message composition function is activated, the control unit 160 can control the display unit 141 to display one of a message composition view area in a full screen format and to display a message composition view area and a key map in a full screen format. Thereafter, when the user activates a second user function being the message composition function, the control unit 160 controls the display unit 141 ***to divide the screen into two areas, to display a functional view area A1.App*** (i.e., resized message composition view area) for the first user function on one area, and to display a functional view area A2.App for the second user function on the other area. For another example, when the user activates an application requiring two Web connections, ***the control unit 160 can control the display unit 141 to display a functional view area A1.App as to one Web connection and a***

functional view area A2.App as to the other Web connection on the corresponding areas.

Id., ¶[0039].

124. Indeed, a “functional view area” or a generic “divided screen area” is simply a logical display, or “a portion of one or more screens used to display the output of a computer to a user.”

The term “display” refers to a portion of one or more screens used to display the output of a computer to a user.

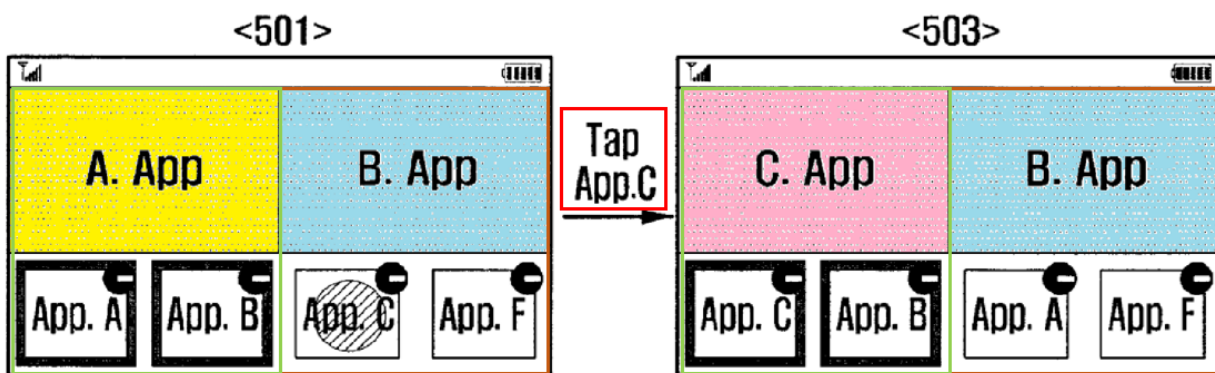
Ex. 1001, 3:62-63.

125. Similarly, I find no meaningful distinction between Yook’s reference to a “user function,” or what the ’153 patent refers to as an application. As they are used in their respective specifications, a POSITA would have understood their meanings to be substantively indistinguishable. The same is true for other terminology differences between Yook and the ’153 patent.

126. Yook discloses a device and provides numerous examples of how its split-screen management program can be interacted with and manipulated to affect the screen and display output on Yook’s exemplary device. A POSITA would have understood that the examples Yook provided are all associated, so that one could achieve various results by implementing the many functionalities Yook describes. Indeed, Yook itself discloses some of these results.

127. For example, in Fig. 5a (annotated below) and in ¶[0059], Yook discloses that, where two displays are occupied by two separate application windows, a user may select a third application to replace an existing window on one or both of the displays. In order to reach the initial stage where two displays are occupied by two separate application windows, ¶[0059] explains that the user can first utilize the method disclosed in Fig. 4 to open A.App and B.App simultaneously.

FIG . 5a



Alternatively, as described before in connection with FIG. 4, in response to activation of a user function, the mobile terminal 100 can output a functional view area related to the user function on the divided screen areas. The mobile terminal 100 can divide the screen of the display unit 141 into two divided screen areas, and output two functional view areas A.App and B.App related to the selected files on the divided screen areas.

Ex. 1004, ¶[0059].

128. A POSITA would therefore have understood that Yook's disclosed examples are all associated and can be utilized to achieve various results. For example, a POSITA would have understood that the process demonstrated by Fig. 5a could be applied after undergoing the process demonstrated in Fig. 4d. By implementing these functionalities, a user can start with an open application "Event" (instead of application "B") and open application "A" on separate displays as demonstrated by Fig. 4d. Then, the user could select application "C" to replace either of these applications, as demonstrated in Fig. 5a.

In screen 501, when the user generates an input signal for selecting an icon App.C, the mobile terminal 100 can output a functional view area C.App related to the icon App.C to the display unit 141 as illustrated in screen 503. During this process, the mobile terminal 100 can replace the functional view area A.App with the functional view area C.App. To output a new functional view area, the mobile terminal 100 can identify the oldest functional view area on display and replace the oldest functional view area with the new functional view area.

Ex. 1004, ¶[0060].

FIG . 4d

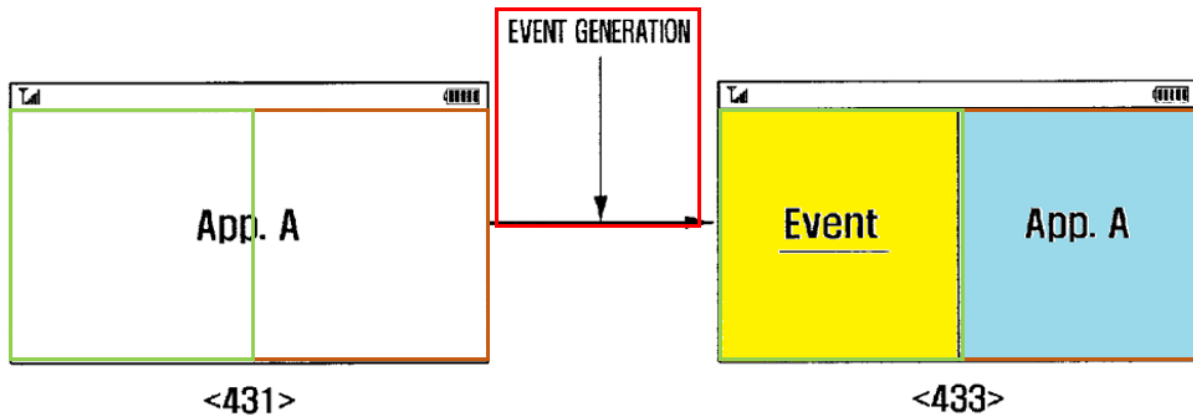
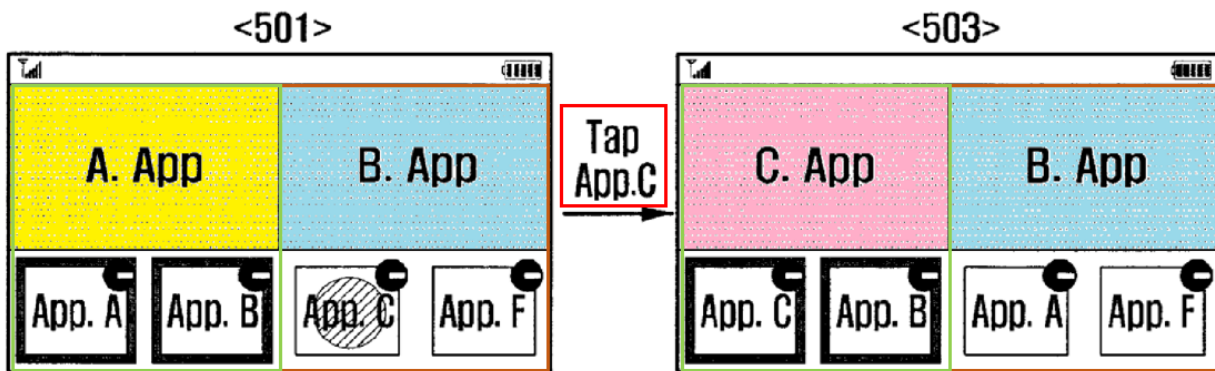


FIG . 5a



129. Yook repeatedly discloses resizing a window, simplifying a window, or reformatting the area when minimizing the window. *See, e.g.*, ¶[0035], [0048]. A POSITA would have understood that a reduced-size version of an application window would commonly display only a portion of the contents of a maximized version of the application window. This is because a size reduction of a display output would generally necessitate rearranging and removing some content in order to maintain

readability and comfortable user functionality. Further, a simplified version of an application window necessarily displays only a portion of the contents of the maximized version of the application window, since simplifying a display output necessitates removing content. Thus, any time Yook mentions a window being resized or simplified, a POSITA would have understood that the resized or simplified window displays only a portion of the content of the original window.

The output routine can include any of a subroutine for reformatting the functional view area related to the user function according to the corresponding divided screen area, and a subroutine for adjusting the functional view area related to the input signal according to the corresponding divided screen area.

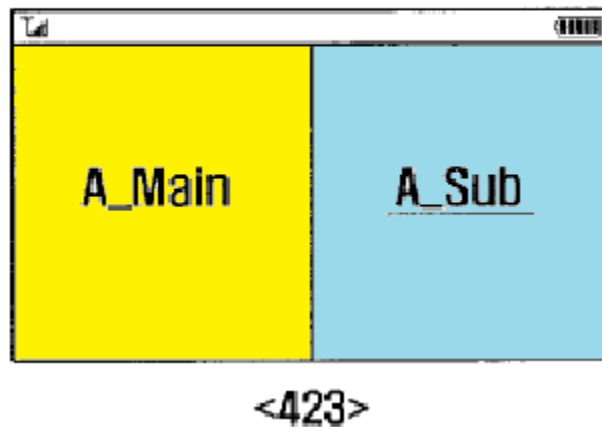
Ex. 1004, ¶[0035].

Referring to FIG. 4C, when the user generates an input signal to activate a function ‘A’, the mobile terminal 100 can display a functional view area App.A as to the function ‘A’ on the display unit 141, as illustrated in screen 421. Thereafter, when the user generates an input signal to activate a sub task of the function ‘A’ in screen 421, the mobile terminal 100 activates the sub task, and can display a functional view area A_Main as to the function ‘A’ on one divided screen area and display a functional view area A_Sub as to the sub task on the other divided screen area as illustrated in screen 423. Here, the functional view area A_Main in screen 423 is one of a resized and a simplified version of the

functional view area App.A in screen 421. The divided screen areas to which the functional view area A_Main and functional view area A_Sub are output can be any of fixed, altered, and randomly determined according to user settings.

Ex. 1004, ¶[0048].

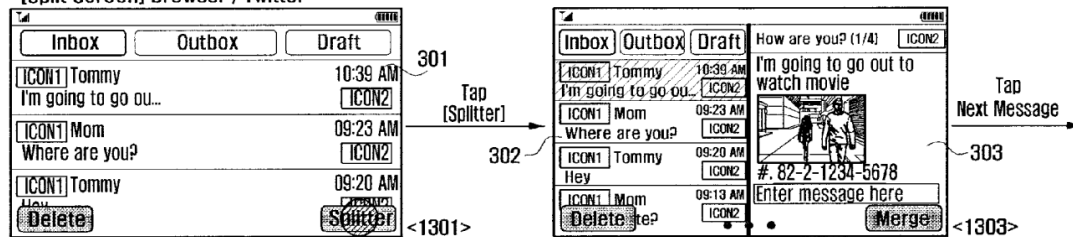
FIG . 4c



Ex. 1004, Fig. 4c.

130. As another example, in Fig. 13, a window originally occupies two displays in maximized form. Upon resizing to one display when a “Splitter” button is touched, the window enters minimized form, where the buttons have become smaller, and a large number of pixels have been cropped out in order to account for the decrease in size and space of the single display. The result is that the minimized window displays only a portion of the content from the maximized form of the original window.

FIG . 13 [Split Screen] Browser / Twitter



131. Based on these disclosures from Yook, a POSITA would have found it readily obvious and understood that a reformatted display area, as discussed in Ex. 1004, ¶[0035], a simplified version window, as discussed in Ex. 1004, ¶[0048], or a reduced size window, as shown in Fig. 13, would all disclose that only a “portion” of the original window contents would be displayed.

XII. GROUND 3: ALL CHALLENGED CLAIMS ARE ANTICIPATED BY LEE

132. I have reviewed and am familiar with U.S. Patent Pub. App. No. 2008/0085759 A1 (“Lee”) filed on October 12, 2006, claiming priority to Korean provisional application number 97136/2005 filed on September 15, 2005, and published on April 19, 2007.

133. In my opinion, based on the following analysis, all Challenged Claims of the ’153 patent are invalid as anticipated by Lee.

A. Claim 1

1. [1P]: A method, comprising:

134. To the extent the preamble is a limitation, in my opinion, Lee discloses a method. Ex. 1005, Abstract.

2. [1A] providing a device having a first display and a second display:

135. In my opinion, Lee discloses a device with a first display and a second display.

136. As previously explained, the '153 patent notes that the term “display,” as defined at 3:62-4:3, can refer to either a “single screen display” or a “multi-screen display.” Ex. 1001, 3:62-65. A single screen display is a physical screen that can be logically divided into multiple displays, and a multi-screen display may be two separate physical screens, each with one or more displays. *Id.*

137. Lee discloses an exemplary mobile device that has two touch screens. *See, e.g.*, Ex. 1005, Figs. 4, 6. Each touch screen can display content. *Id.* For example, Figs. 4 and 6 show two examples of the display of two different applications on both displays (Fig. 4) and one application spread across both displays (Fig. 6). Lee’s device therefore has a first display (indicated by an orange box) and a second display (indicated by a green box). Ex. 1005, ¶¶[0014]-[0017]; Figs. 4, 6.

FIG. 4

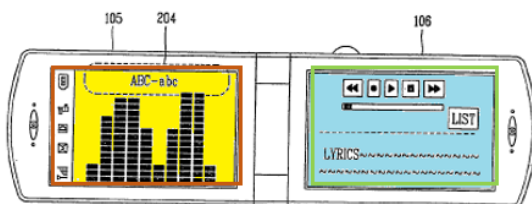
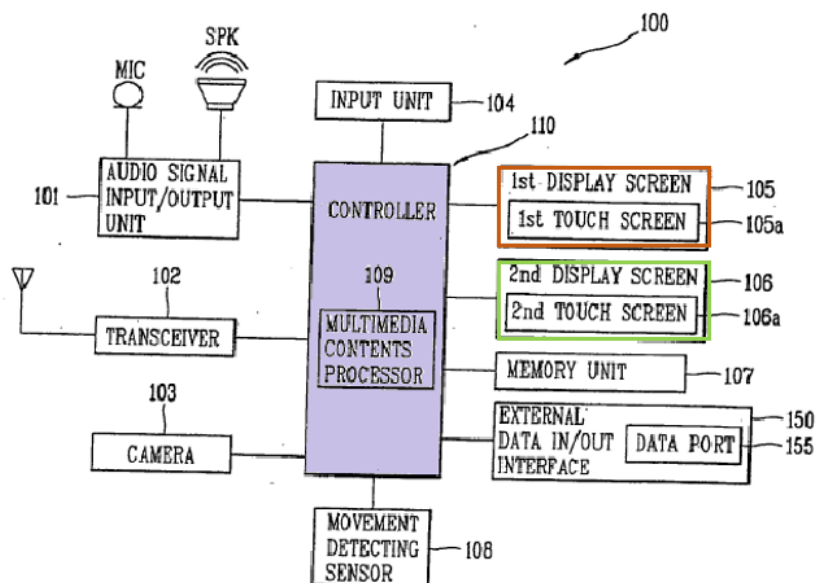


FIG. 6



138. Fig. 1 is an explanatory diagram of Lee's device. It describes Lee's device as containing a Controller with a Multimedia Contents Processor (annotated in purple below) that manages and controls a 1st display screen (indicated by a green box) and a 2nd display screen (indicated by an orange box). Ex. 1005, ¶¶[0027], [0029-32].

FIG. 1



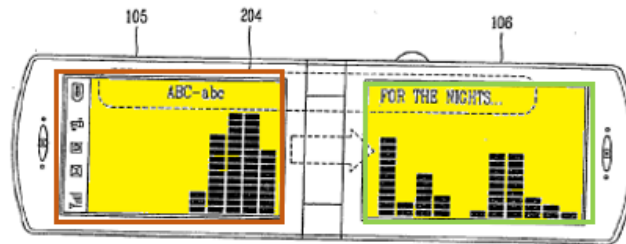
Ex. 1005, Fig. 1.

3. [1B] displaying a first window of a multi-display application on the first display and the second display;

139. In my opinion, Lee discloses displaying a first window of a multi-display application on the first display and the second display.

140. As shown in Fig. 6 (annotated below), a multimedia application window is displayed across both the first display (indicated by an orange box) and the second display (indicated by a green box) of Lee's device. *Id.*, Fig. 6.

FIG. 6



FIGS. 6 through 8 show exemplary views of the 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. The main image of the first display screen 105 expanding to the second display screen 106 can comprise a zoom-in (or zoom-out) image of the original main image of the first display screen 105 to display any detail missing from the original main image as shown in FIG. 6 because the first display screen 105 may only display a portion of the original image. In addition, the auxiliary or related information 204 displayed on the first display screen 105 can be displayed on the second screen 106 in a bigger font size and the second screen 106 can display more detailed information than the initial auxiliary information 204 or different information. For example, the second screen 106 can display different information (e.g., play time) regarding the music file when the first screen 105 displays the same information (e.g., artist name and song).

Ex. 1005, ¶[0048].

