

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC and MOTOROLA MOBILITY LLC
Petitioners

v.

MULTIFOLD INTERNATIONAL INCORPORATED PTE. LTD.,
Patent Owner

IPR2025-00060

Patent No. 8,842,080

**DECLARATION OF DR. SANDEEP CHATTERJEE
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,842,080**

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I, Sandeep Chatterjee, declare as follows:

I. INTRODUCTION

1. I have been retained as an independent expert consultant in this proceeding before the United States Patent and Trademark Office (“PTO”) regarding U.S. Patent No. 8,842,080 (“the ’080 patent”) (EX1001).¹ I have been asked to consider whether prior art references disclose or suggest the features recited in claims 1, 2, 4-9, 12-16, and 20 (“the challenged claims”) of the ’080 patent. My opinions are set forth below.

II. BACKGROUND AND QUALIFICATIONS

2. My qualifications are stated more fully in my curriculum vitae, which is attached as Ex. 1003. Below is a summary of my education, work experience, and other qualifications.

3. I am the Chief Executive Officer of Experantis LLC (“Experantis”), a technology consulting company. Previously, I was the Co-founder, Executive Vice President and Chief Technology Officer of SourceTrace Systems, Inc., a technology and services company enabling the delivery of secure remote electronic services over landline and wireless telecommunications networks.

¹ In this Declaration, I refer to exhibits that I understand are to be attached to the petition for *Inter Partes* Review of the ’080 patent.

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

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

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

7. In 2011, I was named a Young Global Leader. This honor, bestowed each year by the World Economic Forum, recognizes and acknowledges the top

leaders—all below the age of 40—from around the world for their professional accomplishments, commitment to society, and potential to contribute to shaping the future of the world. In 2016, I was appointed to the World Economic Forum's expert network as an expert in technology and innovation.

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

9. In 2001, I joined Bluestone Software's Mobile Middleware Labs as a Senior Engineer developing applications and systems infrastructure for enterprise Java/J2EE, Web services, and enterprise mobile solutions. After the completion of Hewlett-Packard's (HP) acquisition of Bluestone, I became a Senior Member of the Technical Staff at HP's Middleware Division. I was responsible for architecting and developing the company's next-generation Web services platform for enterprise as well as mobile environments, known as the Web Services Mediator.

10. I was part of the Expert Group that developed the JSR-00172 J2ME (Java 2 Platform, Micro Edition) Web Services Specification, the worldwide

industry standard for mobile Web services. I am the co-author, with James Webber, of the book “Developing Enterprise Web Services: An Architect’s Guide” (published by Prentice-Hall in 2004). This book has been adopted by over 100 universities and colleges around the world, and has been translated or reprinted in a number of countries around the world.

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

12. Later, after SourceTrace Systems’ acquisition of this technology, I led the expansion of this solution into multiple countries and into multiple industries. Banks and other financial services companies utilized this technology to make their tellers more efficient, to provide self-service ATMs within branches, and to provide remote access to banking services. Additionally, through our licensing agreement with Telefonica, one of the largest cellular and telecommunications

companies in the world, this solution was deployed in various other industries, including logistics and asset management and customer relationship management. Bloomberg Television selected and featured this technology and the company I co-founded to commercialize this technology on Bloomberg TV's "Bloomberg Innovators" program.

13. I have been a retained expert witness for various disputes that involved significant technology issues, and I have been qualified as a technology expert by U.S. District and State Courts, including in California, Delaware, Florida and Texas in technology areas that are relevant to this case, including but not limited to: computer software systems, distributed computing systems, and mobile and wireless systems. I have previously testified through declaration or expert report, at deposition, and at trial in numerous intellectual property and commercial litigation matters, including for patent litigation, copyright and trade secret misappropriation litigation, and contract dispute cases. I have submitted more than one hundred and fifty expert declarations and expert reports, testified at deposition more than eighty times, and testified at trial or at hearings at least twelve times. I have been identified as one of the top 1000 patent professionals in the world, and I am listed in the IAM Patent 1000, which identifies the world's leading patent litigation and prosecution attorneys, as well as damages and technology expert witnesses.

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

III. MATERIALS REVIEWED

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

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

EX1001	U.S. Patent No. 8,842,080 (“the ’080 patent”)
EX1004	Prosecution History of U.S. Patent App. No. 13/247,708
EX1005	Certified English-language Translation of Japanese Patent Publication No. H09-204288 (“Ogawa”), Original Japanese Patent Publication No. H09-204288, and Translation Certificate
EX1006	U.S. Patent No. 8,649,824 (“Choi”)
EX1007	U.S. Patent No. 2010/0248788 to Yook <i>et al.</i> (“Yook”)
EX1008	Mobile Phone Museum, Nokia 9000 Communicator (https://www.mobilephonemuseum.com/phone-detail/nokia-9000-communicator)

EX1009	U.S. Patent No. 6,912,664 (“Ranganathan”)
EX1010	U.S. Patent No. 8,265,705 (“Lee”)
EX1011	U.S. Patent No. 9,692,881 (“Jyonoshita”)
EX1012	An Introduction to Graphical User Interfaces with Java Swing, Paul Fisher, Addison Wesley, 2005 (excerpt)

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

17. My opinions contained in this declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also been guided by my appreciation of how a person of ordinary skill in the art would have understood the state of the art, the prior art, and the claims and the specification of the '080 patent at the time of the alleged invention, which I discuss below.

18. I have been asked to consider that the time of the alleged invention of the '080 patent was around 2010 (including and up to October 1, 2010), which corresponds to the filing date of the earliest application associated with the '080 patent. (Ex. 1001, Cover.)

19. Based on my experience and expertise, it is my opinion that certain references disclose and/or suggest all the features recited in challenged claims of the '080 patent, as I discuss in detail below.

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

20. I am familiar with the level of ordinary skill in the art regarding the '080 patent as of around October 1, 2010. Considering the '080 patent, the technology, the educational level and experience of workers in the field relating to the patent, and problems and solutions in that field, and drawing on my own experience, I believe a person of ordinary skill in the art at the time of the alleged invention (around October 1, 2010) would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with two years of work experience in the field of user interface technologies, including *e.g.*, graphical user interface technologies, or a related field. More education can supplement practical experience and vice versa.

21. My opinions in this Declaration regarding the '080 patent and the prior art (including the state of the art) are from the perspective of one of ordinary skill in the art as I defined above, during the relevant timeframe (*e.g.*, the time of the alleged invention), which I discussed above as being around October 1, 2010.

V. TECHNICAL BACKGROUND

22. Below, I present a brief overview of certain aspects of systems and processes relating to graphics interface technology at the time of the alleged invention for the '080 patent. The functionalities and concepts I describe below in this technical background section reflect the state of the art that a person of

ordinary skill in the art would have had knowledge of and understood prior to and at the time of the alleged invention of the '080 patent. I rely on, and incorporate as applicable (even if not expressly mentioned below in Section IX), the following disclosures and opinions to support my opinions in this Declaration, including those opinions relating to how the prior art discloses and/or suggests the challenged claims of the '080 patent and how and why a person of ordinary skill in the art would have been motivated to consider and combine the disclosures and suggestions from that prior art as I explain below in Section IX. The concepts below would have been within the knowledge and mindset of a person of ordinary skill in the art at the time.

A. Multi-Display Mobile Devices

23. Multiple display portable computer devices were well known prior to 2010. For example, the Nokia 9000 Communicator was announced at the CeBIT exhibition in 1996. It was the first product in its Communicator range. Six further Communicator devices followed over the next 11 years. (EX1008.) As shown below, the Nokia 9000 portable device included an exterior screen and an interior screen for displaying information.



(EX1008.)

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

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

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

27. In addition to the basic phone, address book (contacts) and SMS functions, the Nokia 9000 Communicator had a document handling and editing feature called Notes, a fully featured calendar and diary application, a clock showing world time and an alarm, a calculator, Composer for creating your own ringtones and alerts, a currency converter and connection to a PC via an Infra-red port through which documents could be exchanged and software downloaded and installed.

28. Other disclosures confirm the common knowledge and understanding of technologies relating to computing systems (including portable computer systems) that provided multiple display and/or multiple application execution and display functionalities. For example, U.S. Patent No. 6,912,664 (“Ranganathan”) (EX1009) discloses a portable computing device with multiple displays (EX1009, FIGS. 4A-5B, 2:45-4:21, 12:53-13:23, 14:44-17:19.) U.S. Patent No. 8,265,705 (“Lee”) (EX1010) also discloses a mobile computer that includes a plurality of touchscreens and various graphical user interfaces. (EX1010, Abstract, FIGS.

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3(a)-4(b), 6(a)-15(b), 1:13-59, 7:3-12:46.) U.S. Patent No. 9,692,881

(“Jyonoshita”) (EX1011) likewise describes a portable computer device that includes multiple displays for displaying information related to applications executed by the device, including indications regarding active applications.

(EX1011, Abstract, FIGS. 4(a)-6(a), 8(a)-19(b), 7:60-10:44, 11:31-20:57.) U.S. Patent No. 8,649,824 (“Choi”) similarly discloses mobile devices with multiple touch screen displays. (*See generally* EX1006 (discussed below in Section VII.C).)

B. Graphics Interface Technology (GUI)

29. It was well known to those of ordinary skill that modern operating systems such as Microsoft’s Windows, Apple’s MacOS, and the different Unix-based versions such as Linux or Solaris use a graphical interface to communicate with the user. The communication consists of information displayed by programs and actions and commands issued by the user. (EX1012, 12.)

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

31. After a program with a GUI has started and the GUI has been displayed on the screen, the program is now controlled by events. A person of

ordinary skill in the art would have known to configure the program to react only to a few types of events, not all. Such a skilled person would have programmed the interface to specify those events to which the program has to react and, of course, what the reaction should be. For example, in Java, this was typically done by implementing so-called listeners which wait for specific kinds of events to occur. It was known that once a listener was programmed for a specific type of event, the runtime system will automatically inform the listener when such an event occurs. The listener then would perform the desired action. (*Id.*)

VI. THE '080 PATENT

32. The '080 patent is directed to methods and systems for controlling a handheld computing device (e.g., device 100 in figure 1 shown below) including one or more displays like display 102 and display 104. (EX1001, Abstract, 4:9-11.) The methods and systems involve providing an icon on the display(s) for indicating the status of an application displayable on the one or more displays. (*Id.*, Abstract.)

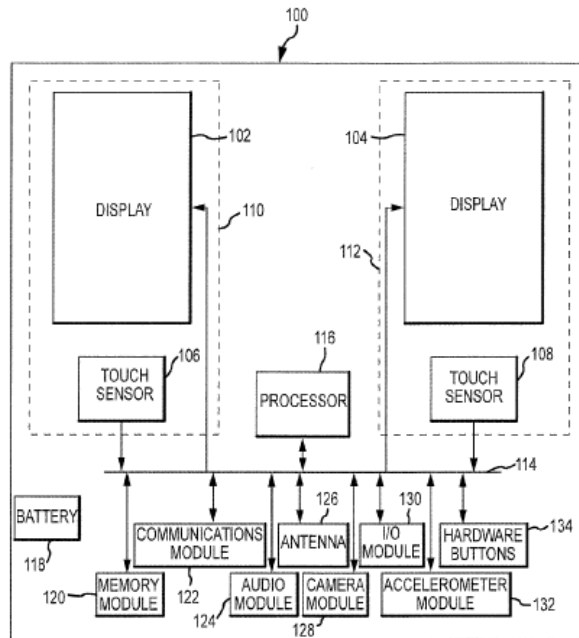
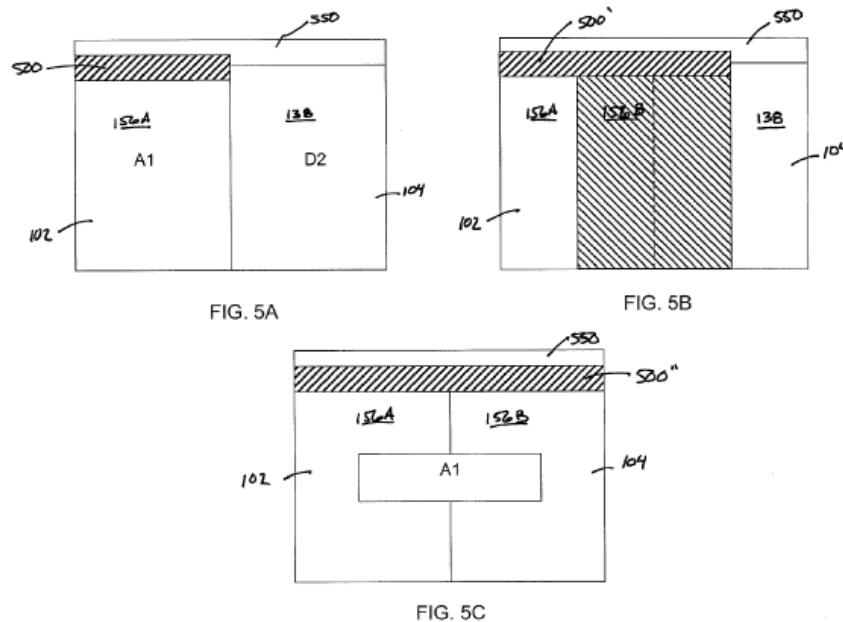


FIG.1

(EX1001, FIG. 1.)

33. For example, with reference to figures 5A-5C (shown below), the '080 patent describes displaying a first screen 156A of application A1 in a first display condition (e.g., the first screen 156 having a window size covering the display 102). (EX1001, 13:24-59.) An icon 500 indicates that the application A1 is in a first state corresponding to the first display condition (e.g., the icon 500 is provided at the top of the first screen 102 with a size corresponding to the size of the first screen 156A). (*Id.*)



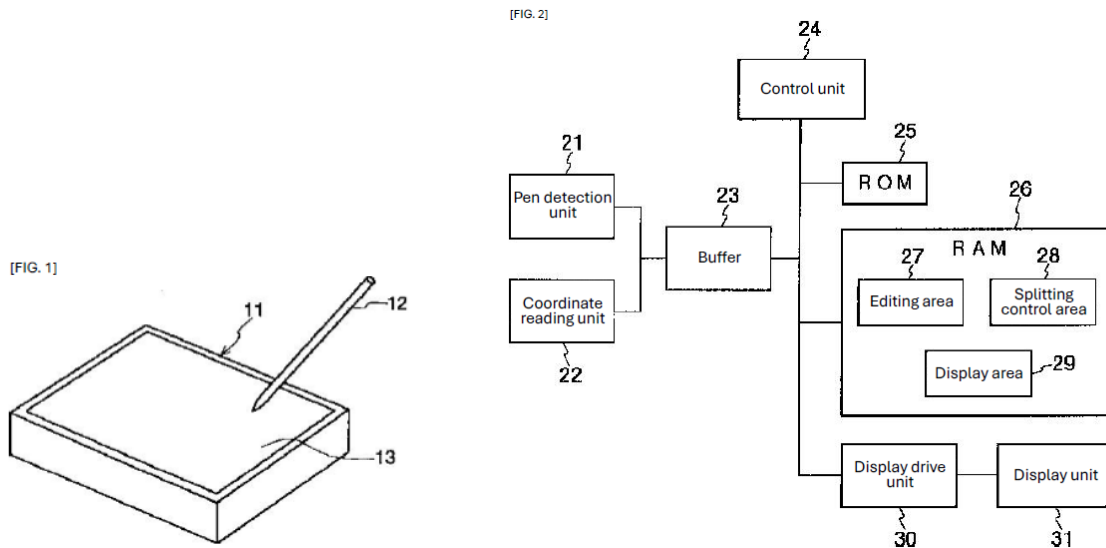
(EX1001, FIGS. 5A-5C.)

34. The '080 patent describes receiving a gesture input at a gesture sensor. (EX1001, 6:13-29, 13:60-14:4; *see also* FIG. 4 (showing gesture inputs).) In response to the gesture input, the application A1 is changed to a second display condition like that shown in Figure 5B (or 5C) where the application now includes first screen 156A and second screen 156B. (EX1001, 13:60-14:13.) In this second display condition, the second screen 156B is extended beyond first display 102 such that it covers a part of second display 104. (*Id.*) The icon 500 morphs into icon 500' corresponding to the second display condition (e.g., corresponding to the extended size of the application including first screen 156A and second screen 156B). (*Id.*, 13:60-14:46.)

VII. OVERVIEW OF THE PRIOR ART

A. Ogawa

35. Ogawa discloses an electronic display device (e.g., electronic notebook) including a display unit 31 and a pen 12 for providing touch input to the device. (EX1005, Abstract, [0001]-[0002], [0011]-[0012], [0015], [0020], FIGS. 1-2.)

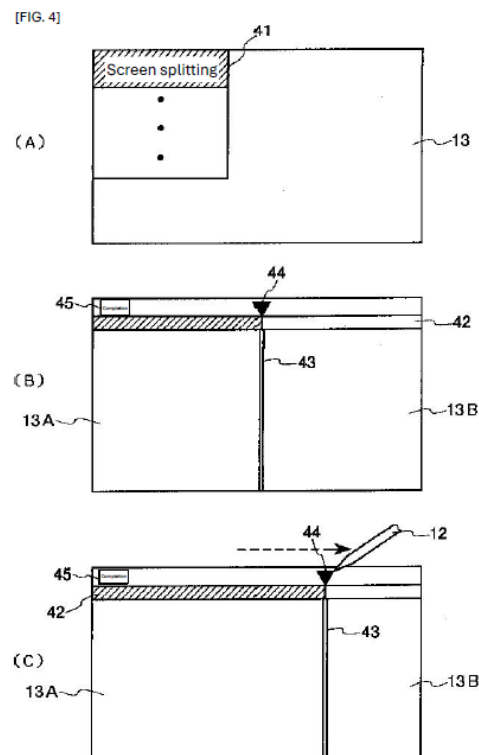


(*Id.*, FIGS. 1-2.)

36. Ogawa discloses that “[t]he display unit 31 is composed of a flat panel display or the like.” (*Id.*, [0015].) As shown above in figure 1, the electronic device includes an electronic device main body 11, an electronic pen 12 for providing input to the display device, and a display input surface 13 which integrates the display surface and input surface. (*Id.*, [0011], FIG. 1.)

37. As shown above in figure 2, the electronic device also includes a control unit 24, a pen detection unit 21, a coordinate reading unit 22, a buffer 23, ROM 25, RAM 26 which includes editing area 27, splitting control area 28, and display area 29, and display drive unit 30 which displays content on the display unit 31 under control of the control unit 24. (*Id.*, [0012]-[0015], FIG. 2.)

38. Ogawa discloses a method of controlling its electronic device with a display input surface 13 including a display unit 31 because it discloses, e.g., a method for controlling its display such that it is split into one or more displays as shown in Figures 4(A)-(C) below.



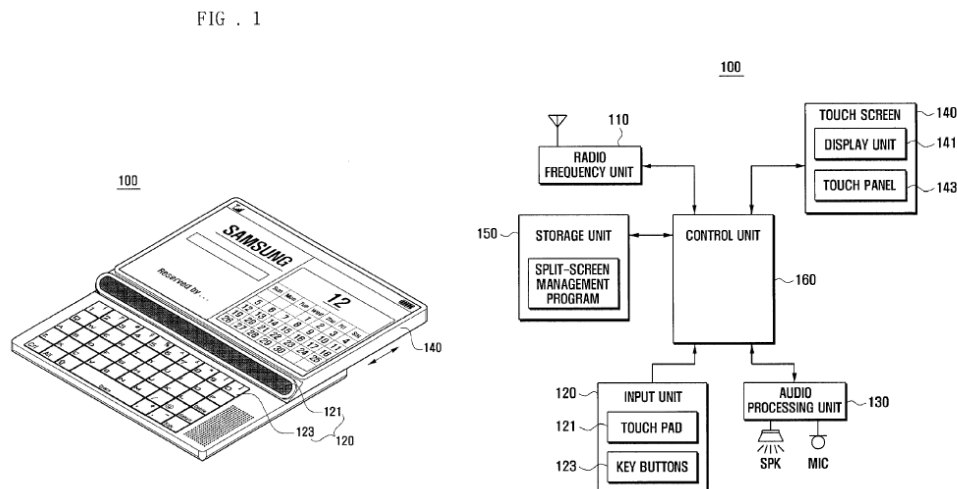
(*Id.*, FIGS. 4(A)-(C).)

39. As shown above, Ogawa discloses methods for splitting its display into a plurality of displays (e.g., splitting display surface 13 in figure 4(A) to display surfaces 13A and 13B as shown in figures 4(B)-(C)). (EX1005, Abstract, p. 2 (claims 1-4), [0001], [0004]-[0009], [0017]-[0019]; *see also id.*, FIGS. 3, 5.)

B. Yook

40. Yook is directed to an electronic device (e.g., mobile terminal 100) including a touch screen 140, where the touch screen 140 includes display unit 141 and a touch panel 143. (EX1007, [0024]-[0024], [0030]-[0031], FIGS. 1-2.)

FIG . 2



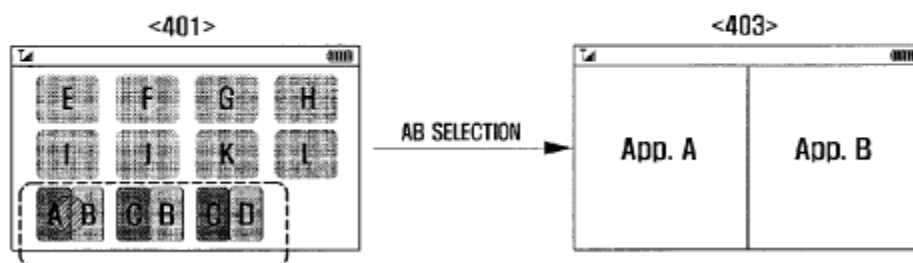
(*Id.*, FIG. 1 (left), FIG. 2 (right).)

