

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOTOROLA MOBILITY LLC and
GOOGLE LLC
Petitioners,

v.

MULTIFOLD INTERNATIONAL INCORPORATED PTE. LTD.,
Patent Owner.

Case No. IPR2025-00038
U.S. Patent No. 8,836,842

**DECLARATION OF JEFFREY J. RODRIGUEZ, PH.D. IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,836,842**

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I, Jeffrey J. Rodriguez, declare the following:

I. INTRODUCTION

1. I have been retained on behalf of Petitioners, Motorola Mobility LLC and Google LLC as an independent expert consultant to provide my expert opinions regarding the validity of claims of U.S. Patent No. 8,836,842 (the “’842 patent”).

2. I am being compensated for my work in this matter at my usual consulting rate for the time I spend on this matter. Neither my engagement nor my compensation depends on the substance of my opinions or the outcome of this or any other proceeding. I have been informed that the alleged owner of the ’842 patent is Multifold Int’l Inc. Pte. Ltd. (“Patent Owner”). To the best of my knowledge, I have no financial interest in the Patent Owner or Petitioners.

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

4. This declaration contains a summary of my conclusions; an overview of my qualifications as an expert; an overview of the scope and terms of my engagement for this declaration; an overview of the materials I have considered in arriving at my conclusions; an overview of the terminology and legal principles that I applied in my analysis; an overview of the technical background of the subject matter; an overview of the ’842 patent; an analysis of the level of ordinary skill in

the art related to the '842 patent; an analysis of the asserted references; and a patentability analysis of the challenged claims.

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

II. QUALIFICATIONS, PUBLICATIONS, AND PRIOR TESTIMONY

6. I am a professor at The University of Arizona in the Department of Electrical & Computer Engineering, where I hold or have held the following positions: (a) Associate Professor of Electrical & Computer Engineering, with tenure (1997–present), (b) Associate Professor of Biomedical Engineering, with tenure (2017–present), (c) Director of ECE Online Programs (2023–present), (d) Director of the Signal and Image Laboratory (1990–present), (e) Director of Image Analysis, Cancer Imaging Shared Services, Arizona Cancer Center (2009–2014), (f) Co-

Director of Connection One, a National Science Foundation industry/university cooperative research center for wired and wireless communication circuits and systems, (g) Director of Graduate Studies for the Department of Electrical & Computer Engineering (2000–2003, 2005–2016).

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

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

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

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

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

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

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

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

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

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

14. My current curriculum vitae is attached as Exhibit 1014, which includes a detailed listing of my education, work experience, honors, awards, professional associations, publications, and a list of expert consulting activities during the past five years in which I have testified as an expert at deposition or trial.

III. MATERIALS CONSIDERED

15. In forming my opinions, I have relied on my own knowledge and experience, including my education, training, and work experience in the field of electrical & computer engineering, my research and teaching experience, my experience in working with others in this field, and my experience in the design, development, and operation of relevant systems. I have relied on the documents and materials recited herein as well as those identified in this declaration, including the '842 patent, the prosecution history of the '842 patent, the prior art references, and information discussed and any other references specifically identified in this declaration, including the materials identified in the chart below.

Exhibit	Description
Ex. 1001	U.S. Patent No. 8,836,842 to Sirpal

Exhibit	Description
Ex. 1002	File History for U.S. Patent No. 8,836,842 to Sirpal
Ex. 1004	U.S. Patent Application Publication 2009/0190295 A1 to Chin
Ex. 1005	U.S. Patent Application Publication 2005/0078211 A1 to Whitehorn
Ex. 1006	U.S. Patent Application Publication 2012/0139815 A1 to Aono
Ex. 1009	U.S. Patent No. 7,471,890 to Lee
Ex. 1010	U.S. Patent Application Publication No. 2011/0193806 A1 to Kim
Ex. 1011	U.S. Patent Application Publication No. 2002/0142810 to Kawasaki
Ex. 1012	U.S. Patent Application Publication No. 2010/0048190 to Park
Ex. 1013	U.S. Patent Application Publication No. 2010/0248788 to Yook
Ex. 1014	Curriculum Vitae of Dr. Jeffrey J. Rodriguez

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

IV. LEGAL PRINCIPLES

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

A. Interpretation of Claims

18. I have been advised that, for purposes of this *inter partes* review proceeding, the words of the claims should be given their ordinary and customary meaning according to a person of ordinary skill in the art in question at the time of the invention. I have further been advised that the prosecution history is relevant to determining the correct construction of claim terms and that extrinsic evidence also may be relevant to establish the meaning of terms to the extent it is consistent with the specification and prosecution history.

B. Anticipation

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

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

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

22. I have been advised that a patent claim is invalid if the claimed invention was “patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent” (35 U.S.C. §

102(a)) or the claimed invention was described in “a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent” (35 U.S.C. § 102(e)). I have been advised that the date of “the invention . . . by the applicant” in both § 102(a) and § 102(e) refers to the conception date of the claimed invention by the patent applicant.

23. I have been advised that a reference does not qualify as prior art under § 102(a) or § 102(e) if (1) the inventor conceived of the invention prior to the effective date of the reference and showed reasonable diligence in reducing the invention to practice from a time just prior to the effective date of the reference or (2) the inventor reduced the invention to practice prior to the effective date of the reference. I have been advised that conception requires an inventor to form in his or her mind a definite and particular idea of a complete and operative invention, including every feature of the claim at issue. I have further been informed that there are two types of reduction to practice: actual reduction to practice (i.e., when all limitations of the claimed invention are embodied in a physical or tangible form that has been sufficiently tested to demonstrate it works for its intended purpose) and constructive reduction to practice (i.e., by the filing of a patent application).

24. I have been advised that a patent claim is invalid if the claimed “invention was patented or described in a printed publication in this or a foreign country . . . more than one year prior to the date of the application for patent in the

United States” (35 U.S.C. § 102(b)). I have been advised that, to qualify as prior art, a printed publication must be shown to be accessible to the public (i.e., disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it).

C. Obviousness

25. I have been advised that a patent claim is “obvious” and therefore invalid when the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.

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

27. I have been advised that prior art used to show that a claimed invention is obvious must be “analogous art.” Prior art is analogous art to the claimed invention if (1) it is from the same field of endeavor as the claimed invention (even if it addresses a different problem) or (2) the reference is reasonably pertinent to the

problem faced by the inventor (even if it is not from the same field of endeavor as the claimed invention).

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

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

30. I have been advised that there is no single way to define the line between true inventiveness on the one hand (which is patentable) and the application of common sense and ordinary skill to solve a problem on the other hand (which may not be patentable). For example, market forces or other design incentives may be what produced a change in the technology of the prior art, rather than true inventiveness. I have further been advised that explicit teachings or suggestions in the prior art to make the modification or combination of elements claimed in the patent may be evidence of obviousness. Further, an innovation may be obvious if it

applies a known technique that had been used to improve a similar device or method in a similar way. I have been advised that a claimed invention may be found to be obvious to try if the claimed innovation was one of a relatively small number of possible approaches to the problem with a reasonable expectation of success by those skilled in the art.

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

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

- commercial success of a product due to the merits of the claimed invention;
- a long felt need for the solution provided by the claimed invention;

- unsuccessful attempts by others to find the solution provided by the claimed invention;
- copying of the claimed invention by others;
- unexpected and superior results from the claimed invention; and
- acceptance by others of the claimed invention as shown by praise from others in the field or from the licensing of the claimed invention.

33. I have been advised that in order for such “secondary considerations” evidence to be relevant to the obviousness inquiry, there must be a relationship or “nexus” between the advantages and features of the claimed invention and the evidence of secondary considerations.

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

V. THE '842 PATENT

A. Synopsis of the '842 patent

35. The '842 patent, titled “Capture Mode Outward Facing Modes,” issued to Sanjiv Sirpal et al. on Sept. 16, 2014. The '842 patent derives from U.S. Patent Application No. 13/627,498 (“Application”), which was filed on Sept. 26, 2012, and from U.S. Provisional Patent Application No. 61/539,884 (“Provisional”), which was filed on Sept. 27, 2011.

36. The '842 patent is directed to methods and devices for changing the display mode of a multiple screen device while the device is in an image capture mode. Ex. 1001, Abstract.

37. The '842 patent includes a "Background" section, which begins by noting that "[a] substantial number of handheld computing devices, such as cellular phones, tablets, and E-Readers, make use of a touch screen display not only to deliver display information to the user but also to receive inputs from user interface commands." Ex. 1001, 1:15-19. Touch screens, "while flexible for the user, may obfuscate the display and cause visual clutter, thereby leading to user frustration and loss of productivity." Ex. 1001, 1:23-25. The patent notes that "[t]he small form factor of handheld computing devices requires a careful balancing between the displayed graphics and the area provided for receiving inputs." Ex. 1001, 1:26-28. "This balancing act is particularly difficult for single display touch screen devices," with the '842 patent characterizes as being "crippled by their limited screen space." Ex. 1001, 1:35-37.

38. Against this Background, the '842 patent's "Summary" section identifies "a need for a dual multi-display handheld computing device that provides for enhanced power and/or versatility compared to conventional single display handheld computing devices," and asserts that this need (and others) supposedly are addressed by the disclosures of the patent. Ex. 1001, 1:45-50. In addition, the '842 patent states that "it is desirable to have the multi-display device that can use either display when the device is closed" and that when closed, the device may have "at least two screens that face in opposite directions." Ex. 1001, 1:53-61.

39. The device described in the patent may be able to “receive user interface input to execute an image capture function,” i.e., take a picture. Ex. 1001, 1:63-65. “The device may then determine one or more of a image capture function configuration, a device orientation, and a device state. Based on one or more of the image capture function configuration, the device orientation, and the device state, the device can enter one of one or more image capture modes or configurations.” Ex. 1001, 1:65-2:3.

40. The “Detailed Description” section of the patent present embodiments of a device, which “can be a communications device, such as a cellular telephone, or other smart device.” Ex. 1001, 7:7-9. The “Detailed Description” describes image capture, various image capture modes, and various user interfaces related to image capture in more detail with reference to Figures 11 through 21 and at columns 32:18-37:6. I will refer to these disclosures, and other disclosures in the ’842 patent, as needed throughout this declaration.

B. Prosecution History of the ’842 patent

41. As noted above, the Application that ultimately issued as the ’842 patent was filed on September 26, 2012. Ex. 1002, 149-260. The Application as originally filed contained 20 claims. Ex. 1002, 210-212. Below, I will briefly summarize aspects of the prosecution history that may be relevant to my analysis.

42. On January 31, 2014, the patent examiner issued a Non-Final Rejection. Ex. 1002, 77-85. The examiner rejected claims 16-20 under 35 U.S.C. § 101 as directed to non-statutory subject matter, because the claims recited “[a] computer readable medium” Ex. 1002, 79-80. The examiner provisionally rejected all claims based on nonstatutory double patenting based on the claims of several copending applications. Ex. 1002, 80-82.

43. The examiner also rejected claims 1-10 as anticipated by U.S. Patent No. 7,626,630 to Nishino et al. Ex. 1002, 82-84. The examiner found that, with regards to pending claim 1, “Nishino et al discloses in Figs. 2A-3B, a digital camera that comprises the method, comprising: providing a device having at least first and second screens (camera body 1 includes first and second display units 1b and 1c, col. 5, line 35); receiving user interface input to execute an image capture function (operation button 6, col. 6, line 27); determining one or more of an image capture function configuration, a device orientation, and a device state (cols. 6 and 7); and based on one or more of the image capture function configuration, the device orientation, and the device state, entering one of one or more image capture modes (cols. 6 and 7).” Ex. 1002, 82-83. The examiner went on to find that Nishino et al. disclosed all limitations of pending claims 2-10 as well. Ex. 1002, 83-84.

44. The examiner allowed claims 11-15, finding that “the prior art of record fails to suggest or disclose: “a device, comprising the processor operable to: receive

user interface input to execute an image capture function; determine one or more of an image capture function configuration, a device orientation, and a device state; based on one or more of the image capture function configuration, the device orientation, and the device state, enter one of one or more image capture modes, wherein in each image capture mode a display on the first or second screen is different.” Ex. 1002, 84.