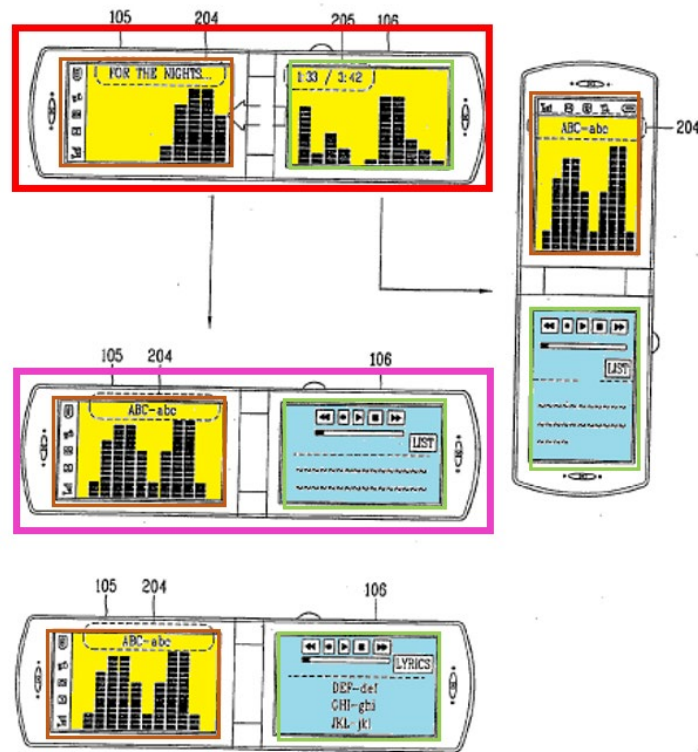
141. Fig. 6 (and Figs. 7-8) demonstrates when “a main image of the first display screen expands to the second display screen....” Ex. 1005, ¶[0048]. In that same paragraph, Lee notes that one reason this is done in its device is because when an application is relegated to a single display, it may only display a “portion or the original image.” *Id.*

4. [1C] receiving an input to launch a second application; in response to receiving the input: displaying a second window of the second application on the second display; and

142. In my opinion, Lee discloses receiving an input to launch a second application; in response to receiving the input: displaying a second window of the second application on the second display.

143. Lee shows how a single application window can be displayed on both displays. Ex. 1005, Fig. 4, Figs. 6-8, ¶[0048]. Lee further recognized that a user may wish to “multitask” among several applications, and Lee describes how a user can perform multitasking and display two application windows using the two separate displays. *Id.*, ¶¶[0049]-[0053]. For example, Fig. 9 (annotated below) shows the device displaying a window of the first application on both the first and second display (indicated by a red box):

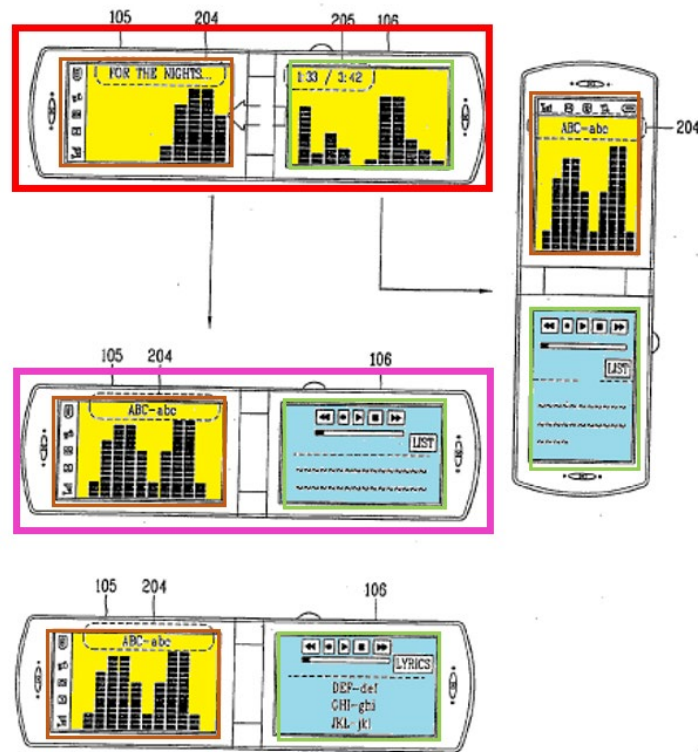
FIG. 9



Id., Fig. 9.

144. If an input is received by the device (e.g., screen rotation, touch screen button, or dedicated button), then the device adjusts the output of the second display (element 106, indicated by green boxes) so that the application previously displaying both the first and “the screen information display on the second display screen disappears” (indicated by the pink box below). Ex. 1005, ¶[0049]. For example, in Fig. 9 (annotated below), the second display changed to reveal a control menu application, while the first display did not change and continued to output a display of the first multimedia application. *Id.*

FIG. 9



Id., Fig. 9.

5. [1D] in response to opening the second window, automatically minimizing the first window to fit the first display; and displaying the minimized first window of the multi-display application on the first display.

145. In my opinion, Lee discloses, in response to opening the second window, automatically minimizing the first window to fit the first display; and displaying the minimized first window of the multi-display application on the first display.

146. As Fig. 9 demonstrates, the first full screen window of the first display (indicated with a bright red box above) initially displaying the first and second display is automatically minimized to fit the smaller first display (indicated with a pink box)

upon Lee's device receiving an input. Ex. 1005, ¶¶[0094]-[0095]. Lee expressly describes that the minimized window may only display a "portion of the original image" from the original full screen, multi-display format. Ex. 1005, ¶[0048].

B. Claim 3 - The method of claim 1, wherein the second application is a second multi-display application

147. In my opinion, Lee discloses that the second application is a second multi-display application.

148. Lee's screen management system is disclosed as a flexible independent feature, allowing the controller to "expand the screen information" of one application to two screens. Ex. 1005, ¶[0037]. Further, Lee teaches that a first display screen and second display screen can be implemented in a same hardware configuration, so that the two screens operate as one big display screen, with the option to partition the screen into separate display regions. Ex. 1005, ¶[0035]. A POSITA would therefore have understood that the applications running on Lee's device are multi-display applications at least because they are capable of displaying across multiple displays.

The above-described first display screen 105 and second screen 106 can be implemented in a same hardware configuration (i.e., one big display screen being partitioned to have separate display region) or be implemented as the separate independent units respectively. In accordance with some embodiments of the present invention, at least one display screen can be allocated to perform

the input unit function by incorporating the touch sensitive screen.
The input unit can be conventional key input units as understood by one skilled in the art and separately arranged from the display screens.

Ex. 1005, ¶[0035].

C. Claim 4 - The method of claim 1, wherein the minimized first window displays only a portion of the content displayed on the window of the multi-display application.

149. In my opinion, Lee discloses the minimized first window displays only a portion of the content displayed on the window of the multi-display application.

150. As I explain in Section XII.A.5., Lee discloses that a first window is automatically minimized to fit the first display. Lee further expressly discloses that this resized first window may display “only display a portion of the original image.”

Ex. 1005, ¶[0048]. Lee discusses that an expanded display (full screen mode) may be further beneficial because the expanded display area allows for additional details to be displayed. *Id.* This is in contrast to a window in minimized mode, as Lee explains that the smaller area of the first display means that “the first display screen may only display a portion of the original image.” *Id.*

FIGS. 6 through 8 show exemplary views of the 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. The main image of the first display screen 105 expanding to the second display screen 106 can comprise a

zoom-in (or zoom-out) image of the original main image of the first display screen 105 to display any detail missing from the original main image as shown in FIG. 6 because the first display screen 105 may only display a portion of the original image. In addition, the auxiliary or related information 204 displayed on the first display screen 105 can be displayed on the second screen 106 in a bigger font size and the second screen 106 can display more detailed information than the initial auxiliary information 204 or different information. For example, the second screen 106 can display different information (e.g., play time) regarding the music file when the first screen 105 displays the same information (e.g., artist name and song title).

Ex. 1005, ¶[0048].

D. Claim 5 - The method of claim 1, further comprising: placing a focus on the second window of the second application.

151. In my opinion, Lee discloses that the focus can be placed on the second window of the second application.

152. The '153 patent defines “focus” at 5:35-41:

The term “focus” refers to being active and/or selected to receive input. A screen, a display, or a component (e.g., displayed image) of a displayed graphical user interface may have “focus.” Non-limiting examples of displayed images on a graphical user interface that may have “focus” include an icon of an application, an open window of an application, and/or a desktop/portion of a desktop.

153. As I previously explained, Fig. 9 (below) shows when the device transitions a first application window from being displayed across both the first and second display, to being displayed only on the first display (indicated by an orange box) where a second window (control menu application) is displayed on the second display (indicated by a green box). In this example, a focus has been placed on the second window because the control menu application is able to control the device and accept input. Ex. 1005, ¶¶[0049]-[0050].

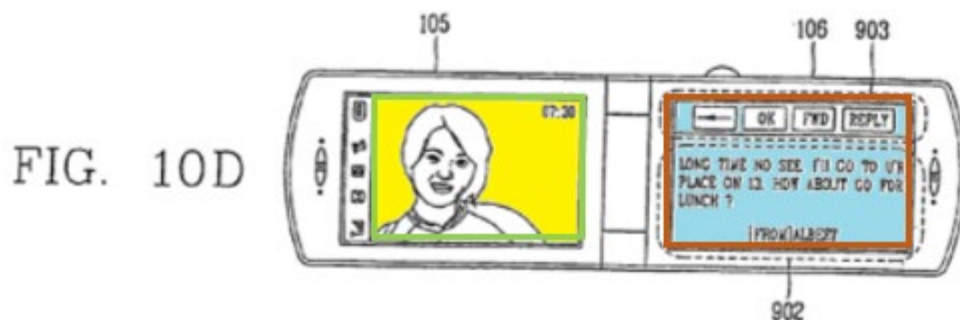
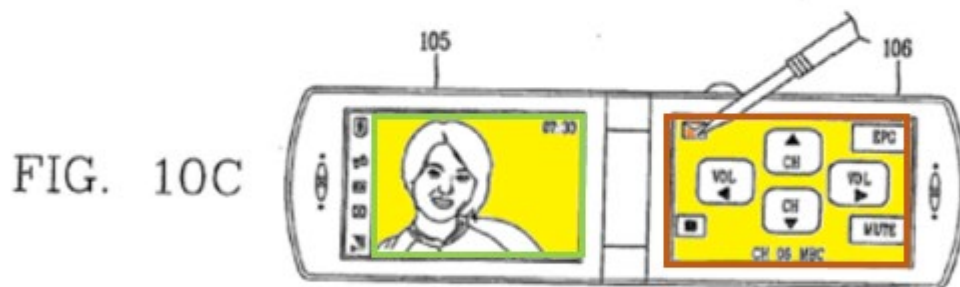
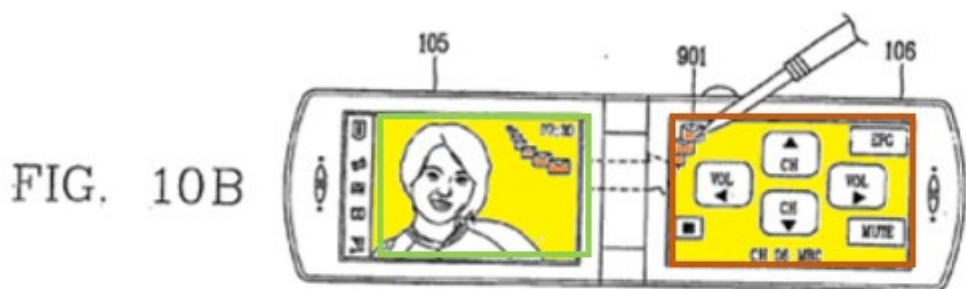
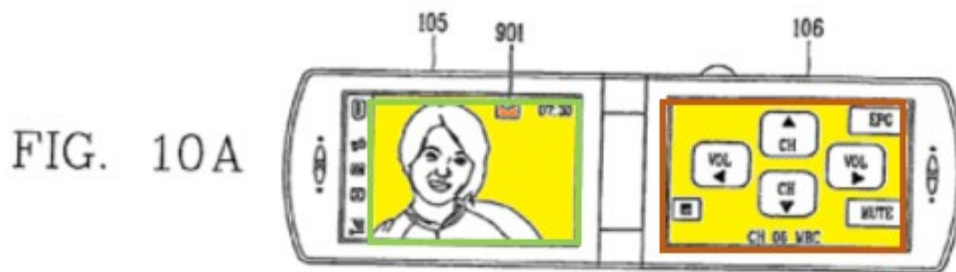


Ex. 1005, Fig. 9.

E. Claim 6 - The method of claim 1, wherein the input comprises a tap on the at least one of the first display or the second display.

154. Lee discloses that the input to launch the second application can be a tap on at least one of the first or second display.

155. For example, in Fig. 10, the user can move an icon (orange) representing an application (e.g., text messaging) between displays. Ex. 1005, ¶[0052]. The user then “taps” the icon (e.g., with a stylus) to open it. *Id.*, ¶[0053]; Figs. 10A-D.



F. Claim 7 - The method of claim 6, wherein the tap is on an icon representing the second application.

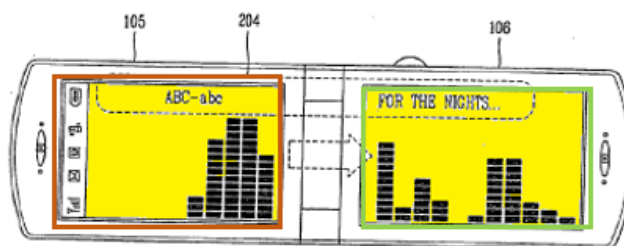
156. In my opinion, Lee discloses this limitation for at least the same reasons I discuss in Section XII.E.

G. Claim 9 - The method of claim 1, wherein the first window of the multi-display application is displayed in one of a portrait max configuration and a landscape max configuration.

157. In my opinion, Lee discloses that the first window of the multi-display application is displayed in one of a portrait max configuration and a landscape max configuration.

158. Fig. 6 is just one of many examples that show a first window displayed in landscape format across both the first and second displays, which meets the landscape max configuration. Ex. 1005, ¶[0017]; Fig. 6.

FIG. 6



H. Claim 10 - The method of claim 1, wherein the first and second displays are logical portions of a single screen.

159. In my opinion, Lee discloses this limitation for at least the reasons I discuss in Section XII.A.3.

160. Lee also expressly discloses that “[t]he above-described first display screen 105 and second screen 106 can be implemented in a same hardware configuration (i.e., one big display screen being partitioned to have separate display regions) or be implemented as the separate independent units respectively.” Ex. 1005, ¶[0035]. A POSITA would thus have understood that the separate display regions in Lee’s one big display screen are logical portions of a single screen.

I. Claim 17

1. 17[P] A dual display communication device, comprising:

161. To the extent the preamble is limiting, in my opinion, Lee discloses a dual display communication device.

162. As I explained before, the ’153 patent defines a display as “a portion of one or more screens used to display the output of a computer to a user.” Ex. 1001, 3:63-64. A POSITA would have understood from this definition that a display is not confined to any screen, nor tied to any hardware or other restriction that would delineate a first display from a second display.

163. For example, in Figs. 4 and 6 (annotated below), a first display is in an orange outline and a second display is the green outline. *Id.*, Figs. 4, 6.

FIG. 4

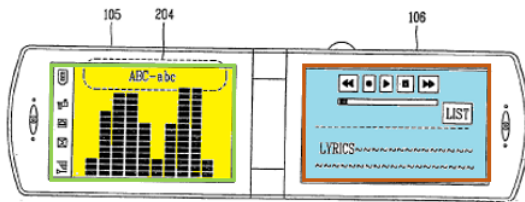
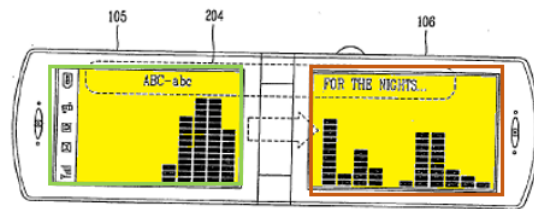


FIG. 6



2. 17[A] a first display; a second display;

164. In my opinion, Lee discloses a device with a first display and a second display.

165. Lee discloses an exemplary mobile device that has two touch screens. *See, e.g.,* Ex. 1005, Figs. 4, 6. Each touch screen can display content. *Id.* For example, Lee's device therefore has a first display (indicated by an orange box) and a second display (indicated by a green box). *Id.*

FIG. 4

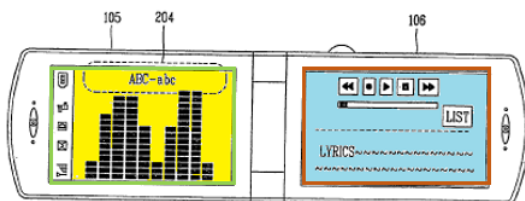
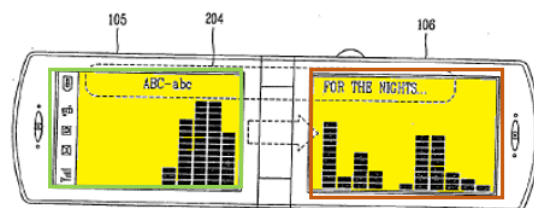


FIG. 6

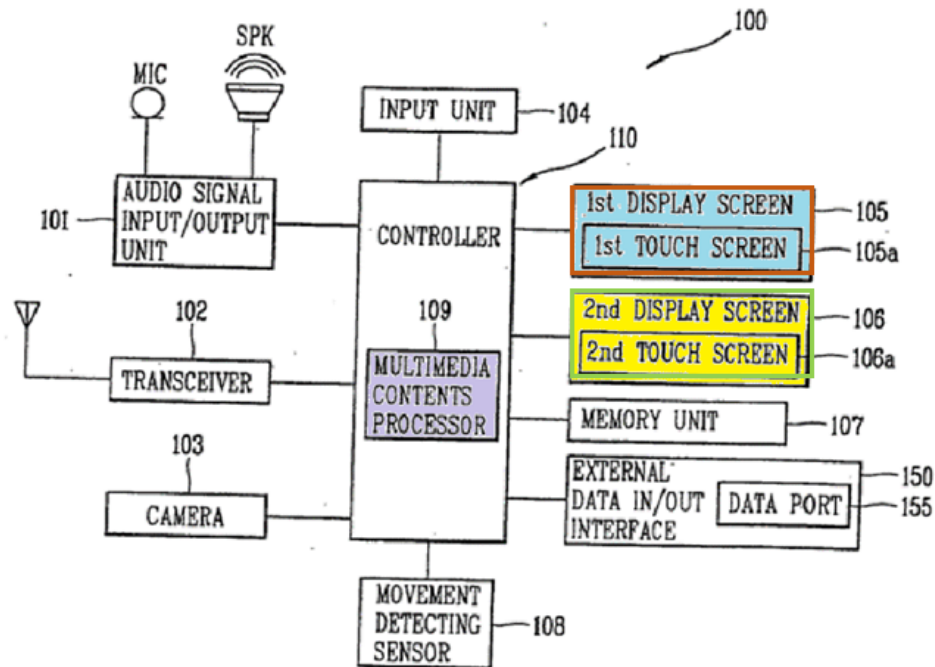


3. 17[B] a non-transitory computer readable medium that stores computer executable instructions that when executed by at least one processor perform a method comprising:

166. In my opinion, Lee discloses a non-transitory computer readable medium that stores computer executable instructions that when executed by at least one processor perform a method.