41. Yook discloses a screen area management program which, in response to user input or an event trigger, “divides the screen of the display unit 141 into a

plurality of divided screen areas.” (EX1007, [0035]; *see also id.*, Abstract, [0003]-[0008], [0026]-[0027], FIG. 4a-4e.)

42. In particular, Yook discloses managing the display of applications on the display unit 141 in a variety of ways. For example, as shown in figure 4a below, the mobile terminal 100 displays a plurality of menu items including “dual menu items.” (EX1007, [0044].) If one of the “dual menu items” is selected, then “the mobile terminal 100 can activate application programs related to the menu items A and B, display a functional view area App.A as to the application program related to the menu item A on a divided screen area, and display a functional view area App.B as to the application program related to the menu item B on the other divided screen area, as illustrated in screen 403.” (*Id.*)

FIG . 4a

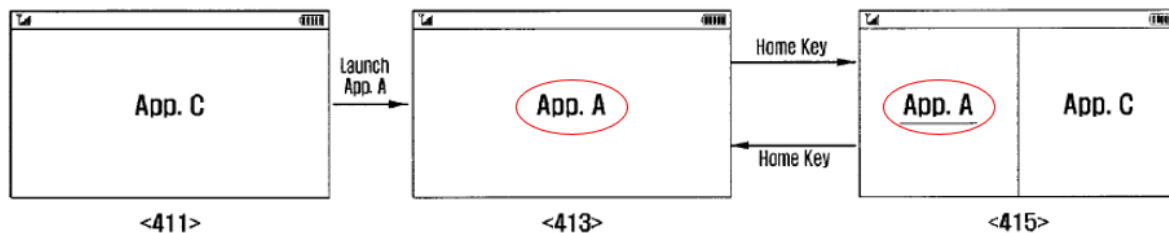


(EX1007, FIG. 4a.)

43. In another scenario discussed with reference to figure 4b reproduced below, a menu/function “C” can be displayed across the entirety of the screen first as shown on screen 411. (EX1007, [0046].) The user may then open function “A”

as shown in screen 413, and function “A” is displayed on the entire screen (screen 413 below). (*Id.*) If the user then provides a specified input like a “Home Key,” “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.” (*Id.*)²

FIG . 4b



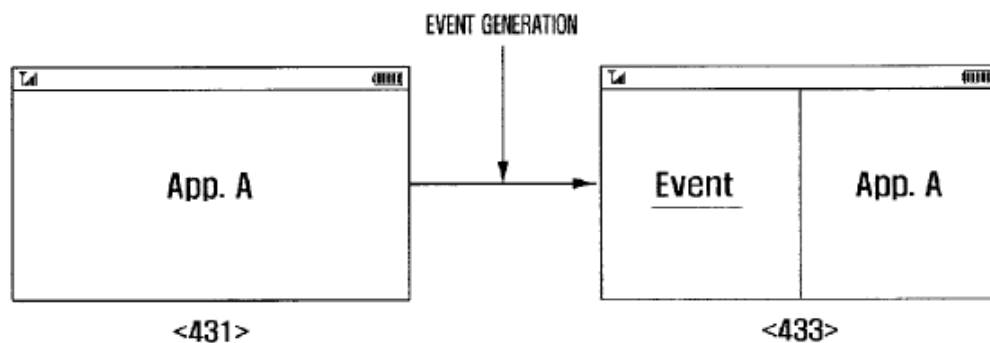
(EX1007, FIG. 4b (annotated).)

44. Figure 4d reproduced below shows a similar scenario where a moving image playback function “A” is first displayed in a “full screen format.” (EX1007,

² I sometimes add emphases to text of a document that I quote (as I do here) in this declaration. All such emphasis is added unless I state or explain otherwise.

[0051]-[0052].) If an incoming call is received at this time (signified by “Event” below), then the function “A” is minimized to a first display on the right side of the display unit 141 while the incoming call labeled as “Event” is shown on the left side of the display. (*Id.*)

FIG . 4d



(EX1007, FIG. 4d (annotated).)

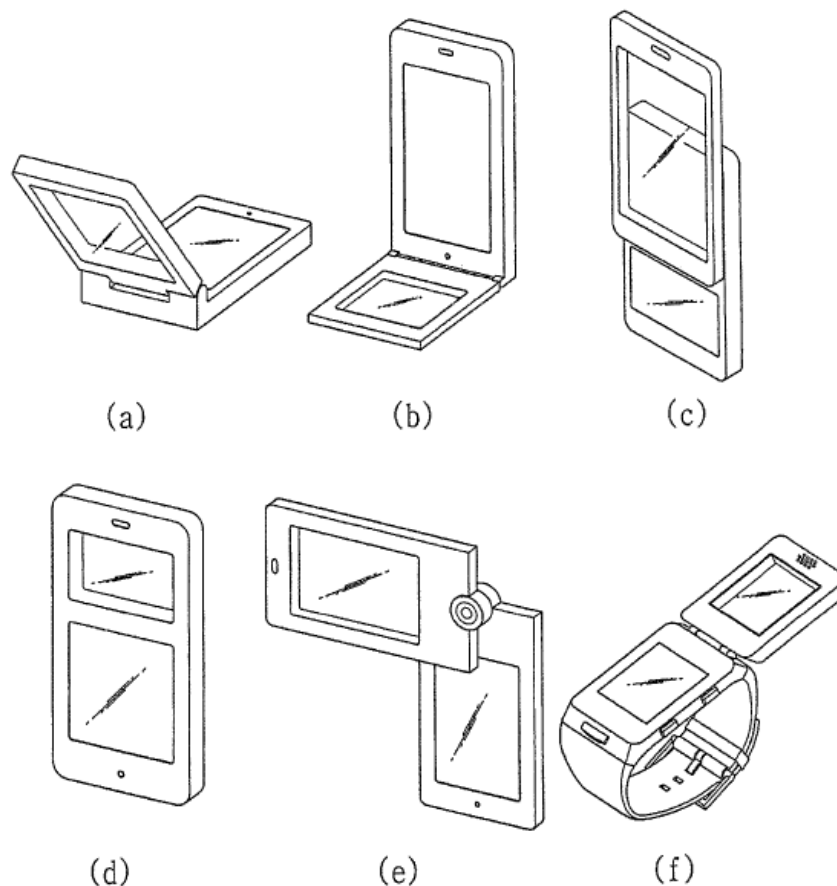
C. Choi

45. Choi is directed to methods for controlling display of content on mobile terminals. (EX1006, Abstract, 1:15-19, 1:32-36 (describing that “the mobile terminals can be further classified into **handheld** terminals . . .”), 5:45-50, (describing that the mobile terminal can include “**smart phones**”), 8:13-35 (describing single or multiple display devices).)

46. Choi discloses various examples of mobile terminals with single or multiple touch-sensitive displays. (EX1006, 8:13-27, 13:52-65, 14:47-52, FIGS. 5-

6.) Figure 6 below shows various mobile terminals having a dual display configuration.

FIG. 6

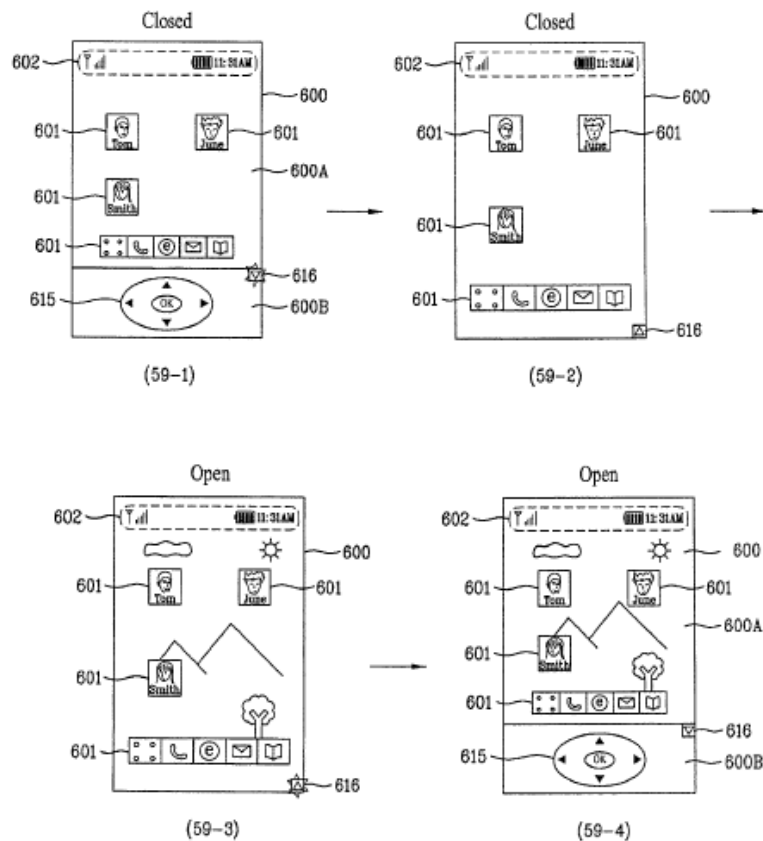


(EX1006, FIG. 6.)

47. Choi discloses that a multiple display configuration for its mobile terminals can be implemented by logically dividing a single physical display into two displays or by providing two separate physical display units instead of the single physical display. (EX1006, 33:6-18, FIG. 59.) For example, with reference

to figure 59 below, Choi discloses that its mobile terminal includes a touch-sensitive display 151 indicated by touch screen 600. (*Id.*, 9-11 (“In the following description, a display screen of the touch screen 151 will be indicated by a reference number 600.”), 8:1-22 (describing display 151).)

FIG. 59

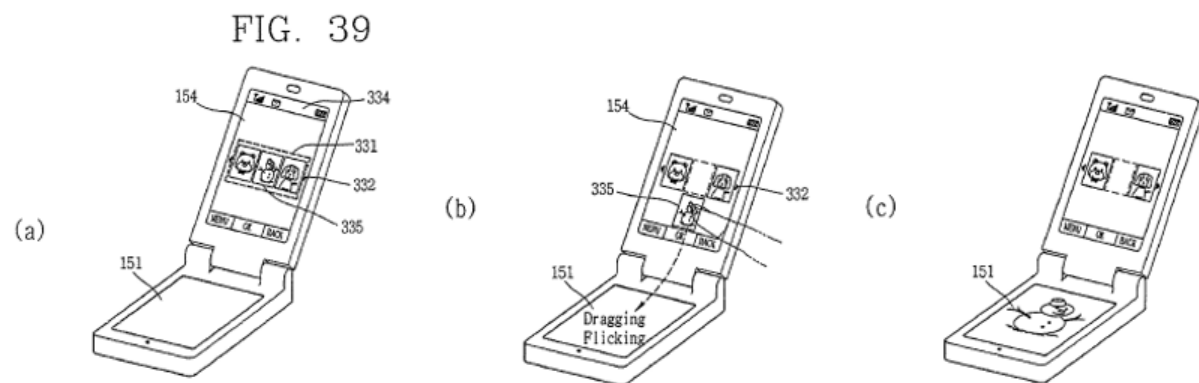


(EX1006, FIG. 59(59-1)-(59-4).)

48. Choi discloses that “the touch screen 600 can be divided into two areas, i.e., a first area 600A and a second area 600B” and “[o]ptionally, the mobile

terminal 100 includes two display units to be responsible for the first and second areas 600A and [6]00B, respectively.” (EX1006, 33:14-18, FIG. 59.)

49. In another embodiment described with reference to figure 39 (shown below), Choi discloses a folder-type mobile terminal includes two separate touch-sensitive displays, a liquid crystal display (LCD) 151 and a transparent organic light-emitting diode display (TOLED) 154. (EX1006, 24:64-25:3 (“As shown in FIG. 39, in the mobile terminal having the TOLED 154 and LCD 151 separately provided, the controller 180 can display a screen for executing a photo album on the TOLED 154.”), 14:24-35 (describing the folder-type mobile terminal including LCD 151 and TOLED 154 with reference to figures 7A-7B), 14:47-52 (describing that the LCD 151 and TOLED 154 are touch screen displays); *see also id.*, 8:18-22.)



(EX1006, FIGS. 39(a)-(c).)

FIG. 7A

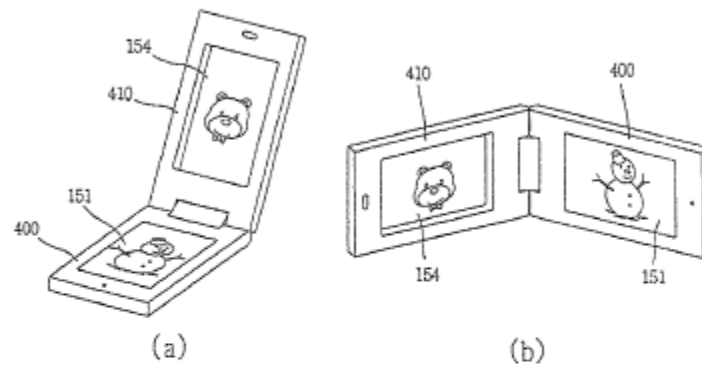
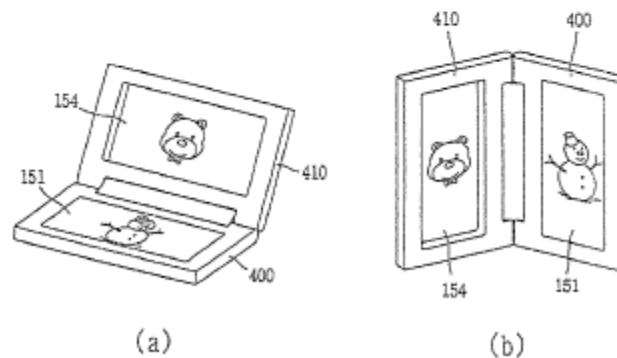


FIG. 7B



(EX1006, FIGS. 7A-B.)

50. Choi discloses with reference to the figure 39 embodiment that content displayed on one display in a dual-display device (e.g., TOLED 154) may be switched with the content displayed on the other display of the device (e.g., LCD 151). (EX1006, 25:22-40.) In particular, Choi discloses that a screen switching function key “for switching contents respectively displayed on the

TOLED 154 and the LCD 151” is provided. (*Id.*) The screen switching function key may have a toggling function, where upon selection of the toggling function, “the controller 180 can **change an icon shape of the screen switching function key**, and simultaneously switch contents respectively displayed on the TOLED 154 and the LCD 151.” (*Id.*)

51. Choi further discloses that its displays (e.g., LCD 151 or TOLED 154) are configured as touch screens “having an underlying touchpad which generates signals responsive to user contact with the touch screen, such as with a finger or stylus.” (EX1006, 11:39-44; *see also id.*, 7:26-32, 47-52.) Choi further discloses embodiments where instead of providing the touchpad under or over the display screen, the touchpad may be provided at an “outer side” or “upper end” of the display. (EX1006, 22:15-24 (“... Also, under the closed state of the first body 200, the controller 180 can receive a user's command input via a touchpad disposed on an upper portion (upper surface, **upper end**, **outer side**) of the TOLED 154.”).)

VIII. CLAIM CONSTRUCTION

52. I understand that when considering the meaning of patent claims, one must consider the language of the claims, the specification, and the prosecution history of the patent. I also understand that claim terms are typically given their ordinary and customary meanings as would have been understood by a person of ordinary skill in the art at the time of the invention for the patent. For the '080

patent, as I explained above in Section IV, the relevant time that I have been asked to consider is around October 1, 2010. For purposes of my opinions in this declaration, I have been asked to consider the challenged claims under their plain and ordinary meanings as understood by a person of ordinary skill in the art at the time of the alleged invention, and I have applied such understandings in my analysis of the '080 patent and the prior art.

53. I noted that independent claim 12 is directed to “[a] handheld computing device, comprising,” *inter alia*, “a first display” and “a second display.” Claim 2 similarly recites “the first and second display” and claim 4 similarly recites “a first and second display.”³ Regarding the “**display**” term, the '080 patent states that “[a]s used herein, the term ‘**display**’ is intended to connote device hardware, whereas ‘screen’ is intended to connote the displayed image produced on the display” and that “[i]n this regard, a display is a physical hardware that is operable to render a screen.” (See EX1001, 4:18-22.) In addition to this use of “display,” I have been asked to consider an alternative interpretation of “display,”

³ While claims 2 and 4 depend from independent claim 1, claim 1 is not impacted by this issue as claim 1 recites “**one** or more displays” in the preamble. So even if I were to assume that the preamble is limiting, claim 1 encompasses a scenario with a single display.

where the “first display” and “second display” in claim 12 read on a single physical display divided into two or more logical displays.

54. Below, I first analyze claims 2, 4-9, 12, 13, and 20 under the alternative interpretation of “display” which encompasses the claimed “first display” and “second display” being logically divided displays of a single physical display. Then, I analyze claims 2, 4-9, 12-16, and 20 under a narrower interpretation of “display” consistent with the above-noted description in the specification (under which the claimed “first display” and “second display” are physically distinct from each other).

IX. THE PRIOR ART DISCLOSES OR SUGGESTS ALL RECITED FEATURES OF CLAIMS 1, 2, 4-9, 12–16, AND 20 OF THE '080 PATENT

55. In my opinion, the prior art discussed below discloses and/or suggests the limitations of claims 1, 2, 4-9, 12–16, and 20.⁴

⁴ In this section (Section IX), I refer to exhibits other than those identified prior art reference(s) that disclose and/or suggest the claimed limitations. Such exhibits reflect the state of the art known to a person of ordinary skill in the art at the time of the alleged invention.

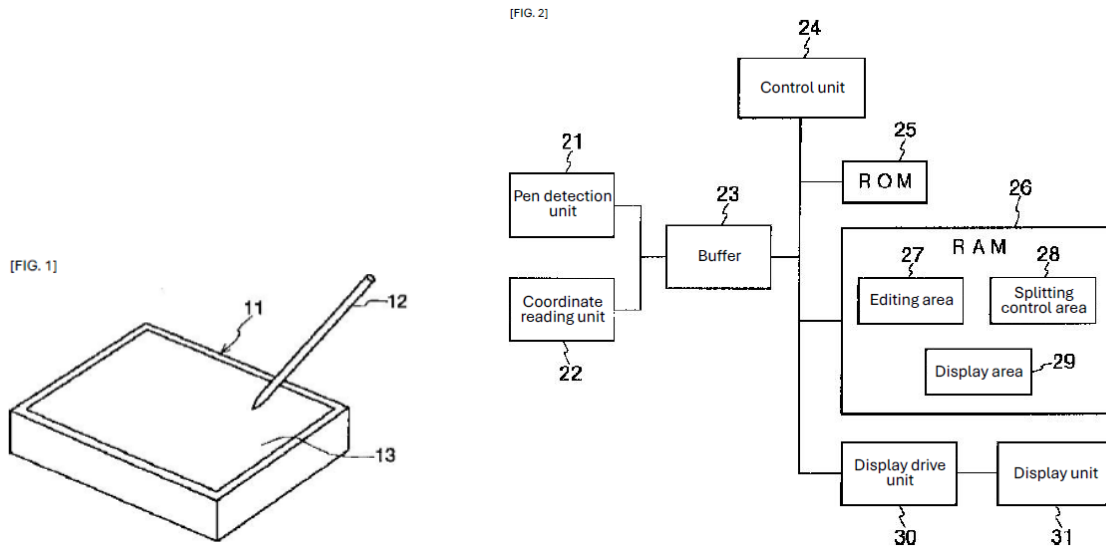
A. Ogawa Discloses Claims 1, 2, 12, 13, and 20

1. Claim 1

- i) [1.pre] “A method for controlling a handheld computing device including one or more displays, comprising:”**

56. I understand that this limitation is a preamble of the claim and I have been asked to assume that the preamble of claim 1 is limiting. Under that assumption, Ogawa discloses the preamble of claim 1. Ogawa discloses a method of controlling a handheld computing device such as an electronic notebook including one or more displays.

57. For example, as shown below, Ogawa discloses an electronic display device (e.g., electronic notebook) (“handheld computing device”) including a display unit 31 (“one or more displays”) and a pen 12 for providing touch input to the device. (EX1005, Abstract, [0001]-[0002], [0011]-[0012], [0015], [0020], FIGS. 1-2.)



(*Id.*, FIGS. 1-2.)

58. A person of ordinary skill in the art would have understood that an “electronic notebook” with a touch screen input using an input device like pen 12 in Ogawa would have been a “handheld computing device” as it is portable (capable of being handheld) and has computing functionality (e.g., to show a calendar and schedule). (EX1005, [0020] (disclosing the operations of its electronic device in the context of an “electronic notebook”), [0033] (disclosing the programs being displays can include a calendar and schedule).)