45. On February 21, 2014, the examiner issued a summary of an interview with the applicant’s representative, stating that he proposed to amend claim 1 to include the allowed features of claim 11, and that the examiner agreed that the proposed claim 1 overcame the prior art. Ex. 1002, 74-76.

46. The applicant filed a response to the Non-Final Office Action dated March 31, 2014, and as indicated by the examiner’s interview summary, amended claim 1 to include the limitation, “wherein in each image capture mode a display on the first or second screen is different.” Ex. 1002, 53-59. The applicant argued that, as amended, Nishino did not teach or suggest every feature of claim 1. Ex. 1002, 59.

47. The applicant also amended claims 16-20 to add “non-transitory” before “computer readable medium” to overcome the rejection based on 35 U.S.C. § 101. Ex. 1002, 56-58. The applicant also submitted a terminal disclaimer to overcome the nonstatutory double patenting rejection. Ex. 1002, 60.

48. The examiner issued a Notice of Allowance on May 12, 2014, without any further comment. Ex. 1002, 40-42.

C. Challenged Claims of the '842 patent

49. My understanding is that Petitioner is requesting *inter partes* review of claims 1-7, 10-13, 16-17, and 19-20 (“Challenged Claims”) of the '842 patent. These claims are recited below as follows, where I have added reference labels (P), (A), (B), etc. to individual portions of the claims for convenience:

Limitation	Claim Language
[1P]	A method, comprising:
[1A]	providing a device having at least first and second screens;
[1B]	receiving user interface input to execute an image capture function;
[1C]	determining one or more of an image capture function configuration, a device orientation, and a device state; and
[1D]	based on one or more of the image capture function configuration, the device orientation, and the device state, entering one of one or more image capture modes, wherein in each image capture mode a display on the first or second screen is different.
[2]	The method of claim 1, wherein the image captures function is configured to capture an outward-facing image.
[3]	The method of claim 2, wherein the device is in a closed state.
[4]	The method of claim 3, wherein the device is in a landscape or portrait orientation.
[5]	The method of claim 4, wherein a lens is associated with either the first or second screen.

Limitation	Claim Language
[6]	The method of claim 5, wherein, in the image capture mode, the device does not display an image on a first screen and displays a preview on a second screen.
[7]	The method of claim 5, wherein the first screen is disabled and does not receive user interface input while in the image capture mode.
[10]	The method of claim 5, wherein in one or more controls are presented on a second screen.
[11P]	A device, comprising:
[11A]	a first screen, the first screen including a first gesture capture region;
[11B]	a second screen, wherein the second screen faces an opposite direction from the first screen when the device is closed, and wherein an image capture lens is associated with the second screen;
[11C]	a memory;
[11D]	a processor in communication with the memory, the first screen, and the second screen, the processor operable to:
[11E]	receive user interface input to execute an image capture function;
[11F]	determine one or more of an image capture function configuration, a device orientation, and a device state;
[11G]	based on one or more of the image capture function configuration, the device orientation, and the device state, enter one of one or more image capture modes, wherein in each image capture mode a display on the first or second screen is different.
[12]	The device of claim 11, wherein the image capture function is configured to capture an outward-facing image, wherein the

Limitation	Claim Language
	device is in a closed state, and wherein the device is in a landscape orientation.
[13]	The device of claim 11, wherein the image capture mode is one of a full and disabled mode, a full and static mode, or a full and live mode, wherein in the full and disabled mode, the first screen displays a preview of an image to be captured and the second screen is disabled, wherein in the full and static mode, the first screen displays a preview of an image to be captured and the second screen is displays a static image, and wherein in the full and live mode, the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured.
[16P]	A non-transitory computer readable medium having stored thereon computer-executable instructions, the computer executable instructions causing a processor of a device to execute a method for providing a user interface, the computer-executable instructions comprising:
[16A]	instructions to receive user interface input to execute an image capture function;
[16B]	instructions to determine one or more of an image capture function configuration, a device orientation, and a device state, wherein the device has at least first and second screens, wherein the device is in a closed state, wherein, in the closed state, the first and second screens face opposite directions, wherein the image capture function is configured to capture an outward-facing image, wherein the device is in a landscape orientation, and wherein an image capture lens is associated with the second screen;
[16C]	based on one or more of the image capture function configuration, the device orientation, and the device state, instructions to enter one of one or more image capture modes,
[16D]	wherein in each image capture mode a display on the first or second screen is different,

Limitation	Claim Language
[16E]	wherein the image capture mode is one of a full and disabled mode, a full and static mode, or a full and live mode.
[17]	The non-transitory computer readable medium of claim 16, wherein in the full and disabled mode, the first screen displays a first preview of an image to be captured and the second screen is disabled, wherein in the full and static mode, the first screen displays a first preview of an image to be captured and the second screen is displays a static image, and wherein in the full and live mode, the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured
[19]	The non-transitory computer readable medium of claim 17, wherein user interface input for the second screen is disabled.
[20]	The non-transitory computer readable medium of claim 16, wherein the image is one of a picture and a video.

VI. LEVEL OF ORDINARY SKILL IN THE ART

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

51. In my opinion, the field of art pertaining to the '842 patent includes image capture using a handheld computing device. In my opinion, a POSITA at the time of the claimed would have had a bachelor's degree in electrical engineering, computer engineering, computer science, or the equivalent plus at least two years of

experience in image capture, image processing, image display, user interfaces, or a related field. Additional education could offset a lesser amount of experience and vice versa.

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

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

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

VII. CLAIM CONSTRUCTION

55. The '842 patent, including the claims at issue, use the terms “screen” and “display” as nouns. A POSITA would have understood that these terms can be

used in the art in different ways. For example, the Chin reference discussed below uses the term “display unit” to refer to the physical structure on which images, text, and so on are shown, while the Whitehorn reference discussed below uses the term “screen interface” to refer to the physical structure on which images, text, and so on are shown.

56. The '842 patent expressly defines both “screen” and “display” (when used as a noun. “The term ‘screen,’ ‘touch screen,’ or ‘touchscreen’ refers to a physical structure that includes one or more hardware components that provide the device with the ability to render a user interface and/or receive user input.” Ex. 1001, 2:63-65. “The term ‘display’ refers to a portion of one or more screens used to display the output of a computer to a user.” Ex. 1001, 3:28-29. I have used these meanings of the terms “screen” and “display” in my analysis, and in my opinion, a POSITA would have used these same meanings in light of the clear definitions provided in the specification.

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

VIII. TECHNOLOGY AND PRIOR ART BACKGROUND

58. I rely on, and incorporate, the understandings below regarding such known concepts and technologies, to support my opinions regarding the knowledge

of a POSITA at the time of the invention, where appropriate, and the motivations relating to the application of the prior art. The concepts, technologies, processes, and understandings discussed in this section would have been in the mind of a POSITA when contemplating the disclosures and/or suggestions in the prior art and when considering combining features from that prior art.

A. General Technology Background

59. [intentionally left blank]

60. As noted above in Section V.A, the '842 patent concerns a “dual multi-display handheld computing device.” Ex. 1001, 1:45-50. The device could capture an image, and could do so in different configurations, for instance, a self-portrait configuration or other configurations such as taking an image with the camera facing outward from the user. *See, e.g.*, Ex. 1001, 1:63-2:3. The device also could have different physical configurations; for example, it could be open or closed in a folded configuration. *See, e.g.*, Ex. 1001, 1:53-1:62.

61. By September 2011, the earliest claimed priority date of the '842 patent, handheld devices such as cell phones and personal digital assistants had long been known in the art and were in widespread use in society. Many of these devices, like those that are the subject of the '842 patent, had more than one screen, could take images in different configurations, and / or had different physical states. Various prior art references describe these types of devices with some or all of these

characteristics, most notably Chin and Whitehorn, which are the focus of my declaration and discussed at length below. Other examples are discussed in this technology background section and elsewhere in this declaration.

62. U.S. Patent Application Publication No. 2012/0139815 A1 to Aono “relates to a personal digital assistant having multiple screens, and a display control method and display control program of the personal digital assistant.” Ex. 1006, [0003]. The personal digital assistant **1** has a “three-screen folding-type configuration whereby the first casing **2** through third casing **4** can be opened/closed by folding.” *Id.*, [0253]. The Aono device is also configured with a digital camera. *Id.*, [0083]. Aono discloses a variety of sensors to detect the state of the personal digital assistant **1**. *Id.*, [0270]. Based on determinations made by the sensors as to the state of the device, Aono discloses displaying images on a single display or stretched across up to three displays. *Id.*, [0152]-[0154].

63. U.S. Patent No. 7,471,890 to Lee teaches a mobile terminal that “includes a camera and first and second display units for displaying various information.” Ex. 1009, 5:10-14, Figure 4.

64. U.S. Patent Application Publication No. 2011/0193806 A1 to Kim describes a “mobile terminal having multiple display units.” Ex. 1010, [0008]. Kim discloses a “camera function.” Ex. 1010, [0069]. Kim discloses outputting data to be

shown on the device displays in different manners based on the orientation of the mobile terminal. Ex. 1010, [0031].

65. U.S. Patent App. Pub. No. 2002/0142810 to Kawasaki describes a foldable mobile communication terminal with two displays and a camera unit. Ex. 1011, [0034]. The mobile communication terminal judges whether the device is in a folded or unfolded state. Ex. 1011, [0034]. The user of the device can be the subject of the image, or the subject of the image can be something else other than the user. Ex. 1011, [0009].

66. U.S. Patent Publication No. 2010/0048190 to Park describes “a mobile terminal equipped with first and second display modules provided on first and second surfaces.” Ex. 1012, Abstract. Park’s device includes a camera. Ex. 1012, [0037]. Park describes a “sensing unit **140**” that “determines a current state of the mobile terminal such as whether the mobile terminal **100** is opened or closed.” Ex. 1012, [0041].

B. Chin

67. U.S. Patent Application Publication No. 2009/0190295 A1, titled “Portable Information Terminal” and naming as inventors Byung-wook Chin, Eun-Kyung Lee, and So-hyun Ahn (“Chin”) published on July 30, 2009. Ex. 1004, Cover at (54), (75). The Chin application, No. 12/321,635, was filed on January 23, 2009. Ex. 1004, Cover at (21), (22). Chin also claims the benefit of a Korean patent application, No. 10-2008-0009680, filed January 30, 2008. Ex. 1004, Cover at (30).

Chin lists the assignee as Samsung Techwin Co., Ltd. Ex. 1004, Cover at (73). The Chin application ultimately issued as U.S. Patent No. 8,208,249 on June 26, 2012.

68. I understand that, because Chin published more than one year before the earliest claimed filing date of the '842 patent, Chin is prior art to the '842 patent under the governing statute.

69. As indicated by the title, Chin is directed to a “[p]ortable information terminal,” examples of which include “cellular phones, portable multimedia players (PMPs), personal digital terminals (PDAs), notebook computers, tablet personal computers (PCs), and the like.” Ex. 1004, [0005]. These devices are “designed to be able to perform various functions in an all-in-one type module.” Ex. 1004, [0005]. Their various functions include “a music reproducing function (e.g., an mp3 file playback function), a movie reproducing function, a TV viewing function using terrestrial digital multimedia broadcasting (DMB) or satellite DMB, a digital camera function, an internet browser function, an e-commerce function, a file working function, an electronic organizer function for managing personal and business contact information, and the like.” Ex. 1004, [0006].

70. Chin notes that it is “highly preferred for portable information terminals to be small and thin for convenience of carrying.” Ex. 1004, [0007]. It also is preferred for these devices to “provide a convenient user interface” by means of “a

liquid crystal display (LCD) so as to output images or text.” Ex. 1004, [0007]-[0008].