167. Fig. 1 is an explanatory diagram of Lee's device. Ex. 1005, ¶[0012]. It describes Lee's device as containing a Controller (element 110) with a Multimedia Contents Processor (annotated in purple below; element 109) that executes instructions ("operational programs and data") stored in memory that perform the claimed method. Ex. 1005, ¶¶[0012],[0027],[0031]. As shown in Fig. 1 (annotated below), this Multimedia Contents Processor manages and controls a 1st display screen (annotated in orange outline) and a 2nd display screen (annotated in green outline). A POSITA would have understood that a controller necessarily includes a processor because it executes programs. A POSITA would also understand that operational programs include computer executable instructions. A POSITA would further understand that the memory unit (element 107) is a non-transitory computer readable medium because it stores operational programs in a mobile device. *Id.*, Fig. 1.

FIG. 1

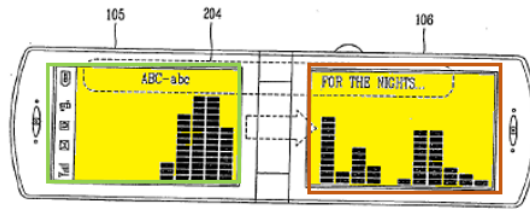


4. 17[C] displaying a first window of a multi-display application on the first display and the second display;

168. In my opinion, Lee discloses displaying a first window of a multi-display application on the first display and the second display.

169. As shown in Fig. 6 (annotated below), a multimedia application window (yellow) is displayed across both the first display (indicated with a orange box) and the second display (indicated with an green box) of Lee's device. Ex. 1005, ¶[0048]; Fig. 6.

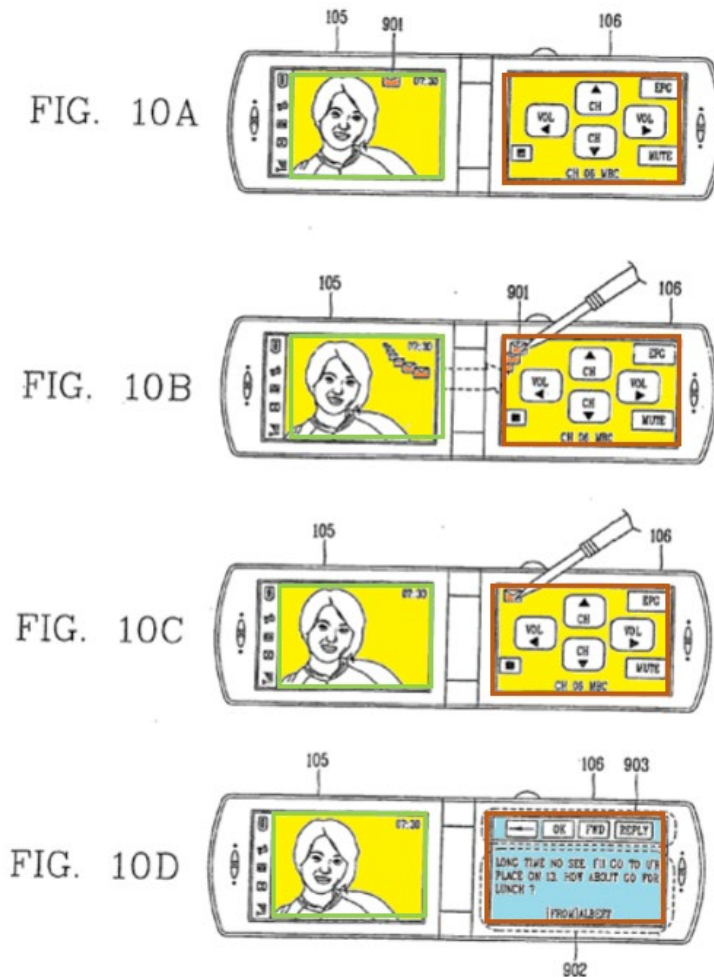
FIG. 6



170. Fig. 6 shows when “a main image of the first display screen expands to the second display screen....” Ex. 1005, ¶[0048]. Lee notes that one reason this is done in its device is because when an application is relegated to a single display, it may only display a “portion or the original image.” *Id.*

5. 17[D] receiving, by the first display, input to activate a second application; and in response to receiving the input: displaying a second window of the second application on the first display; and

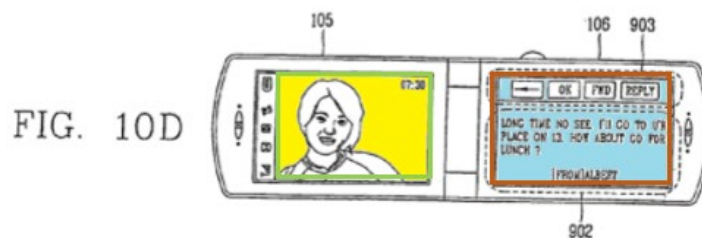
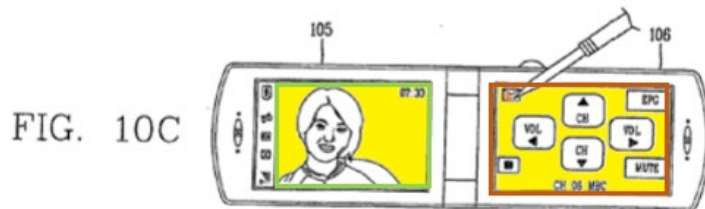
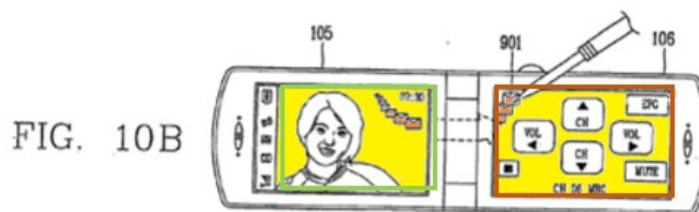
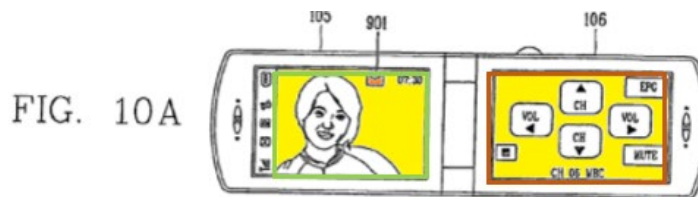
171. In my opinion, Lee discloses receiving, by the first display, input to activate a second application; and in response to receiving the input: displaying a second window of the second application on the first display.



Id., Figs. 10A-D.

172. Lee shows how a single application window can be displayed on both displays. Ex. 1005, Fig. 4, Figs. 6-8, ¶¶[0048]. Lee further recognized that a user may wish to “multitask” among several applications, and Lee describes how a user can perform multitasking and display two application windows using the two separate displays. *Id.*, ¶¶[0049]-[0053]. For example, Fig. 9, which I discussed above for claim 1, shows the device displaying a window of the first application on both the first and second display.

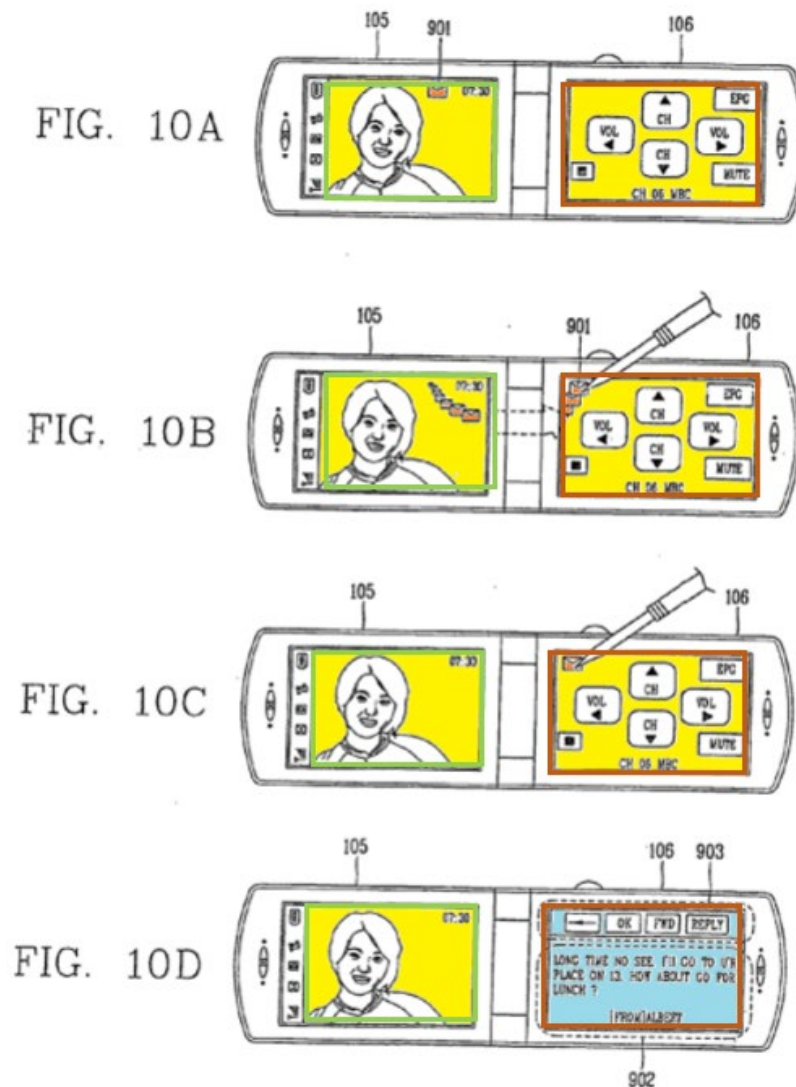
173. Lee adds to this disclosure of functionality in Fig. 10, which shows that an email icon can appear on the display, and a user can select that icon via a tap on the display, providing an input to activate a second application and display that second application on the first display (shown below in orange box). Ex. 1005, ¶¶[0051-53]; Figs. 10A-D.



- 6. 17[E] in response to opening the second window, automatically minimizing the first window to fit the second display; and displaying the minimized first window of the multi-display application on the second display.**

174. In my opinion, Lee discloses in response to opening the second window, automatically minimizing the first window to fit the second display; and displaying the minimized first window of the multi-display application on the second display.

175. This is also shown in Fig. 10 below. The first window of the first application, which was displayed across both displays, is minimized so that it is only displayed on the second display (green box). Ex. 1005, ¶¶[0051-53]; Figs. 10A-D.



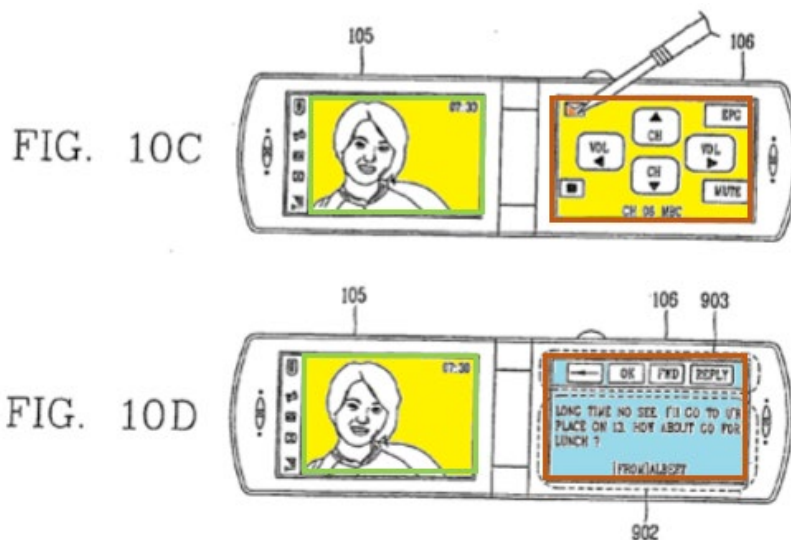
- J. Claim 18 - The device of claim 17, wherein the minimized first window displays only a portion of the content displayed on the first window of the multi-display application, when the first window was displayed on the first and second touch sensitive displays.**

176. In my opinion, Lee discloses this limitation for at least the reasons I discuss for claim 4.

- K. Claim 20 - The device of claim 17, further comprising: receiving second input to open a third application; opening a third window on the second display; and in response to receiving the second input, displaying the third window on the second display, wherein the first window is no longer displayed on the second display.**

177. Lee discloses receiving second input to open a third application; opening a third window on the second display; and in response to receiving the second input, displaying the third window on the second display, wherein the first window is no longer displayed on the second display.

178. For example, Fig. 10C shows a user selecting an icon (indicated in orange) to open a message application, and the associated application launching on the display where the icon is located. Ex. 1005, Fig. 10C-D, ¶¶[0051],[0052]. As I previously explained, Lee discloses that the application icon can be moved by the user to either the first or second display. *Id.*



As shown in FIG. 10A, the first display 105 can display an event indicator 901 when the event occurs while the first display screen 105 is showing the multimedia content and the second display screen 106 is displaying the playback control menu for the multimedia content. The indicator 901 can provide a tactile, audible or visual (e.g., highlight, blinking) output or a combination thereof to the user when the event occurs. The indicator can be a text file, icon, image file, avatar or a photograph and the event can comprise an incoming call, an e-mail or text message, a multimedia messaging service (MMS) and a push-to-talk (PTT) message. However, the scope of the present invention is not intended to be limited to any particular embodiment such as the features as described above. Moreover, the scope of the present invention may not be limited to any specific kind of the event or indicator, and other multitask functions can be considered to include the essential features of the present invention described in this.

The indicator 901 is temporarily displayed on a portion of one of the first and second display screens 105, 106 and ***can be moved to the other area of the same display screen or the other display screen.*** According to one embodiment of the present invention, the indicator can be moved from the first display screen 105 to the second display screen 106, and the size or shape of the indicator can be changed during the move as shown in FIG. 10B. After the indicator moves to the second screen 106, it is displayed on a portion of the second screen.

Ex. 1005, ¶[0051]-[10052]; Fig. A]10A.

179. Therefore, a user can first decide which display a third application should open on. Once decided, the user selects the application to open on that display. In Figs. 10C-D (annotated above), for example, the user inputs an instruction to open the third application (a messaging application) on the second display (indicated by an orange box) on the left. The third application window is then opened on the second display and replaces the first window that had been open on that display previously. Ex. 1005, ¶[0051]-[10052].

XIII. GROUND 4: ALL CHALLENGED CLAIMS ARE OBVIOUS OVER LEE

180. It is my opinion that if the Board finds that Lee does not anticipate any of the Challenged Claims, then such Challenged Claims are rendered obvious by Lee.

181. Certain phrases used throughout Lee may differ from the terminology used in the '153 patent. For example, Lee may refer to a “display screen,” but I find no meaningful distinction between this phrase and what the '153 patent defines a “display” as. The same is true for other terminology differences between Lee and the '153 patent. *See, e.g.:*

The above-described first display screen 105 and second screen 106 can be implemented in a same hardware configuration (i.e., one big display screen being partitioned to have separate display region) or be implemented as the separate independent units

respectively. In accordance with some embodiments of the present invention, at least one display screen can be allocated to perform the input unit function by incorporating the touch sensitive screen. The input unit can be conventional key input units as understood by one skilled in the art and separately arranged from the display screens.

Ex. 1005, ¶[0035].

The term “display” refers to a portion of one or more screens used to display the output of a computer to a user.

Ex. 1001, 3:62-4:3.

182. Lee discloses a device and provides numerous examples of how its split-screen management program can be interacted with and manipulated to affect the screen and display output on Lee’s exemplary device. A POSITA would have understood that the examples Lee provided are all associated, so that one could achieve various results by implementing the many functionalities Lee describes. Thus, a POSITA would have been motivated to try each and every one of Lee’s disclosed examples, in various sequences and in relation to each other.

183. Claims 4 and 18 are both directed to the minimized first window displaying only a portion of the content displayed on the window of the multi-display application. In other words, the claimed limitation is that a minimized first window does not display the same amount of content as an expanded window, because the

minimized window is only displayed on the first display. In my opinion, a POSITA would have understood that a reduced-size version of an application window would commonly display only a portion of the contents of a maximized version of the application window.

184. Lee discloses that a first window is automatically minimized to fit a first display, and that first display *“may only display a portion of the original image.”* Ex. 1005, ¶[0048].

185. Based on these disclosures from Lee, it is my opinion that a POSITA would have found it readily obvious and understood that a reduced size display would only display a portion of the contents of its larger related display.

XIV. GROUND 5: ALL CHALLENGED CLAIMS ARE ANTICIPATED BY AGUILAR

186. I have reviewed and am familiar with U.S. Patent No. 8,677,284 B2 (“Aguilar”) filed on November 4, 2009, published on May 5, 2011, and issued on March 18, 2004.

187. In my opinion, based on the following analysis, all Challenged Claims of the ’153 patent are invalid as anticipated by Aguilar.