59. Ogawa discloses that “[t]he display unit 31 is composed of a flat panel display or the like.” (*Id.*, [0015].) As shown above in figure 1, the electronic device includes an electronic device main body 11, an electronic pen 12 for

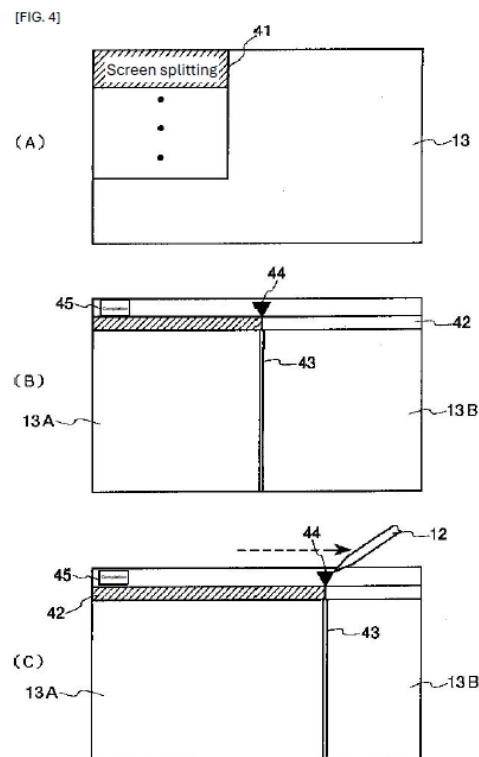
providing input to the display device, and a display input surface 13 which integrates the display surface and input surface. (*Id.*, [0011], FIG. 1.)⁵

60. As shown above in figure 2, the electronic device also includes a control unit 24, a pen detection unit 21, a coordinate reading unit 22, a buffer 23, ROM 25, RAM 26 which includes editing area 27, splitting control area 28, and display area 29, and display drive unit 30 which displays content on the display unit 31 under control of the control unit 24. (EX1005, [0012]-[0015], FIG. 2.)

61. Ogawa discloses a method of controlling its electronic device (“handheld computing device”) with a display input surface 13 including a display

⁵ Based on Ogawa’s overall disclosure, a person of ordinary skill in the art would have understood that the electronic device’s display input surface 13 shown in figure 1 is a combination of display unit 31 and pen detection unit 21 shown in figure 2. Ogawa discloses that its “display input surface 13 in which a display surface and an input surface are integrated.” (EX1005, [0011].) The “display unit 31 is composed of a flat panel display or the like” for displaying image/data content (EX1005, [0015]) and thus corresponds to the display surface of the display input surface 13. The pen detection unit 21 detects contact between the pen 12 and display input surface 13 (EX1005, [0013]) and thus corresponds to the input portion of the display input surface 13.

unit 31 (“one or more displays” consistent with the specification’s description of “display” as discussed above in Section VIII (e.g., physical hardware that is operable to render a screen)) because it discloses, e.g., a method for controlling its display such that it is split into one or more displays as shown in Figures 4(A)-(C) shown below.



(EX1005, FIGS. 4(A)-(C).)

62. As shown above and described further below in relation to the remaining limitations of claim 1, Ogawa discloses methods for splitting its display into a plurality of displays (e.g., splitting display surface 13 in figure 4(A) to

display surfaces 13A and 13B as shown in figures 4(B)-(C)). (EX1005, Abstract, p. 2 (claims 1-4), [0001], [0004]-[0009], [0017]-[0019]; *see also id.*, FIGS. 3, 5.)

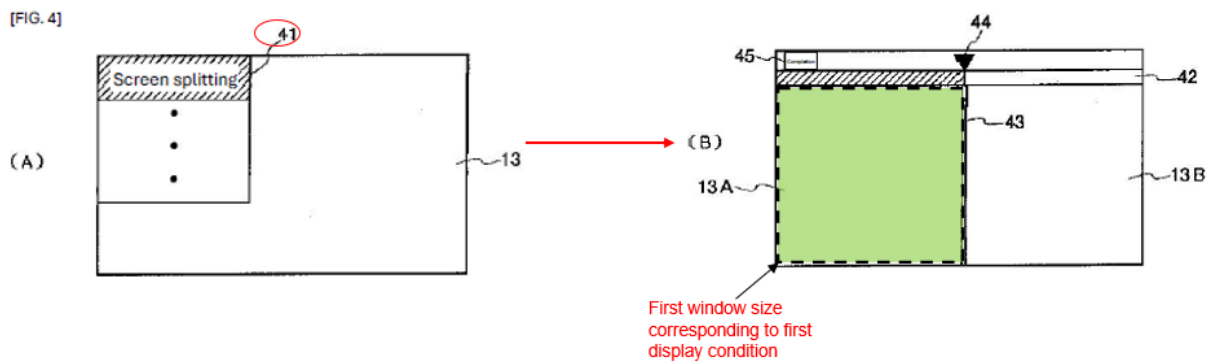
63. Therefore, Ogawa discloses the preamble of claim 1. (*See also* analysis and citations below for claim elements [1.a]-[1.g].)

ii) [1.a] “displaying a first screen of an application in a first display condition;”

64. Ogawa discloses this limitation. For example, as shown in annotated Figure 4(B) below, Ogawa discloses displaying a first screen 13A (“first screen” shaded in green) of a program (“application”) in a first window size (“first display condition”) as shown in Figure 4A below. (EX1005, [0017]-[0018], [0023]-[0024], [0033] (describing first screen 13A displaying a program such as calendar or schedule), FIGS. 4(A)-(C); *see also id.*, FIGS. 3, 5.)⁶

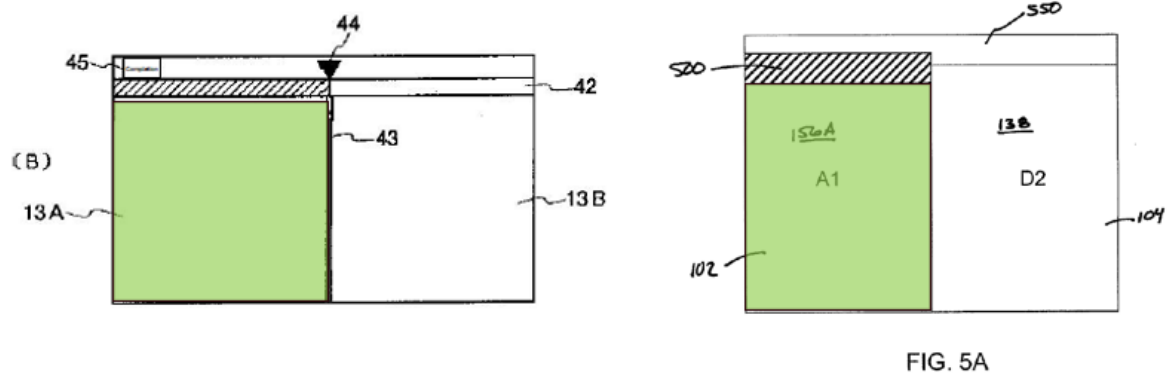
⁶ Claim limitation [1.a] recites a “first screen.” As noted above in Section VIII, the ’080 patent discloses that “a display is a physical hardware that is operable to render a screen.” The ’080 patent further discloses that a “screen may be associated with an application and/or an operating system on the handheld computing device.” (EX1001, 4:21-28; *see also id.*, 4:35-48.) This is consistent with Ogawa’s disclosure where the display unit 31 renders the first screen 13A which is associated with an application (e.g., a calendar program). (EX1005, [0015] (disclosing that the display unit 31 “displays images, data, and the like”), [0017]-[0018], [0033]; *see also n.5.*)

65. In particular, Ogawa discloses that “[w]hen ‘Split Screen’ is selected with the pen 12 while a function operation (menu) 41 is displayed as depicted in FIG. 4(A), an access bar 42 is displayed in a top line of the display area, the entire screen is lowered by one line, and the display surface is split into two screens 13A and 13B, almost symmetrically as depicted in FIG. 4(B).” (Ogawa, [0017].)



(EX1005, FIG. 4A (left, annotated), FIG. 4(B) (right, annotated).)

66. A person of ordinary skill in the art would have recognized that Ogawa’s disclosure and corresponding illustration is consistent with the ’080 patent’s disclosure which describes displaying a first screen 102 of an application A1 in a first display condition, where the condition corresponds to the size the application occupies on the first display or the second display (or both displays). (EX1001, 3:3-14, 13:60-65.) The similar disclosures of Ogawa and the ’080 patent are shown in the comparison of their relevant figures below.



Ogawa

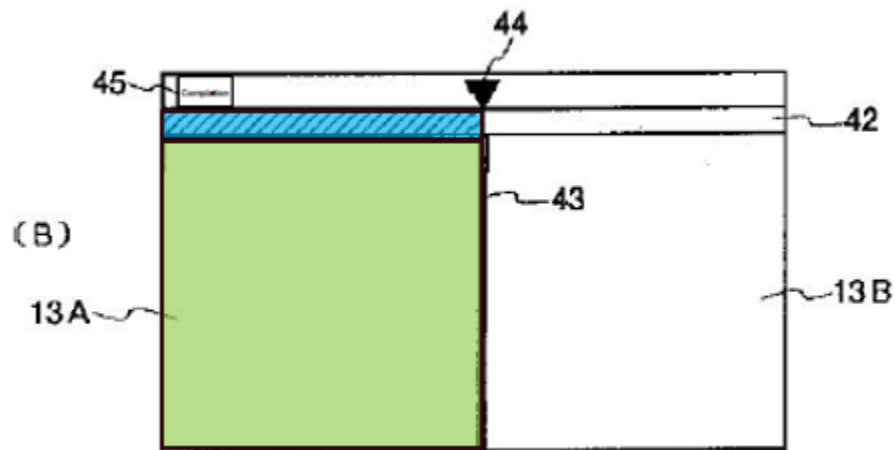
'080 Patent

(EX1005, FIG. 4(B) (left, annotated); EX1001, FIG. 5A (right, annotated).)

67. Accordingly, Ogawa discloses claim limitation [1.a].

iii) **[1.b] “displaying an icon with the first screen of the application, wherein the icon indicates that the application is in a first state corresponding to the first display condition;”**

68. Ogawa discloses this limitation. For example, as shown below, Ogawa discloses displaying a colored/shaded portion of an access bar 42 (“icon” shaded in blue) with the first screen 13A of the program (“application”), wherein the colored/shaded portion of the access bar 42 (“icon”) indicates that the program is in a first state corresponding to the first window size (“first display condition”) of the program. (EX1005, [0017]-[0018], [0023]-[0024], [0033]; *see also id.*, FIGS. 3, 5.)



(EX1005, FIG. 4(B) (annotated).)

69. In particular, Ogawa discloses that, as shown above, “[t]he portion of the access bar 42 located on an active screen (the screen currently being accessed) is colored (depicted with hatching in FIG. 4) to indicate an active state.” (Ogawa, [0017]; *see also id.*, [0024] (“At this time, an access bar 42 is drawn at the top, and furthermore, a portion of the access bar 42 is colored based on the active screen flag and the splitting length to indicate the active state.”).)

70. Ogawa’s disclosure and corresponding illustration is consistent with the ’080 patent’s disclosure which, as shown below, describes displaying an icon 500 with the first screen 102 of application A1, where the icon 500 indicates application A1 is in a first state corresponding to the size of the application A1 window. (EX1001, Abstract, 3:3-14, 13:35-65.)

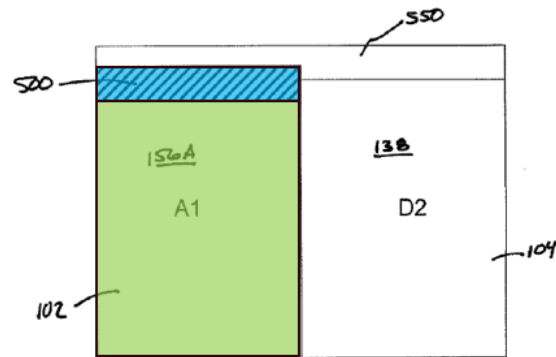
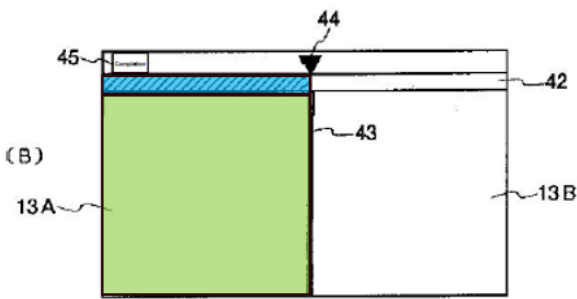


FIG. 5A

Ogawa

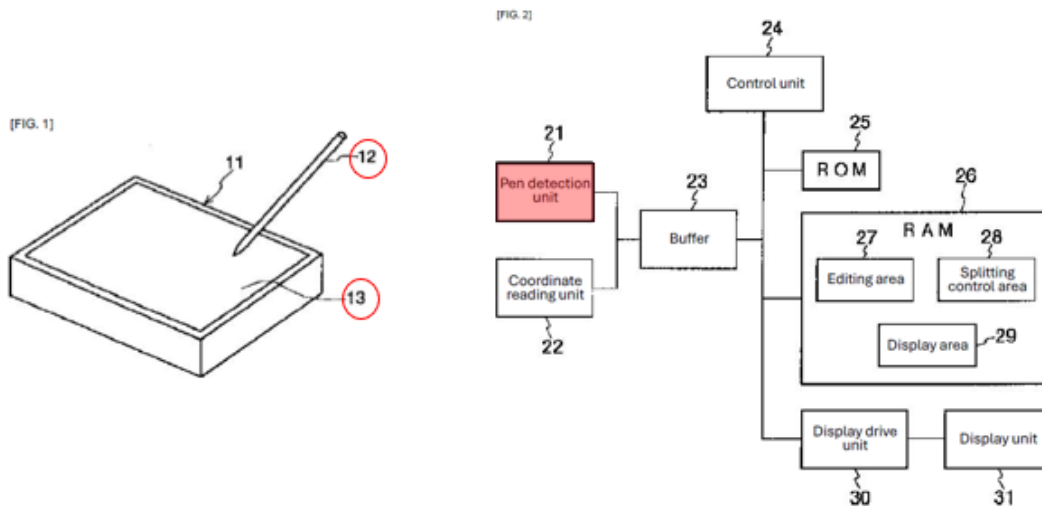
'080 Patent

(EX1005, FIG. 4(B) (left, annotated); EX1001, FIG. 5A (right, annotated).)

71. Accordingly, Ogawa discloses claim limitation [1.b].

iv) [1.c] “receiving a gesture input at a gesture sensor;”

72. Ogawa discloses this limitation. For example, Ogawa discloses receiving a gesture input when the pen 12 touches the display input surface 13, where the contact is detected by pen detection unit 21 (“gesture sensor”) based on the touch. (EX1005, [0013], [0018]-[0019], [0021].)



(EX1005, FIG. 1 (left, annotated), FIG. 2 (right, annotated).)

73. In particular, Ogawa discloses that “the pen detection unit 21 detects contact between the pen 12 and the display input surface 13, and outputs a detection signal.” (EX1005, [0013]; *see also id.*, [0015] (“The display unit 31, the pen detection unit 21, and the coordinate reading unit 22 are provided by lamination so that input can be made on the display screen.”), [0018] (“The active screen is switched by touching the display input surface 13 with the pen 12.”), [0029], [0057] (disclosing that the inputting means is not limited to a pen but can include “input by a finger.”).) Based on the output from the pen detection unit 21, “coordinate reading unit 22 reads the coordinates of the contact position between the pen 12 and the display input surface 13, and outputs the coordinates that were read” to buffer 23. (EX1005, [0013].)

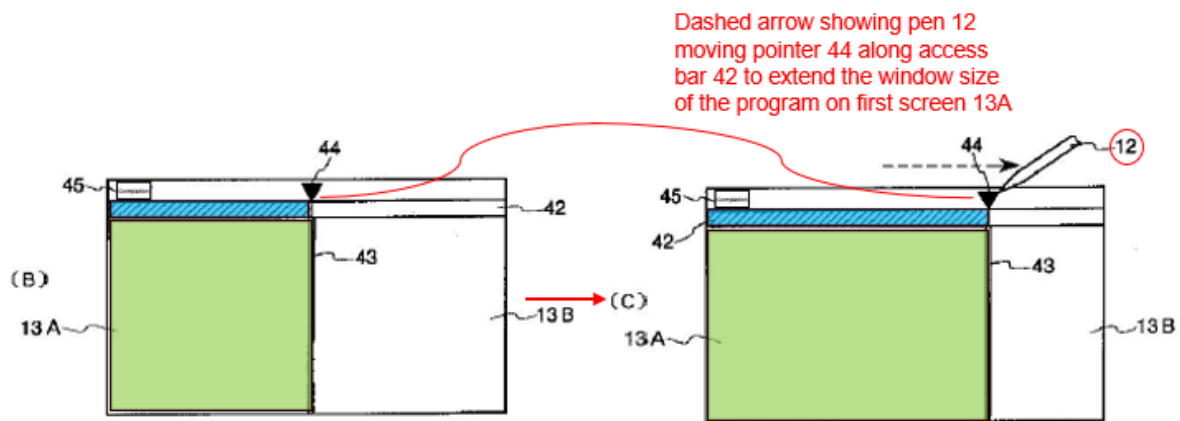
74. Ogawa's pen detection unit 21 which detects contact/touch between the pen 12 and display input surface 13 corresponds to a gesture sensor and is consistent with the '080 patent's disclosure which describes that the "gesture sensor may be a touch sensitive device . . . or other sensor operable to detect user inputs in the form of a gesture." (EX1001, 2:41-45; *see also id.*, 6:17-21, 12:6-15 (describing various input mechanisms for gestures including a stylus, which is like Ogawa's pen 12).)

75. Accordingly, Ogawa discloses claim limitation [1.c].

v) **[1.d] "modifying the manner in which the application is displayed in response to the receiving step;"**

76. Ogawa discloses this limitation. For example, Ogawa discloses modifying the manner in which the program ("application") is displayed in response to receiving a gesture input via the pen 12.

77. In particular, with reference to Figures 4(B)-(C) below, Ogawa discloses that its pen detection unit 21 ("gesture sensor") detects the pen 12 contacting a pointer 44 that indicates the point at which the screens 13A and 13B are split and the pen 12 being moved along the access bar 42 (e.g., by dragging the pointer 44) to extend the size of first screen 13A such that program encompasses a larger window size. (EX1005, [0019], [0027], [0028].)



(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

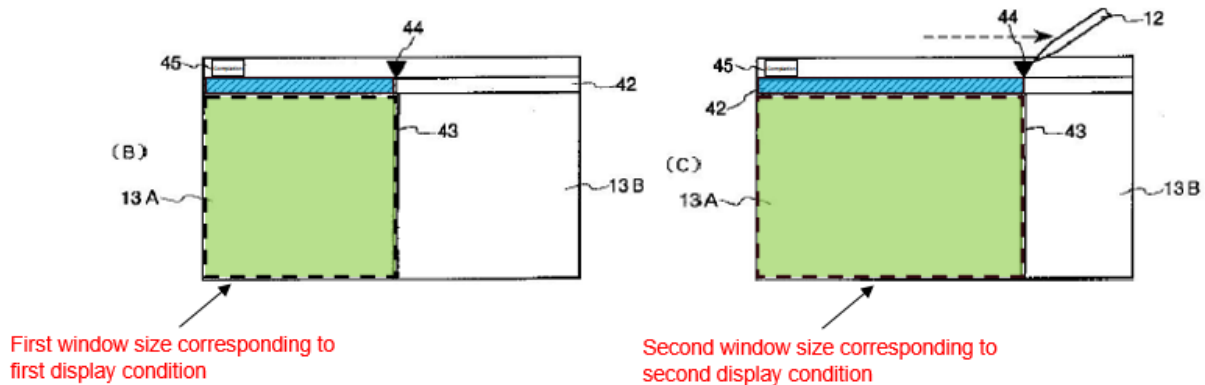
78. Accordingly, Ogawa discloses claim limitation [1.d].

vi) [1.e] “changing the application to a second display condition; and”

79. Ogawa discloses this limitation. For example, Ogawa discloses changing the application to a second display condition for reasons similar to those given above with respect to limitation [1.d]. (*See* above at Section IX.A.1.v.)

80. For example, as discussed above and shown below, in response to the pen 12 dragging the pointer 44 along the access bar 42 to expand the size of first screen 13A, the size of the window in which the program (“application”) is displayed is changed to a second (e.g., larger) window size (“second display condition”). (EX1005, [0019], [0027]-[0028] (disclosing that based on detecting the pen 12 moving the pointer 44, resetting the splitting ratio based on the movement and then “the access bar 41 [*sic*, 42] and the pointer 44A [*sic*, 44] on the actual VRAM 29A are updated ...” and “[a]s a result, the two screens 13A and

13B are displayed with sizes changed in accordance with the movement of the pen 12”⁷.)