71. Chin notes some drawbacks of conventional “portable information terminals.” Ex. 1004, [00008]-[0009]. For one, the hinge coupling has a limited rotation angle of the display apparatus. Ex. 1004, [0008]. It also is difficult to operate in a folded state. Ex. 1004, [0009].

72. When taking photographs using such devices, “sometimes it is convenient to vertically stand and support the portable information terminal on a flat surface, such as on a desk, by operating the portable information terminal in a folded state. However, in order to stand the conventional portable information terminal in a folded state, a separate stand or rest (e.g., a tripod, docking station, etc.) is required.” Ex. 1004, [0010].

73. Chin also notes drawbacks if a conventional type of device is used to perform “a self-photographing function in which the user photographs him or herself by using a camera.” Ex. 1004, [0012]. “Conventional portable cameras have been manufactured using various methods of installing a display apparatus, which is rotatable, in the body of the cameras,” so that the user can view him or herself on a display apparatus of the device. Ex. 1004, [0012]. “However, it is difficult and complex to design the portable information terminal having the above structure.” Ex. 1004, [0012].

74. Chin teaches, in one aspect of its inventions, a portable information terminal “with two panels that are each hingably coupled with a connecting unit for moving the panels between first and second folded states.” Ex. 1004, [0003]. Examples are illustrated in Figures 1, 5, and 6 of Chin, which are different views of the same device in different positions:

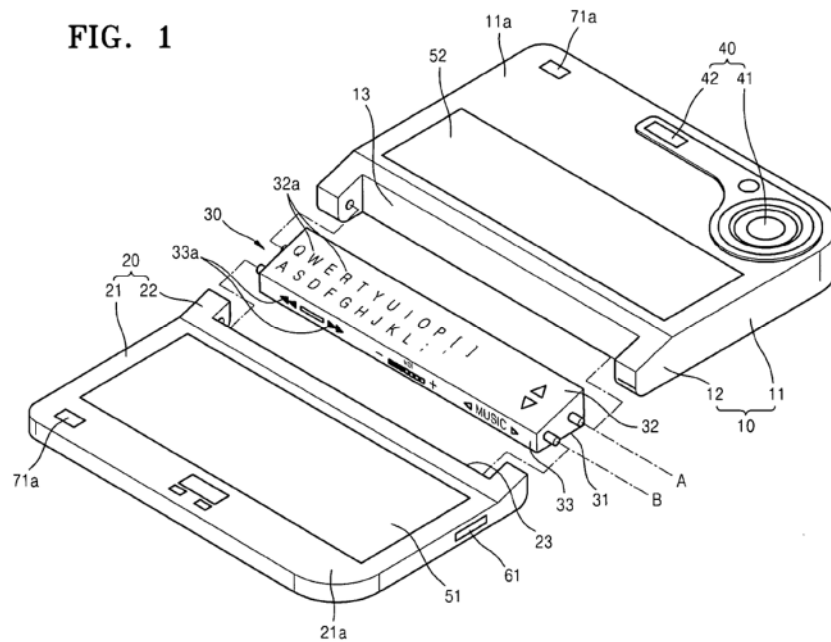


FIG. 5

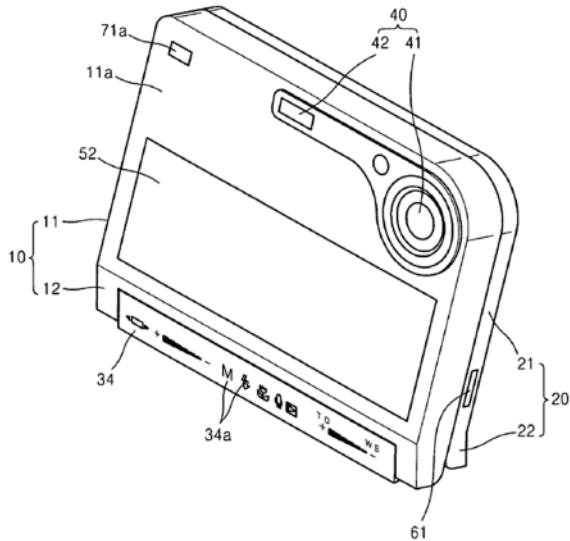
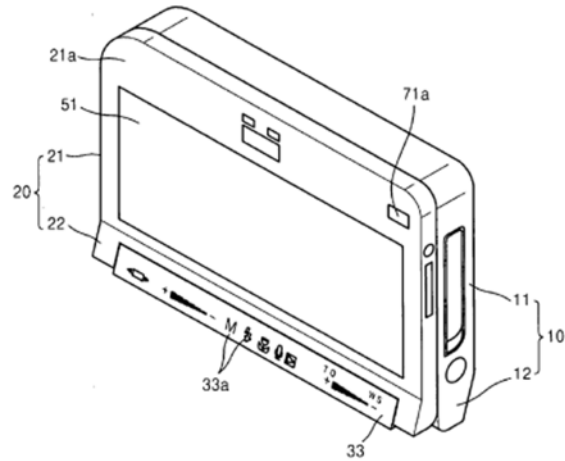


FIG. 6



75. “The first and second panels may be rotatable with respect to the connecting unit such that the first and second panels move between first and second (folded) positions. In the first position, a first surface of the first flat board unit and a first surface of the second flat board unit face each other. In the second position, second surfaces of the first and second flat board units (i.e., the second surfaces being opposite the first surfaces) face each other.” Ex. 1004, [0015].

76. The device shown in Figures 1, 5 and 6 includes two display units and a digital camera. Specifically, “[a] first display unit **51** is configured on a first generally planar surface **21a** of the second flat board unit **21**, and a second display unit **52** is configured on the first generally planar surface **11a** of the first flat board unit **11**.” Ex. 1004, [0045]. The display units could be liquid crystal displays or organic light-emitting diodes. Ex. 1004, [0045]-[0046]. “A digital camera **40** is

configured on a first generally planar surface **11a** of the first flat board unit **11**. Ex. 1004, [0044]. “The digital camera **40** as shown includes a lens **41** and a flash **42**.” Ex. 1004, [0044]. “The connecting unit **30** includes a button unit on at least one surface (i.e., not the two parallel end surfaces from which the pivot bosses extend) of the connecting unit **30**. A user can operate electronic apparatuses of the first panel **10** or the second panel **20**, such as the first and second display units **51** and **52** or the digital camera **40**, by using the button unit (i.e., pressing a button or buttons thereof).” Ex. 1004, [0048].

77. “The portable information terminal may include a sensor unit **71** for detecting positions of the first panel **10** and the second panel **20**.” Ex. 1004, [0050]. The sensor units can be “various sensors known in the art such as proximity sensors (e.g., infrared or optical sensors), magnetic sensors (e.g., reed switches), and the like.” Ex. 1004, [0050].

78. Figure 9 is of particular interest to my analysis. It is “a flowchart of a method of controlling the portable information terminal of FIG. 1.” Ex. 1004, [0074]. As I will describe further below in reference to the Challenged Claims, in the method of Figure 9, “[w]hen the positions of the first and second panels are in a state in which a digital camera can be used, it is judged in step S150 whether the portable information terminal is set or otherwise being used in a self-photographing mode.” Ex. 1004, [0077]. Based on that determination, the device enters one of two

image capture modes, which in turn changes what is displayed on the two display units: each display unit displays images to perform a preview function, or not, depending on the mode. Ex. 1004, [0078]-[0079].

C. Whitehorn

79. U.S. Patent Application Publication No. 2005/0078211 A1, titled “Handheld Device with Integral Axial Camera” and naming as inventors Symon Whitehorn, Maaïke L. Evers, and Brett Lovelady (“Whitehorn”) published on April 14, 2005. Ex. 1005, Cover at (54), (76). The Whitehorn application, No. 10/632,616, was filed on July 31, 2003. Ex. 1005, Cover at (21), (22). Whitehorn lists the correspondence address as Hewlett Packard Company. Ex. 1005, Cover at (76).

80. I understand that, because Whitehorn published more than one year before the earliest claimed filing date of the ’842 patent, Whitehorn is prior art to the ’842 patent under the governing statute.

81. As indicated by the title, Whitehorn “relates generally to handheld devices, and more particularly toward incorporating a camera into a handheld device.” Ex. 1005, [0002]. The “handheld devices” discussed by Whitehorn include Personal Digital Assistants (PDAs), but “[a]lternative embodiments of the present invention, however, could be embodied within other types of hinged apparatus, such as cell phones, a laptop computers, notepads, or even items of luggage.” Ex. 1005, [0019].

82. In its “Discussion of Background Art,” Whitehorn notes that handheld devices (e.g., PDAs) “have been evolving very quickly as users are demanding, and manufacturers are adding, new features and functionalities at an increasing pace.” Ex. 1005, [0004]. They were “used for maintaining personal information,” e.g., schedules, in basic form, but “enhanced handheld devices may further include: a cell phone, modem, a wireless connection, e-mail, and Web browsing capabilities.” Ex. 1005, [0005]. These “enhanced handheld features” have a drawback, however, in that they “have been hastily added, and thus tend to be unrefined, bulky, and difficult to use.” Ex. 1005, [0006].

83. Whitehorn specifically calls out “a still camera as a next ‘must have’ feature” in recent handheld devices. Ex. 1005, [0006]. But according to Whitehorn, “[t]hese cameras tend to be tacked wherever there is space left, [and] often are very awkward to use and/or have limited capabilities.” Ex. 1005, [0006].

84. To address these concerns, Whitehorn is directed to a “handheld device with integral axial camera.” Ex. 1005, [0008]. Figures 1, 2, 3, and 5, reproduced below, are different depictions of one embodiment of a device according to Whitehorn, shown from different angles and with the device in different physical configurations and orientations. Ex. 1005, [0018].