A. Claim 1

1. [1P]: A method, comprising:

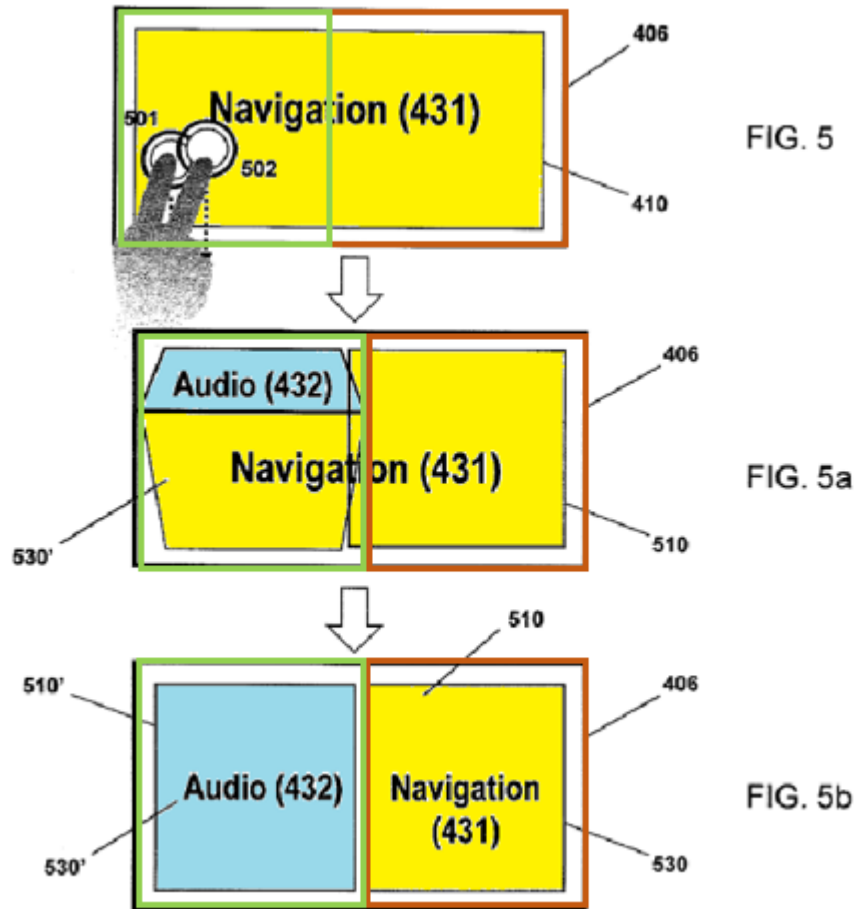
188. To the extent the preamble is limiting, Aguilar discloses this limitation.

189. Aguilar describes an exemplary system and device that includes software and hardware permitting a user to perform different functions or methods related to outputting the display of multiple applications. Ex. 1006, Abstract. “The present invention relates to a display method and apparatus, and more particularly, this invention relates to an intuitive and flexible user interface for infotainment devices.” *Id.*, 2:26-28.

2. [1A] providing a device having a first display and a second display:

190. In my opinion, Aguilar discloses a device having a first display and a second display. Ex. 1006, Fig. 5; 5:13-16, 9:13-25; Fig. 5a-b.

191. Aguilar discloses a device with a first display (indicated by an orange box) and a second display (indicated by a green box). Ex. 1006, Fig. 5. As shown in Fig. 5 (annotated below), Aguilar provides that a “user can also split the user interface to at least two display segments which may contain different applications.” Ex. 1006, 5:13-16, Fig. 5a-b. A POSITA would have understood that these “display segments” are managed by the processor as separate logical displays, each of which may contain a different application from applications displayed on other logical displays. Ex. 1006, Abstract, 5:13-16.



Id., Figs. 5-5b.

192. Aguilar explains that “if the user wishes to have a ‘dual view’ on the screen 410, the user may be allowed to split the screen 410 into at least two display segments (elements 530, 530’) by using the ‘two finger dragging down’ gesture...” Ex. 1006, 6:48-52. As shown in Fig. 9 (annotated below), there is a display controller, CPU, VRAM, and video generating unit (purple) that are part of the process for storing

and executing the instructions and commands to perform the screen splitting functions for the user interface. Ex. 1006, 9:13-25; Fig. 9.

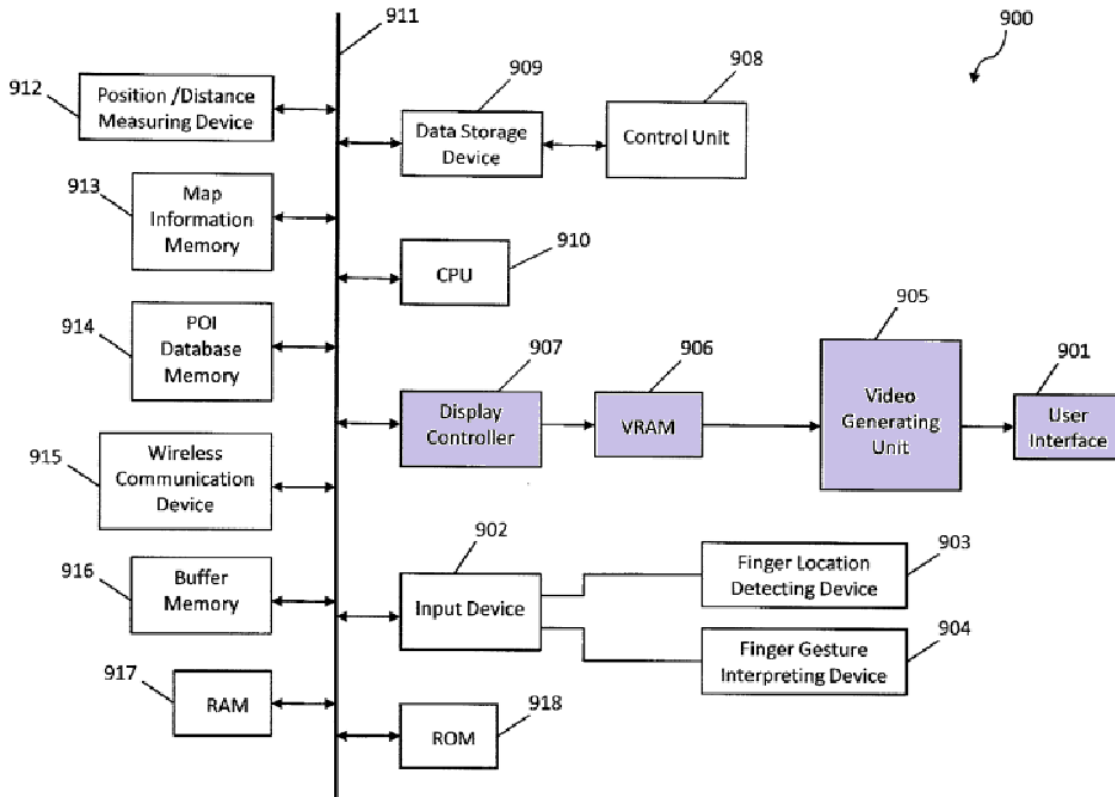


FIG. 9

3. [1B] displaying a first window of a multi-display application on the first display and the second display;

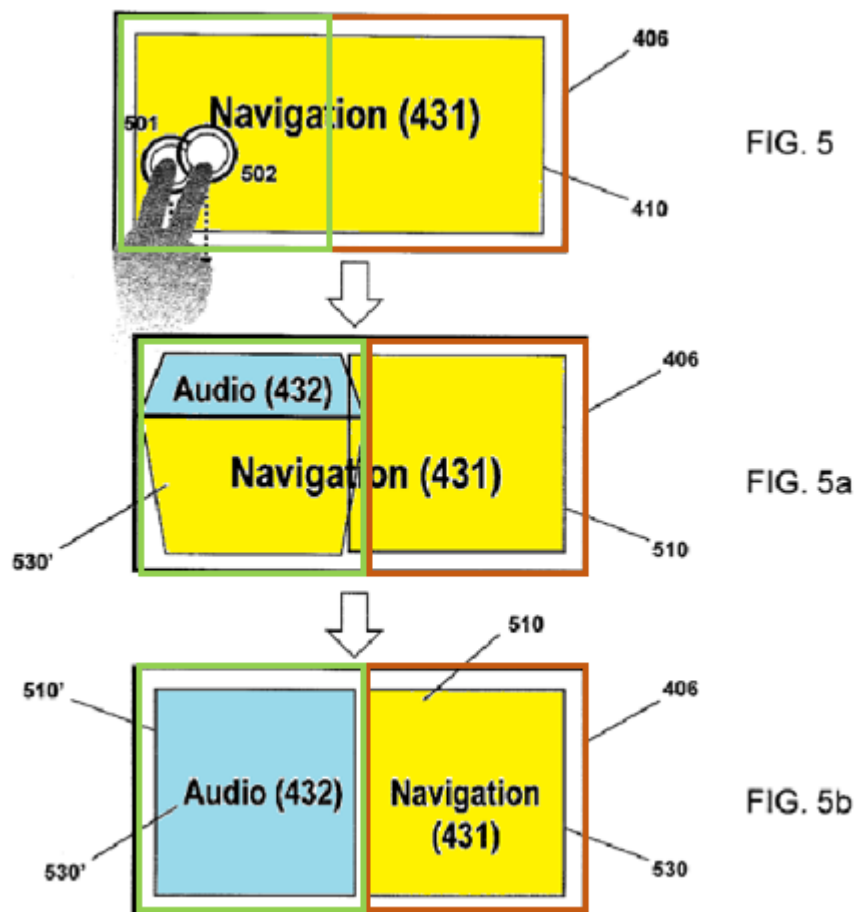
193. In my opinion, Aguilar discloses this limitation.

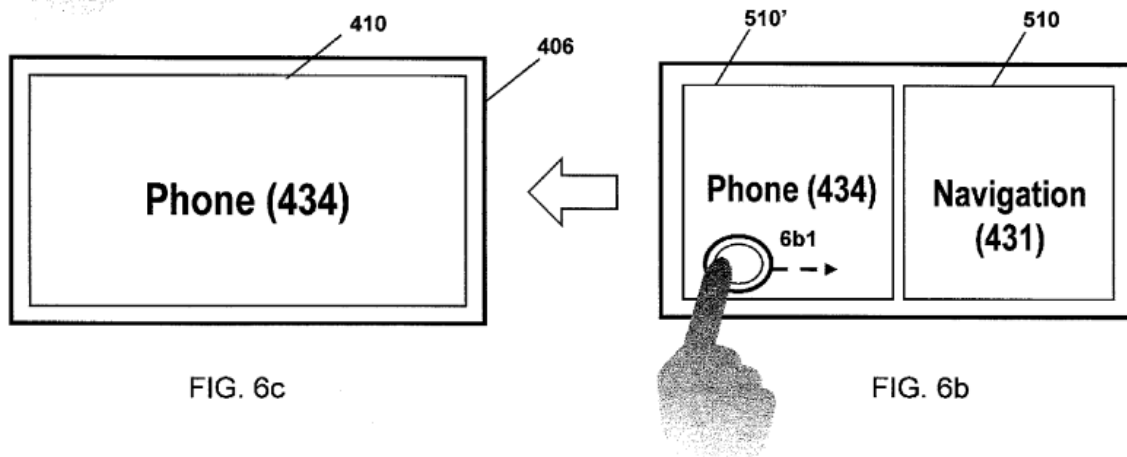
194. For example, in Fig. 5, a first window of a multi-display application (indicated in yellow) is displayed on both the first display (orange box) and second display (green box). Ex. 1006, 6:48-67.

195. Aguilar discloses that a user can use a “smaller spindle” (element 530’ shown in Fig. 5a below) to open up a second application on a second display where a

first application currently is displayed on both the first and second display. *Id.*, Figs. 5, 5a-b, 7:1-10. Aguilar further discloses that the user can choose any application the user desires when browsing the applications available on the “smaller spindle.” *Id.*, 7:1-10 (“[I]f the user wants to view other application panels . . . the user can simply use one finger to spin the smaller spindle . . . ***until a desirable application is found.***”) Once the user selects a desirable second application (e.g., the exemplary second application shown in Fig. 5 and related figures is “Audio”) from the stack of applications available on the “smaller spindle,” the second application will then display on the second display (green box) and the first application will be minimized to the first display (orange box), as shown in Fig. 5b, which is the end output result when a user is done selecting from the “smaller spindle” as shown in Fig. 5a. *Id.*, Fig. 5a, 5b. Aguilar further discloses that from this output result where a first application is on a first display and a second application is on a second display, the user may then generate an input such as a “sliding” touch input, on one of the applications. *Id.*, 7:42-54, Fig. 6b. When this input is received on either the first or second display, Aguilar’s device responds by “merging” or “getting rid” of the other display, such that the display which received input is maximized. *Id.* Thus, because Aguilar discloses that any exemplary second application can be displayed on a single display, or “merged” into one display, Aguilar has disclosed that the second application is a multi-display application. Similarly, because Aguilar discloses that the “sliding” touch input can occur on either

the first or second display, and the applications on either of those displays are selected as desired by the user, Aguilar has disclosed that all the applications available on Aguilar's device are multi-display applications.



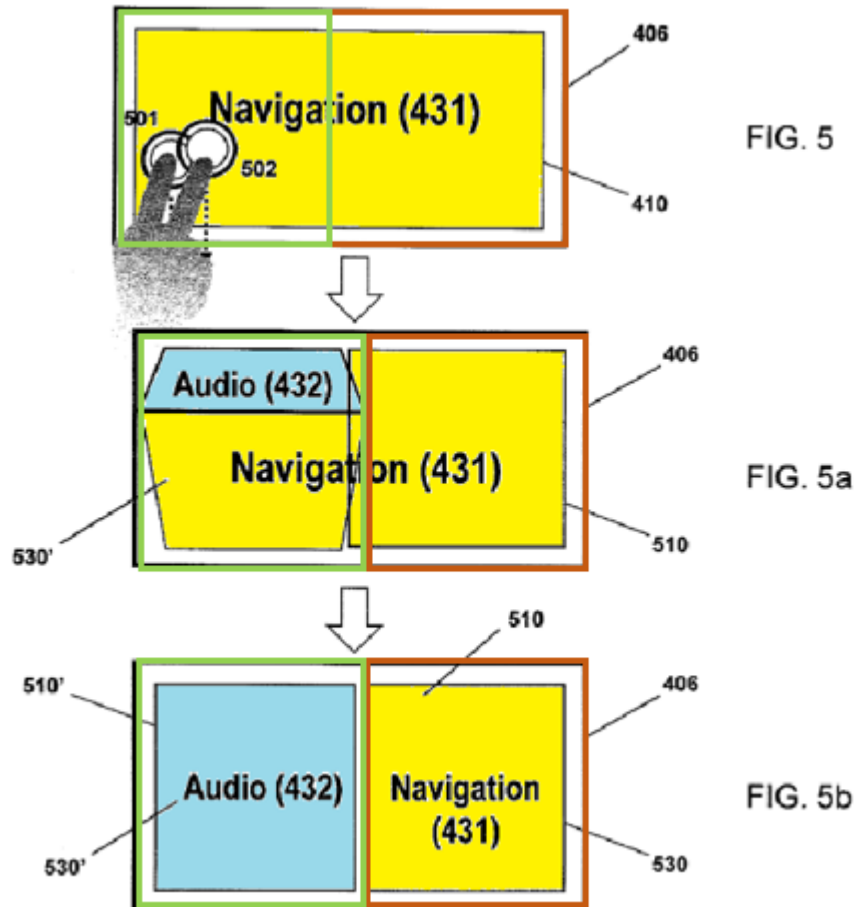


Id., Figs. 6b, 6c, 5, 5a, 5b.

4. **[1C] receiving an input to launch a second application; in response to receiving the input: displaying a second window of the second application on the second display; and**

196. In my opinion, Aguilar discloses this limitation.

197. For example, in Fig. 5, Aguilar describes how a user can generate an input with two fingers (elements 501 and 502) on the touch screen, causing a second window of a second application to launch (such as an Audio application (element 432)) on the second display (element 510'). Ex. 1006, Fig. 5-5b, 6:48-7:63.

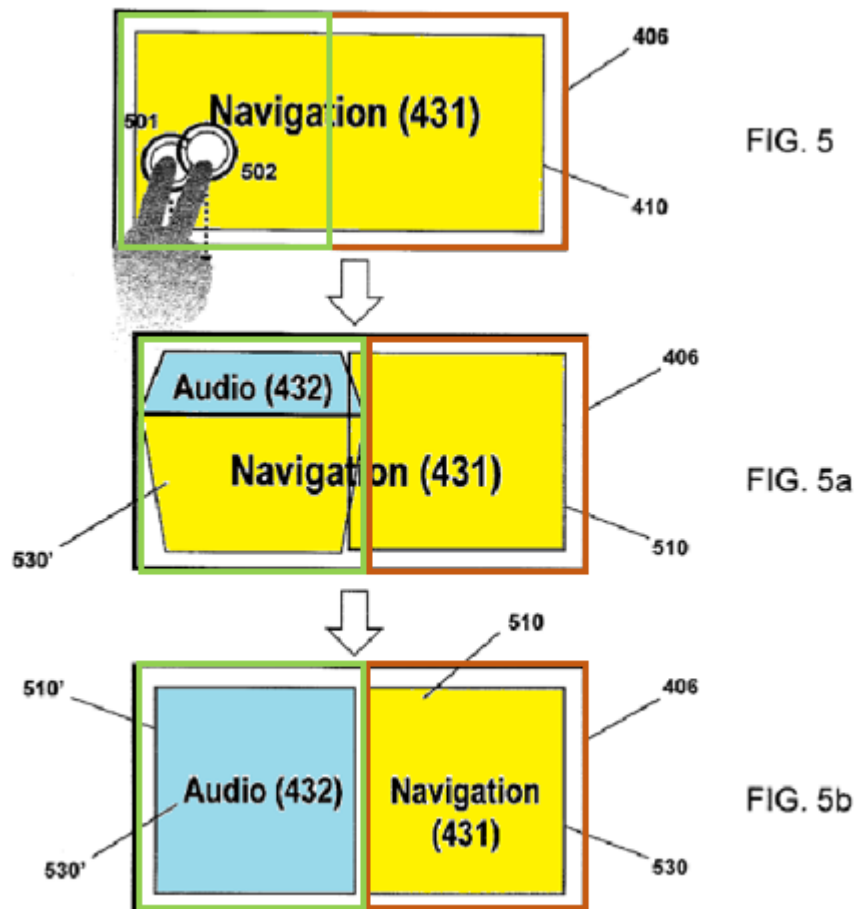


5. [1D] in response to opening the second window, automatically minimizing the first window to fit the first display; and displaying the minimized first window of the multi-display application on the first display.

198. In my opinion, Aguilar discloses this limitation.

199. As I previously explained, Fig. 5 demonstrates how a first window of a first application can be initially displayed across both the first and second display. Ex. 1006, 6:48-7:63. That window can then be resized to fit on only the first display

(orange box) when a second application (indicated in blue) is launched on the second display (green box). *Id.*; Fig. 5-5b.