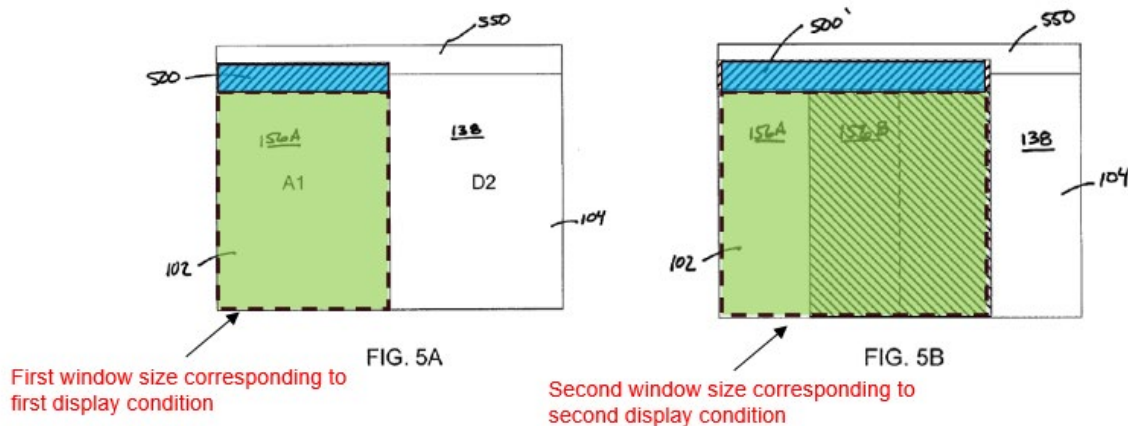


(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

81. Ogawa’s disclosure regarding changing the application to a second display condition is similar to the ’080 patent’s disclosure, which as shown below with reference to figures 5A-5B, shows the window size of application A1

⁷ Paragraph 28 of Ogawa appears to have a typographical error by referring to the access bar 42 as “access bar 41” as Ogawa refers to the access bar as access bar 42 elsewhere in its description and drawings. (See, e.g., EX1005, [0017]-[0019], [0024], [0031], FIGS. 4(B)-(C).) The same paragraph also appears to inadvertently refer to the pointer 44 as “pointer 44A” as Ogawa describes its pointer with reference numeral 44 elsewhere in its description and drawings. (EX1005, [0019], [0024], [0027], [0029], FIGS. 4(B)-(C).)

expanding from a first size (which includes screen 156A of application A1) to a second size (which not includes screens 156A and 156B of application A1) after the application A1 is expanded from the first display 102 into the second display 104. (EX1001, 13:66-14:4.)



'080 Patent

(EX1001, FIG. 5(A) (left, annotated), FIG. 5(B) (right, annotated).)

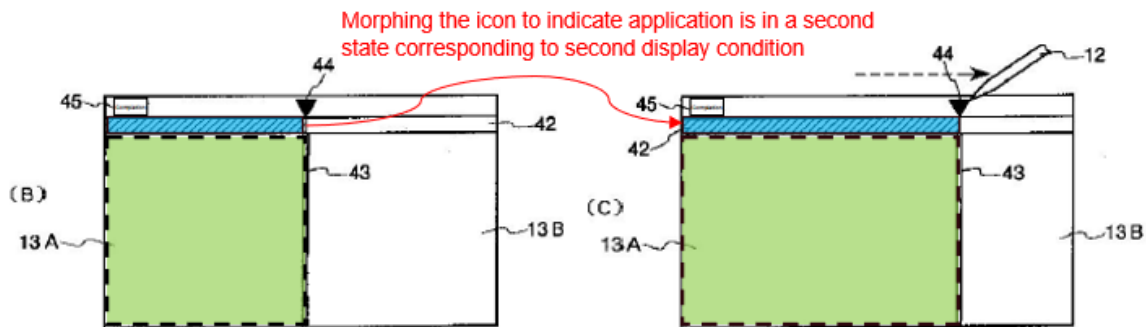
82. Accordingly, Ogawa discloses claim limitation [1.e].

vii) [1.f] “morphing the icon to indicate that the application is in a second state corresponding to a second display condition the morphing comprising changing the shape and size of the icon;”

83. Ogawa discloses this limitation.

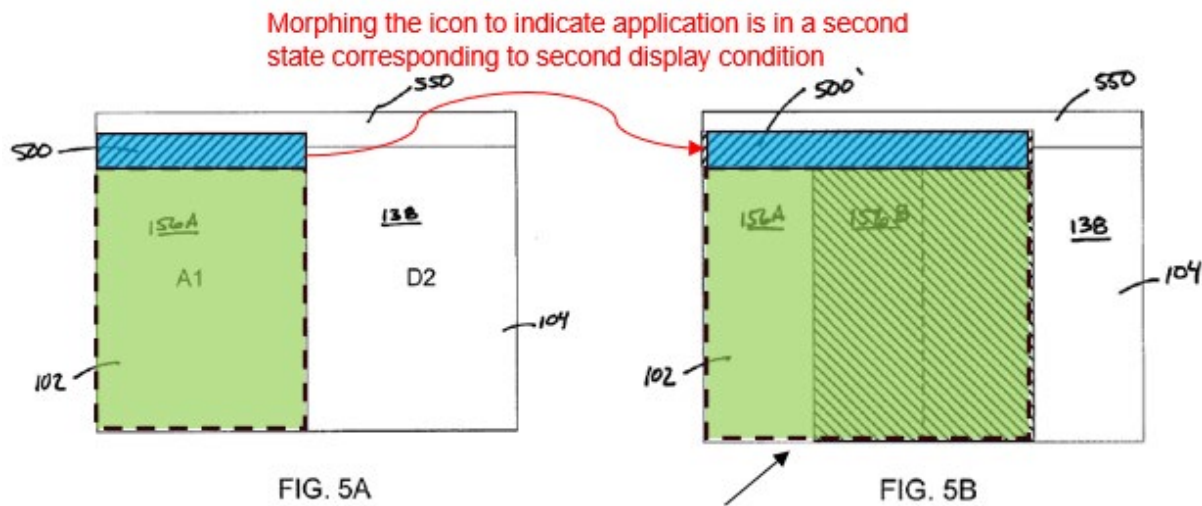
84. First, as shown below, Ogawa discloses morphing the colored/shaded portion of access bar 42 (“icon” shaded in blue) to indicate that the program (“application”) is in a second state corresponding to the second window size

(“second display condition”). (EX1005, [0017]-[0019], [0023]-[0024], [0027]-[0028] (disclosing that based on detecting the pen 12 moving the pointer 44, resetting the splitting ratio based on the movement and then “the access bar 41 [*sic*, 42] and the pointer 44A [*sic*, 44] on the actual VRAM 29A are updated ...” and “[a]s a result, the two screens 13A and 13B are displayed with sizes changed in accordance with the movement of the pen 12”), FIGS. 4(B)-4(C); *see also id.*, FIGS. 3, 5.)



(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

85. Second, the above-cited disclosures and figures demonstrate that Ogawa discloses that the morphing of the icon includes changing the shape and size of the icon, in a manner consistent with the disclosures of the '080 patent. The '080 patent discloses that similar to Ogawa, the morphing of its icon 500 to icon 500' includes elongating the width of the substantially rectangular icon 500, as shown below. (EX1001, 13:65-14:13.)



'080 Patent

(EX1001, FIG. 5(A) (left, annotated), FIG. 5(B) (right, annotated).)

86. Thus, similar to the '080 patent's disclosure, the shape and size of the shaded portion of access bar 42 changes (commensurate with the size of the first screen 13A changing from figure 4(B) to 4(C)) as part of the morphing of access bar 42 to indicate that Ogawa's program is in a second state corresponding to the second window size. (EX1005, [0017]-[0019], [0023]-[0024], [0027]-[0028], FIGS. 4(B)-(C); *see also id.*, FIGS. 3, 5.)

87. I have been asked to consider a scenario where the '080 patent's description of an aspect ratio of icon 500' in figure 5B changing relative to the aspect ratio of icon 500 in figure 5A. (EX1001, 14:14-46.) In that scenario, Ogawa discloses the same features as it discloses the aspect ratio of the colored/shaded portion of access bar 42 in figure 4(C) changes relative to the

aspect ratio of the colored/shaded portion of access bar 42 in figure 4(B).

(EX1005, [0017]-[0019], [0023]-[0024], [0027]-[0028], FIGS. 4(B)-(C), *see also id.*, FIGS. 3, 5.) For example, like the 080 patent's disclosure of the aspect ratio changing because the "width of icon 500 may expand commensurately with the expansion of the application into the second display" while the height remains the same (EX1001, 14:20-31), the aspect ratio of Ogawa's colored/shaded portion of access bar 42 changes in the same way, thus disclosing the claimed **"changing the shape and size of the icon."** (*See also* my analysis and discussion below at Section IX.B.2-6 (addressing claims 5-9 related to the aspect ratio).)

88. Accordingly, Ogawa discloses claim limitation [1.f].

viii) [1.g] "wherein the first and second states comprise an open application state."

89. Ogawa discloses this limitation, for reasons similar to those given above for claim limitations [1.b] and [1.f]. As I discussed above, Ogawa discloses that the program in first screen 13A in both the first state (figure 4(B)) and second state (figure 4(C)) is in an active state ("open application state") because the colored/shaded portion of access bar 42 corresponds to the active screen on the display input surface 13. (*See* my analysis and discussion above at Sections IX.A.1.iii, IX.A.1.vii.)

90. For example, Ogawa discloses that the "portion of the access bar 42 located on an active screen (the screen currently being accessed) is colored

(depicted with hatching in FIG. 4) to indicate an active state.” (EX1005, [0018]; *see also id.*, [0016] (disclosing with reference to figure 3(B) “an active screen flag register 28B which stores an active screen flag which specifies which of the two screens (windows) generated by the split is active”), [0023] (disclosing with reference to figure 5 that in response to a screen splitting instruction, “a flag for making the left screen 13 active is set in the active screen flag register 28B (step S8)”), [0023] (disclosing that “an access bar 42 is drawn at the top, and furthermore, a portion of the access bar 42 is colored based on the active screen flag and the splitting length to indicate the active state”).)

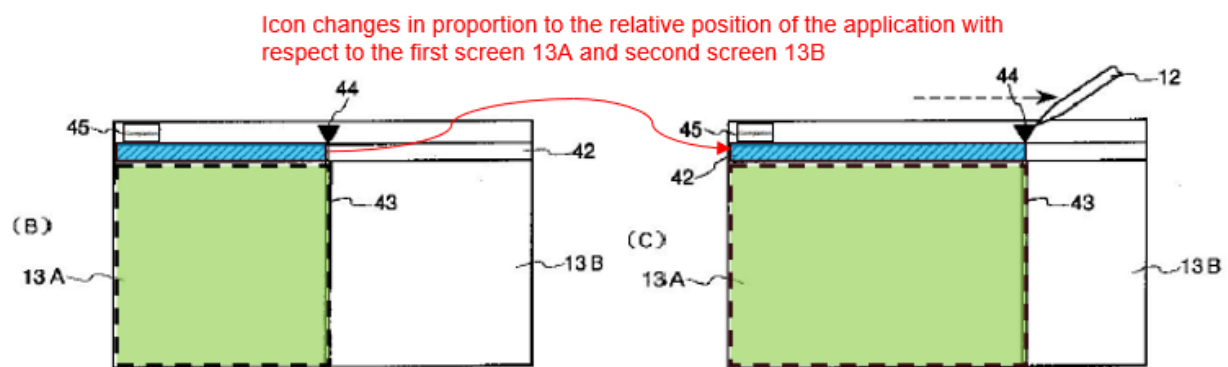
91. Accordingly, Ogawa discloses claim limitation [1.f].

2. Claim 2: “The method according to claim 1, wherein the icon is changed in proportion to the relative position of the application with respect to the first and second display.”

92. Ogawa discloses this limitation.⁸ For example, as discussed above in relation to claim limitations [1.e]-[1.f], Ogawa discloses that the colored/shaded

⁸ Claim 2 fails to provide antecedent basis for “the first and second display” as claim 1 recites “one or more displays” and not “a first display” or “a second display.” (*See generally* EX1001, claim 1.) To the extent the “first display” and “second display” terms can be understood, I mapped them to Ogawa’s first part of the display input surface 13 (which includes display unit 31) on which first screen 13A is displayed

portion of access bar 42 (“icon” shaded in blue below) is changed in proportion to the relative position of the program (“application”) with respect to the first and second parts of the display input surface 13 on which the first and second screens 13A and 13B are displayed, respectively (claimed first and second displays). (See above at Sections IX.A.1.vi-vii.)



(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated))

and the second part of the display input surface 13 on which second screen 13B is displayed, respectively. (See my analysis and discussions above at Sections IX.A.1.i, IX.A.1.ii, IX.A.1.vii.) This is consistent with the alternative interpretation of the “display” term encompassing logically divided displays that I was asked to consider. (See above at Section VIII; n.5 (explaining that the display input surface 13 includes the display unit 31).)

3. Claim 12

i) [12.pre] “A handheld computing device, comprising:”

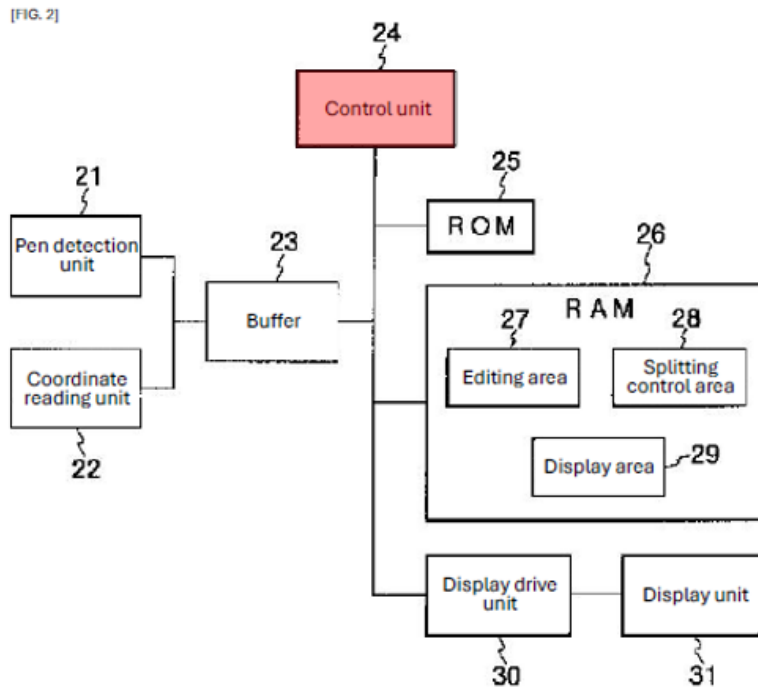
93. I understand that this limitation is a preamble of the claim and I have been asked to assume that the preamble of claim 12 is limiting. Under that assumption, Ogawa discloses the preamble of claim 12. For example, Ogawa discloses an electronic device such as an electronic notebook (“handheld computing device”). (EX1005, Abstract, [0001]-[0002], [0011]-[0012], [0020], FIGS. 1-2; *see also* above at Section IX.A.1.i.) As explained with respect to the preamble of claim 1, a person of ordinary skill in the art would have understood that an “electronic notebook” with a touch screen input using an input device like pen 12 in Ogawa would have been a “handheld computing device” as it is portable (capable of being handheld) and has computing functionality (e.g., to show a calendar and schedule). (*See* above at Section IX.A.1.i; EX1005, [0020] (disclosing the operations of its electronic device in the context of an “electronic notebook”), [0033] (disclosing the programs being displayed can include a calendar and schedule).)

94. Accordingly, Ogawa discloses the preamble of claim 12.

ii) [12.a] “a processor;”

95. Ogawa discloses this limitation. For example, Ogawa discloses that its electronic notebook includes a control unit 24 (“processor”) which is connected

to various other components of the electronic notebook like the ROM 25, RAM 26, and display drive unit 30. (EX1005, [0012], [0015], FIG. 2; *see also* EX1001, 7:53-57 (the '080 patent disclosing a processor operative to similarly control the functionality of the handheld device).)



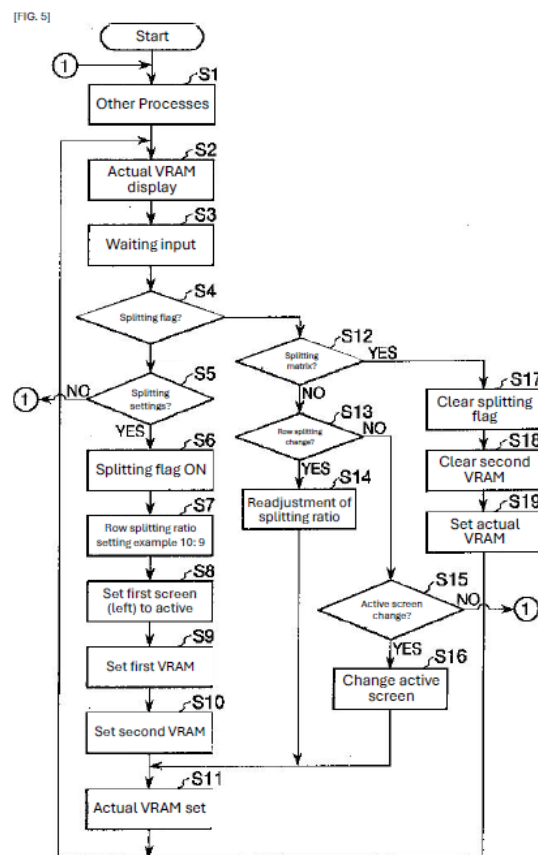
(EX1005, FIG. 2 (annotated).)

96. For example, Ogawa discloses that its electronic notebook includes a control unit 24 (“processor”) which carries out the processing functionality of the electronic notebook (e.g., the process shown in figure 5 reproduced below).

Next, the operation of the electronic device that enables the aforementioned screen operation will be described with reference to the flowchart of FIG. 5. First, when the power is turned ON, **the control unit 24 starts the process depicted in FIG. 5 in accordance with the**

program stored in ROM 25, and general processes related to an electronic notebook (other processes) are performed (step S1). At this time, the splitting flag is turned OFF by default. Therefore, the control unit 24 executes data processing using the first editing area 27A, and loads the display contents into the actual VRAM 29A.

(EX1005, [0020]; *see also id.*, [0021]-[0022].)

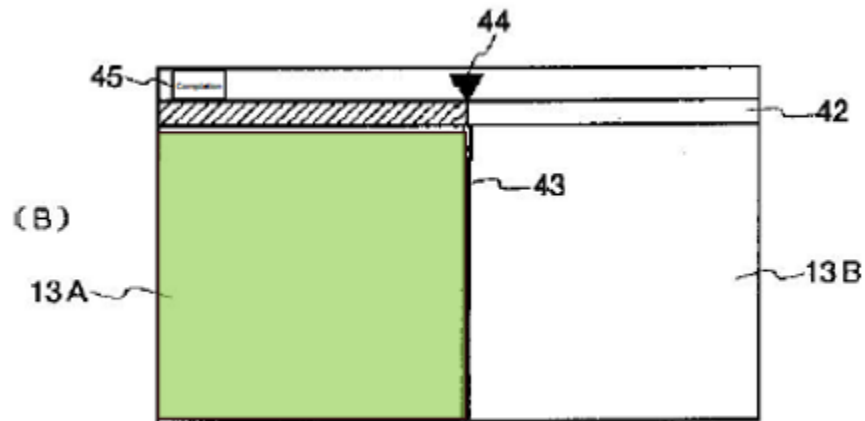


(EX1005, FIG. 5.)

97. Accordingly, Ogawa discloses claim limitation [12.a].

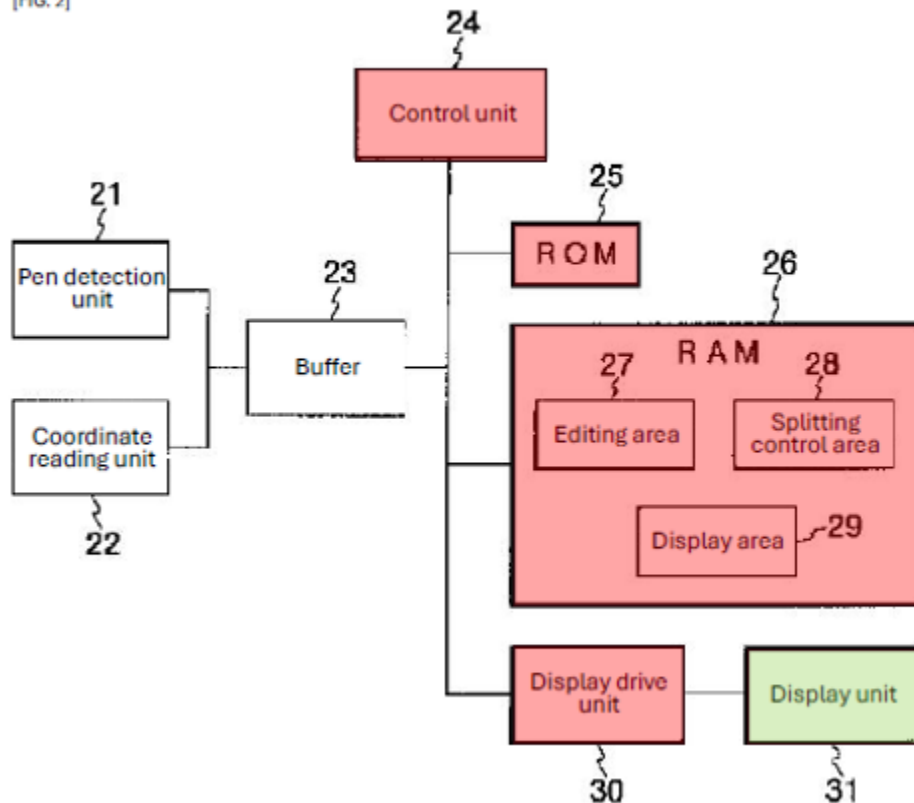
- iii) [12.b] “a first display operable to display a first screen, the first display being in operative communication with the processor;”

98. Ogawa discloses this limitation. For example, Ogawa discloses its electronic notebook includes a first part of display input surface 13 (“first display”) operable to display a first screen 13A (“first screen”), the first part of the display input surface 13 (“first display”) being in operative communication with the control unit 24 (“processor”) at least via the display drive unit 30 and RAM 26. (EX1005, [0015], [0017], [0023]-[0025], FIGS. 2, 3, 4(A)-(C), 5.)



(EX1005, FIG. 4(B) (annotated).)