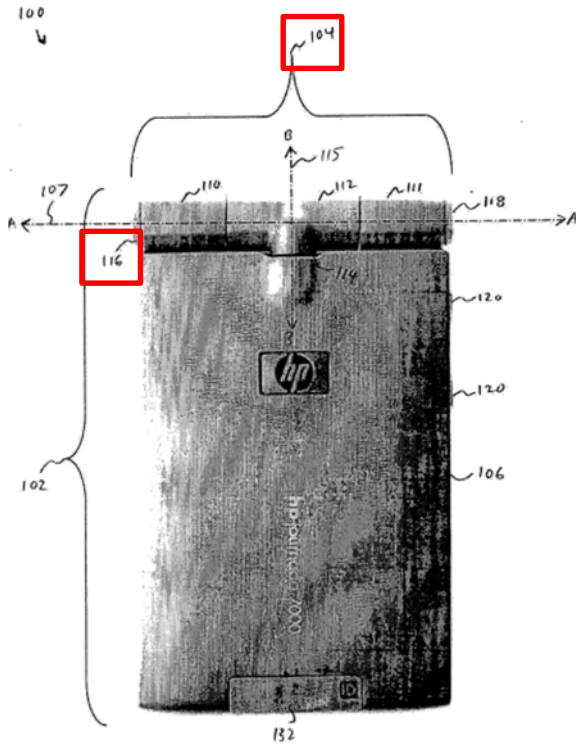


Fig. 1

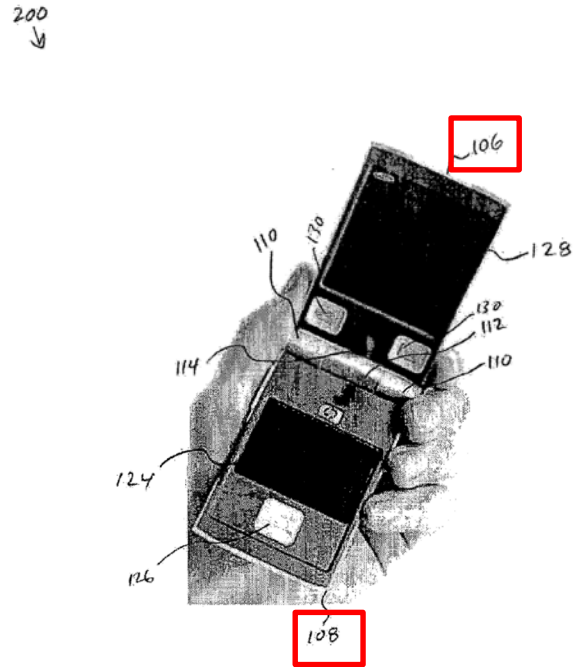


Fig. 2

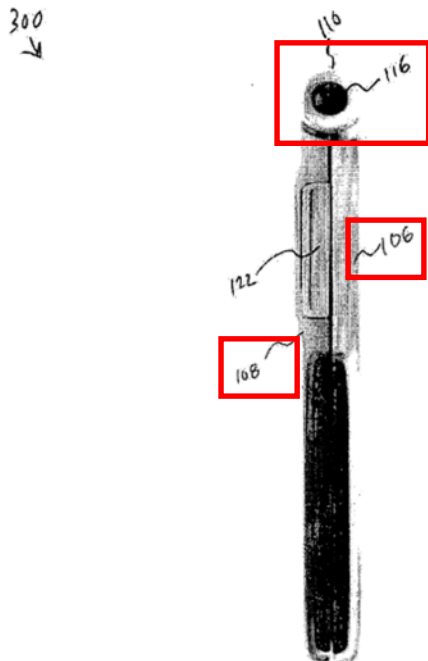


Fig. 3

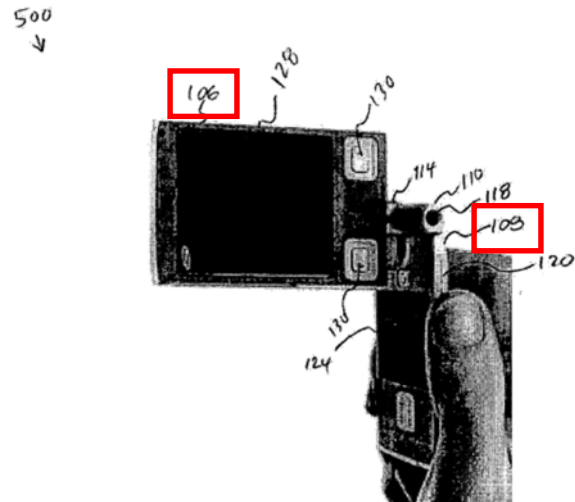


Fig. 5

85. Specifically, the device includes top and bottom covers **106** and **108** that rotate about an axis defined by a hinge **104**. Ex. 1005, [0020]. The hinge allows the top cover to rotate about two axes with respect to the bottom cover. Ex. 1005, [0020]. “The hinge **104** [] includes an image capture device **116** located within the first end **110** and a small screen interface **118** located within the second end **111** of the hinge **104**.” Ex. 1005, [0022]. “The image capture device **116** includes a light sensitive sensor for acquiring optical information, and one or more lenses for focusing optical light on the light sensitive device.” Ex. 1005, [0022]. “The small screen interface **118** is preferably capable of displaying both captured images (either in real-time like a viewfinder or which have been previously recorded) and any other information generated by the device **102**.” Ex. 1005, [0023]. Images are captured by use of a shutter control **122**. Ex. 1005, [0023].

86. “The bottom cover **108** also includes a bottom large screen interface **124** and a touch sensitive pad **126**. Ex. 1005, [0023]. “The bottom large screen interface **124** is at a minimum preferably capable of receiving input commands from users of the device **102**,” e.g., pen inputs,” “but may also display any information generated by the device **102**, including captured images.” Ex. 1005, [0023]. “The top cover **106** includes a top large screen interface **128**” which “preferably functions

as an image display for either captured images or other information generated by the device **102**.” Ex. 1005, [0024].

87. Of particular interest to my analysis here, “[r]otation of the top and bottom covers **106** and **108** with respect to each other automatically determines a mode in which the device **102** operates. These modes include: a ‘first image capture mode,’ a ‘first handheld mode,’ a ‘second image capture mode,’ and a ‘second handheld mode.’” Ex. 1005, [0021]. Figure 6 of Whitehorn, which I discuss at length below, is a flowchart of one method of operation of a device according to Whitehorn. Ex. 1005, Fig. 6, [0026]. As noted immediately above, the device identifies the orientation and position of the top and bottom covers, and based on that determination, enters into different modes. Ex. 1005, [0027], [0029]. In the two “image capture modes,” the top large screen interface is either closed and not displaying anything, as shown in Figures 1 and 3, or is displaying what the camera is capturing, as shown in Figure 5. Ex. 1005, Figs. 1, 3, 5, [0027], [0029].

D. Summary

88. In summary, Whitehorn and Chin share several common characteristics with each other (and with the ’842 patent): both references describe a device with two rotatable panels (or covers), connected by a hinge (or connecting unit), with each panel / cover having a screen to display information (e.g., images) to a user, the devices further having a digital camera, and the devices being able to determine the

positions / orientations of the panels / covers and, based on those determinations, enter different image capture modes which in turn result in different displays on the screen(s).

IX. SUMMARY OF OPINIONS

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

90. It is my opinion that all of the Challenged Claims are anticipated by Chin.

91. It is my opinion that all of the Challenged Claims would have been obvious in view of Chin to a POSITA.

92. It is my opinion that at least claims 1-7 and 11 of the '842 patent are anticipated by Whitehorn.

93. It is my opinion that at least claims 1-7 and 11 of the '842 patent would have been obvious in view of Chin to a POSITA.

X. GROUND 1: CHIN ANTICIPATES CLAIMS 1-7, 10-13, 16-17, AND 19-20.

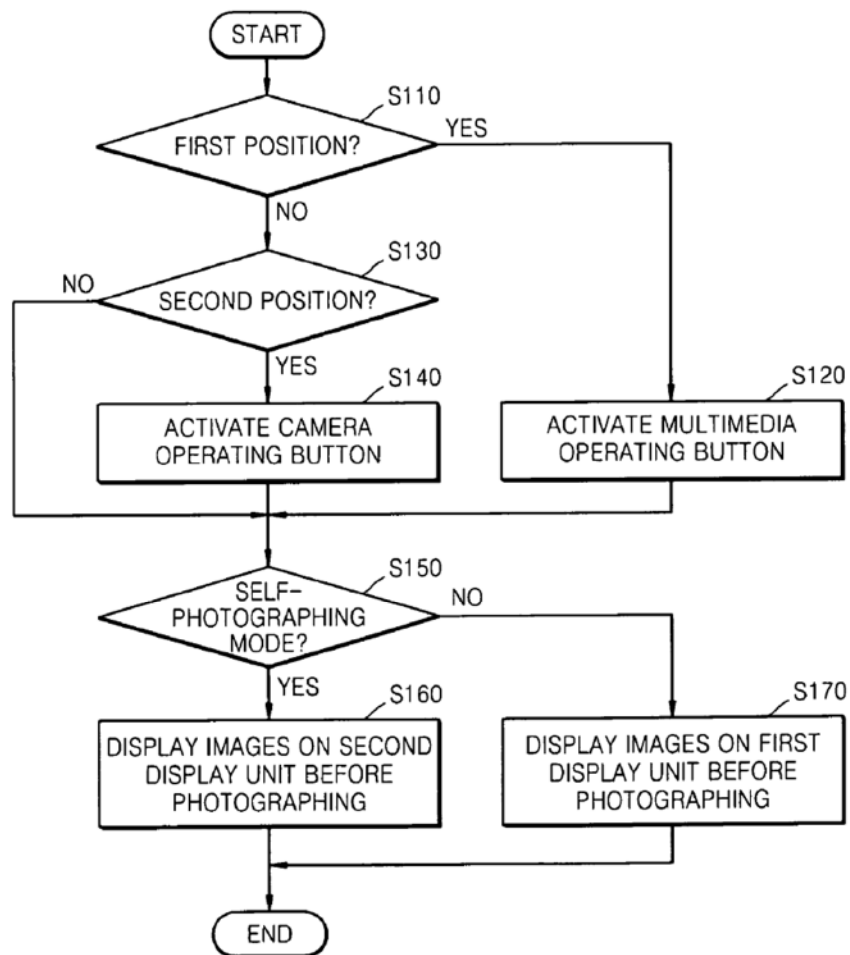
A. Claim 1

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

94. I understand that the preamble of a patent claim may not serve as a limitation to the claim. To the extent the preamble is a limitation, Chin discloses this limitation.

95. Chin discloses a method with the steps set forth in the following sections. Figure 9 of Chin illustrates an example method of controlling a device according to a first embodiment of Chin. (Ex. 1004, Fig. 9, [0036], [0074]-[0079]):

FIG. 9

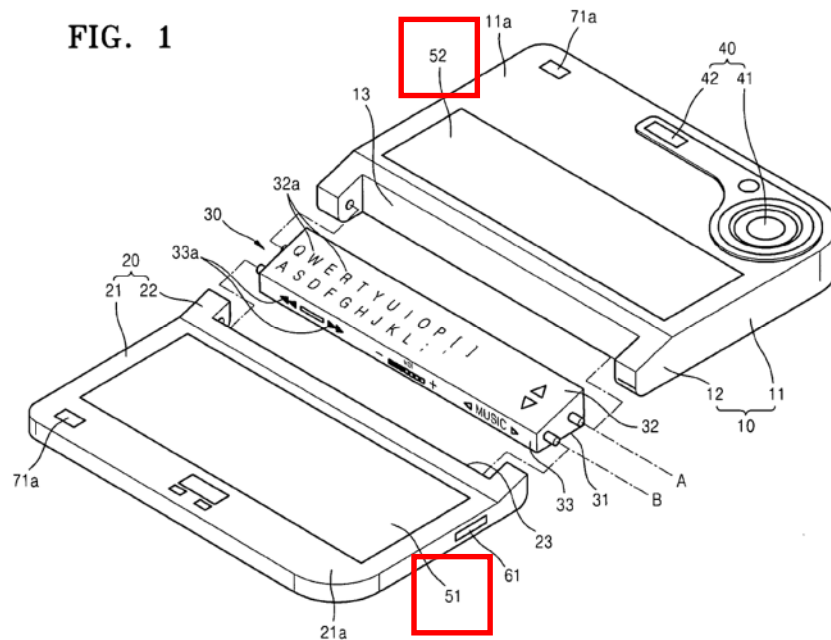


2. Claim [1A]: providing a device having at least first and second screens;

96. Chin discloses this limitation.

97. Chin discloses “a portable information terminal with two panels that are each hingably coupled with a connecting unit for moving the panels between first and second folded states.” Ex. 1004, [0003]. The panels may have one or more display units and a digital camera. *Id.*, [0022], [0024]-[0027].

98. Chin illustrates first and second display units in Figure 1:



Id., Fig. 1.

99. The “first display unit **51** may be a display apparatus such as a color liquid crystal display (LCD) apparatus and the like for **displaying** web pages, text, or images,” *Id.*, [0045], which “provide[s] the device with the ability to render a user

interface”¹ Ex. 1001, 2:65-66. The “second display unit **52** may cooperate with the camera **40** for facilitating a preview function in which images are ***displayed*** before the images are captured by the digital camera.” Ex. 1004, [0046]. Chin also discloses that a liquid crystal display may be a “touch screen-type.” *Id.*, [0061].

100. A POSITA would have understood “first display unit **51**” and second display unit **52**” to be “screens” as the ’842 patent uses the term. Each of these display units is a “hardware component” (*i.e.*, a “display apparatus such as a color liquid crystal display (LCD).” Each “display unit” also has “the ability to render a user interface and/or receive user input” (*i.e.*, “provide[s] the device with the ability to render a user interface” or “facilitating a preview function in which images are displayed”). *See* Section VII (’842 definition of “screen”); *see also* Ex. 1001, 2:65-66; Ex. 1004, [0045]-[0046].