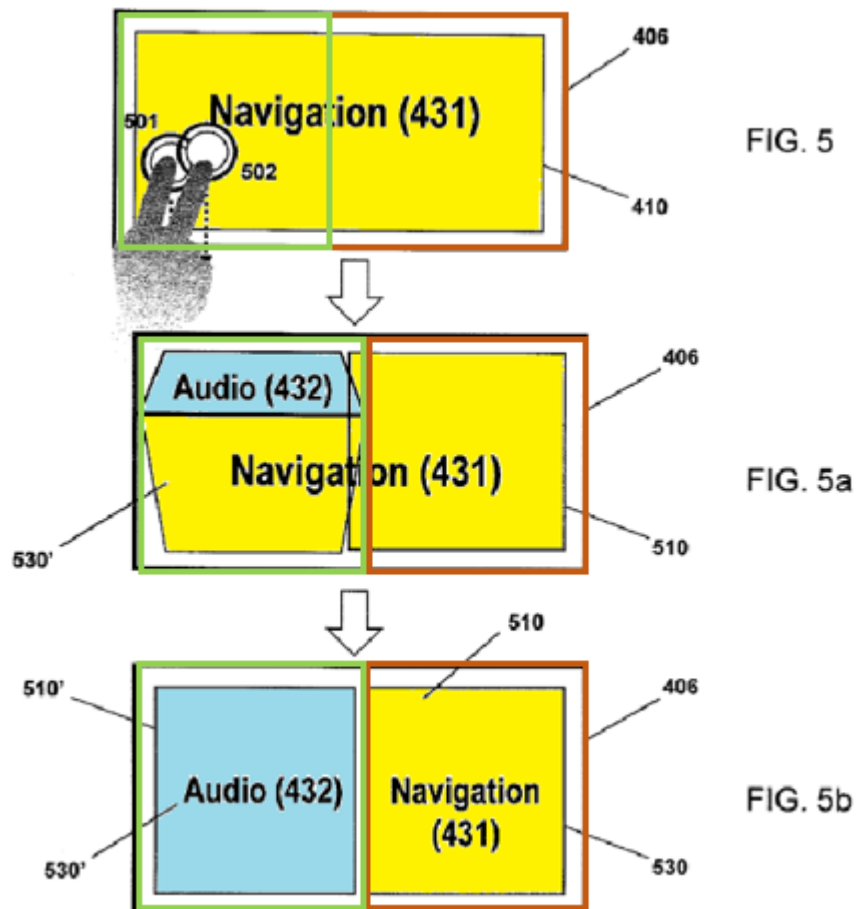


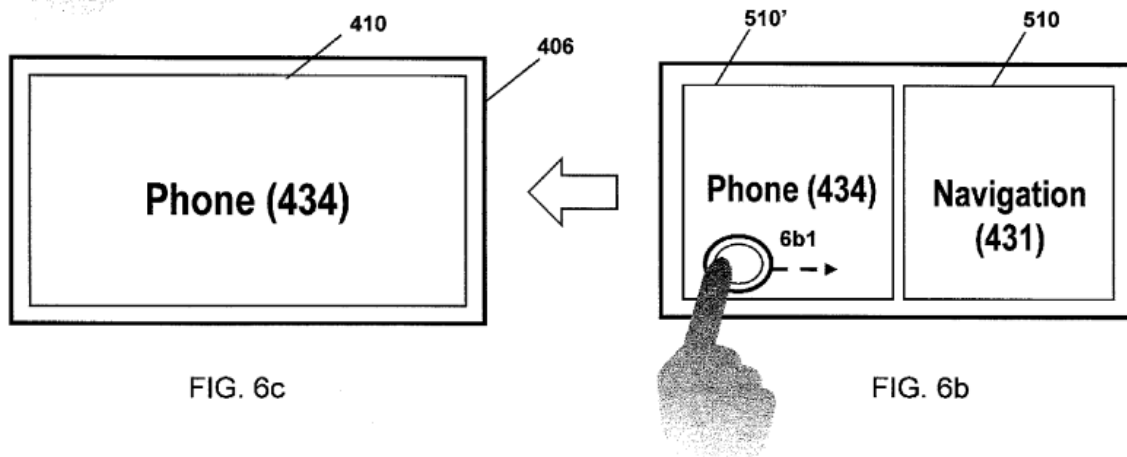
B. Claim 3 - The method of claim 1, wherein the second application is a second multi-display application.

200. In my opinion, Aguilar discloses this limitation. Aguilar discloses that a user can use a “smaller spindle” (element 530’ shown in Fig. 5a below) to open up a second application on a second display where a first application currently is displayed on both the first and second display. *Id.*, Figs. 5, 5a-b, 7:1-10. Aguilar further discloses

that the user can choose any application the user desires when browsing the applications available on the “smaller spindle.” *Id.*, 7:1-10 (“[I]f the user wants to view other application panels . . . the user can simply use one finger to spin the smaller spindle . . . ***until a desirable application is found.***”) Once the user selects a desirable second application (e.g., the exemplary second application shown in Fig. 5 and related figures is “Audio”) from the stack of applications available on the “smaller spindle,” the second application will then display on the second display (green box) and the first application will be minimized to the first display (orange box), as shown in Fig. 5b, which is the end output result when a user is done selecting from the “smaller spindle” as shown in Fig. 5a. *Id.*, Fig. 5a, 5b. Aguilar further discloses that from this output result where a first application is on a first display and a second application is on a second display, the user may then generate an input such as a “sliding” touch input, on one of the applications. *Id.*, 7:42-54, Fig. 6b. When this input is received on either the first or second display, Aguilar’s device responds by “merging” or “getting rid” of the other display, such that the display which received input is maximized. *Id.* Thus, because Aguilar discloses that any exemplary second application can be displayed on a single display, or “merged” into one display, Aguilar has disclosed that the second application is a multi-display application. Similarly, because Aguilar discloses that the “sliding” touch input can occur on either the first or second display, and the applications on either of those displays are selected as desired by the user, Aguilar has

disclosed that all the applications available on Aguilar's device are multi-display applications.



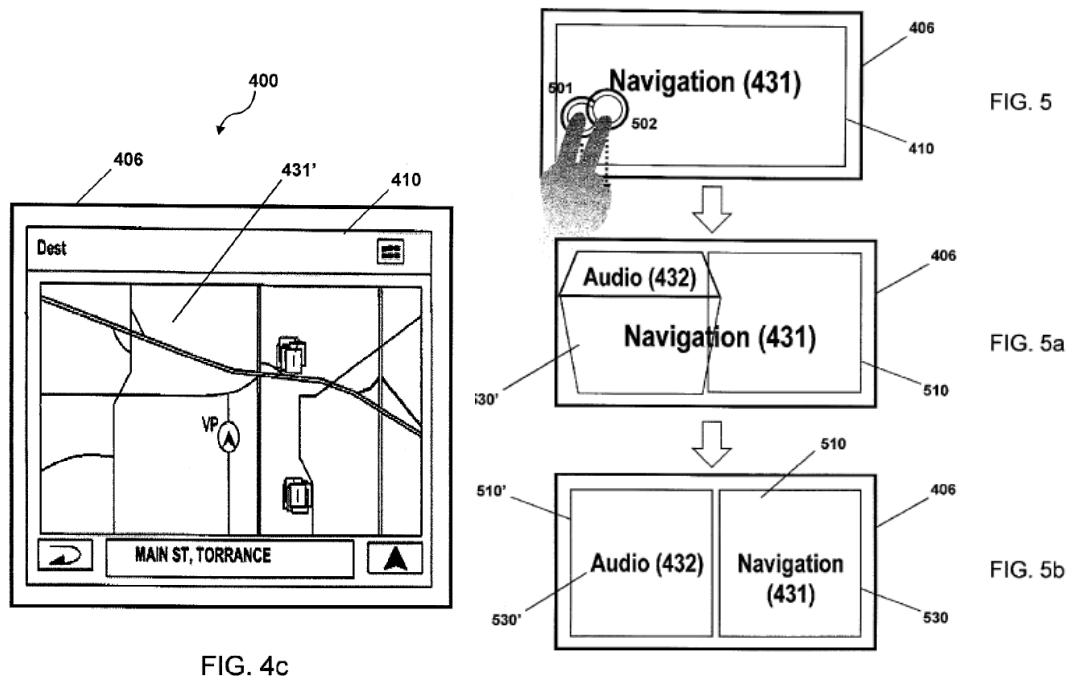


C. Claim 4 - The method of claim 1, wherein the minimized first window displays only a portion of the content displayed on the window of the multi-display application.

201. In my opinion, Aguilar discloses the minimized first window displays only a portion of the content displayed on the window of the multi-display application.

202. Aguilar describes its split-window displays as displaying “portions” or segments of the original full screen display. Ex. 1006, 7:65-8:6. Aguilar also notes how the font size may change depending on the size of the window shown on the displays. Ex. 1006, 5:54-6:3. In addition, Aguilar provides an example of its Navigation display in Fig. 4c. As can be seen below, given the aspect ratio in Fig. 5, when the Navigation application enters the split screen, it necessarily displays a portion of its content as indicated with reference to Figs. 5-5b. Moreover, a POSITA would recognize that, given Aguilar’s application to automobile displays, the Navigation application would not simply reduce its map size to fit a new display and make it too small for a driver to read. Such an application would run counter

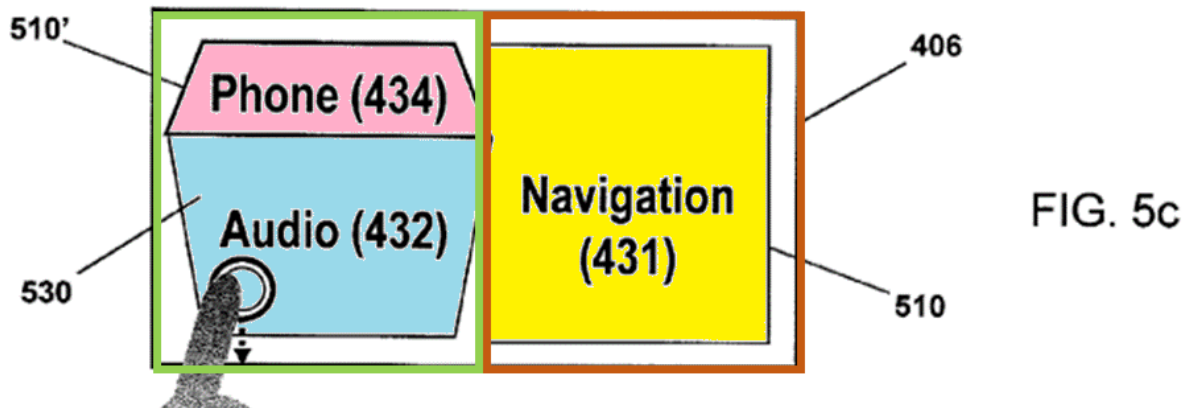
to Aguilar's purpose of providing less distraction to a driver and a more friendly user interface. Ex. 1006, 2:21-25; Figs. 4c, 5-5b.



D. Claim 5 - The method of claim 1, further comprising: placing a focus on the second window of the second application.

203. In my opinion, Aguilar discloses this limitation.

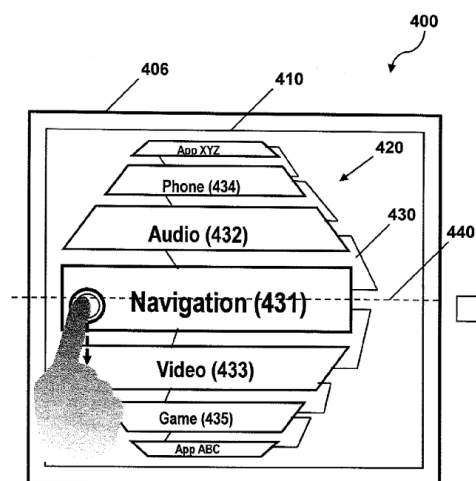
204. For example, Fig. 5c shows that after the second window of the second application is launched and appears in the second display, the second display is capable of receiving user input in the form of a gesture. Ex. 1006, Fig. 5c, 7:1-10. Thus, the second display (indicated by a green box) is in focus because it is active and can receive input.



Id., Fig. 5c.

- E. Claim 6 - The method of claim 1, wherein the input comprises a tap on the at least one of the first display or the second display.**

205. Aguilar discloses that the input comprises a tap on the at least one of the first display or the second display. For example, the user can initiate the spindle selection view shown in Fig. 4d on either display. Ex. 1006, 6:48-7:10. The user can then “press” or “tap twice” on a panel icon representing an application to open it. *Id.*, 7:1-7:10; Fig. 4d.



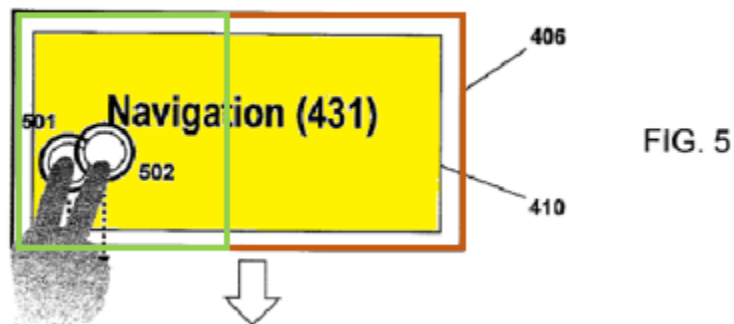
F. Claim 7 - The method of claim 6, wherein the tap is on an icon representing the second application.

206. In my opinion, Aguilar discloses this limitation for at least the same reasons I discuss in Section XIV.E.

G. Claim 9 - The method of claim 1, wherein the first window of the multi-display application is displayed in one of a portrait max configuration and a landscape max configuration.

207. Aguilar discloses that the first window of the multi-display application is displayed in one of a portrait max configuration and a landscape max configuration .

208. Fig. 5c is just one out of many examples in Aguilar that shows an application (e.g., the Navigation application) in landscape max orientation across both the first and second displays. *Id.*, Fig. 5.



209. Notably, Aguilar's system provides for smaller landscape max orientations where an application occupies a subdivision of logical displays less than a full physical screen. *See* Ex. 1006, Fig. 7b. Aguilar notes that this display mode is possible for any of the applications on its system. Ex. 1006, 7:65-8:18; Fig. 7b.

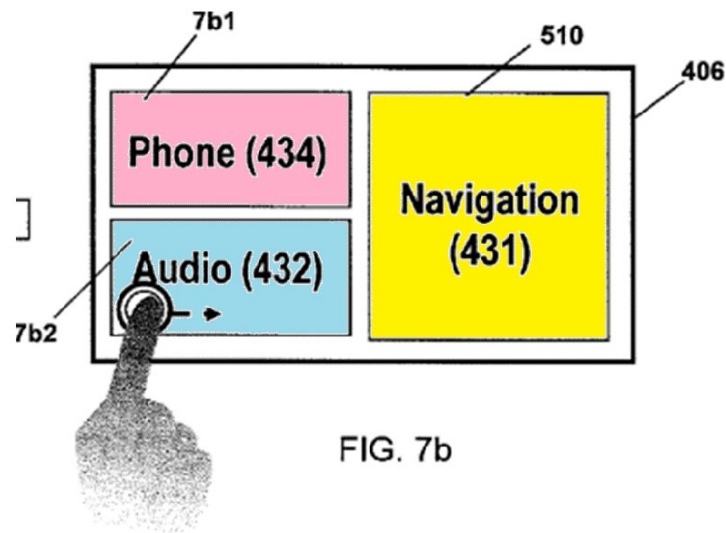


FIG. 7b

H. Claim 10 - The method of claim 1, wherein the first and second displays are logical portions of a single screen.

210. In my opinion, Aguilar discloses this limitation for at least the reasons I discuss in Section XIV.A.3.

I. Claim 17

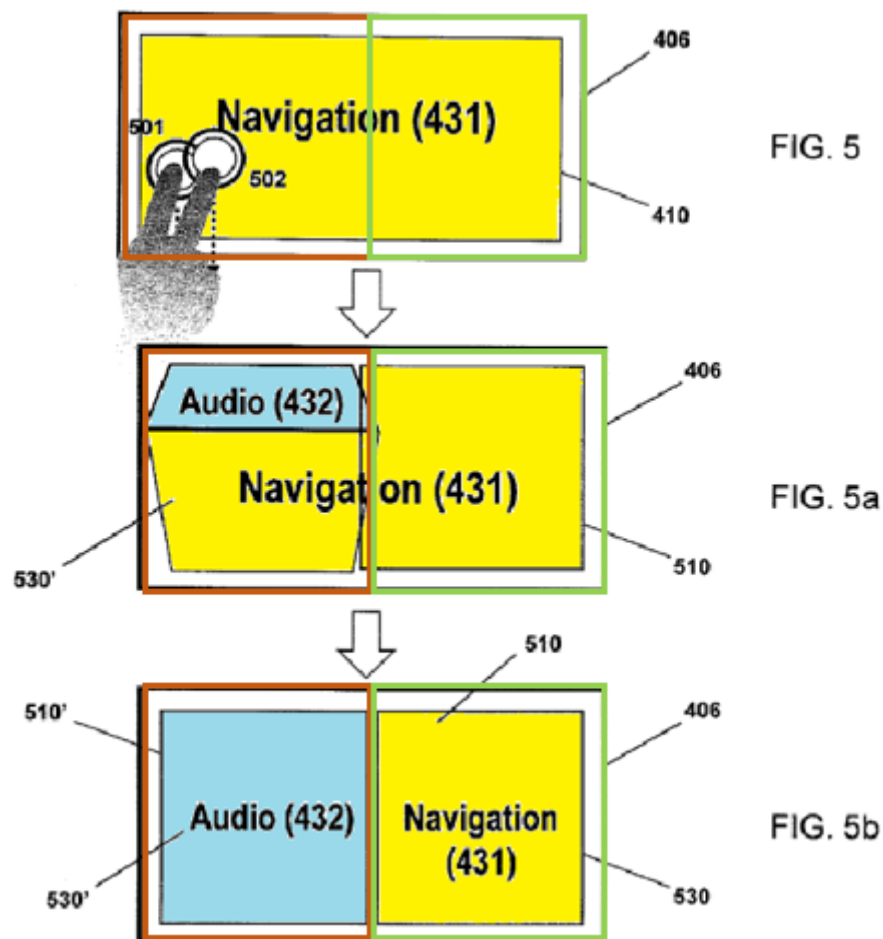
1. 17[P] A dual display communication device, comprising:

211. To the extent the preamble is limiting, Aguilar discloses this limitation. Aguilar discloses a dual display device for at least the reasons I discuss in Sections XIV.A.1. and XIV.A.2. Aguilar discloses “a wireless communication device 915 to retrieve data from a remote server, the Internet or other communication networks.” Ex. 1006, 9:59-10:2.