[FIG. 2]

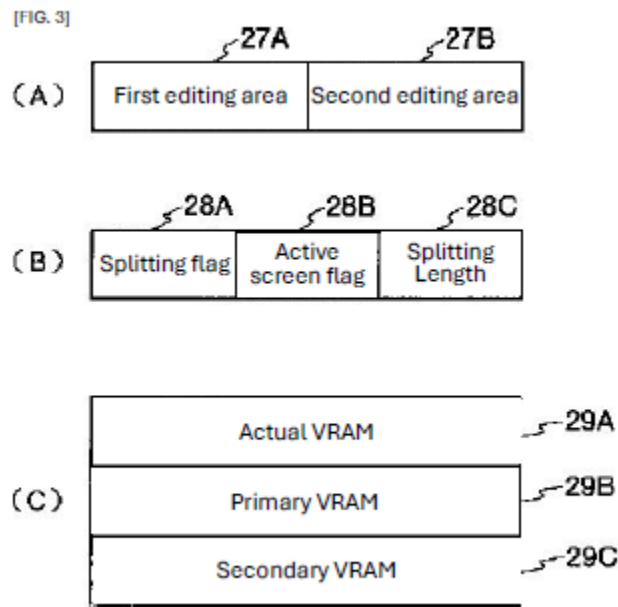


(EX1005, FIG. 2 (annotated).)

99. The logically split display input surface 13 including a first part (which displays first screen 13A) and a second part (which displays second screen 13B) corresponds to a “first display” of claim limitation [12.b] and a “second display” of claim limitation [12.c] below, respectively. (See below at Section IX.A.3.iv.) This is consistent with the alternative interpretation of “display” that I was asked to consider, which encompasses two logically divided parts of a single physical display. (See above at Section VIII.)

100. Ogawa discloses that the first part of the logically split display input surface 13 is in operative communication with the control unit 24 as the control unit 24 executes instructions from RAM 26 (including editing area 27, splitting control area 28, and display area 29) to display content on this first part using the display drive unit 30. (EX1005, [0015], [0017], [0023]-[0025], FIGS. 2, 3, 4(A)-(C), 5.)⁹ As described in the reproduced portions of Ogawa below, Ogawa discloses that in the case when the display input surface 13 is split, the control unit 24 executes instructions to display content (e.g., a program like a calendar or schedule) on first screen 13A of the first part of the display input surface 13 based on, e.g., information stored in first editing area 27A, the splitting flag 28A and active screen flag 28B, along with actual VRAM 29A and primary VRAM 29B. (*Id.*)

⁹ See n.5



(EX1005, FIGS. 3(A)-(C).)

The display unit 31 is composed of a flat panel display or the like, and displays images, data, and the like. **The display drive unit 30 displays an image on the display unit 31 under the control of the control unit 24.** The display unit 31, the pen detection unit 21, and the coordinate reading unit 22 are provided by lamination so that input can be made on the display screen.

(EX1005, [0015].)

Next, an example of screen operation in an electronic device having such a configuration will be described with reference to FIG. 4. **When "Split Screen" is selected with the pen 12 while a function operation (menu) 41 is displayed as depicted in FIG. 4(A), an access bar 42 is displayed in a top line of the display area, the entire screen is lowered by one line, and the display surface is split into two screens 13A and 13B, almost symmetrically as depicted in FIG. 4(B). The screen is split not by pixel units, but by the size of the displayed characters. For example, when 20 characters are displayed on one line, 10 are displayed on the left and 9 on the right, with one character in the middle being used as the splitting line 43.**

(EX1005, [0017].)

On the other hand, if it is determined in step S5 that screen splitting has been instructed, a splitting flag is set in the splitting flag register 28A (step S6). Next, a predetermined splitting ratio, for example, 10:9, is set in the splitting length register 28C (step S7). **Next, a flag for making the left screen 13 active is set in the active screen flag register 28B (step S8).**

(EX1005, [0023].)

Next, the contents of the actual VRAM 29A are written to the first VRAM 29B (step S9). Next, the contents of the first VRAM 29B are written to the second VRAM 29C (step S10).

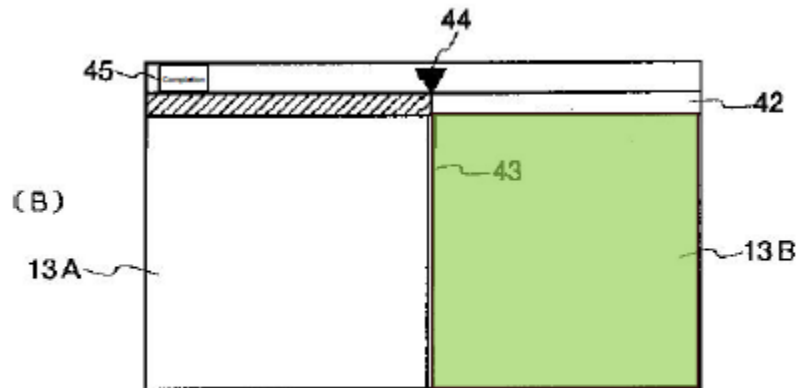
Next, the contents of the first VRAM 29B are written to the actual VRAM 29A (step S11). At this time, an access bar 42 is drawn at the top, and furthermore, a portion of the access bar 42 is colored based on the active screen flag and the splitting length to indicate the active state. Furthermore, a pointer 44 is drawn at the position designated by the splitting length, and an end icon 45 is drawn at the top left. **Furthermore, in accordance with setting of the splitting length register 28C, the data of the portion to be displayed out of the contents of the second VRAM 29C is read, and written into the actual VRAM 29A. The contents of the actual VRAM 29A thus set are displayed in step S2 as depicted in FIG. 4(B).**

(EX1005, [0024]-[0025].)

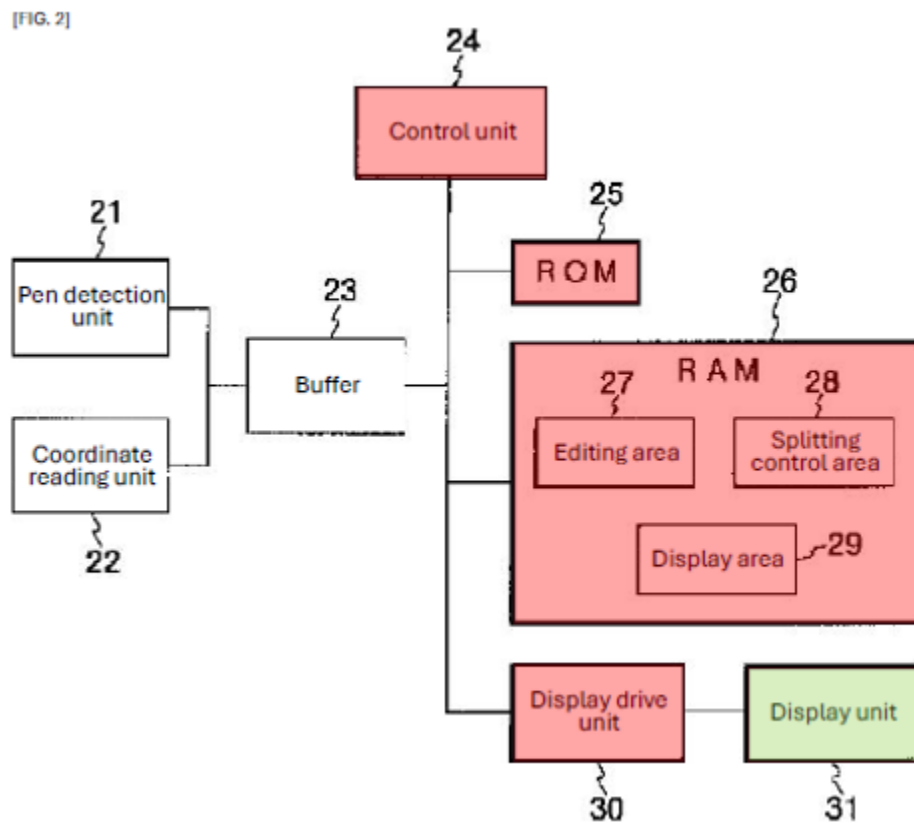
101. Accordingly, Ogawa discloses claim limitation [12.b].

iv) **[12.c] “a second display operable to display a second screen, the second display being in operative communication with the processor;”**

102. Ogawa discloses this limitation for reasons similar to those given above with respect to claim limitation [12.b]. For example, Ogawa discloses its electronic notebook includes a second part of display input surface 13 (“second display”) operable to display a second screen 13B (“second screen”), the second part of the display input surface 13 (“second display”) being in operative communication with the control unit 24 (“processor”) at least via the display drive unit 30 and RAM 26. (EX1005, [0015], [0017], [0023]-[0025], FIGS. 2, 3, 4(A)-(C), 5.)



(EX1005, FIG. 4(B) (annotated).)



(EX1005, FIG. 2 (annotated).)

103. As discussed above, the logically split display input surface 13 which includes a first part (which displays first screen 13A) and a second part (which

displays second screen 13B) correspond to the “first display” of claim limitation [12.b] and the “second display” of claim limitation [12.c], respectively. (*See above at Section IX.A.3.iii.*) This is consistent with the alternative interpretation of “display” that I was asked to consider, which encompasses two logically divided parts of a single physical display. (*See above at Section VIII.*)

104. Ogawa discloses that the second part of the logically split display input surface 13 is in operative communication with the control unit 24 as the control unit 24 executes instructions from RAM 26 (including editing area 27, splitting control area 28, and display area 29) to display content on this second part using the display drive unit 30. (EX1005, [0015], [0017], [0023]-[0025], FIGS. 2, 3, 4(A)-(C), 5.)¹⁰ As described in these portions of Ogawa (reproduced above in Section IX.A.3.iii), Ogawa discloses that in the case when the display input surface 13 is split, the control unit 24 executes instructions to display content (e.g., a program like a calendar or schedule) on second screen 13B of the second part of the display input surface 13 based on, e.g., information stored in second editing area 27B, the splitting flag 28A and active screen flag 28B, along with actual VRAM 29A and secondary VRAM 29C. (*Id.*)

105. Accordingly, Ogawa discloses claim limitation [12.c].

¹⁰ *See* n.9.

- v) **[12.d] “at least one gesture sensor, separate from the first display and the second display, and operable to receive a gesture input;”**

106. Ogawa discloses this limitation for reasons similar to those given above with respect to claim limitation [1.c]. For example, Ogawa discloses a pen input detection unit 21 (“at least one gesture sensor”), separate from the first and second parts of display input surface 13 (“first display” and “second display,” respectively), and operable to receive a gesture input via the pen 12. (EX1005, [0012]-[0013], [0015], [0021], FIG. 2; *see also* above at Section IX.A.1.iv.)

107. The pen detection unit 21 is separate from the display input surface 13 because the gesture sensor (i.e., the pen input detection unit 21) has to detect the contact (“gesture input”) between the pen 12 and the display surface (display unit 31) of the display input surface 13. (EX1005, [0013]]; *see also* n.5.).) Based on the detected contact, the pen detection unit 21 outputs a detection signal which is used by the coordinate reading unit 22 to “reads the coordinates of the contact position between the pen 12 and the display input surface 13, and outputs the coordinates that were read.” (EX1005, [0013].) If the pen detection unit 21 was not separate from the display input surface 13, the pen detection unit 21 could not work in conjunction with the coordinate reading unit 22 to determine the coordinates at which the contact at the display input surface 13 was detected.

108. As explained in relation to claim limitation [1.c], Ogawa discloses that the pen detection unit 21 is operable to receive a gesture input when the pen 12 touches the display input surface 13. (*See* above at Section IX.A.1.iv.)

109. Accordingly, Ogawa discloses limitation [12.d].

vi) [12.e] “wherein the processor is operable to:”

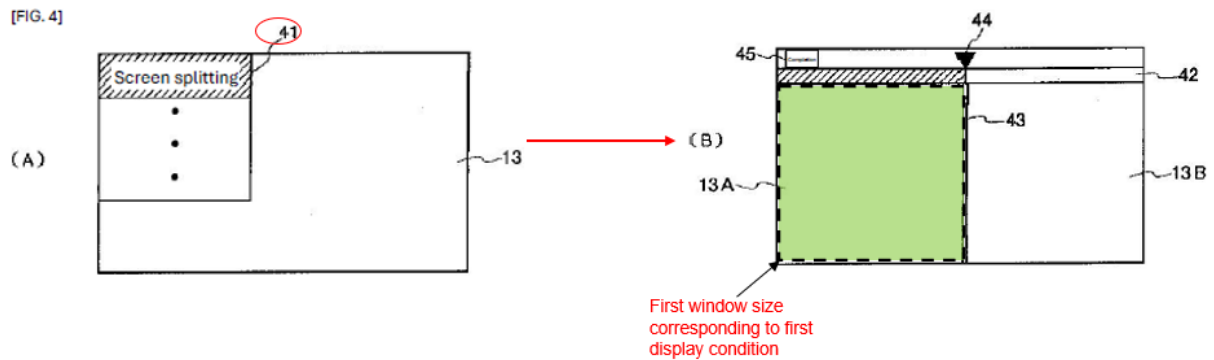
110. Ogawa discloses this limitation. For example, Ogawa discloses that its control unit 24 (“processor”) is operable to perform the features set forth in the following limitations (limitations [12.f]-[12.i]).

vii) [12.f] “execute an application that is displayable on at least one of the first display and the second display in response to the gesture input; and”

111. Ogawa discloses this limitation. For example, as discussed above with reference to claim limitation [1.a], Ogawa discloses executing a program (“application”) that is displayable on at least one of the first part and the second part of the display input surface 13 (“first display” and “second display,” respectively) in response to the pen input detection unit 21 detecting a gesture input by way of the pen 12 touching the display input surface 13. (*See* above at Section IX.A.1.ii.)

112. In particular, as discussed above, Ogawa discloses executing a program (“application”) like a calendar on at least the first part of the display input surface 13 (“at least one of the first display and the second display”) in response to

the user selecting a split screen option on menu 41 with pen 12 (“in response to the gesture input”). (EX1005, [0017]-[0018], [0023]-[0024], [0033] (describing first screen 13A displaying a program such as calendar or schedule), FIGS. 4(A)-(C); *see also id.*, FIGS. 3, 5.)

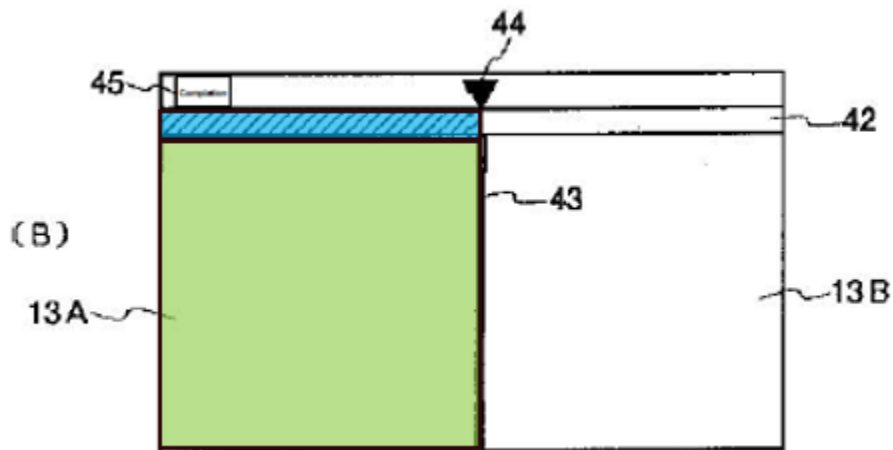


(EX1005, FIG. 4A (left, annotated), FIG. 4(B) (right, annotated).)

113. Accordingly, Ogawa discloses claim limitation [12.f].

viii) [12.g] “displaying an icon associated with the application in at least one of the first display and the second display,”

114. Ogawa discloses this limitation. For example, as discussed above with reference to claim limitation [1.b], Ogawa discloses displaying a colored/shaded portion of an access bar 42 (“icon” shaded in blue) associated with the program (“application”) in at least the first part of the display input surface 13 (“at least one of the first display and the second display”). (*See* above at Section IX.A.1.iii; EX1005, [0017]-[0018], [0023]-[0024], [0033]; *see also id.*, FIGS. 3, 5.)



(EX1005, FIG. 4(B) (annotated).)

115. In particular, Ogawa discloses that, as shown above, “[t]he portion of the access bar 42 located on an active screen (the screen currently being accessed) is colored (depicted with hatching in FIG. 4) to indicate an active state.” (Ogawa, [0017]; *see also id.*, [0024] (“At this time, an access bar 42 is drawn at the top, and furthermore, a portion of the access bar 42 is colored based on the active screen flag and the splitting length to indicate the active state.”).)

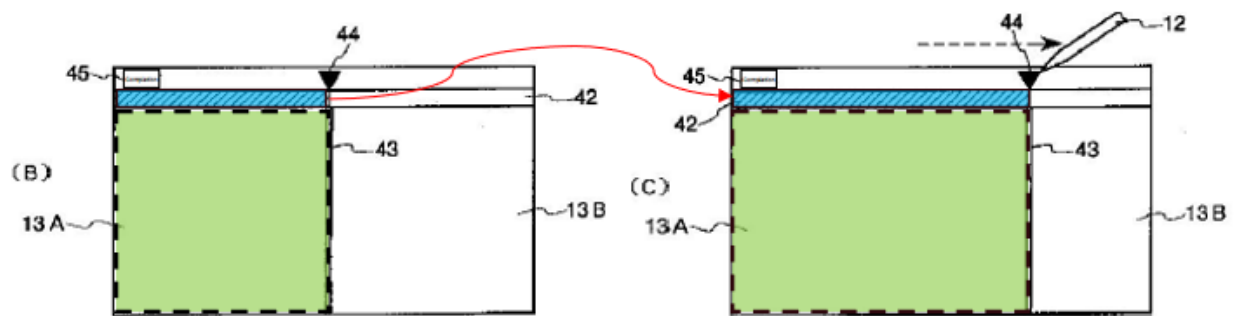
116. Accordingly, Ogawa discloses claim limitation [12.g].

- ix) **[12.h] “wherein the icon indicates that the application is in one of two or more states associated with a display status of the application with respect to the first and second displays;”**

117. Ogawa discloses this limitation. For example, as discussed above with reference to claim limitations [1.b], [1.e], [1.f], and [12.g], Ogawa discloses that the colored/shaded portion of access bar 42 (“icon” shaded in blue) indicates

that the program (“application”) is in one of two or more states associated with a window size (“display status”) of the application with respect to the first and second parts of the display input surface 13 (“first and second displays”). (See above at Sections IX.A.1.iii, IX.A.1.vi-vii, IX.A.3.viii; EX1005, [0017]-[0018], [0023]-[0024], [0033]; *see also id.*, FIGS. 3, 5.)

118. In particular, as discussed above, Ogawa discloses that the colored/shaded portion of access bar 42 corresponds to the window size (“display status”) of the program (“application”) with respect to the first and second parts of the display input surface 13. (EX1005, [0017]-[0019], [0023]-[0024], [0027]-[0028], FIGS. 4(B)-(C); *see also id.*, FIGS. 3, 5.)



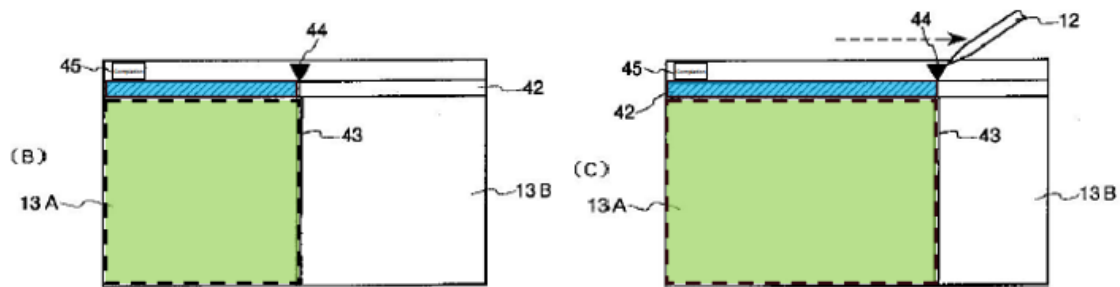
(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

119. Accordingly, Ogawa discloses claim limitation [12.h].

x) [12.i] “wherein the first and second states comprise an open application state.”

120. Ogawa discloses this limitation for at least reasons similar to those given above with respect to claim limitations [1.g] and [12.h].¹¹ (*See* above at Sections IX.A.1.viii, IX.A.3.ix.) For example, Ogawa discloses that the program in the first part of display input surface 13 in both the first state (figure 4(B)) and second state (figure 4(C)) is in an active state (“open application state”) because the colored/shaded portion of access bar 42 corresponds to the active screen on the display input surface 13. (EX1005, [0018]; *see also id.*, [0016], [0023].)

¹¹ Claim limitation [12.i] fails to provide antecedent basis for “the first and second states” as claim limitation [12.h] recites “one of two or more states associated with a display status of the application” and not “a first state” or “a second state.” (*See generally* EX1001, claim 12.) To the extent the “first [state]” and “second state[.]” terms can be understood, I mapped the first state to the program’s display state in figure 4(B) and the second state to the program’s display state in figure 4(C), as I discussed above with respect to limitations [1.b], [1.f], and [12.h]. (*See* above at Sections IX.A.1.iii, IX.A.1.vii, IX.A.3.ix.)