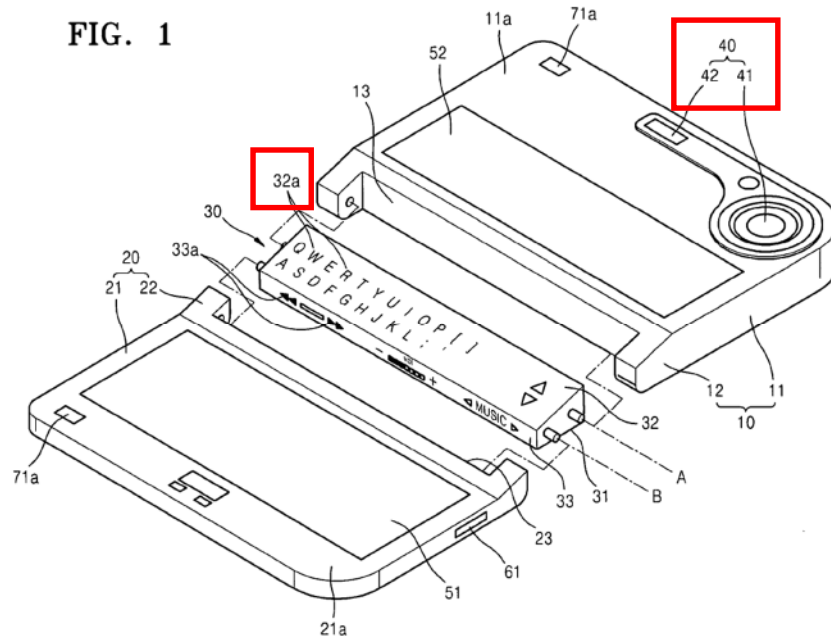
3. Claim [1B]: receiving user interface input to execute an image capture function;

101. Chin discloses this limitation.

102. The device disclosed in Chin has a digital camera that may be operated using buttons on the device. Chin illustrates this in Figure 1:

¹ All italicized or bold italicized emphasis or color in figures in this Petition is added unless otherwise noted.

FIG. 1



Ex. 1004, Fig. 1.

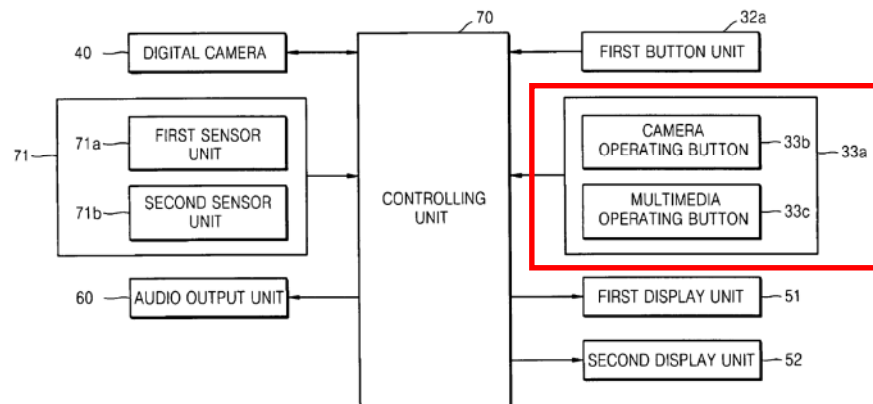
103. A POSITA would have understood that using the digital camera **40** is “execut[ing] an image capture function” because it is hardware that is used to capture images.

104. A user can operate the digital camera **40** using buttons on the device. Chin teaches that “[a] digital camera **40** is configured on a first generally planar surface **11a** of the first flat board unit **11**. The digital camera **40** as shown includes a lens **41** and a flash **42**.” Ex. 1004, [0044]. “**A user can operate** electronic apparatuses of the first panel **10** or the second panel **20**, such as the first and second display units **51** and **52** or **the digital camera 40**, by using the button unit (i.e., **pressing a button** or buttons thereof.” *Id.*, [0048].

105. Chin further explains how pressing the device’s buttons can operate the camera. “The portable information terminal may include a controlling unit **70** for controlling various electronic apparatuses by sending and receiving electric controlling signals” and the “controlling unit **70** is electrically connected to a first button unit **32a** and a second button unit **33a**, so that the controlling unit **70** receives signals by a user manipulating the buttons. As shown, the second button unit **33a** includes a camera operating button **33b** . . . so that the user can operate a camera” *Id.*, [0052], [0053].

106. Chin illustrates the relationship between the buttons and the controlling unit **70** that will detect a “user manipulating the buttons”:

FIG. 2



107. A POSITA would have understood using or manipulating buttons to operate the digital camera **40** is “receiving user interface input.” This is because the buttons provide the user an interface to interact with the device.

4. Claim [1C]: determining one or more of an image capture function configuration, a device orientation, and a device state; and

108. Chin discloses this limitation.

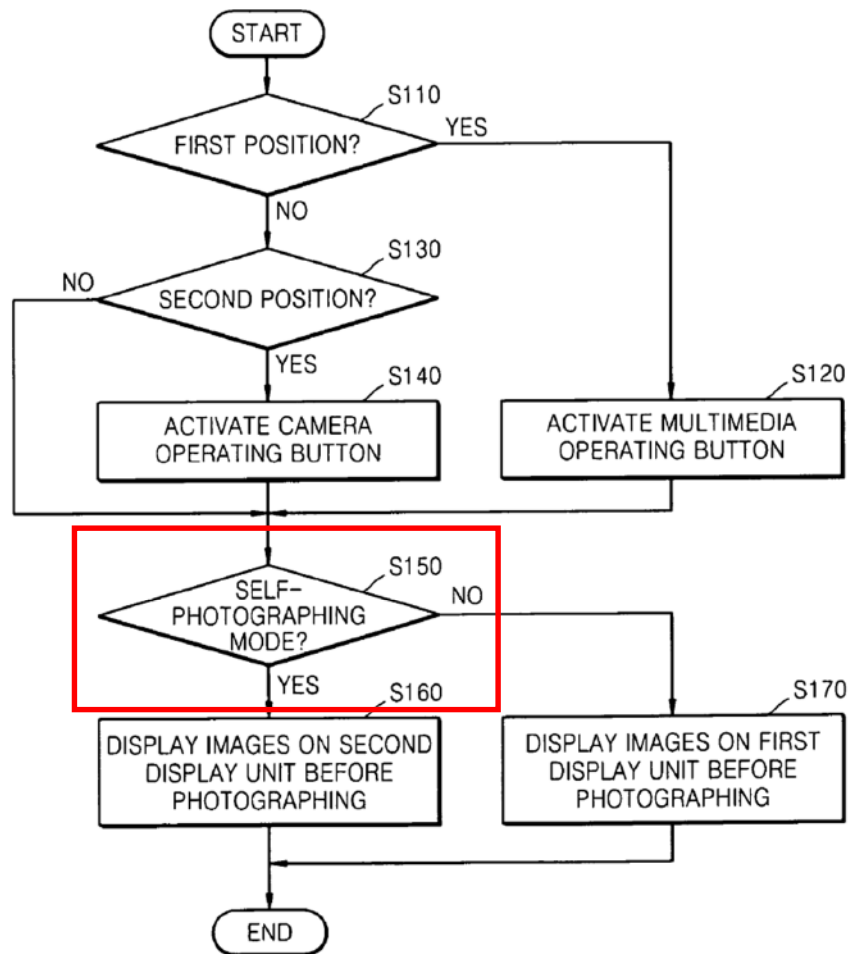
109. I understand this limitation requires determining at least one of (1) an image capture function configuration, (2) a device orientation, and (3) a device state.”

110. Chin discloses determining an image capture function configuration.

111. Chin discloses at least two image capture function configurations: (1) when the device is in a “self-photographing mode” and (2) when the device is *not* in a “self-photographing mode.”

112. Chin illustrates this in Figure 9, which is a “flowchart of an example method of controlling the portable information terminal of FIG. 1,” and describes it in the text accompanying Figure 9. Ex. 1004, [0036]:

FIG. 9



Id., Fig. 9.

113. At Step **S150**, an image capture function configuration is determined. This can be done by the user: “The self-photographing mode in which a user photographs him or herself can be set by allowing the user to operate the portable information terminal in order to select the mode.” Ex. 1004, [0077].

114. The image capture function configuration also can be done automatically by the device: “**by allowing a controlling unit to automatically select**

the mode when the first and second panels are in the second position.” Id. The “second position” is a physical device state where the first and second panels are folded and the camera is available for use. *Id.*

115. Whether by user input or automatically, the determination of whether or not the device is in “self-photographing mode” is “determining . . . an image capture function configuration”: Self-photographing is an example of an image capture function configuration, as is the alternative configuration “[w]hen the self-photographing mode is not selected.” Ex. 1004, [0079].

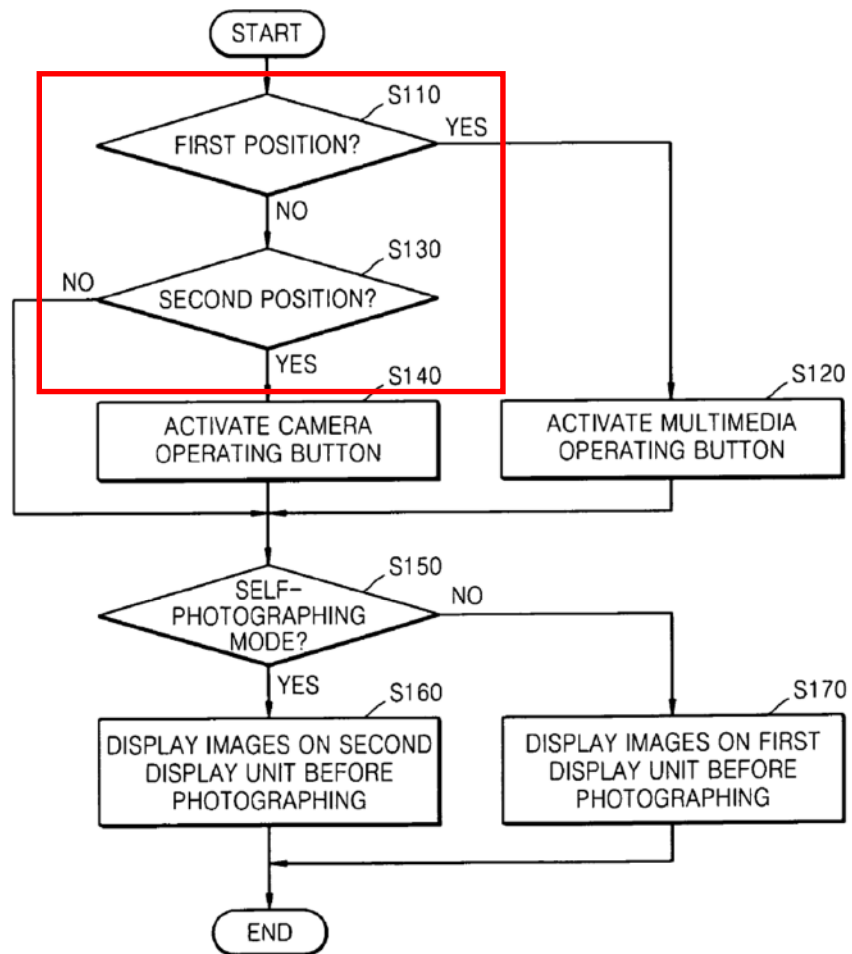
116. In this respect, Chin’s disclosure mirrors that of the ’842 patent: “For example, the device **100** may determine an image capture function **1100** configuration, in step **1712**. The image capture function **1100** configuration may be a self-portrait mode.” Ex. 1001, 34:28-31.

117. Chin also discloses determining a device state.

118. Chin teaches the device determining the physical configuration and positions of the first and second panels, which is determining a “device state.”

119. Chin illustrates this in the flowchart shown in Figure 9 (showing steps for detecting whether the device is in a first or second position), with reference to Figures 3 (showing first position) and 5 (showing second position):

FIG. 9



Ex. 1004, Fig. 9, [0075]-[0077].