2. 17[A] a first display; a second display;

212. In my opinion, Aguilar discloses a device having a first display and a second display.

213. Aguilar discloses a device with a second display (green box) and a first display (orange box). Ex. 1006, Fig. 5. As shown in Fig. 5 (annotated below), Aguilar provides that a “user can also split the user interface to at least two display segments which may contain different applications.” Ex. 1006, 5:13-16, Fig. 5a-b. A POSITA would have understood that these “display segments” are managed by the processor as separate logical displays, each of which may contain a different application from other logical displays. Ex. 1006, Abstract, 5:13-16, 9:13-25; Figs. 5-5b.



214. Aguilar explains that “if the user wishes to have a ‘dual view’ on the screen 410, the user may be allowed to split the screen 410 into at least two display segments (530, 530’) by using the ‘two finger dragging down’ gesture...” Ex. 1006, 6:48-52.

3. 17[B] a non-transitory computer readable medium that stores computer executable instructions that when executed by at least one processor perform a method comprising:

215. In my opinion, Aguilar discloses this limitation.

216. As shown in Fig. 9 (annotated below), there is a display controller, CPU, VRAM, and video generating unit (purple) that are part of the process for storing and executing the instructions and commands to perform the screen splitting functions for the user interface. Ex. 1006, 9:13-25. A POSITA would have understood that a controller necessarily includes a processor because it executes programs. POSITA would also understand that operational programs include computer executable instructions. *Id.* Aguilar discloses “a processor (CPU) 910 for controlling an overall operation of the navigation system 900” and “a ROM 918 for storing various control programs.” *Id.*, 9:59-10:2; Fig. 9. Aguilar discloses that “the application managing unit is programmed.” Ex. 1006, 28-41. Aguilar’s device “includes a data storage device 909 such as a hard disc, CD-ROM, DVD or other storage means for storing the map data; a control unit 908 for controlling an operation for reading the information from the data storage device 909.” Ex. 1006, 9:34-39. A POSITA would have understood that

the memory storing programs (e.g., ROM) in Aguilar's device is a non-transitory computer readable medium.

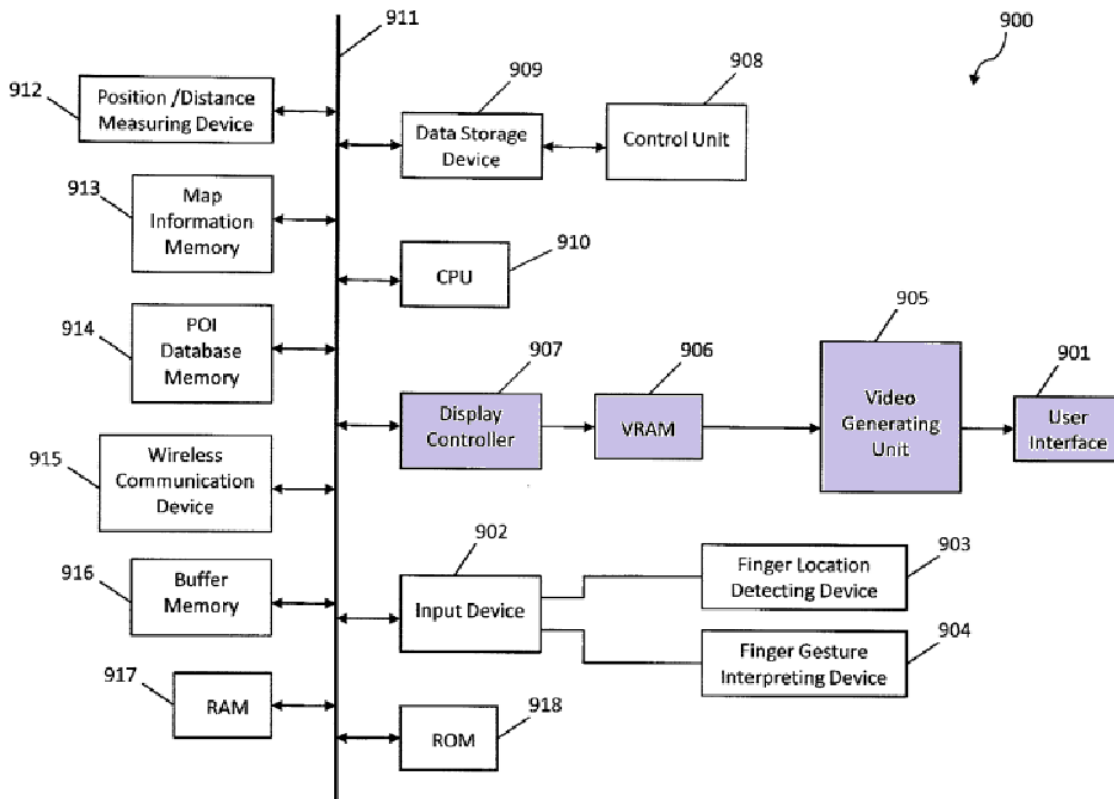


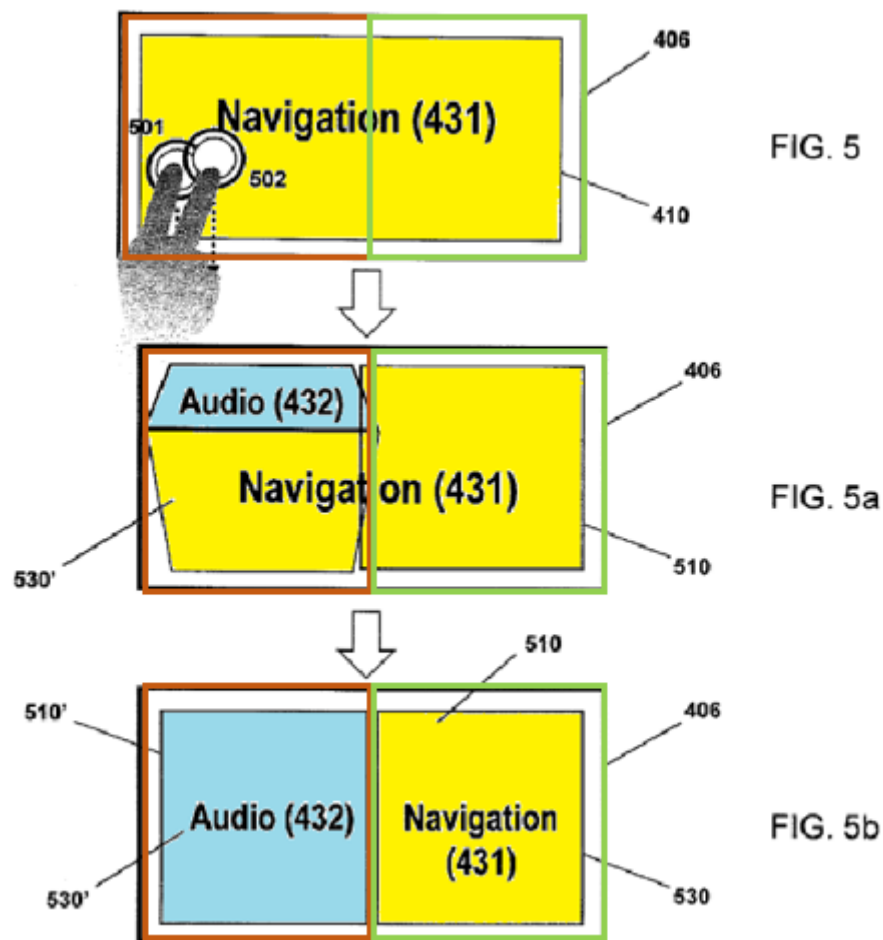
FIG. 9

Id., Fig. 9.

4. 17[C] displaying a first window of a multi-display application on the first display and the second display;

217. In my opinion, Aguilar discloses this limitation.

218. For example, in Fig. 5, a first window of a first application (indicated in yellow) is displayed on both the first display (orange box) and second display (green box). *Id.*, Figs. 5-5b.



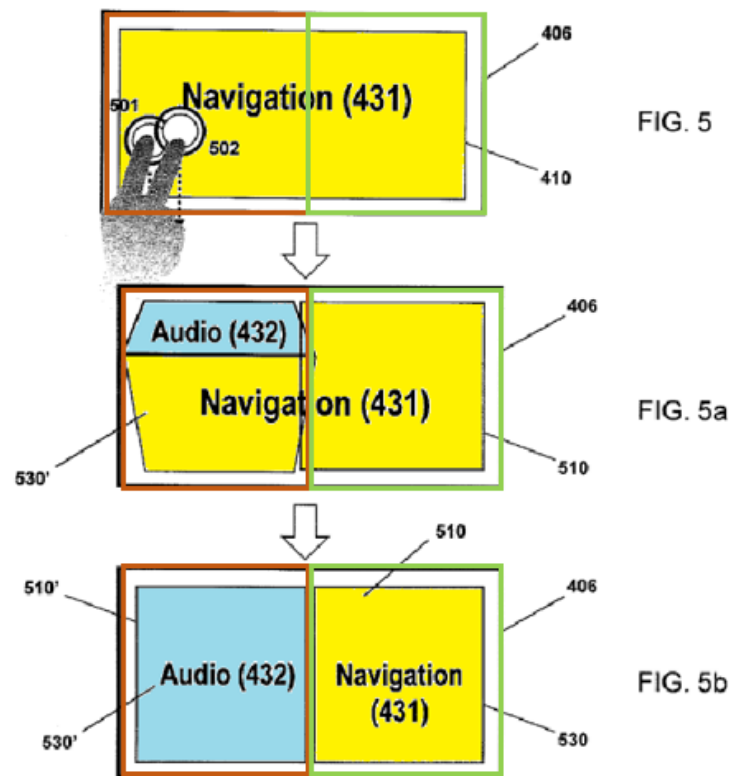
219. As I previously explained in Section XIV.A.3, Aguilar discloses that the exemplary applications used therein are multi-display applications.

5. **17[D] receiving, by the first display, input to activate a second application; and in response to receiving the input: displaying a second window of the second application on the first display; and**

220. In my opinion, Aguilar discloses this limitation.

221. For example, in Fig. 5, Aguilar describes how a user can generate an input with two fingers (elements 501 and 502) on the touch screen of the first

display (orange box), and Aguilar's device will in response launch a second window of a second application (such as an Audio application (element 432)) on the first display (element 510'). Ex. 1006, Fig. 5, 6:48-7:63.

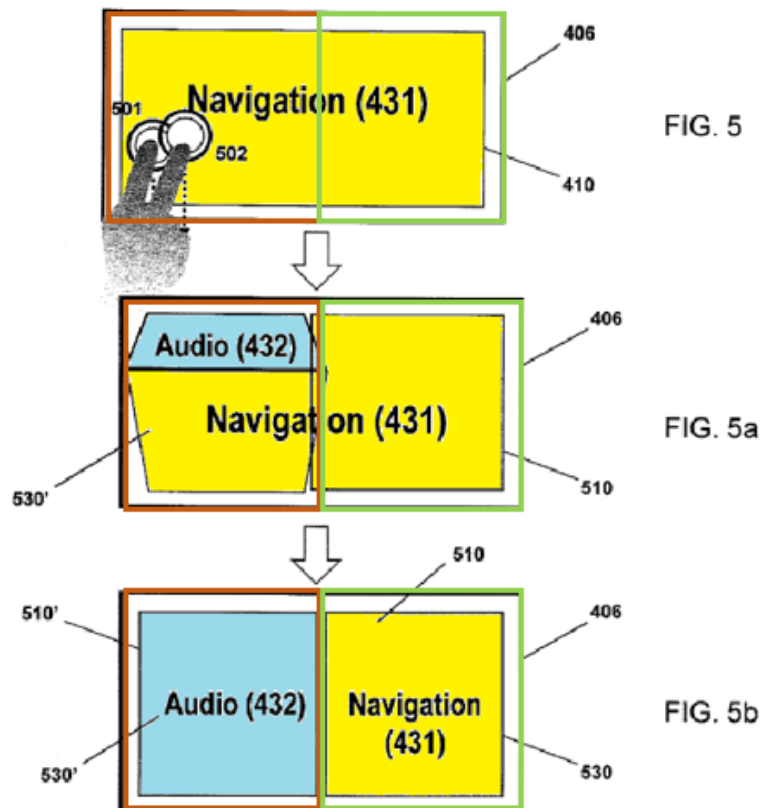


6. **17[E] in response to opening the second window, automatically minimizing the first window to fit the second display; and displaying the minimized first window of the multi-display application on the second display.**

222. In my opinion, Aguilar discloses this limitation.

223. Fig. 5 demonstrates how a first window of a first application can be initially displayed across both the first and second display. Ex. 1006, 6:48-7:63. That window can then be automatically minimized to fit on only the second display

(green box) when a second application (indicated in blue) is launched. *Id.* As I have stated above, both the first and second applications have been disclosed as multi-display applications. *See* Section XIV.A.3.



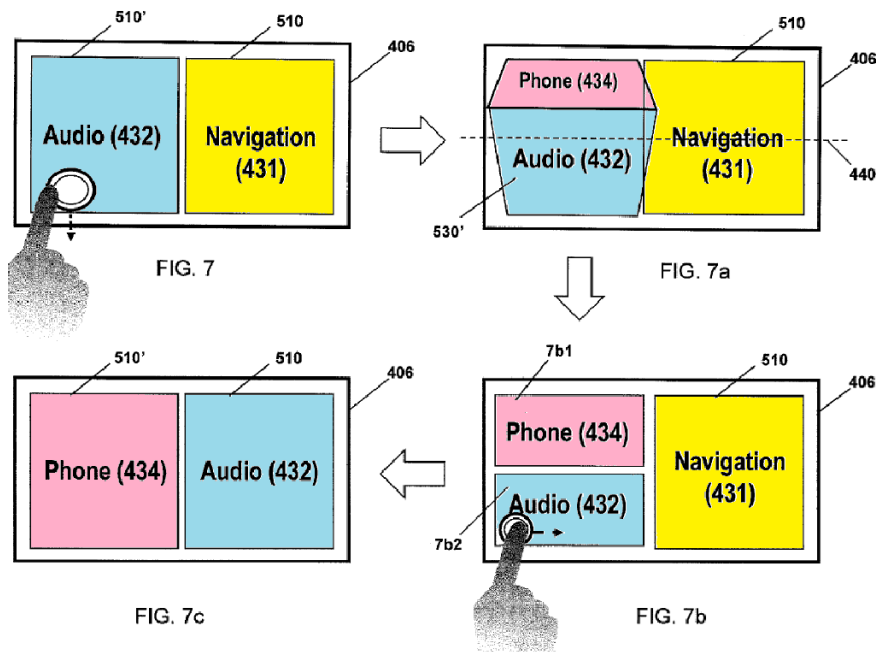
- J. Claim 18 - The device of claim 17, wherein the minimized first window displays only a portion of the content displayed on the first window of the multi-display application, when the first window was displayed on the first and second touch sensitive displays.**

224. Sections XIV.A.3 and XIV.C. Further, Aguilar discloses that the “screen 410 may be a touch screen or multi-touch device.” Ex. 1006, 6:4-8..

- K. Claim 20 - The device of claim 17, further comprising: receiving second input to open a third application; opening a third window on the second display; and in response to receiving the second input, displaying the third window on the second display, wherein the first window is no longer displayed on the second display.**

225. In my opinion, Aguilar discloses this limitation.

226. Aguilar expressly notes that different application windows may be opened on either display. *See, e.g.*, Ex. 1006, 6:23-46, 6:48-67, 7:7-10. For example, Fig. 7-7c shows a third application (e.g., an Audio application) may be opened and displayed on the second display in place of the first application (e.g., a Navigation application). *Id.*, Figs. 7-7c.



XV. GROUND 6: ALL CHALLENGED CLAIMS ARE OBVIOUS OVER AGUILAR

227. It is my opinion that if the Board finds that Aguilar does not anticipate any of the Challenged Claims, then such Challenged Claims are rendered obvious by Aguilar.

228. Certain phrases used throughout Aguilar may differ from the terminology used in the '153 patent. For example, Aguilar may refer to a “segments,” but I find no meaningful distinction between this phrase and what the '153 patent defines a “display” as. The same is true for other terminology differences between Lee and the '153 patent. *See, e.g.:*

A user interface with multiple applications which can be operated concurrently and/or independently by using simple finger gestures allows a user to intuitively operate and control digital information, functions, applications, etc. to improve operability. The user is able to use finger gesture to navigate the user interface via a virtual spindle metaphor to select different applications. The user can also split the user interface to at least two display segments which may contain different applications. Moreover, each display segment can be moved to a desirable location on the user interface to provide a seamless operation environment.

Ex. 1006, Abstract.

The term “display” refers to a portion of one or more screens used to display the output of a computer to a user.

Ex. 1001, 3:62-4:3.

229. Aguilar discloses a system and provides numerous examples of how the split-screen management system can be interacted with and manipulated to affect the screen and display output on an electronic device. A POSITA would have understood that the examples Aguilar provided are all associated, so that one could achieve various results by implementing the many functionalities Aguilar describes. Thus, a POSITA would have been motivated to try each and every one of Aguilar's disclosed examples, in various sequences and in relation to each other.

230. Claims 4 and 18 are both directed to the minimized first window displaying only a portion of the content displayed on the window of the multi-display application. In other words, the claimed limitation is that a minimized first window does not display the same amount of content as an expanded window, because the minimized window is only displayed on the first display. In my opinion, a POSITA would have understood that a reduced-size version of an application window would commonly display only a portion of the contents of a maximized version of the application window.

231. Aguilar discloses that a first window is automatically minimized to fit a first display, and that this resized first window will display only smaller "portions" or segments of the original full screen display. Ex. 1006, 6:48-6:67, 7:65-8:6

232. Based on these disclosures from Aguilar, it is my opinion that a POSITA would have found it readily obvious and understood that a reduced size display would only display a portion (e.g., fewer pixels) of the contents of its larger related display.