(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

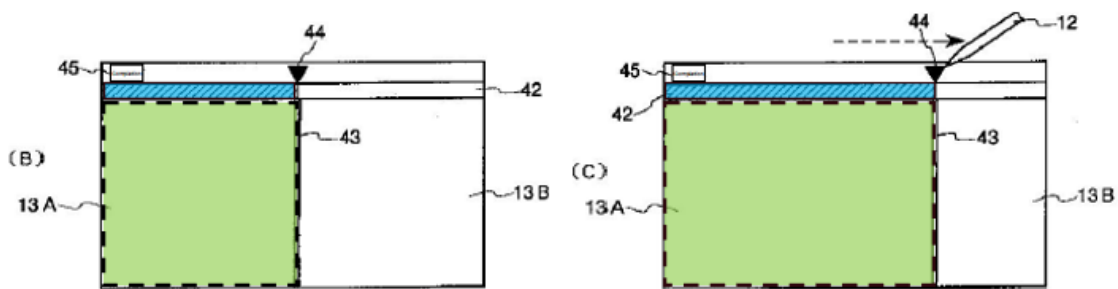
121. Accordingly, Ogawa discloses claim limitation [12.i].

4. **Claim 13: “A device as recited in claim 12, wherein the icon is indicative of whether the application is expandable, whether the application is expanded, or whether the application is expanding.”**

122. Ogawa discloses this limitation. As an initial matter, claim 13 recites features in alternative form: “the icon is indicative of whether the application is expandable, . . . expanded, **or** . . . expanding.” Accordingly, it is my understanding that claim 13 is met by the prior art if at least one of the alternatively claimed features is disclosed.

123. Ogawa discloses at least that the colored/shaded portion of access bar 42 (“icon” shaded in blue) is indicative of whether the program (“application”) is expandable. (EX1005, [0018]-[0019], [0024]-[0025], [0027]-[0028], FIGS. 4(B)-(C), 5.) For example, as shown in figures 4(B) and 4(C), when the program does not occupy the entirety of the display input surface 13 (i.e., the program occupies a

part of the display input surface 13 such as that shown in figures 4(B) and 4(C)), then the icon is indicative of the application being expandable because the user can expand the program such that the window size of the program increases relative to the first and second displays of display input surface 13. (*Id.*) As shown in figure 4(C), the window size of the program displayed in the first part of the display input surface 13 is expanded relative to the window size of the program shown in figure 4(B), thus the icon in figure 4(B) indicates that the program is expandable. (*Id.*)



(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

124. Ogawa's disclosures are similar to how the '080 patent describes this feature, explaining that "a user may observe the icon to determine the status of the application with respect to the one or more displays (e.g., whether the application is expandable, expanded, or expanding)." (EX1001, Abstract; *see also id.*, 13:24-37.)

125. Accordingly, Ogawa discloses claim 13.

- 5. Claim 20: “The method according to claim 12, wherein the icon morphs to indicate that the application is in one of two or more states, the morphing comprising changing the shape and size of the icon.”**

126. Ogawa discloses this limitation for at least reasons similar to those given above with respect to claim limitation [1.f]. (*See* above at Section IX.A.1.vii.)

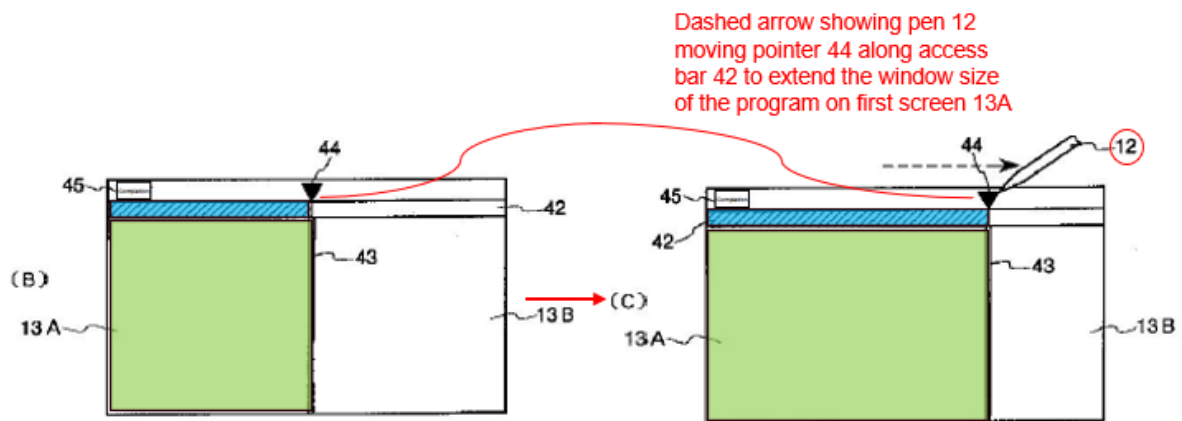
B. Ogawa in View of Yook Discloses and/or Suggests Claims 4-9

- 1. Claim 4: “The method according to claim 1, wherein the first display condition includes displaying the application in at least a first and second display, and wherein the modifying includes minimizing the application to occupy only one of the first and second displays.”**

127. Ogawa in view of Yook discloses and/or suggests this limitation.

128. Ogawa does not disclose that the first display condition includes displaying the application in at least a first and second part of display input surface 13 (claimed “first and second display”), and wherein the modifying includes minimizing the application to occupy only one of the first and second displays, as required by claim 4.

129. Instead, Ogawa discloses a scenario in reverse where the program (“application”) is first displayed on a first part of the display input surface 13 (“first display”) on which first screen 13A is displayed (*see* Figure 4B below) and the modifying includes increasing the window size of the program such that it extends to the second part of the display input surface 13 (“second display”) where second screen 13B was displayed (*see* Figure 4C below). (*See* above at Sections IX.A.1.ii, IX.A.1.v.)

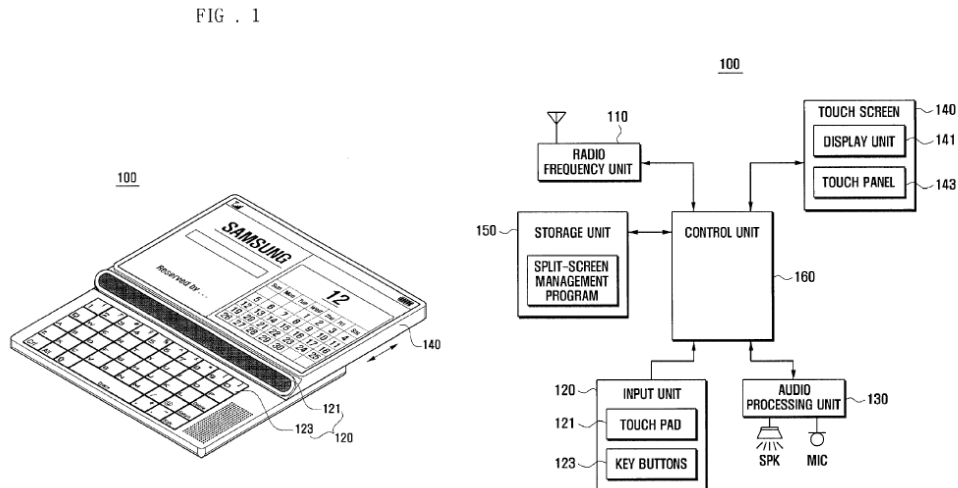


(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

130. However, a person of ordinary skill in the art would have been motivated to modify Ogawa's disclosed process to include the claim 4 features based on the knowledge of a person of ordinary skill in the art and the teachings of Yook.

131. Yook is directed to an electronic device (e.g., mobile terminal 100) including a touch screen 140, where the touch screen 140 includes display unit 141 and a touch panel 143. (EX1007, [0024]-[0024], [0030]-[0031], FIGS. 1-2.)

FIG . 2



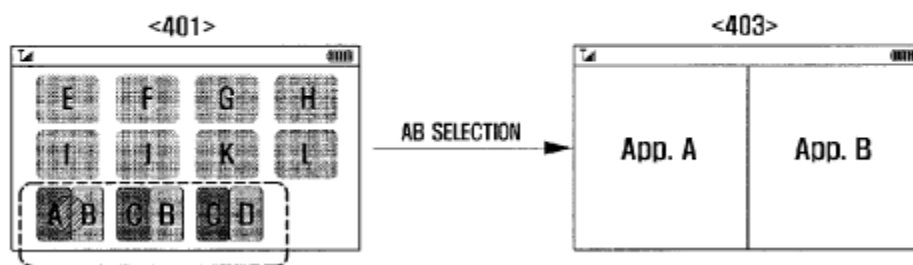
(EX1007, FIG. 1 (left), FIG. 2 (right).)

132. Like Ogawa, Yook discloses a screen area management program which, in response to user input or an event trigger, “divides the screen of the display unit 141 into a plurality of divided screen areas.” (EX1007, [0035]; *see also id.*, Abstract, [0003]-[0008], [0026]-[0027], FIG. 4a-4e.) Thus, Yook discloses methods of controlling the display of content in a dual display configuration in the same technical field as Ogawa. Accordingly, a person of ordinary skill in the art would have had reason to consider the teachings of Yook when implementing Ogawa.

133. In particular, Yook discloses managing the display of applications on the display unit 141 in a variety of ways. For example, as shown in figure 4a below, the mobile terminal 100 displays a plurality of menu items including “dual

menu items.” (EX1007, [0044].) If one of the “dual menu items” is selected, then “the mobile terminal 100 can activate application programs related to the menu items A and B, display a functional view area App.A as to the application program related to the menu item A on a divided screen area, and display a functional view area App.B as to the application program related to the menu item B on the other divided screen area, as illustrated in screen 403.” (*Id.*)

FIG . 4a

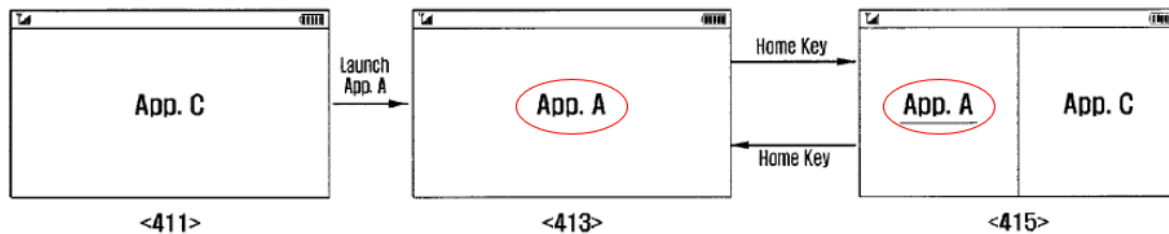


(EX1007, FIG. 4a.)

134. In another scenario discussed with reference to figure 4b reproduced below, a menu/function “C” can be displayed across the entirety of the screen first as shown on screen 411. (EX1007, [0046].) The user may then open function “A” as shown in screen 413, and function “A” is displayed on the entire screen (screen 413 below). (*Id.*) If the user then provides a specified input like a “Home Key,” “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.” (*Id.*)

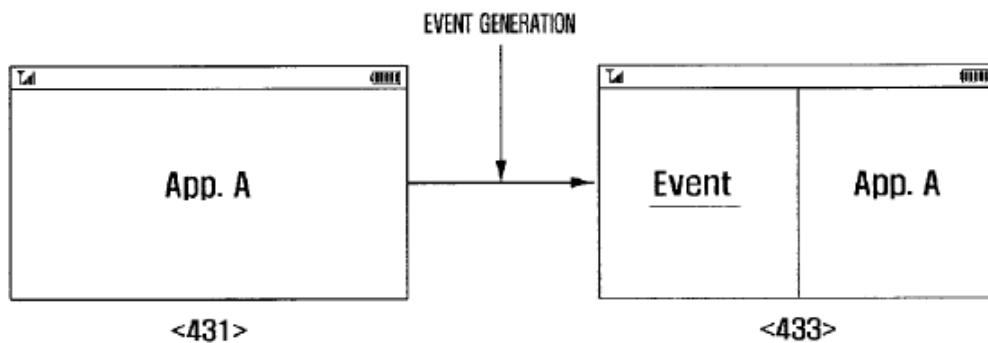
FIG . 4b



(EX1007, FIG. 4b (annotated).)

135. Figure 4d reproduced below shows a similar scenario where a moving image playback function “A” is first displayed in a “full screen format.” (EX1007, [0051]-[0052].) If an incoming call is received at this time (signified by “Event” below), then the function “A” is minimized to a first display on the right side of the display unit 141 while the incoming call labeled as “Event” is shown on the left side of the display. (*Id.*)

FIG . 4d



(EX1007, FIG. 4d (annotated).)

136. In view of Yook's above-noted teachings, a person of ordinary skill in the art would have been motivated to modify Ogawa such that its disclosed display control methods for an electronic device (e.g., electronic notebook) incorporated Yook's teachings. For example, as discussed above, both Ogawa and Yook are concerned with electronic devices with touch-sensitive multi-display configurations and methods to control the display of content on the multiple displays. Both references describe displaying content like images or applications like calendars on the screen. (EX1005, [0015], [0033]; EX1007, [0034], [0038], [0075], FIGS. 1, 6-13.)

137. Thus, a person of ordinary skill in the art would have motivated to implement Ogawa's display control method using Yook's technique that the method would have included first displaying a program across both logically

divided displays of the display input surface 13 (i.e., the first display condition includes displaying the application in at least a first and second display, as claimed) to increase the viewing area for the program as shown and described with reference to Yook's figures 4b and 4d above. And the modifying would have included minimizing the program to occupy only one of the first and second parts of the display input surface 13 (i.e., the modifying includes minimizing the application to occupy only one of the first and second displays, as claimed) as also shown and described with reference to Yook's figures 4b and 4d above. For instance, based on the teachings of Yook, one way Ogawa's display control operations would have been modified is when a user elects to split a screen in figure 4(A) using the split screen menu 41, the program is first displayed like in figure 4(C) where it is displayed across two displays and then, based on user input to minimize the program size (e.g., by the user using pen 12 to drag the pointer 44 to the left towards first screen 13A), the program is displayed on one display. (EX1005, FIGS. 4(A)-(C).)

138. A person of ordinary skill in the art would have appreciated that doing so would have been nothing more than a commonsense modification to Ogawa's disclosed techniques and would have provided a capability that Ogawa's disclosed process would have benefited from. For instance, as I discussed above, Ogawa discloses a scenario in which the display input surface 13 is first split into first

screen 13A and second screen 13B in figure 4B and then the size of the program displayed in first screen 13A is increased (figure 4C) to extend to the second part of display input surface 13 that displays second screen 13B. (*See above at Sections IX.A.1.ii, IX.A.1.v.*) However, in my opinion, a person of ordinary skill in the art would have understood that once the window size of the program is extended such that it is displayed on both the first and second parts of the display input surface 13, then the user would have had the ability to use the pen 12 to drag pointer 44 to the left to instruct Ogawa's device to minimize the program such that it is displayed on one of the first and second parts of the display input surface 13. (EX1005, [0012]-[0013], [0015], [0017]-[0019], FIGS. 1-2, 4(A)-(C).)

139. In other words, the display conditions of a program in a multi-display configuration would have been subject to change in Ogawa in a limited number of ways (e.g., from maximizing to minimizing and vice versa and from being displayed on one display to multiple displays or vice versa) because that would have been the expected use of the device. Yook teaches the management for the window size of applications in the same way, as discussed above. Accordingly, a person of ordinary skill in the art would have been motivated to make the above-proposed modification to Ogawa, to address the foreseeable need and expectation of window size management in a multi-display configuration. Such a modification would have involved the substitution of one known way of displaying a program

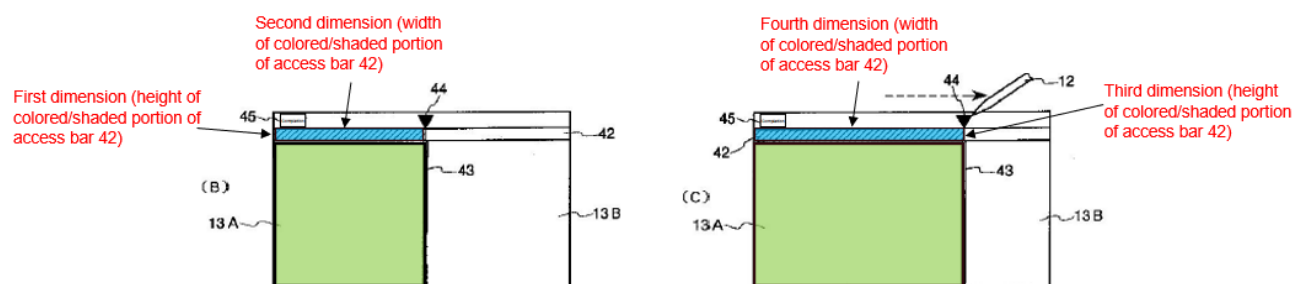
(initially displaying a program on a single display in a multi-display configuration and then maximizing the program so it is displayed across multiple displays as disclosed by Ogawa) with another known display method (Yook's technique initially displaying a program on multiple displays and then minimizing the program so it is displayed on one display), and thus would yield a predictable result.

140. In my opinion, a person of ordinary skill in the art would have recognized that the proposed modifications to Ogawa based on Yook, as described above, would have been a predictable and straightforward combination of well-known technologies using known methods. In fact, such a skilled person at the time would have had the capability and knowledge to implement, and have been motivated to try, the above modifications as required by the challenged claims, while ensuring proper operation of the Ogawa systems and methods. Therefore, a person of ordinary skill in the art would have had a reasonable expectation of success that the combined Ogawa-Yook system and method would have operated as expected.

141. Therefore, for the reasons I explained above, it is my opinion that the Ogawa-Yook combination discloses and/or suggests claim 4.

2. **Claim 5: “The method according to claim 4, wherein a first and second dimension define a first aspect ratio of the icon and a third and fourth dimension define a second aspect ratio of the icon.”**

142. Ogawa in view of Yook discloses and/or suggests this limitation. For example, in Ogawa, the height (“first [dimension]”) and width (“second dimension”) of the colored/shaded portion of access bar 42 in figure 4(B) define a first aspect ratio of the colored/shaded portion of access bar 42 (“icon”) and the height (“third [dimension]”) and width (“fourth dimension”) of the colored/shaded portion of access bar 42 in figure 4(C) define a second aspect ratio of the colored/shaded portion of access bar 42, as shown below. (EX1005, [0017]-[0019] (describing figures 4(B)-4(C)), FIGS. 4(B)-4(C); *see also id.*, [0020], [0023]-[0030] (describing figure 5 operations related to figures 4(B)-4(C)), FIG. 5.)



(EX1005, FIG. 4(B) (left, annotated), FIG. 4(C) (right, annotated).)

143. As shown above, the first and third dimensions (height) remain the same while the second and fourth dimensions (width) change based on the width of the displayed program as the colored/shaded portion of access bar 42

morphs from the size shown in figure 4(B) to the size shown in figure 4(C).

(EX1005, [0017]-[0019], FIGS. 4(B)-4(C); *see also id.*, [0020], [0023]-[0030], FIG. 5.)¹²

144. Ogawa's disclosures are consistent with the '080 patent's disclosure which describes that "the first and third dimension may comprise a height dimension" of the icon 500/500' in figures 5A and 5B which "may not change" as the icon's size increases between figures 5A and 5B, while the other two dimensions correspond to the width of icon 500/500' which "may expand commensurately with the expansion of the application into the second display." (EX1001, 14:26-31; *see also id., generally*, 14:14-46, FIGS. 5A-5C.)

¹² If the order of operations is reversed as discussed above in Section IX.B.1 where the program is first displayed across two displays and then minimized to one display, the Ogawa-Yook combination still teaches the features of claim 4. The first and second dimensions would respectively correspond to the height and width of the colored/shaded portion of access bar 42 in figure 4(C) while the third and fourth dimensions would respectively correspond to the height and width of the colored/shaded portion of access bar 42 in figure 4(B). But for simplicity, I refer to the order of operations in Ogawa.

145. Therefore, the Ogawa-Yook combination discloses and/or suggests claim 5.

3. Claim 6: “The method according to claim 5, wherein the first aspect ratio is different than the second aspect ratio.”

146. Ogawa in view of Yook discloses and/or suggests this limitation. For example, as discussed above with respect to claim 5, the first aspect ratio is defined by the height and width of the colored/shaded portion of access bar 42 in figure 4B while the second aspect ratio is defined by the height and width of the colored/shaded portion in figure 4(C). (*See* above at Section IX.B.2.) The two aspect ratios would have been different because the widths of the colored/shaded portion of access bar 42 in figures 4B and 4C are different (commensurate with the window size of the displayed program) while the height remains the same. (*Id.*) As such, the different values for the width with a constant height would have led to the first aspect ratio being different from the second aspect ratio.¹³

¹³ If the order of operations is reversed as discussed above in Section IX.B.1 where the program is first displayed across two displays and then minimized to one display, the Ogawa-Yook combination still teaches the features of claim 6 because the widths of the colored/shaded portions of access bar 42 would still be different between figures 4(B) and 4(C). (*See* n.12.)

4. Claim 7: “The method according to claim 6, wherein the first dimension and the third dimension are equal.”

147. Ogawa in view of Yook discloses and/or suggests this limitation for at least reasons similar to those given above for claim 5. As discussed above, the height of the colored/shaded portion of access bar 42 in figure 4(B) (“first dimension”) and the height of the colored/shaded portion of access bar 42 in figure 4(C) (“second dimension”) are the same, i.e., equal. (*See* above at Section IX.B.2.)¹⁴

5. Claim 8: “The method according to claim 7, wherein the first dimension and the third dimension are vertical dimensions.”

148. Ogawa in view of Yook discloses and/or suggests this limitation for at least reasons similar to those given above for claim 5. As discussed above, the claimed first and second dimensions are being mapped to the height of the colored/shaded portion of access bar 42 in figures 4(B) and 4(C), where height is a “vertical dimension,” as claimed. (*See* above at Section IX.B.2.)