FIG. 3

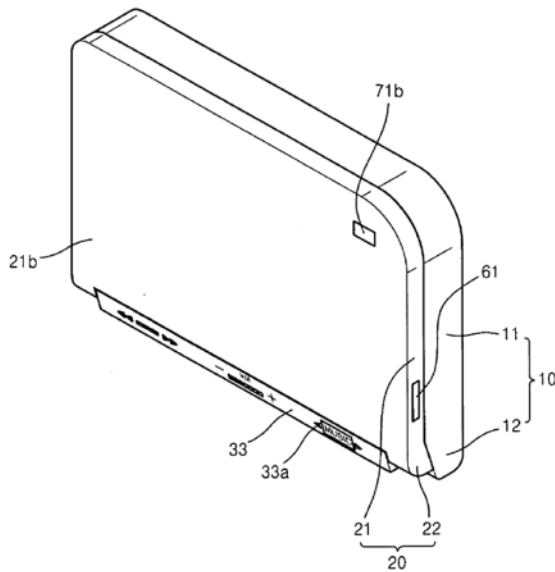
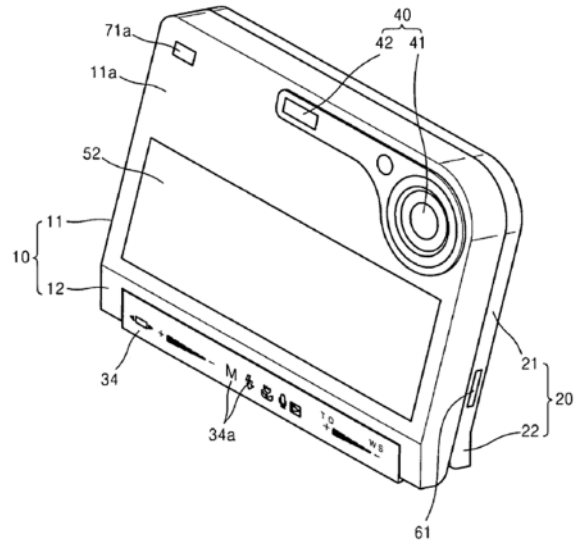


FIG. 5



Ex. 1004, Figs. 3 and 5, [0030], [0032].

120. Chin teaches that the device “may include a sensor unit **71** for detecting positions of the first panel **10** and the second panel **20**.” *Id.*, [0050]. This can include a “first sensor unit” which can detect whether the device is “folded closed with the first surfaces **11a** and **21a** facing each other,” *i.e.*, in the disclosed “first position,” and a “second sensor unit” that facilitates detecting if the device “is in a second folded closed state or orientation with the first surfaces **11a** and **21a** facing outwardly and opposite to each other,” *i.e.* in the disclosed “second position.” *Id.* The sensor units detect the positions of the first and second panel, that is, the “device state,” and using that information, enable or disable the digital camera **40**. *Id.*, [0054].

121. Chin teaches “determining one or more of an image capture function configuration, a device orientation, and a device state” at least by (1) determining whether or not the device is configured to take a self-photograph (which is determining an image capture function configuration), and (2) detecting whether the first and second panels of the device are folded in specific configurations (which is determining a device state). Either of these determinations satisfy the alternative language of this claim limitation.

5. Claim [1D]: based on one or more of the image capture function configuration, the device orientation, and the device state, entering one of one or more image capture modes

122. Chin discloses this limitation.

123. This limitation requires determining at least one of (1) an image capture function configuration, (2) a device orientation, and (3) a device state.

124. As discussed in Section X.A.4 in connection with limitation [1C], Chin teaches (1) and (3) by determining the device to be in a particular image capture function configuration (self-photographing mode or not) or device state (*e.g.*, closed in a second position), respectively. *See* Ex. 1004, Figs. 3, 5, 9, [0030], [0032], [0050], [0054], [0056], [0062], [0075]-[0077], Fig. 9, [0075]-[0077].

125. Chin teaches that the device enters one of one or more image capture modes. Chin teaches that the device can enter into a mode where “[t]he user can perform the self-photographing function while viewing him or herself displayed on

the second display unit.” Ex. 1004, [0078]. This mode is called “self-photographing mode.” *Id.* Chin also teaches another mode, which Chin does not specifically name. The device can enter this second image capture mode, where “the portable information terminal in step **S170** displays images on a first display unit before a photograph is taken, so that the first display unit can perform a preview function.” Ex. 1004, [0079]. A POSITA would have understood that if the device is not in a “self-photographing mode”—where the digital camera is directed toward the user—then the device and its digital camera would be directed away from the user to capture an image. *See infra* Section X.B (regarding claim 2).

126. Chin teaches that the device enters “self-photographing mode” or the other non-self-photographing mode *based on* the “image capture function configuration.” As noted above, the “image capture function configuration” is selected either manually or automatically. And “[w]hen the self-photographing mode is selected” in either way, the device enters the “self-photographing mode” (image capture mode) whereby “the portable information terminal displays images on a second display unit before a photograph is taken, so that the second display unit can perform a preview function.” Ex. 1004, [0078]. Likewise, [w]hen the self-photographing mode is not selected, the portable information terminal in step **S170** displays images on a first display unit before a photograph is taken, so that the first display unit can perform a preview function.” *Id.*, [0079].

127. Put differently, here Chin is describing entering an image capture mode, or way of capturing an image, that depends on the prior determination (either by manual means or automatic means) of an image capture function configuration. A POSITA would have understood that the disclosures at *Id.*, [0074]; [0078], and Fig. 9 of Chin collectively teach that transitioning from step **S150** to step **S160** is entering a self-photographing mode. Likewise, a POSITA would have understood that the disclosures at *Id.*, [0074], [0079], and Fig. 9 of Chin collectively teach that transitioning from step **S150** to step **S170** is entering a non-self-photographing mode.

128. Chin's disclosure is similar to the '842 patent's disclosure of entering a "self-portrait" image capture mode: "From these different determinations the device **100** may then determine that the image capture mode is for a self-portrait, in step **1724**. Based on the determination that the device is in a self-portrait mode, the device **100** may enter the self-portrait configuration, in step **1728**." Ex. 1001, 34:34-39.

129. Chin also satisfies this limitation because the device can enter the "self-photographing" image capture mode "based on" the device state. This happens when the device automatically determines the "self-photographing" image capture function configuration when the device is in the "second position," which is a specific device state (*i.e.*, arrangement of the physical components that comprise

Chin's device). Thus, the image capture mode is based on the image capture function configuration which in turn is based on the device state. Ex. 1004, [0077].

6. Claim [1E]: wherein in each image capture mode a display on the first or second screen is different.

130. Chin discloses this limitation.

131. Chin teaches showing different images on the “first screen” (display unit **51**) and “second screen” (display unit **52**) depending on the image capture mode.

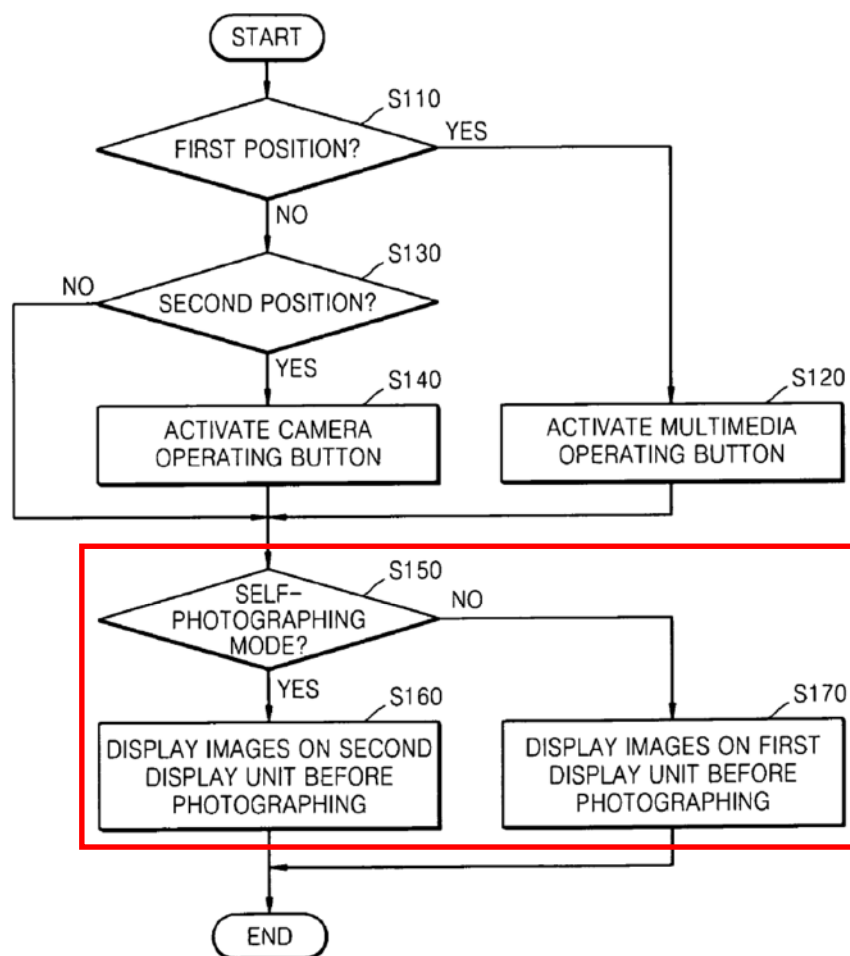
132. The Figure 9 embodiment of Chin teaches two image capture modes: a “self-photographing mode” and a different mode designed to take an image where the camera is facing away from the user. *Supra* Section X.A.5.

133. “When the user performs a self-photographing function . . . it is desirable for the user to be able to preview him or herself. Thus, the second display unit **52** configured on a surface **11a** of the first flat board unit **11** can display live/preview and/or captured images obtained by the digital camera **40**.” Ex. 1004, [0068]; [0078].

134. When the device is in the other mode, “the portable information terminal in step **S170** displays images on a first display unit before a photograph is taken, so that the first display unit can perform a preview function.” *Id.*, [0079].

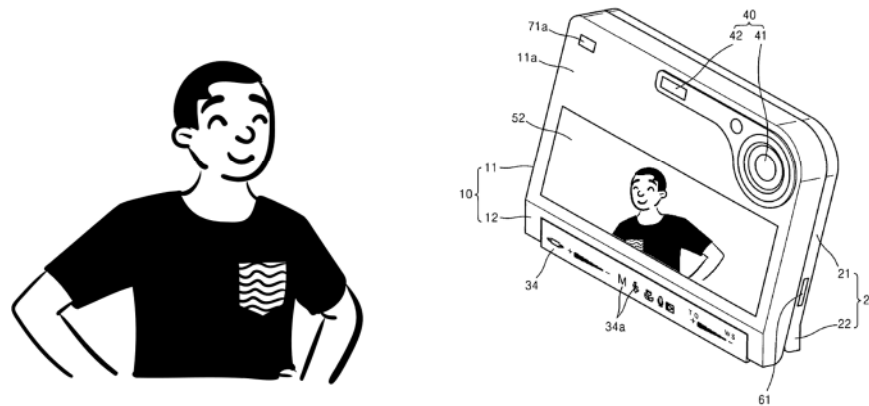
135. The image for the preview function appears on different screens depending on the image capture mode, thus the “display on the first or second screen is different.” This is further shown in Figure 9:

FIG. 9



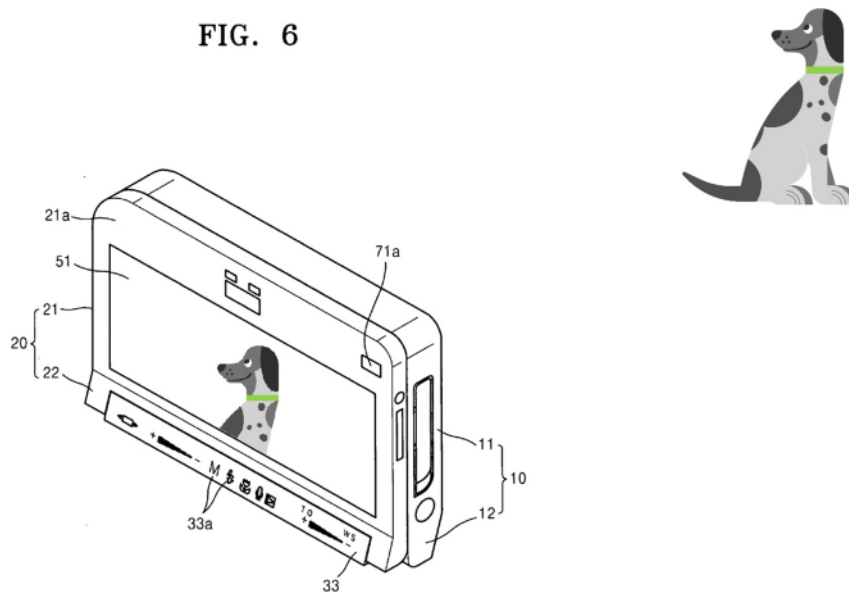
Ex. 1004, Fig. 9, [0078]-[0079]. Below are annotations to Chin's Figures 5 (showing self-photographing mode) and 6 (showing the other mode, where the camera is outward-facing) illustrating an example of how the image display changes between screens based on the mode:

FIG. 5



"Self-Photographing" Mode

FIG. 6



"Outward-Facing" Mode

B. Claim 2

1. **Claim [2]: The method of claim 1, wherein the image captures function is configured to capture an outward-facing image.**

136. Claim 2 is disclosed by Chin.

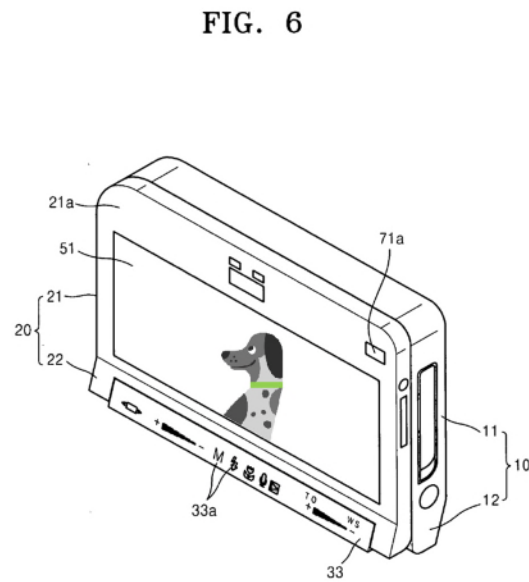
137. Chin teaches the device's digital can be used to capture images in two different configurations, when a "self-photographing mode" is either selected or not selected.

138. The language of claim 2 is somewhat awkward because it is unusual to refer to an image as facing in a particular direction. An image is merely a visual representation of something, and it can be displayed for viewing. When displayed for viewing, the image should face the viewer. In both the self-photographing mode and the other mode, the image is displayed so that it faces the viewer. Clearly, the '842 patent in claim 2 is invoking a different meaning, in which "outward facing image" is being used to describe an image taken of something facing outward from the user. This is how the term is used in the '842 patent specification itself. *See, e.g.*, Ex. 1001, 33:40-42 ("capture an outward facing image (e.g. a scene in front of the user)"), 34:47-50, 35:5-7.

139. "The self-photographing mode [is one] in which a user photographs him or herself," Ex. 1004, [0077], i.e., where the camera is pointed towards the user. In this mode, the device "displays images on a second display unit before a photograph is taken, so that the second display unit can perform a preview function." *Id.*, [0078]. "The user can perform the self-photographing function while viewing him or herself displayed on the second display unit." *Id.*

140. “When the self-photographing mode is not selected” the device “displays images on a first display unit before a photograph is taken, so that the first display unit can perform a preview function.” *Id.*, [0079].

141. When the “self-photographing mode” is not selected, the first display performing the preview function faces the user, and the camera is not directed towards the user, but rather outward from the user. Figure 6, as annotated, illustrates a device configured to capture an image in this configuration:



“Outward-Facing” Mode

142. In this annotated example, the camera **40** is on the far side of the device, pointed toward the dog. A preview of the image of the dog is displayed on the first display unit **51**.

143. A POSITA would have understood this to be an “outward-facing” image because the camera is pointed outward (*i.e.*, away) from the user, consistent with the terminology used in the ’842 patent as discussed immediately above.

C. Claim 3

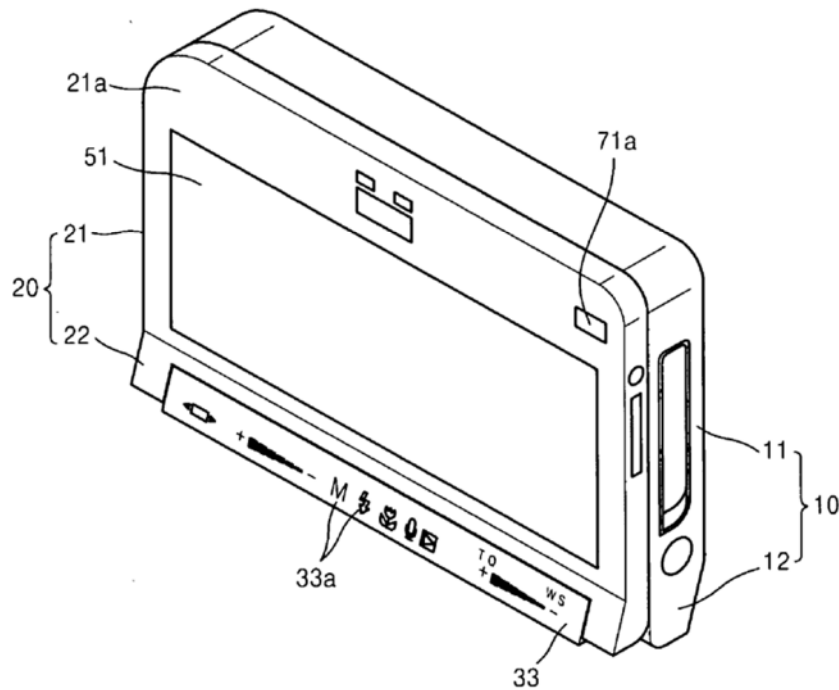
1. Claim [3]: The method of claim 2, wherein the device is in a closed state.

144. Claim 3 is disclosed by Chin.

145. Claim 3 depends from Claim 2, which requires configuring a device configured so the image capture function captures an outward-facing image.

146. When the Chin device is so configured, the device is in a closed state, as shown and described with respect to Figure 6:

FIG. 6



Ex. 1004, Fig 6, [0050].

147. A POSITA would have understood the device as shown in Figure 6 to be in a “closed” state; indeed, that is how Chin describes this configuration: “a second folded **closed** state or orientation with the first surfaces **11a** and **21a** facing outwardly and opposite to each other.” Ex. 1004, [0050]. This also is similar to the “closed” position illustrated in Figure 1H of the ’842 patent. Ex. 1001, Figure 1H, 9:25-26.

D. Claim 4

1. Claim [4]: The method of claim 3, wherein the device is in a landscape or portrait orientation.

148. Claim 4 is disclosed by Chin.

149. The '842 patent defines “display orientation” as “the way in which a rectangular display is oriented by a user for viewing.” Ex. 1001, 3:41-42.

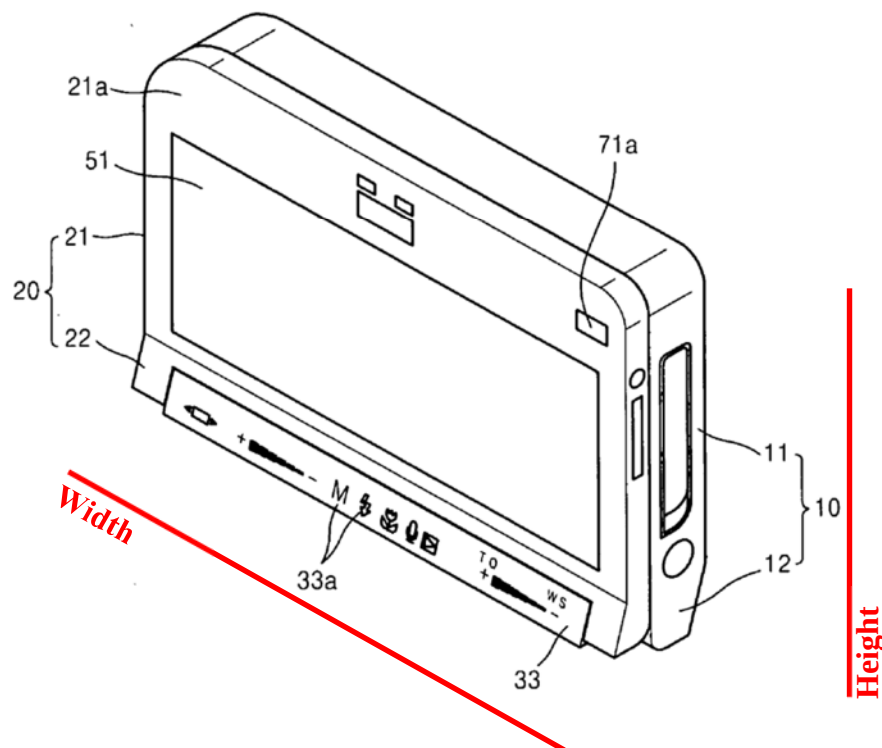
150. “The two most common types of display orientation are portrait and landscape.” *Id.*, 3:42-44. “Landscape” is where “the display is oriented such that the width of the display is greater than the height of the display.” *Id.*, 3:44-51. “Portrait” is where “the display is oriented such that the width of the display is less than the height of the display.” *Id.*, 3:51-56.

151. The definitions provided in the '842 patent for “portrait” and “landscape” orientations are consistent with how those terms are typically used, that is, a POSITA generally would have understood a “landscape” orientation to be one where the width is greater than the height, and “portrait” to be one where the height is greater than the width.

152. Claim 4 refers to a “device” being in a landscape or portrait orientation, not a “display.” A POSITA would have understood that the same definitions and concepts would apply to determining the orientation (“portrait” or “landscape”) of a “device” as to a “display,” consistent with the ordinary meaning of those terms and how they are used elsewhere in the '842 patent.

153. Chin teaches configuring a device to be operated in “various orientations.” Ex. 1004, [0041]. Among these various orientations, Chin discloses the device in a landscape orientation (*i.e.*, oriented such that the width of the device is greater than the height of the device) when the device is closed and configured to take a so-called “outward-facing image” (and thus meeting the limitations of claims 2 and 3, from which claim 4 depends). Figure 6, as annotated, illustrates such a landscape orientation:

FIG. 6



Ex. 1004, Fig. 6 (with annotations showing a landscape orientation with width greater than height).

E. Claim 5

1. Claim [5]: The method of claim 4, wherein a lens is associated with either the first or second screen.

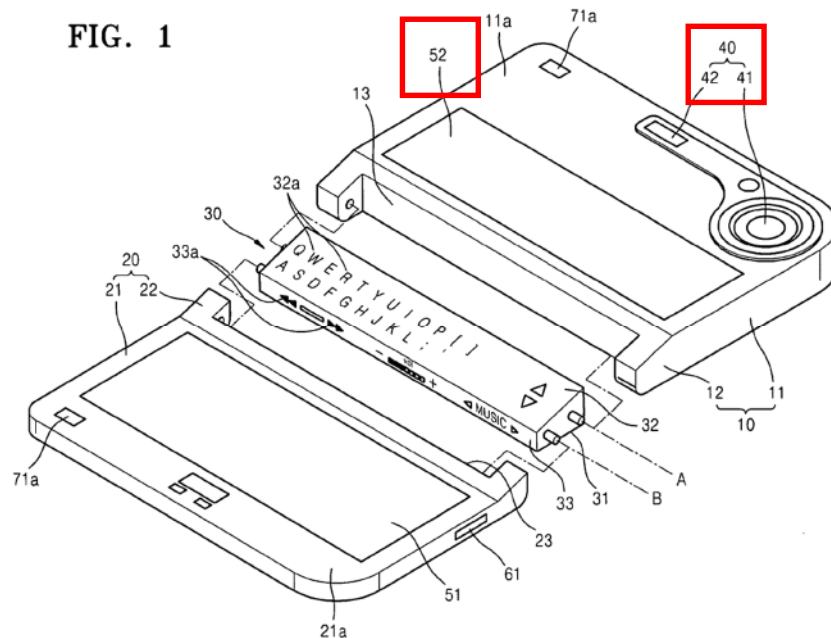
154. Claim 5 is disclosed by Chin.