XVI. GROUND 7: CLAIMS 1, 4-5, 9, 17, AND 18 ARE ANTICIPATED BY PURCELL

233. I have reviewed and am familiar with U.S. Patent Pub. App. No. 2007/0084645 A1 (“Purcell”) filed on October 12, 2006, claiming priority to Korean provisional application number 97136/2005 filed on September 15, 2005, and published on April 19, 2007.

234. In my opinion, based on the following analysis, claims 1, 4-5, 9, 17, and 18 of the ’153 patent are invalid as anticipated by Purcell.

A. Claim 1

1. [1P]: A method, comprising:

235. To the extent the preamble is limiting, in my opinion, Purcell discloses a method or “screen sharing function.” Ex. 1007, Abstract, Fig. 3, [0015] (“An executable procedure”), [0018] (“a process”).

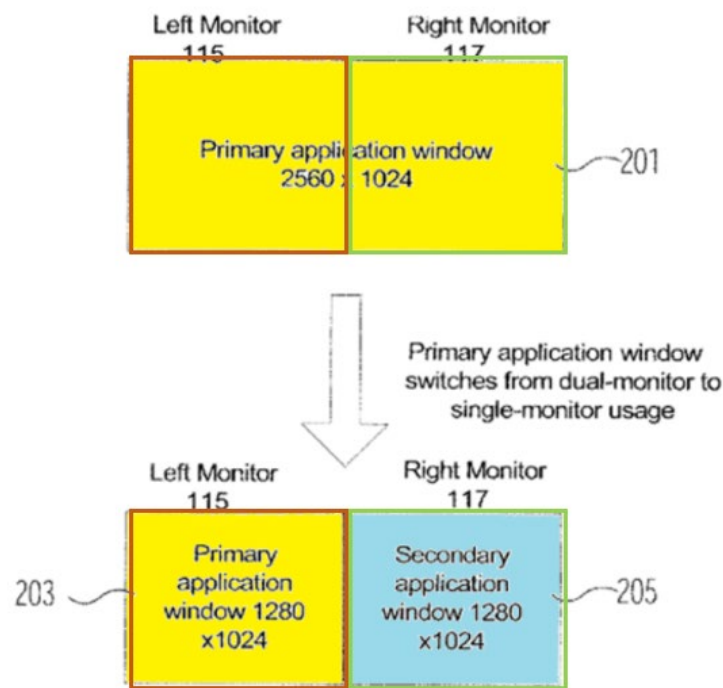
2. [1A] providing a device having a first display and a second display:

236. In my opinion, Purcell discloses this limitation.

237. Purcell provides an exemplary device with a first display (indicated with an orange box in annotated Fig. 2 below) and a second display (indicated with

a green box). Ex. 1007, Abstract, Fig. 2. As shown in Fig. 2 below, Purcell is directed to a system and device with multiple display monitors that is used to display multiple applications at the same time to a user. Ex. 1007, Abstract; Fig. 2.

FIGURE 2



3. [1B] displaying a first window of a multi-display application on the first display and the second display;

238. In my opinion, Purcell discloses this limitation.

239. Fig. 2 expressly demonstrates that a primary application window (element 201, indicated in yellow in annotated Fig. 2 below) can launch as a multi-

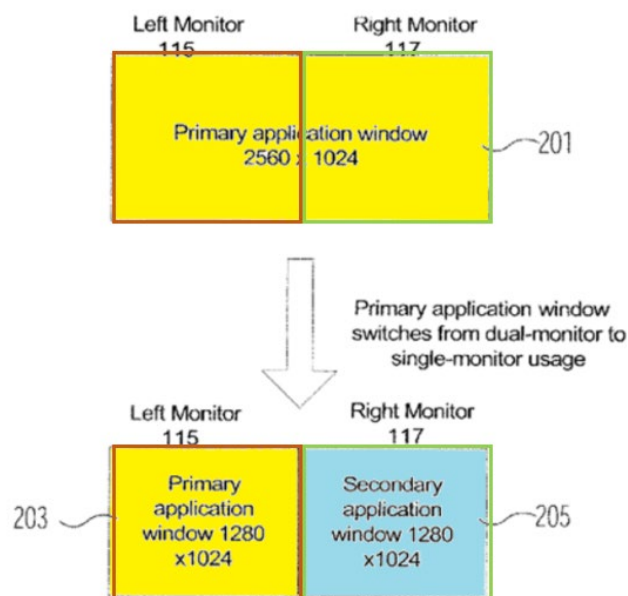
display application, where the primary application window is displayed on both monitors/displays. Ex. 1007, ¶[0016].

4. [1C] receiving an input to launch a second application; in response to receiving the input: displaying a second window of the second application on the second display; and

240. In my opinion, Purcell discloses this limitation.

241. Purcell explains that Fig. 2 demonstrates how “to permit another application to execute concurrently and display an image window adjacent to an image window of the primary application, system 100 dynamically changes the primary application image window size to match that of a left monitor (monitor 115).” Ex. 1007, ¶[0016]. The system then “initiates execution of a secondary application that displays an associated image window on the right monitor (117).” *Id.*

FIGURE 2



Id., Fig. 2.

5. **[1D] in response to opening the second window, automatically minimizing the first window to fit the first display; and displaying the minimized first window of the multi-display application on the first display.**

242. In my opinion, Purcell discloses this limitation.

243. Purcell's system, based on user input, "initiates execution of a secondary application that displays an associated image window on the right monitor (117)." Ex. 1007, ¶[0016]. Purcell's system incorporates a dynamic resizing process. *Id.* Via this process, the primary application window changes size and is reduced to a portion of the amount of pixels it displays. *Id.*, ¶¶[0016], [0019]. This dynamic resizing process is demonstrated in Fig. 2 (above).

FIG. 2 illustrates image format determination system operation. The primary application typically runs with a single full-size image window spanning both monitors 115 and 117 of the system 100 dual-monitor system. As a top-level image window, it obscures image windows of a desktop application and any other executing applications. In order *to permit another application to execute concurrently and display an image window adjacent to an image window of the primary application, system 100 dynamically changes the primary application image window size to match that of a left monitor (monitor 115).*

Ex. 1007, ¶[0016].

B. Claim 4 - The method of claim 1, wherein the minimized first window displays only a portion of the content displayed on the window of the multi-display application

244. In my opinion, Purcell discloses this limitation.

245. As I explained for claim [1D] above, Purcell's system incorporates a dynamic resizing process. Ex. 1007, ¶[0016]. The primary application window changes size and is reduced to a portion of the amount of pixels it displays. *Id.*, ¶[0016], [0019]. Purcell explains that the primary application window may comprise, for example, a total of 2,621,440 pixels. *Id.*, ¶[0016]. When minimized to only the first display, Purcell explains that the primary application window can be reduced to only a portion of the original pixels and may display at only, for example, 1,310,720 pixels. *Id.* Thus, the reduced-pixel-size minimized window displays only a portion of the content of the first application window.

C. Claim 5 - The method of claim 1, further comprising: placing a focus on the second window of the second application.

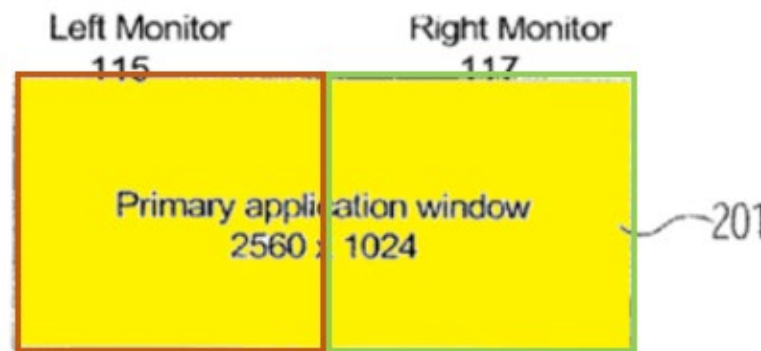
246. In my opinion, Purcell discloses this limitation.

247. When a secondary application window is launched and displayed on the second display, a user is able "to interact with both applications, respectively..." Ex. 1007, ¶[0016]. Thus, a focus is placed on the second window because it is active and can receive input.

D. Claim 9 - The method of claim 1, wherein the first window of the multi-display application is displayed in one of a portrait max configuration and a landscape max configuration.

248. In my opinion, Purcell discloses this limitation.

249. Fig. 2 shows the primary application window displayed in landscape max configuration across both displays.



Ex. 1007, Fig. 2.

E. Claim 17

1. 17[P] A dual display communication device, comprising:

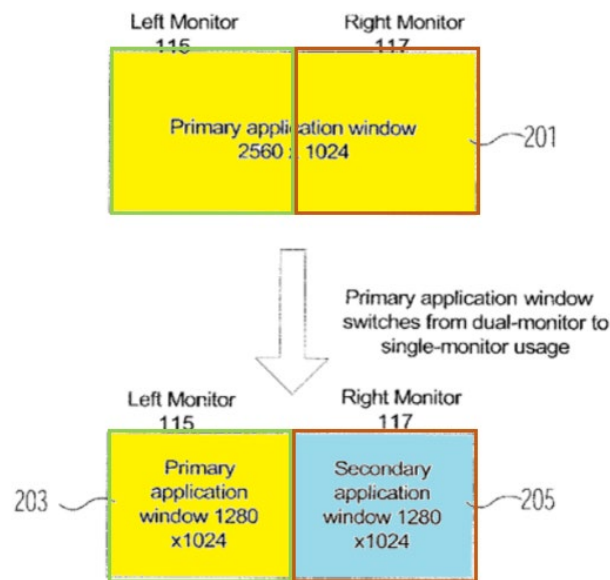
250. To the extent the preamble is limiting, in my opinion, Purcell discloses this limitation for at least the reasons I discuss in Section XVI.A.1 and XVI.A.2. Further, Purcell discloses that the “The system 100 may be implemented in a variety of forms including ... a network-based device, ... a cellular telephone, a pager, ...”

Ex. 1007, [0017].

2. 17[A] a first display; a second display;

251. In my opinion, Purcell discloses this limitation.

252. Purcell provides an exemplary device with a first display (indicated with an orange box in the annotated Fig. 2 below) and a second display (indicated with a green box). Ex. 1007, Fig. 2. As shown in Fig. 2, Purcell is directed to a system with multiple display monitors that is used to display multiple applications at the same time to a user. Ex. 1007, Abstract, Fig. 2.

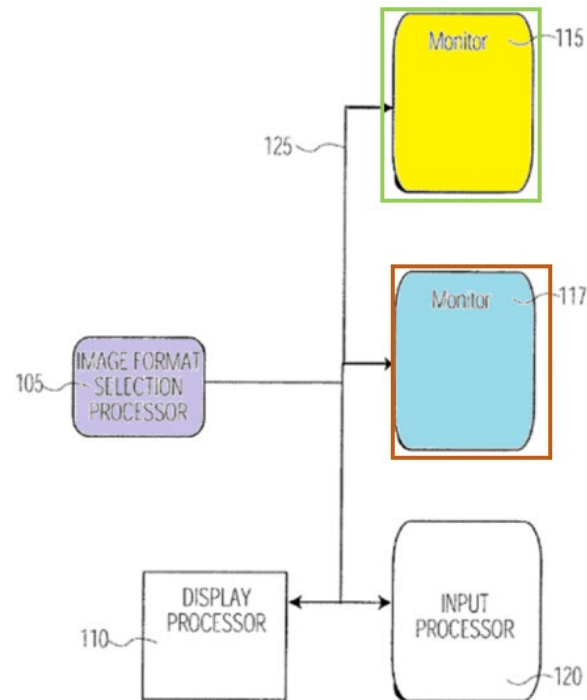


3. 17[B] a non-transitory computer readable medium that stores computer executable instructions that when executed by at least one processor perform a method comprising:

253. In my opinion, Purcell discloses this limitation.

254. Fig. 1 discloses that Purcell's system contains an image format determination system, which includes an input processor for receiving command data. Ex. 1007, ¶[0004]. Together, this system and processor execute computer readable

instructions stored in the system in order to perform the method steps. Ex. 1007, ¶¶[0013]-[0015].



Ex. 1007, Fig. 1.

A user interface system ensures a primary executable application main image window displays on both monitors in a dual-monitor system and automatically switches between single and dual-monitor usage as necessary to permit other applications to operate concurrently with the primary application. A system including multiple display monitors for displaying multiple user interface image windows associated with corresponding multiple executable applications employs an image format determination system. The image format determination system includes an input processor for receiving command data representing a command to initiate execution of a function of a second application and display

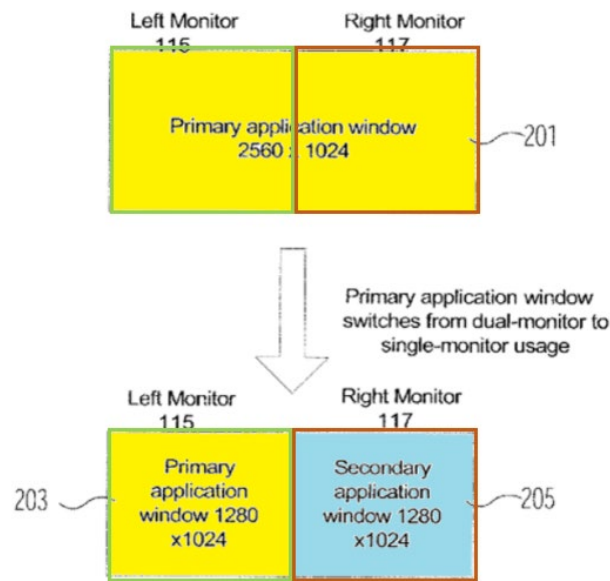
of an associated second image window in response to user entry of a command via a first image window associated with a first application. An image format selection processor, in response to the received command data, automatically initiates reduction in size of the first image window to fit a screen of the multiple display monitors and to prevent mutual overlap of the reduced size first image window and the second image window. A display processor initiates generation of data representing the reduced size first image window and the second image window, for presentation on the multiple display monitors.

Ex. 1007, ¶[0004]. Purcell discloses “[a]n executable application as used herein comprises code or machine readable instruction for implementing predetermined functions.” *Id.*, [0015]. Purcell also discloses “[a] processor” with “software.” *Id.* A POSITA would have understood that the software necessarily is stored in a non-transitory computer readable medium.

4. 17[C] displaying a first window of a multi-display application on the first display and the second display;

255. In my opinion, Purcell discloses this limitation.

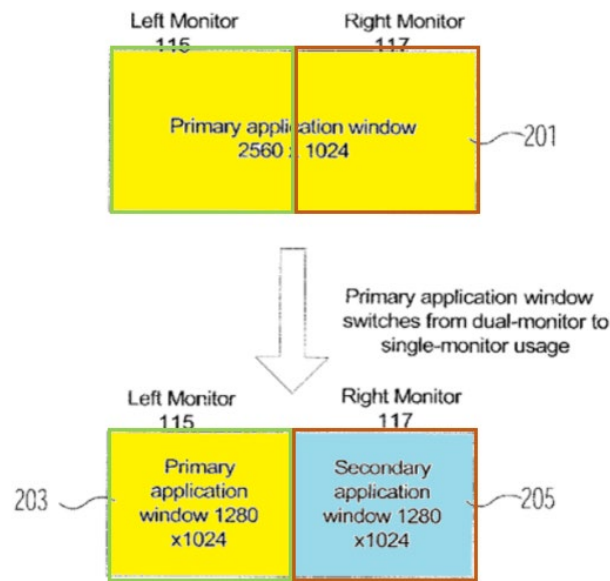
256. Fig. 2 expressly demonstrates that a primary application window (element 201, indicated in yellow) can launch as a multi-display application, where the primary application window displays on both monitors/displays. Ex. 1007, ¶[0016]; Fig. 2.



5. **17[D] receiving, by the first display, input to activate a second application; and in response to receiving the input: displaying a second window of the second application on the first display; and**

257. In my opinion, Purcell discloses this limitation.

258. Purcell explains that Fig. 2 demonstrates how “to permit another application to execute concurrently and display an image window adjacent to an image window of the primary application, system 100 dynamically changes the primary application image window size to match that of a left monitor (monitor 115).” Ex. 1007, ¶[0016]. The system then “initiates execution of a secondary application that displays an associated image window on the right monitor (117).” *Id.* Purcell further discloses that this initiation is “in response to the received command data” that Purcell teaches can be user input via “a touch screen.” *Id.*, ¶[0013].



Id., Fig. 2.

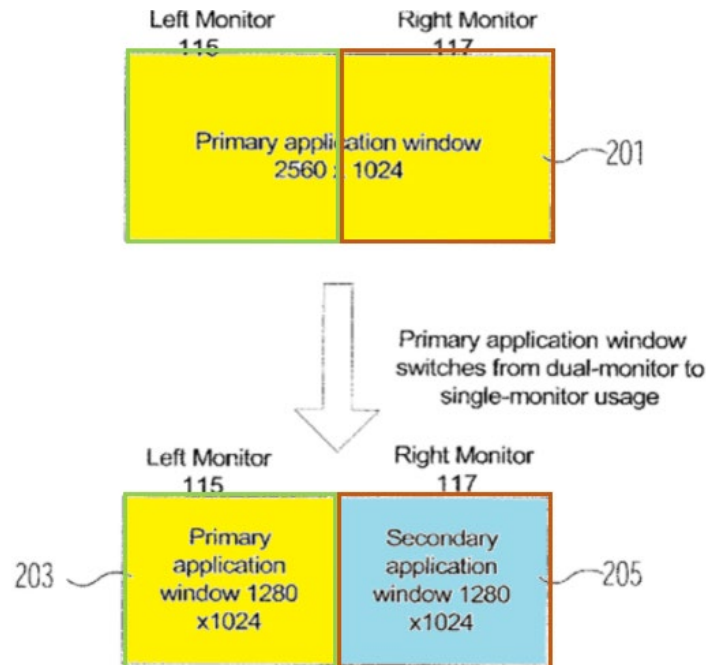
6. **17[E] in response to opening the second window, automatically minimizing the first window to fit the second display; and displaying the minimized first window of the multi-display application on the second display.**

259. In my opinion, Purcell discloses this limitation.

260. Purcell's system, based on user input, "initiates execution of a secondary application that displays an associated image window on the right monitor (117)." Ex. 1007, ¶[0016]. As I have explained previously, Purcell's system incorporates a dynamic resizing process. Via this process, the primary application window changes size and is reduced to a portion of the amount of pixels displayed. *Id.*, ¶¶[0016],[0019]. Purcell explains that "to permit another application to execute concurrently and display an image window adjacent to an image window of the primary application, *system 100 dynamically changes the primary*

application image window size to match that of a left monitor (monitor 115).” Id.