¹⁴ If the order of operations is reversed as discussed above in Section IX.B.1 where the program is first displayed across two displays and then minimized to one display, the Ogawa-Yook combination still teaches the features of claim 7 because the heights of the colored/shaded portions of access bar 42 would still be the same between figures 4(B) and 4(C). (*See* n.12.)

6. **Claim 9: “The method according to claim 8, wherein the second dimension corresponds to a width of the application when displayed in the first display, and wherein the fourth dimension corresponds with the width of the application when displayed in the first and the second display.”**

149. Ogawa in view of Yook discloses and/or suggests this limitation for at least reasons similar to those given above for claim 5. As discussed above, the claimed second dimension corresponds to a width of the program when displayed in the first part of display input surface 13 (which displays first screen 13A) in figure 4(B), and the claimed fourth dimension corresponds to a width of the program when displayed in the first and second parts of display input surface 13 (which displays first and second screens 13A-13B) in figure 4(C). (*See above at Section IX.B.2.*)

C. Ogawa in View of Choi Discloses and/or Suggests Claims 1, 2, 12-16, and 20

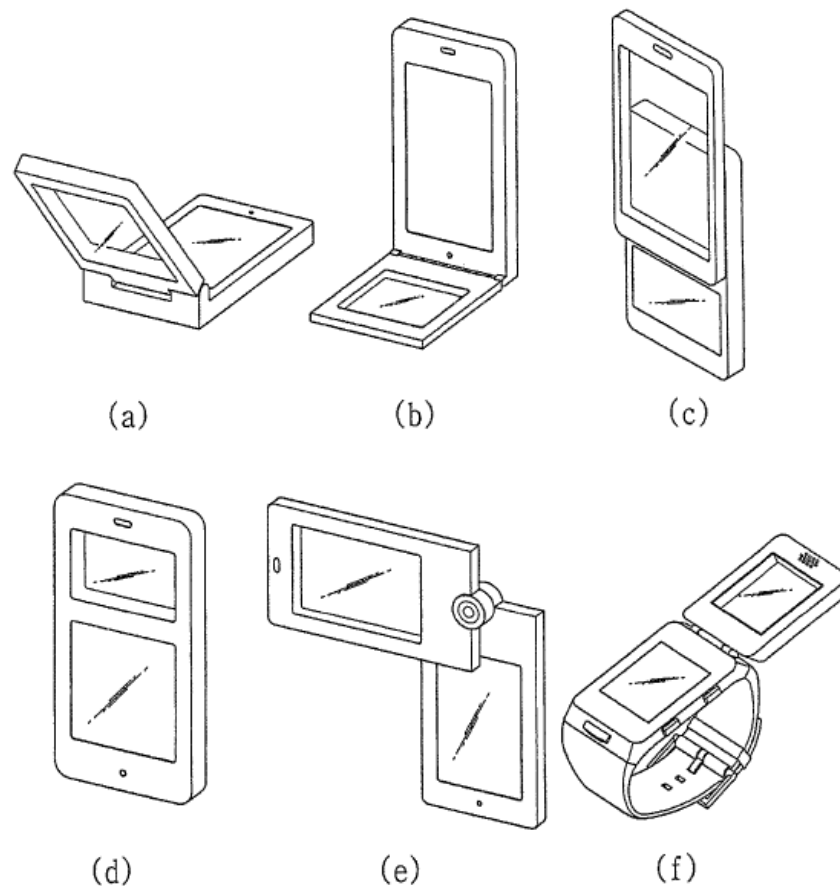
150. As discussed below, while Ogawa discloses all these features for the reasons I provided in Section IX.A, a person of ordinary skill in the art would have also been motivated to modify Ogawa based on the teachings of Choi and based on the knowledge of a person of ordinary skill in the art such that the combination of Ogawa and Choi teaches all the above-noted features along with additional features set forth in claims 14-16.

1. A Person of Ordinary Skill in the Art Would Have Been Motivated to Combine Ogawa and Choi

151. Like Ogawa, Choi is directed to methods for controlling display of content on mobile terminals. (EX1006, Abstract, 1:15-19, 1:32-36 (describing that “the mobile terminals can be further classified into **handheld** terminals . . .”), 5:45-50, (describing that the mobile terminal can include “**smart phones**”), 8:13-35 (describing single or multiple display devices).)

152. Choi discloses various examples of mobile terminals with single or multiple touch-sensitive displays. (EX1006, 8:13-27, 13:52-65, 14:47-52, FIGS. 5-6.) Figure 6 below shows various mobile terminals having a dual display configuration.

FIG. 6

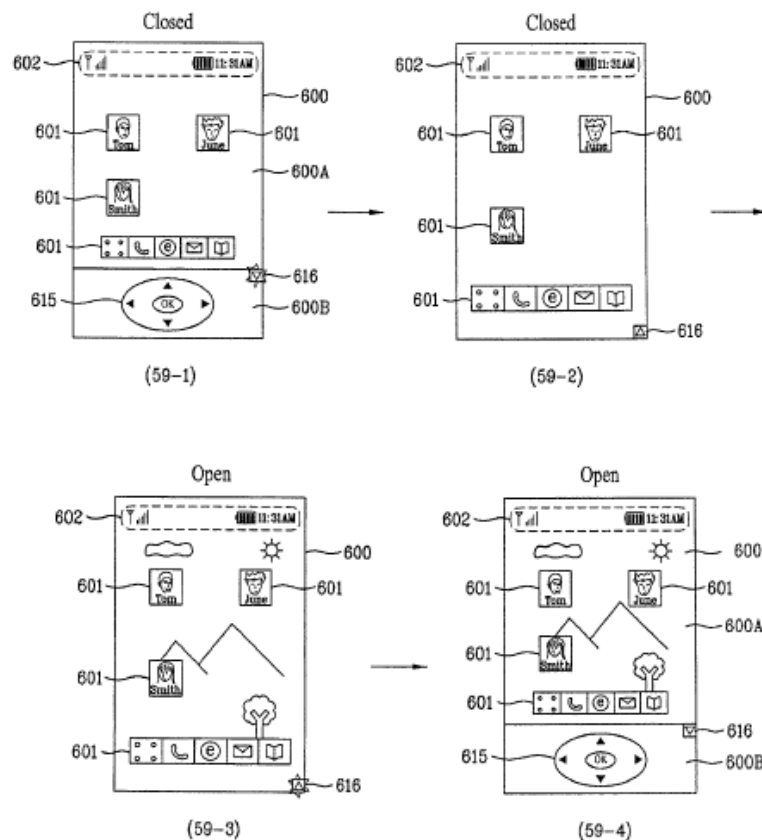


(EX1006, FIG. 6.)

153. Choi discloses that a multiple display configuration for its mobile terminals can be implemented by logically dividing a single physical display into two displays or by providing two separate physical display units instead of the single physical display. (EX1006, 33:6-18, FIG. 59.) For example, with reference to figure 59 below, Choi discloses that its mobile terminal includes a touch-sensitive display 151 indicated by touch screen 600. (*Id.*, 9-11 (“In the following

description, a display screen of the touch screen 151 will be indicated by a reference number 600.”), 8:1-22 (describing display 151).)

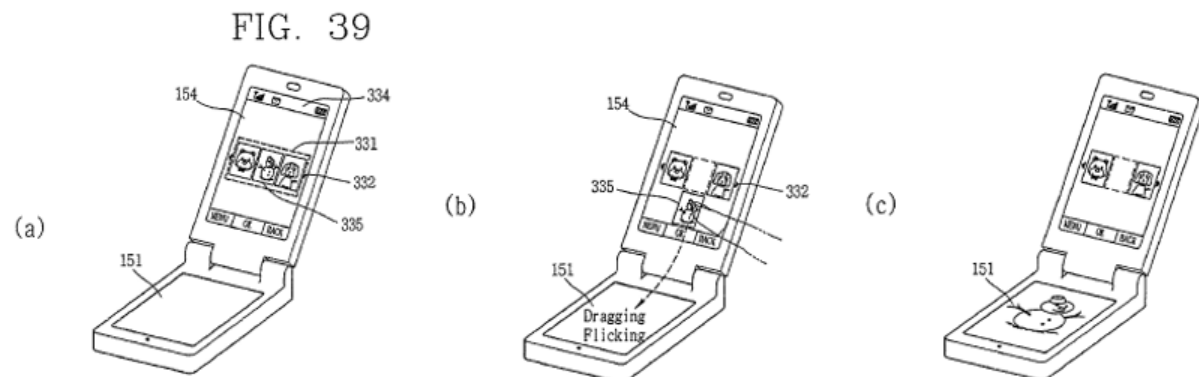
FIG. 59



(EX1006, FIG. 59(59-1)-(59-4).)

154. Choi discloses that “**the touch screen 600 can be divided into two areas, i.e., a first area 600A and a second area 600B**” and “[o]ptionally, **the mobile terminal 100 includes two display units to be responsible for the first and second areas 600A and [6]00B, respectively.**” (EX1006, 33:14-18, FIG. 59.)

155. In another embodiment described with reference to figure 39 (shown below), Choi discloses a folder-type mobile terminal includes two separate touch-sensitive displays, a liquid crystal display (LCD) 151 and a transparent organic light-emitting diode display (TOLED) 154. (EX1006, 24:64-25:3 (“As shown in FIG. 39, in the mobile terminal having the TOLED 154 and LCD 151 separately provided, the controller 180 can display a screen for executing a photo album on the TOLED 154.”), 14:24-35 (describing the folder-type mobile terminal including LCD 151 and TOLED 154 with reference to figures 7A-7B), 14:47-52 (describing that the LCD 151 and TOLED 154 are touch screen displays); *see also id.*, 8:18-22.)



(EX1006, FIGS. 39(a)-(c).)

FIG. 7A

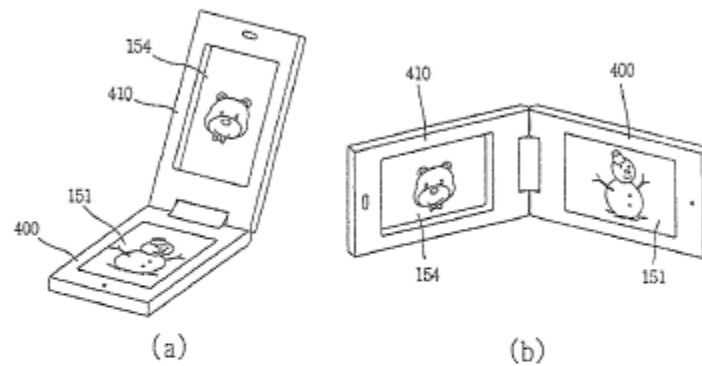
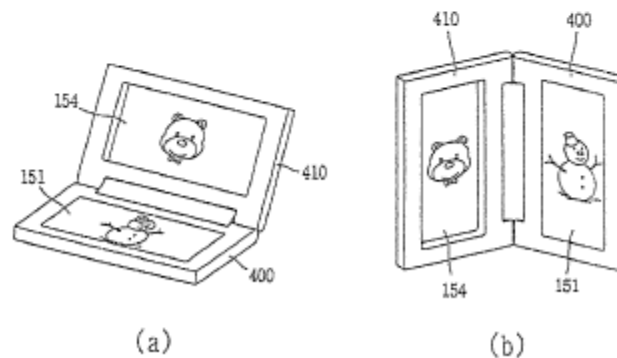


FIG. 7B



(EX1006, FIGS. 7A-B.)

156. Choi discloses with reference to the figure 39 embodiment that content displayed on one display in a dual-display device (e.g., TOLED 154) may be switched with the content displayed on the other display of the device (e.g., LCD 151). (EX1006, 25:22-40.) In particular, Choi discloses that a screen switching function key “for switching contents respectively displayed on the

TOLED 154 and the LCD 151” is provided. (*Id.*) The screen switching function key may have a toggling function, where upon selection of the toggling function, “the controller 180 can **change an icon shape of the screen switching function key**, and simultaneously switch contents respectively displayed on the TOLED 154 and the LCD 151.” (*Id.*) That is, Choi discloses changing an icon’s appearance to indicate a change in the display states associated with the content displayed on the multiple displays of the device (e.g., icon’s changed appearance indicating that the content being displayed on the first display and the second display has been switched).

157. Choi further discloses that its displays (e.g., LCD 151 or TOLED 154) are configured as touch screens “having an underlying touchpad which generates signals responsive to user contact with the touch screen, such as with a finger or stylus.” (EX1006, 11:39-44; *see also id.*, 7:26-32, 47-52.) Choi further discloses embodiments where instead of providing the touchpad under or over the display screen, the touchpad may be provided at an “outer side” or “upper end” of the display. (EX1006, 22:15-24 (“... Also, under the closed state of the first body 200, the controller 180 can receive a user's command input via a touchpad disposed on an upper portion (upper surface, **upper end**, **outer side**) of the TOLED 154.”).)

158. Thus, Choi discloses methods of controlling the display of content in a dual display configuration in the same technical field as Ogawa, including the use

of touch screens and changing an icon's appearance to reflect a change in the display conditions on the display device. Accordingly, a person of ordinary skill in the art would have had reason to consider the teachings of Choi when implementing Ogawa.

159. In view of Choi's above-noted teachings, a person of ordinary skill in the art would have been motivated to modify Ogawa such that its disclosed display control methods for an electronic device (e.g., electronic notebook) incorporated Choi's teachings. For example, as discussed above, both Ogawa and Choi are concerned with electronic devices with touch-sensitive multi-display configurations and methods to control the display of content on the multiple displays. Both references describe displaying content like images or applications like calendars on the screen. (EX1005, [0015], [0033]; EX1006, 24:64-25:21, 29:45-53.)

160. Thus, a person of ordinary skill in the art would have been motivated to implement Ogawa's display control method using a folder-type mobile terminal such as a smart phone ("handheld computing device") as disclosed by Choi as such a modification would have involved the substitution of one known computing device (electronic device/notebook in Ogawa) with another known computing device (Choi's smartphone), both of which perform similar functions (e.g., used for

image display, editing, communicating, and editing) and thus would yield a predictable result.

161. Similarly, a person of ordinary skill in the art would have been motivated to modify Ogawa's method such that when the **size** of the colored/shaded portion of access bar 42 ("icon") increases as a result of the window size of the program being displayed in the multi-display configuration increasing (e.g., first and second screens 13A and 13B), the **shape** of the colored/shaded portion of access bar 42 also changes, as taught by Choi. (EX1005, [0017]-[0019], [0023]-[0024], [0027]-[0028]; EX1006, 25:22-40.) By changing the shape of the colored/shaded portion of access bar 42 in addition to changing its size, a person of ordinary skill in the art would have understood that it would further indicate or highlight to the user that there is a change in the display condition of the program relative to the multiple displays. (EX1006, 25:22-40.) Additionally, a person of ordinary skill in the art would also have understood that the shape of the colored/shaded portion of access bar 42 would have been a known and foreseeable design choice that would not have affected the functionality of Ogawa's device and method.

162. A person of ordinary skill in the art would have also been motivated to modify Ogawa's method such that instead of using a single physical display (e.g., Ogawa's display unit 31 included in the display input surface 13) to

implement a multi-display configuration by logically dividing the single display as shown in figures 4(B)-(C) of Ogawa, two physically separate display units would have been used to implement a similar multi-display configuration as taught by Choi (e.g., a first display for displaying first screen 13A and a second physically distinct display for displaying second screen 13B in Ogawa). (EX1006, 14:24-35, 14:47-52, 26:64-25:3, 33:14-18, FIGS. 7A-B, 39, 59; EX1005, [0015]-[0018], FIGS. 4(B)-(C).) As Choi discloses, these two options (dividing a single physical display logically into two displays or using two physically distinct displays) would have yielded the same predictable results of a multi-display device. (EX1006, 33:14-18.)

163. Similarly, a person of ordinary skill in the art would have been motivated to modify Ogawa's device such that instead of the display unit 31 and pen detection unit 21 being overlaid each other to form the display input surface 13 (like in some embodiments of Choi where the display surface and touchpad are overlaid as discussed above), the pen detection unit 21 would have been placed at an "outer side" or "upper end" of the display unit 31 (like the touchpad is placed relative to the display unit in another embodiment of Choi). (EX1006, 22:15-24.) A person of ordinary skill in the art would have understood that providing the pen detection unit 21 separate from the display unit 31 this way would have allowed the user to view the full contents displayed on display unit 31 while still allowing

the ability to control the device and what is displayed on the device by manipulating the touchpad on the outer side or upper end of the display unit. Moreover, there are a finite number of locations in Ogawa's device where the pen detection unit 21 would have been placed relative to the display unit 31. For example, the pen detection unit 21 would have been placed overlaid with the display unit 31 (as taught by Ogawa) or it would have been placed at an outer side of the display unit 31 or near an end (e.g., upper end) of the display unit 31 as taught by Choi. The result of modifying Ogawa such that the pen detection unit 21 is provided at an outer side or end of the display unit 31 would have yielded predictable results, e.g., with the user's ability to control the device.

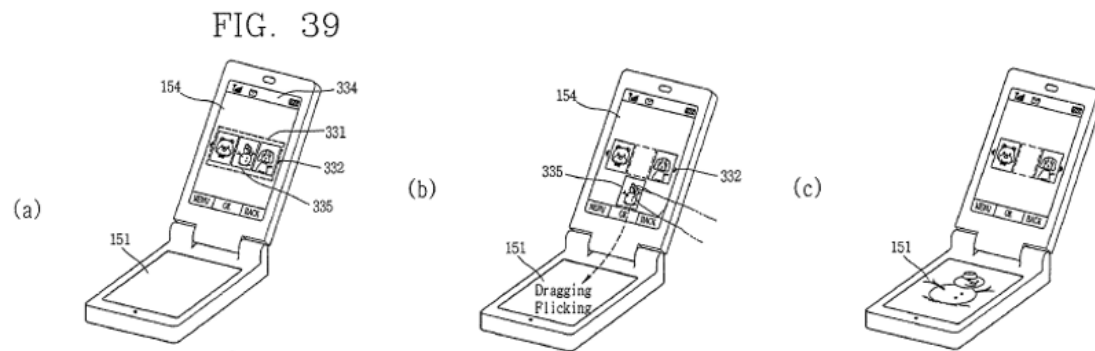
164. The proposed modifications to Ogawa described above would have been a predictable and straightforward combination of well-known technologies using known methods. A person of ordinary skill in the art would have had the capability and knowledge to implement, and been motivated to try, the above modifications as required by the challenged claims, while ensuring proper operation of the Ogawa systems and methods. Therefore, such a person would have had a reasonable expectation of success that the combined Ogawa-Choi system and method would have operated as expected.

165. Therefore, as discussed below, a person of ordinary skill in the art would have been motivated to make the discussed Ogawa-Choi combination.

2. Claim 1

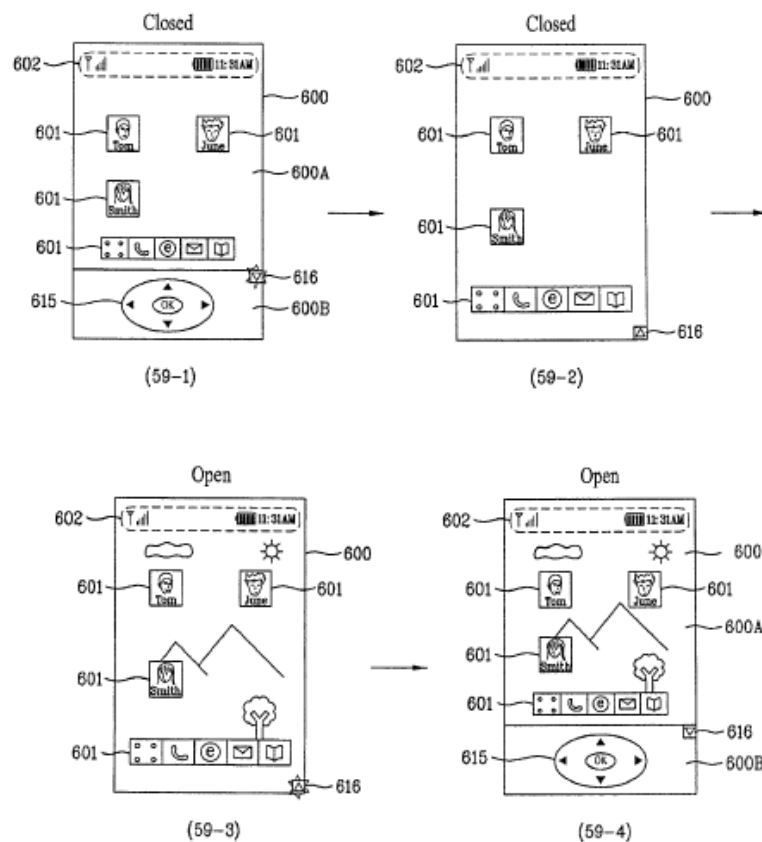
166. As discussed above, Ogawa discloses claim 1. (*See* above at Section IX.A.1.) I have been asked to consider a scenario where Ogawa does not disclose a “**handheld** computing device including one or more displays” as recited in the preamble of claim 1 and that “the morphing comprising changing the **shape** and size of the icon” as recited in claim limitation [1.f]. While Ogawa discloses these features (*see* above at Sections IX.A.1.i, IX.A.1.f), in that scenario a person of ordinary skill in the art would have been motivated to make the Ogawa-Choi combination which discloses and/or suggests these features. (*See* above at Section IX.C.1.)

167. For example, as discussed above, the Ogawa-Choi combination discloses and/or suggests a method for controlling a folder-type mobile terminal such as a smart phone (“handheld computing device”) with a dual-display configuration (“one or more displays”), as required by the claim 1 preamble. (*Id.*)



(EX1006, FIGS. 39(a)-(c).)

FIG. 59



(EX1006, FIG. 59(59-1)-(59-4).)

168. Similarly, as discussed above, the Ogawa-Choi combination discloses or suggests that the morphing of the colored/shaded portion of access bar 42 (“icon”) in Ogawa would have included changing the **shape** and size of the colored/shaded portion of access bar 42 (“icon”), as required by claim limitation [1.f]. (*Id.*)

169. Ogawa discloses the remaining limitations of claim 1. (*See* above at Section IX.A.1.) The proposed modifications to Ogawa based on Choi’s teachings

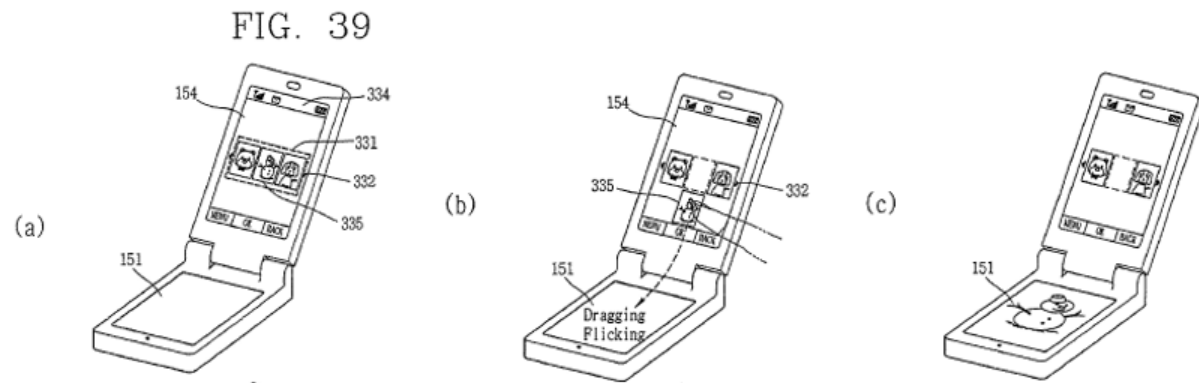
does not impact my analysis of Ogawa for the remaining limitations of claim 1 because, e.g., both Ogawa and Choi are directed to controlling the display of content in a multi-display configuration. Accordingly, the Ogawa-Choi combination discloses or suggests the features of claim 1.

3. Claim 2

170. As discussed above, Ogawa discloses that “the icon is changed in proportion to the relative position of the application with respect to the first and second display.” (*See* above at Section IX.A.2.) While the claim does not provide antecedent basis for “the . . . second display” (*see* n.8), I have been asked to consider a scenario where claim 2 requires the “first display” and “second display” to be physically distinct from each other. (*See* above at Section VIII.)

171. I have been asked to assume a scenario where claim 2 is interpreted this way. In that scenario, it is my opinion that the Ogawa-Choi combination discloses and/or suggests a smart phone with physically distinct first and second displays. (*See* above at Section IX.C.1.) As discussed above, Choi discloses that a multiple display configuration for folder-type mobile terminals can be implemented by logically dividing a single physical display into two displays or by providing two separate display units instead of the single physical display. (EX1006, 14:24-35, 14:47-52, 26:64-25:3, 33:14-18, FIGS. 7A-B, 39, 59; *see* above at Section IX.C.1.) A person of ordinary skill in the art would have been

motivated to modify Ogawa's method such that instead of using a single physical display (e.g., Ogawa's display unit 31 included in the display input surface 13) to implement a multi-display configuration by logically dividing the single display as shown in figures 4(B)-(C) of Ogawa, two physically separate display units would have been used to implement a similar multi-display configuration as taught by Choi (e.g., a first display for displaying first screen 13A and a second physically distinct display for displaying second screen 13B in Ogawa). (EX1006, 14:24-35, 14:47-52, 26:64-25:3, 33:14-18, FIGS. 7A-B, 39, 59; EX1005, [0015]-[0018], FIGS. 4(B)-(C).)



(EX1006, FIGS. 39(a)-(c).)

FIG. 7A

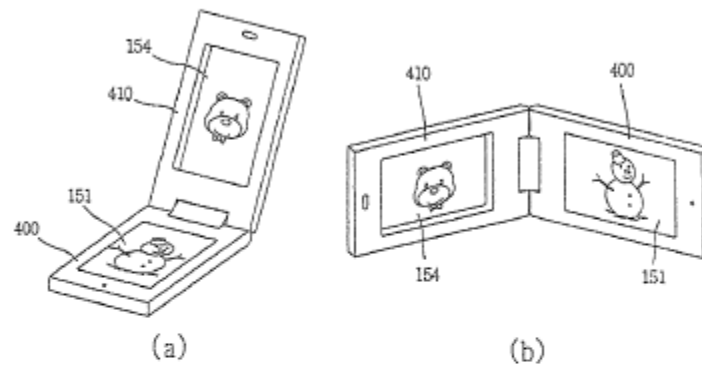
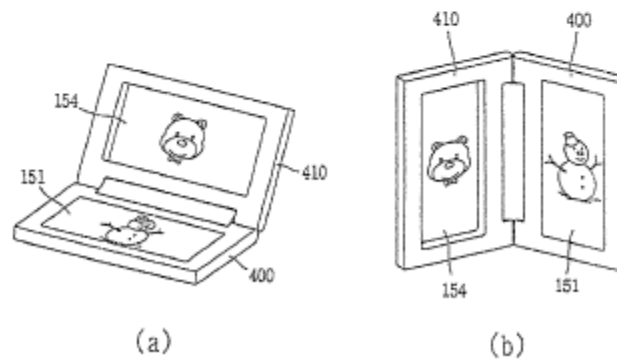


FIG. 7B

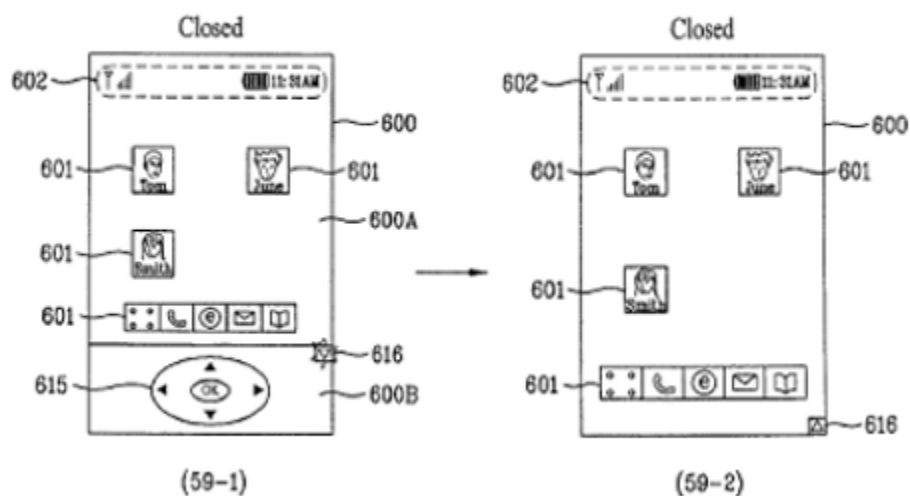


(EX1006, FIGS. 7A-B.)

172. Choi discloses that these two options, i.e., dividing a single physical display logically into two displays or using two physically distinct displays, would have yielded the same predictable results of a multi-display device as disclosed by Ogawa. (EX1006, 33:14-18.)

173. Moreover, similar to Ogawa's disclosures regarding displaying the program in first screen 13A in figure 4(B) and then, in response to a gesture input, extending the window size of the program as shown in figure 4(C)), Choi similarly discloses with reference to figure 59 that the contents displayed in the first area 600A can be extended to the second area 600B (where the first and second areas 600A and 600B can be separate display units), i.e., across the entirety of the display 600 in response to a user touching an area adjust icon 616 (*see, e.g.*, transition from figure 59(59-1) to 59(59-2) below). (EX1006, 33:14-38.)

FIG. 59



(EX1006, FIG. 59(59-1)-(59-2).)

174. Accordingly, in light of the proposed modification to Ogawa where the single physical display unit in Ogawa that is logically divided to display first and second screens 13A and 13B is replaced by two physically distinct displays

that respectively display the first and second screens 13A and 13B (e.g., like that shown in figures 7A-7B and 39 of Choi), the proposed modification to Ogawa would have resulted in Ogawa implementing its process of displaying the program across multiple logically divided displays such that the program would have instead been displayed across multiple physically distinct displays. For example, with reference to claim 2, in the Ogawa-Choi combination, the colored/shaded portion of access bar 42 (“icon”) would have changed in proportion to the relative position of the program (“application”) with respect to the first display (which would have displayed first screen 13A) and the physically distinct second display (which would have displayed second screen 13B). (EX1005, FIGS. 4(B)-(C); EX1006, FIGS. 59 (59-1)-(59-2).)

175. Accordingly, the Ogawa-Choi combination discloses the features of claim 2.

4. Claims 12-13

176. As discussed above, Ogawa discloses claims 12 and 13. (*See* above at Sections IX.A.3-4.) I have been asked to consider a scenario where Ogawa does not disclose (i) a “**handheld** computing device” as recited in the preamble of claim 12, (ii) “a **first display**” (claim limitation [12.b]) **physically distinct** from “a **second display**” (claim limitation [12.c]) (*see* above at Section VIII), and (iii) “at

least one gesture sensor, **separate from** the first display and the second display, and operable to receive a gesture input” (claim limitation [12.d]).

177. In that scenario, the Ogawa-Choi combination discloses and/or suggests a “handheld computing device” (e.g., a folder-type mobile terminal such as a smart phone) for the reasons provided above with respect to claim 1. (*See* above at Sections IX.C.1-2.) The Ogawa-Choi combination further discloses and/or suggests “a second display” physically distinct from the first display for the reasons provided above with respect to claim 2. (*See* above at Sections IX.C.1, IX.C.3.) Similarly, the Ogawa-Choi combination further discloses and/or suggests that the pen input detection unit 21 (“at least one gesture sensor”) is disposed on an outer side or end (“separate from”) the first and second parts of the display surface of the display input surface 13, for the reasons provided above. (*See* above at Section IX.C.1.)

178. Ogawa discloses the remaining limitations of claims 12 and the limitations of 13. (*See* above at Sections IX.A.3-4.) The proposed modifications to Ogawa based on Choi’s teachings does not impact my analysis of Ogawa for the remaining limitations of claim 12 and claim 13 because, e.g., both Ogawa and Choi are directed to controlling the display of content in a multi-display configuration. Accordingly, the Ogawa-Choi combination discloses or suggests the features of claims 12 and 13.

5. Claim 14: “The device as recited in claim 13, wherein the handheld computing device comprises a smart phone.”

179. The Ogawa-Choi combination discloses and/or suggests this limitation for at least the same reasons as those given above with respect to claims 1 and 12. (*See* above at Sections IX.C.1-2, 4.) As discussed above, the Ogawa-Choi combination discloses a mobile terminal such as a smart phone that corresponds to the claimed “handheld computing device compris[ing] a smart phone.” (*Id.*; EX1006, 5:45-50, (describing that the mobile terminal can include “**smart phones**”).)¹⁵

¹⁵ The Ogawa-Choi combination discloses and/or suggests claim 14 under both interpretations of a “display” (e.g., the “first display” and “second display” of claim 12 being logically divided displays or physically separate displays) as a person of ordinary skill in the art would have been motivated to implement Ogawa’s display control method using a folder-type mobile terminal such as a smart phone (“handheld computing device”) as disclosed by Choi. Such a modification would have involved the substitution of one known computing device (electronic device/notebook in Ogawa) with another known computing device (Choi’s smartphone), both of which perform similar functions (e.g., used for image display, editing, communicating, and editing) and thus would yield a predictable result. (*See* above at Section IX.C.1.)

6. **Claim 15: “The device as recited in claim 14, wherein the first display and second display are positionable with respect to each other between an open and closed position.”**

180. The Ogawa-Choi combination discloses and/or suggests this limitation for reasons similar to those given above with respect to claims 1, 2, and 12. For example, as discussed above, the Ogawa-Choi combination discloses a folder-type mobile terminal such as a smart phone like that shown in figures 7A-7B and 39 (reproduced below), which include two physically distinct displays.

FIG. 7A

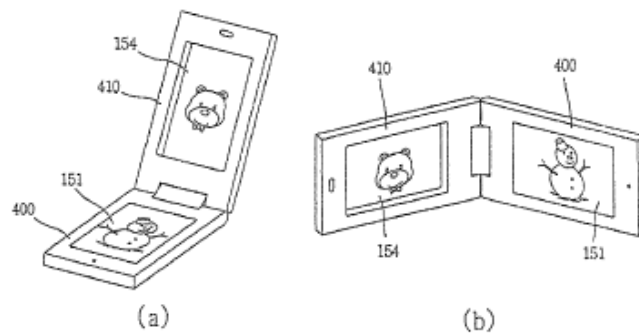
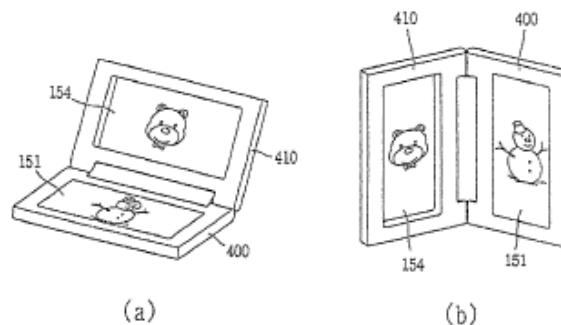
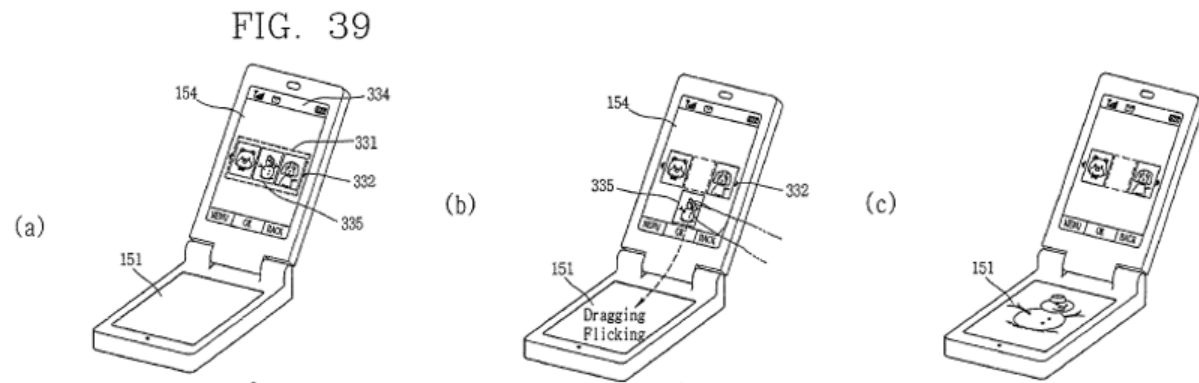


FIG. 7B



(EX1006, FIGS. 7A-B.)



(EX1006, FIGS. 39(a)-(c).)

181. In the Ogawa-Choi combination, the first display (e.g., display 151) and the second display (e.g., display 154) of the folder-type mobile terminal would have been positionable with respect to each other between an open and closed position as shown above.

182. Accordingly, the Ogawa-Choi combination discloses or suggests the features of claim 15.¹⁶

¹⁶ The Ogawa-Choi combination discloses and/or suggests claim 15 under both interpretations of a “display” (e.g., the “first display” and “second display” of claim 12 being logically divided displays or physically separate displays). (See n.15.)

7. **Claim 16: “The device as recited in claim 15, wherein when in the open position, the first display and the second display are visible from the vantage point of a user.”**

183. The Ogawa-Choi combination discloses and/or suggests this limitation for reasons similar to those given above with respect to claim 15. For example, as discussed above, the Ogawa-Choi combination discloses a folder-type mobile terminal such as a smart phone like that shown in figures 7A-7B and 39 (reproduced below), which include two physically distinct displays.

FIG. 7A

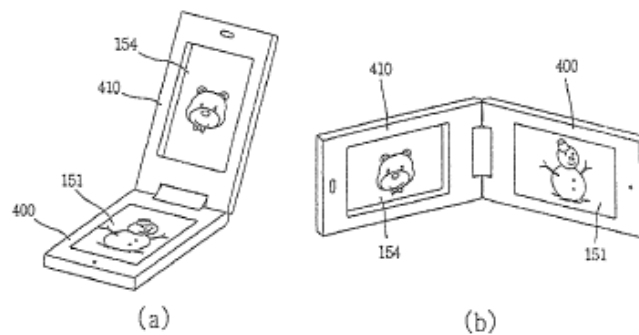
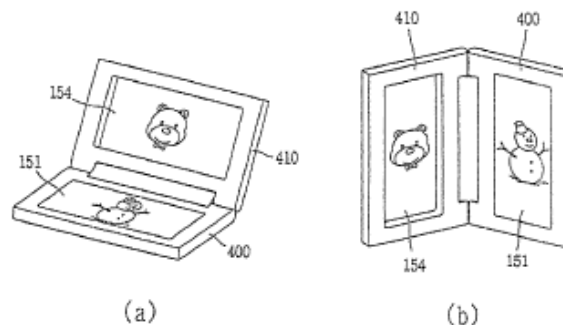
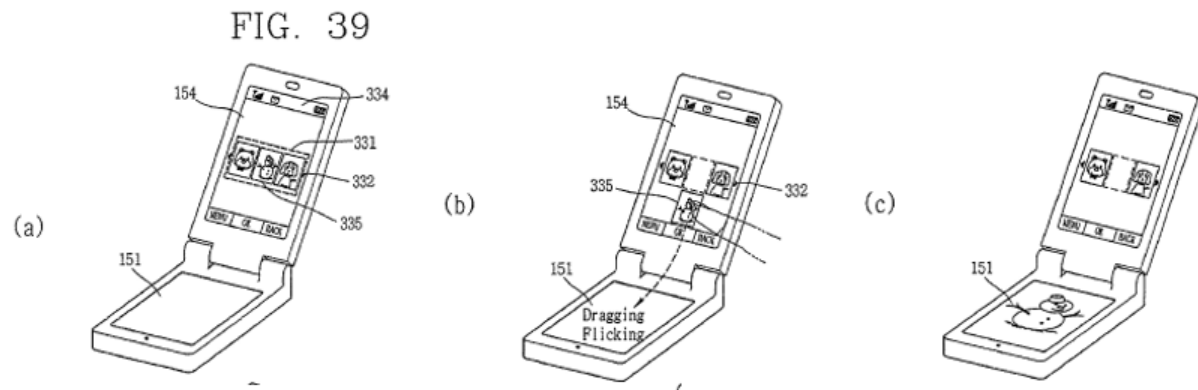


FIG. 7B



(EX1006, FIGS. 7A-B.)



(EX1006, FIGS. 39(a)-(c).)

184. As shown above, in the Ogawa-Choi combination, when in the open position, the first display (e.g., display 151) and the second display (e.g., display 154) are visible from the vantage point of a user.

185. Accordingly, the Ogawa-Choi combination discloses or suggests the features of claim 16.¹⁷

8. Claim 20

186. As discussed above, Ogawa discloses claim 20. (*See* above at Section IX.A.5.) I have been asked to consider a scenario where Ogawa does not disclose that “the morphing comprising changing the shape and size of the icon.” While

¹⁷ The Ogawa-Choi combination discloses and/or suggests claim 16 under both interpretations of a “display” (e.g., the “first display” and “second display” of claim 12 being logically divided displays or physically separate displays). (*See* n.15.)

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Ogawa discloses these features (see above at Section IX.A.5), in that scenario the

Ogawa-Choi combination discloses and/or suggests these features for the reasons

given above with respect to claim 1. (*See* above at Sections IX.C.1-2.)

D. Ogawa in View of Choi and Yook Discloses and/or Suggests Claims 4-9

187. As discussed above in **Section IX.B**, the Ogawa-Yook combination discloses and/or suggests claims 4-9 where a “first and second display” are logically divided displays of a single physical display. (*See* above at Sections VIII, IX.B.) As further discussed above, the Ogawa-Choi combination discloses and/or suggests claims 2, 12-16, and 20 under a narrower interpretation of “display” where the first display is physically distinct from the second display. (*See* above at Sections IX.C.1, IX.C.3-8.) A person of ordinary skill in the art would have been motivated to modify the Ogawa-Choi combination which includes two physically distinct displays (instead of Ogawa’s logically divided displays) to further include the teachings of Yook as discussed above in **Section IX.B**. (*See* above at Section IX.B.1.) As Choi teaches, a dual-display touch screen like the one disclosed in Ogawa (or Yook) can either be divided logically into two display areas or implemented with two physically separate display units. (EX1006, 33:14-18; *see* above at Section IX.C.1.) Thus, a person of ordinary skill in the art would have appreciated and understood that the Ogawa-Choi-Yook combination would have predictably resulted in displaying Ogawa’s program across two physically distinct displays and then minimizing the program such that it is displayed in one of the two displays. (*See* above at Sections IX.B.1, IX.C.1.)

188. Thus, the Ogawa-Choi-Yook combination discloses and/or suggests claims 4-9 for the reasons given above with respect to **Section IX.B.** (*See* above at Section IX.B.1-6.)

X. CONCLUSION

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



Dated: October 17, 2024

By: _____

Sandeep Chatterjee