This dynamic resizing process is demonstrated in Fig. 2 (annotated below).



F. Claim 18 - The device of claim 17, wherein the minimized first window displays only a portion of the content displayed on the first window of the multi-display application, when the first window was displayed on the first and second touch sensitive displays.

261. In my opinion, Purcell discloses this limitation for at least the reasons I discuss in Sections XVI.A.3 and XVI.B. Further, Purcell discloses “a touch screen.” Ex. 1007, [0013].

XVII. GROUND 8: ALL CHALLENGED CLAIMS ARE OBVIOUS OVER PURCELL IN VIEW OF YOOK

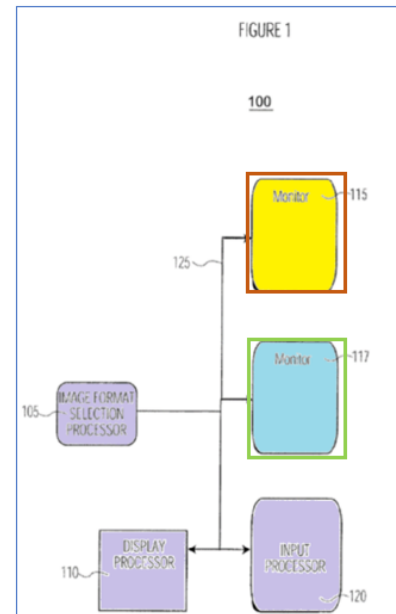
262. In my opinion, based on the following analysis, all Challenged Claims of the '153 patent are invalid as obvious over Purcell in view of Yook.

263. Purcell teaches a dual monitor display system, and Yook teaches a dual display system. In my opinion, both of these teachings strived to provide a user with additional user display options that were commonplace in the industry at the time. Indeed, Purcell and Yook are directed to the same general problem of reducing the burden on users wanting to interact with multiple applications at the same time.

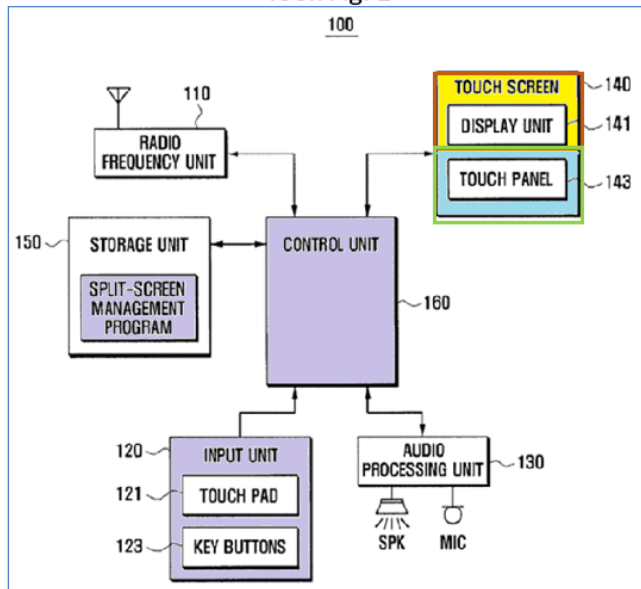
264. Purcell, for example, notes that it was a “burdensome non-user friendly process” to “interact with the secondary application” when a primary application is also running. Ex. 1007, ¶[0003]. Yook notes how users needed to more effectively operate larger screens as the larger display area allowed users to handle multiple applications at the same time. Ex. 1004, ¶[0005].

265. Based on these known problems, both Purcell and Yook developed systems and methods that permitted the simultaneous display of windows from two applications at the same time across multiple displays. Ex. 1002, ¶[0006]; Ex. 1007, ¶[0004]. These systems and methods, designed as solutions to the same problem, both included the use of an input processor, split-screen management program, and a control unit/display unit. Ex. 1004, Fig. 2, Ex. 1007, Fig. 1.

Purcell Fig. 1

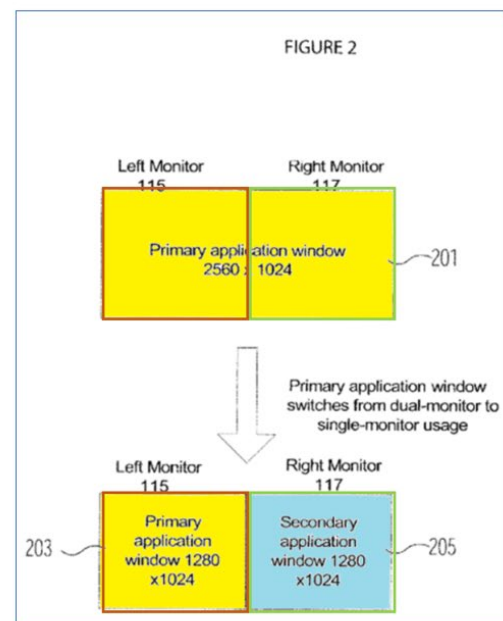


Yook Fig. 2

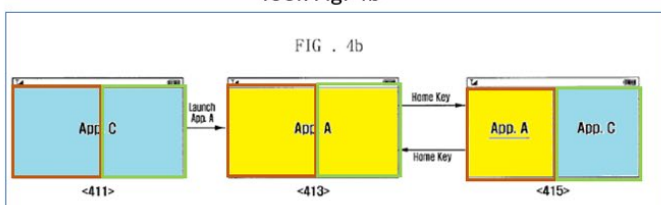


266. Yook's and Purcell's systems and methods are also similar in the way their respective split-screen methods were implemented. Ex. 1004, Fig. 4b, Ex. 1007, Fig. 2.

Purcell Fig. 2



Yook Fig. 4b



267. For example, both Purcell and Yook allow a first application window to be displayed on both display portions and then permit a second application window to be displayed on a second display while the first application window occupies the first display. *See, e.g.*, Ex. 1004, Fig. 4b; Ex. 1007, Fig. 2. As I explain above, both references can then reverse the split screen and revert back to the first application window being displayed on both displays, thus enabling a user to toggle between split-screen and full screen mode. Based on these teachings a POSITA would have looked to combine Purcell with Yook at least because they disclose similar hardware and software systems directed to solving the same alleged problem in the prior art. Moreover, a POSITA would have understood that the teachings of Purcell with respect to split-screen display would have been readily applicable to Yook because the resizing of application windows to fit smaller displays was well-known in the art.

268. A POSITA would thus have been motivated to combine the teachings of Purcell's dual monitor display system with the teachings of Yook's dual-display system to achieve additional user display options that were commonplace in the industry at the time.

269. It is my opinion that if the Board finds that Purcell does not anticipate any of the Challenged Claims, then are rendered obvious by Purcell alone or in view of Yook.

270. Claim 3 requires that the second application is also a multi-display application. In my opinion, in view of the disclosure of Purcell's system and that it is compatible with Windows operating system, a POSITA would have understood that the flexible windows from multiple applications could all be displayed on a single display or on multiple displays at once. This was routine and readily understood in the art at the time. Moreover, a POSITA would be well aware of many references that teach multiple multi-display applications, including Yook. A POSITA would take the teaching of Yook that many different applications can be displayed in many ways and come to what is required by claim 3. Accordingly, a POSITA would have found the claim rendered obvious.

271. With respect to dependent claims 4 and 18, it is my opinion that, to the extent the Board finds that Purcell does not anticipate those claims, the combination of Purcell and Yook renders those claims obvious.

272. Claims 4 and 18 are both directed to the minimized first window displaying only a portion of the content displayed on the window of the multi-display application. In other words, the claimed limitation is that a minimized first window does not display the same amount of content as an expanded window, because the minimized window is only displayed on the first display. As I explained in the sections above, Purcell and Yook both disclose that a minimized window can display "only a portion of the content" of the same window in full screen format. *See, e.g., supra*

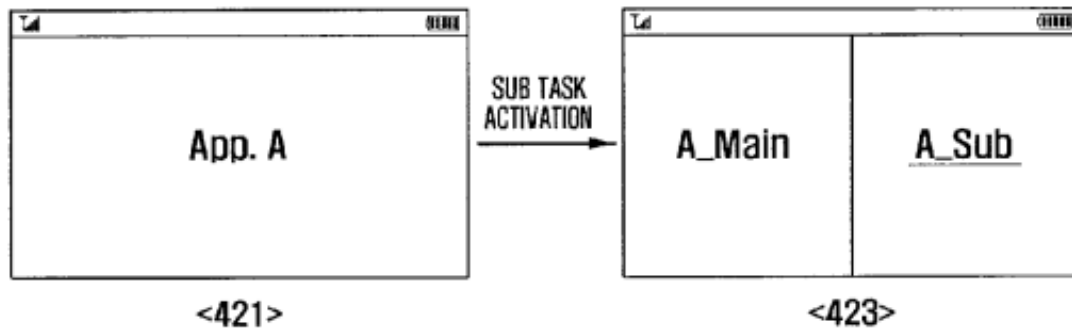
claims 4 and 18 for Yook in Section X.C. and X. J. To the extent Patent Owner argues that Purcell’s reduction in the amount of pixels used in a window after minimization does not meet this claim element, then, for reasons I explain above, a POSITA would have looked to Yook’s express teachings and disclosures for a displaying less and different content in a minimized application window.

273. Yook expressly discloses that “[t]he output routine can include any of a subroutine *for reformatting the functional view area* related to the user function according to the corresponding divided screen area, and a subroutine for *adjusting the functional view area related to the input signal according to the corresponding divided screen area.*” Ex. 1004, ¶[0035].

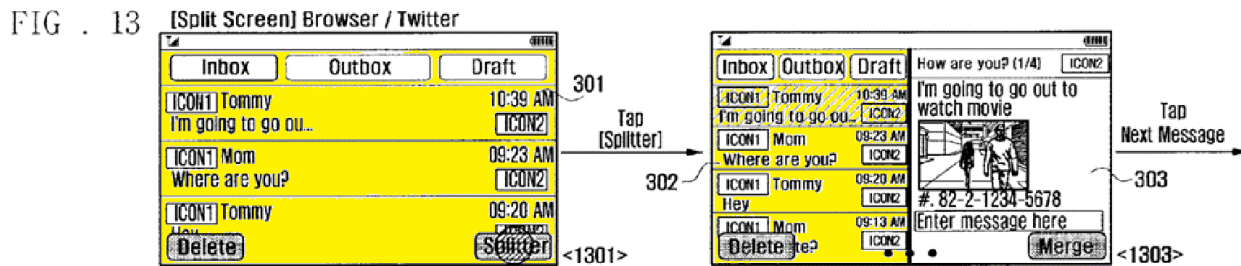
274. Yook further describes how the original screen area is “resized” to fit the smaller split-screen display area. Ex. 1004, ¶[0051].

275. Yook also discloses in that the A_Main window pane “is one of a resized and a simplified version of the functional view area App.A.” Ex. 1004, Fig. 4c, ¶[0048]. As a result of the resizing and simplification, the minimized “A” window displays a portion of the content originally displayed in the maximized “A” window.

FIG . 4c



276. Yook's Fig. 13 (annotated below) provides further examples of how an original window from a full screen display application (element 301) is displayed as a portion of its original content (element 302) when split-screen mode is entered.



Ex. 1004, Fig. 13.

277. In Fig. 13 above, the transition from 302 to 301 in Yook is not simply a reduction in the number of pixels, as is disclosed in Purcell. The transition from a maximized window to a minimized window in Fig. 13 includes changes to the display of content (e.g., reducing button sizes). I note this is easily understood from a simple inspection of the figures in Yook. In transitioning from the image on the left to the image on the right, Yook declined for the resulting minimized window to be a reduced

resolution image, but instead, content is removed and reduced to a portion of the content on the right. For example, the button for “Outbox” is reduced to a portion of its content, size, and visual representation. Accordingly, a POSITA would have understood that Yook disclosed a minimized window displaying “only a portion of the content” of the original window, rendering this claim obvious.

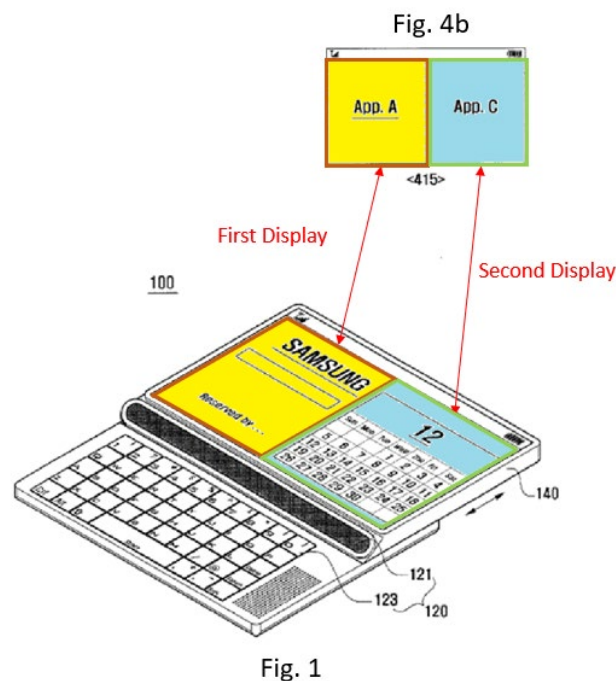
Claim 10 - The method of claim 1, wherein the first and second displays are logical portions of a single screen.

278. In my opinion, a POSITA would have understood that Purcell in view of Yook teaches or suggests a first and second display as logical portions of a single screen.

279. As I previously explained, Purcell’s system includes two monitors serviced by one processor. Purcell, however, notes that its system “is usable wherever multiple concurrent applications employing corresponding multiple image windows are to be displayed on a user interface employing *one* or more display monitors.” Ex. 1007, ¶[0021]. Further, Purcell teaches that its claimed system operates on the availability of “logical monitors.” Ex. 1007, ¶[0008]. In other words, Purcell’s system may use two physical monitors in its exemplary embodiment, but Purcell teaches that the processor recognizes those physical monitors as logical monitors. A POSITA would have understood that “logical monitors” is indistinguishable from “logical displays,” because both refer to software capability to divide a screen into areas that can be independently recognized by a processor. Therefore, a POSITA would have

understood that Purcell's first monitor and second monitor could be treated exactly the same as a first display and second display of a single screen.

280. The figure below discloses two logical displays, each of which is a portion of a screen that is used to display an image to a user.



Ex. 1004, Figs. 1, 4b (annotated).

281. To the extent the Board finds that Purcell does not expressly disclose or teach how a single screen can be used for two logical displays, a POSITA would find this readily disclosed in Yook and also find that Yook's teachings of how to use two logical displays applies readily to the system in Purcell. As I explained above, Purcell and Yook implement similar split-screen systems in order to address similar issues.

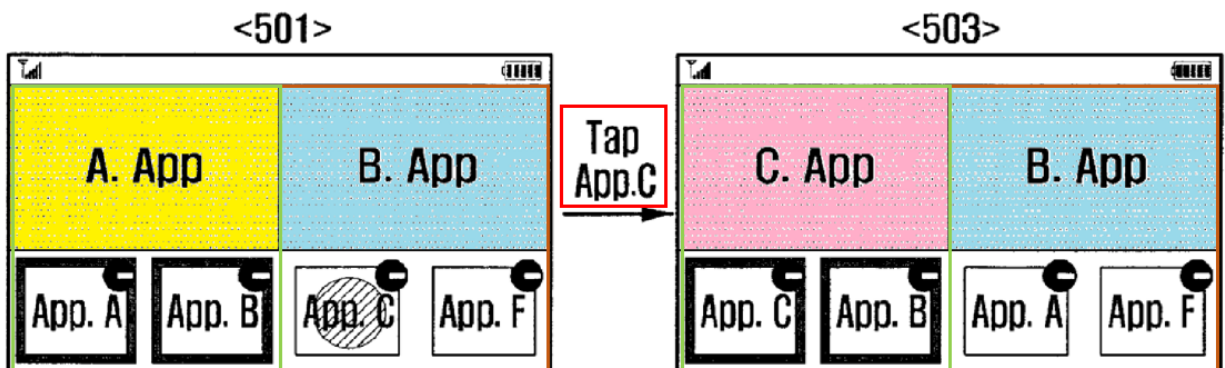
Accordingly, in my opinion, a POSITA would have understood that Purcell in view of Yook discloses a first and second display as logical portions of a single screen.

Claim 20 - The device of claim 17, further comprising: receiving second input to open a third application; opening a third window on the second display; and in response to receiving the second input, displaying the third window on the second display, wherein the first window is no longer displayed on the second display.

282. In my opinion, a POSITA would have understood that Purcell in view of Yook teaches or suggests receiving second input to open a third application and displaying the third window on the second display.

283. As I explained in Section X.K., Yook expressly discloses this operation. For example, Yook's Fig. 5a below shows two applications, one on each display, and a user opening a third application "C" in place of either currently displayed applications. Ex. 1004, ¶[0059]; Fig. 5a.

FIG . 5a



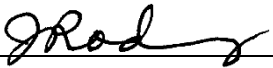
284. A POSITA would have understood that Purcell's system is capable of this type of operation. As I explained previously, Purcell's system is disclosed as

implementing Windows operating system, which in 2007 versions and earlier, had the capability to open multiple different application windows. Ex. 1008 (“Windows XP Professional is designed to allow multiple applications to run simultaneously. . . .”) (2009).

285. A POSITA would have easily applied Yook’s teachings of opening a third window on the first display in Purcell’s Windows-based system, at least because a POSITA would have understood that the average user would certainly need efficient access to more than two applications, and because the functionality to open more than two application windows already existed in Purcell’s Windows-based system. Accordingly, in my opinion, a POSITA would have understood that Purcell in view of Yook discloses receiving second input to open a third application and displaying the third window on the second display.

OATH

I hereby declare that all of the foregoing statements are true or I believe them to be true to the best of my knowledge, information, and belief. I understand that willful false statements and the like are punishable by fine or imprisonment, or both in accordance with 18 U.S.C. 1001.



Jeffrey J. Rodriguez

Oct. 18, 2024

Date