155. The '842 patent discusses a lens “associated” with a screen in the following passage: “An example of a self-portrait configuration **1800** is as shown in FIG. 18. The device **100** configuration **1800** may provide a preview screen **1804**. To limit the amount of hardware provided with the device **100**, there may be a single lens or other hardware used to capture the image, as shown in FIGS. 1A-1J. As shown in FIG. 11, the lens **1136** is associated with the first screen **110**. Thus, to accomplish a self-portrait, the first screen **110** must face the user. This device orientation is in contrast to what is shown in FIGS. 14A through 16B where the lens faces away from the user to attain an outward facing image. Further, the device **100** may be in the closed state in landscape orientation such that the lens associated with the screen is pointing towards the user.” *See* Ex. 1001, 34:40-52.

156. Consistent with the disclosures in the '842 patent, Chin teaches configuring a device such that, the lens **41** of the digital camera **40** is associated with a screen, the second display unit **52**, in that it is on the same surface and next to display unit **52**.

157. The lens of the camera also is associated with the second display unit in that “[t]he second display unit **52** may cooperate with the camera **40** for facilitating a preview function in which images are displayed before the images are captured by the digital camera **40**, particularly when a user uses a self-photographing function in which the user photographs him or herself by using the digital camera **40**.” Ex. 1004, [0046].

158. Figure 1 of Chin illustrates how the camera lens **41** is associated with the second display unit **52**:



Ex. 1004, Fig. 1.

F. Claim 6

- 1. Claim [6]: The method of claim 5, wherein, in the image capture mode, the device does not display an image on a first screen and displays a preview on a second screen.**

159. Claim 6 is disclosed by Chin.

160. In the “image capture mode” described above (the outward-facing mode), the device “displays images on a first display unit . . . so that the first display unit can perform a preview function.” Ex. 1004, [0079]. Thus, the device “displays a preview on a second screen” as claimed, with the “first display unit” serving as the claimed “second screen.”

161. Chin does not, on the other hand, describe displaying an image on the other display unit, the “second display unit,” which serves as the claimed “first screen.”

162. A POSITA would have understood that absent any indication to the contrary, “the device does not display an image on a first screen.” Chin expressly identifies which display unit, first or second, displays a preview image in the first or second image capture modes (self-photographing or “outward-facing”). Ex. 1004, [0078]-[0079]. A POSITA would thus have understood that the other display unit, the one not displaying a preview, is *not* displaying an image.

G. Claim 7

- 1. Claim [7]: The method of claim 5, wherein the first screen is disabled and does not receive user interface input while in the image capture mode.**

163. Claim 7 is disclosed by Chin.

164. As explained above with respect to claim 6, the “second display unit” in the outward-facing mode (which serves as the claimed “first screen”) does not display an image; nor does Chin describe that screen as being enabled or receiving any user interface input. Ex. 1004, [0077]. Rather, Chin specifies which image is displaying an image and interfacing with the user, and thus enabled, in each of the two modes. Ex. 1004, [0078], [0079]. A POSITA thus would have understood that the other display unit is disabled, and does not receive user interface input.

H. Claim 10

- 1. Claim [10]: The method of claim 5, wherein in one or more controls are presented on a second screen.**

165. Claim 10 is disclosed by Chin.

166. Chin discloses that the display units can be a liquid crystal display apparatus. Ex. 1004, [0045]-[0046]. Chin further teaches that liquid crystal displays can be of a “touch screen-type.” *Id.*, [0061]. Accordingly, a POSITA would have understood that one or more controls are presented on the second screen. A POSITA would have understood, first, that a “touch screen” is used to receive inputs from a user, in the form of touches, to control a device. Chin further teaches that the device

is controlled by the “controlling unit **70**” via “sending and receiving various electronic signals,” in particular, the controlling unit “receives signals by a user manipulating the buttons,” that is, the buttons are “controls.” Ex. 1004, [0051]-[0052]. And, because the buttons can be embodied in a touch-screen liquid crystal display (Ex. 1004, [0061]), a POSITA would have understood that Chin discloses the “controls” (buttons embodied in the liquid crystal display) presented on a second screen.

I. Claim 11

1. Claim [11P]: A device, comprising:

167. If the preamble is limiting, Chin discloses this limitation.

168. Chin discloses “a portable information terminal with two panels that are each hingably coupled with a connecting unit for moving the panels between first and second folded states.” Ex. 1004, ¶ [0003].

169. A POSITA would have understood such a “portable information terminal” to be a “device.”

2. Claim [11A]: a first screen, the first screen including a first gesture capture region;

170. Chin discloses this limitation.

171. The portable information terminal taught by Chin includes a “first display unit **51**” that can be a liquid crystal display apparatus. Ex. 1004, Fig.1, [0045]:

FIG. 1

Chin further teaches that liquid crystal displays can be of a “touch screen-type.” *Id.*, [0061].

172. The '842 patent describes “gestures” and “gesture capture.” It describes a “gesture” as “a user action that expresses an intended idea, action, meaning, result, and/or outcome.” Ex. 1001, 3:63-64. The '842 patent describe “gesture capture” as “a sense or otherwise a detection of an instance and/or type of user gesture.” Ex. 1001, 4:10-11.

173. The '842 patent further describes how touch screen liquid crystal displays operate. Ex. 1001, 10:67-11:11 (“liquid crystal display devices ... are capable of providing visual output to a user, and a capacitive input matrix over those regions of the touch sensitive screens ... that are capable of receiving input ... operation of the touch sensitive screens ... including input (touch sensing) and

output (display) functions”) and 3:6-9 (“the screen can enable the user to interact with the device by touching areas ... and provides information to a user through a display”). *See also* Ex. 1001, 19:7-30, which explains that touch-sensitive elements can coexist with pixels in a touch-sensitive display, and 3:9-27, which discusses capacitive layers for touch sensing, which are separate from the pixels within the same display. A POSITA would have understood that, as the ’842 patent itself describes, a touch screen liquid crystal display would include elements that capture gestures, e.g., capacitive layers.

174. A POSITA would thus understand that Chin discloses a touch screen display **51** and that display would include regions capable of receiving an input from a user (e.g., capacitive layers), which would be “gesture capture regions.”

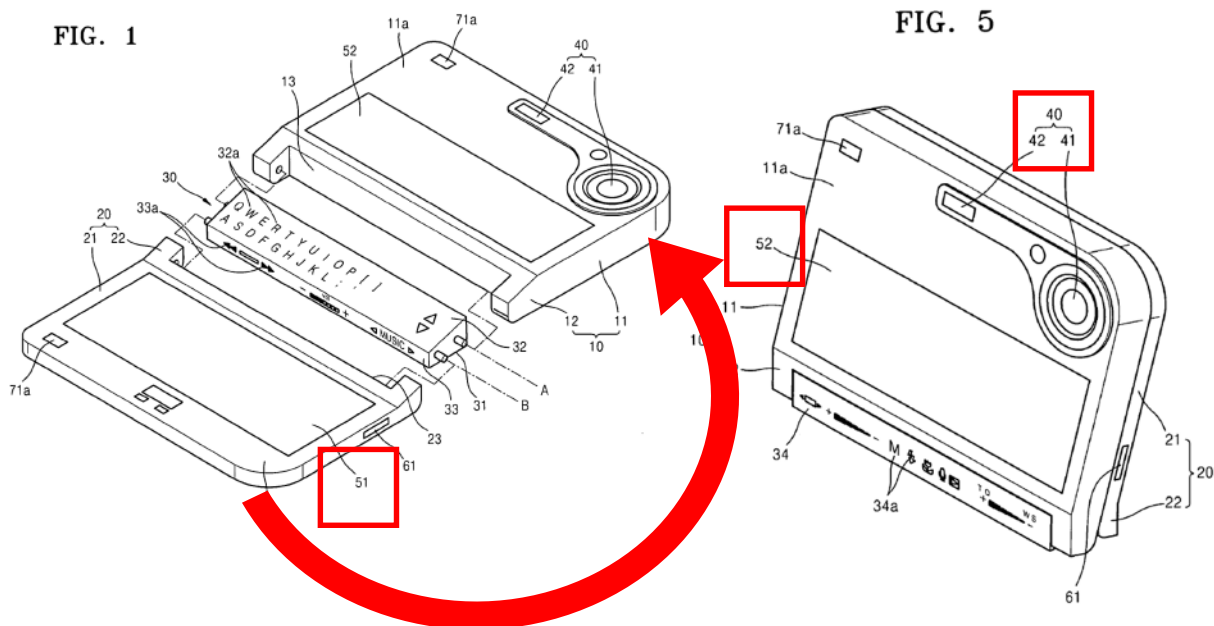
3. Claim [11B]: a second screen, wherein the second screen faces an opposite direction from the first screen when the device is closed, and wherein an image capture lens is associated with the second screen;

175. Chin discloses this limitation.

176. Chin teaches a device configured with a second screen (“second display unit **52**”) and an image capture lens **41** of the digital camera **40** associated with that screen. *Supra* Sections X.A.2 (claim [1A]), X.B (claim [2]), X.E (claim [5]).

177. When the Chin device is rotated into a closed “second position”—illustrated in Figure 5—the first display unit **51** faces an opposite direction as the second display unit **52**. Annotated Figures 1 and 6, below, show the relative locations

of the first and second display units on the device in an open state (Figure 1) and in a closed second position (Figure 5), after the bottom panel is rotated closed:



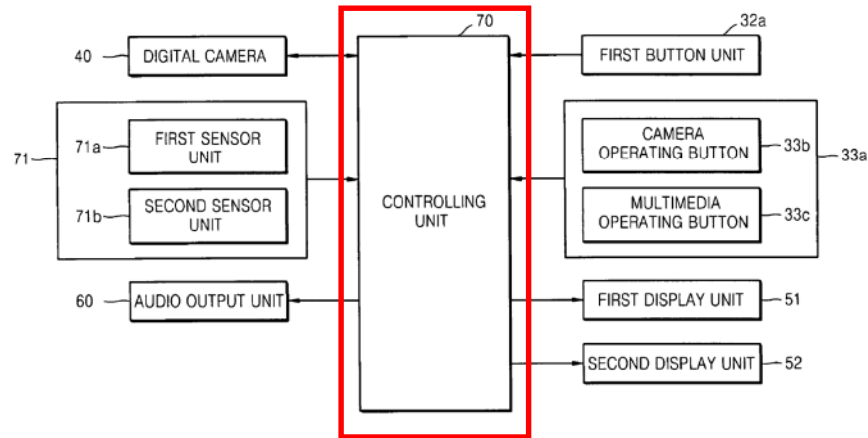
Ex. 1004, Figs. 1, 5, 6, [0032], [0056], [0063], [0065]. Chin’s devices also can be rotated into a closed “first position,” in which the first and second display units are facing each other, and thus also faced in opposite directions. *Id.*, Fig. 3, [0015], [0057].

4. Claim [11C]: a memory;

178. Chin discloses this limitation.

179. Chin’s device includes controlling unit **70**, which “may be embodied as a semiconductor chip (not shown) including controlling software, or a circuit board including the semiconductor chip.” Ex. 1004, [0052], Figure 2:

FIG. 2



180. A POSITA would have understood the disclosed Chin device to be a computer. In order to carry out the capabilities disclosed, the device requires a processor to execute instructions and memory, including memory to store the executed instructions and for use in conjunction with the processor to execute the instructions.

181. Though Chin does not explicitly disclose a “memory” phrased as such, it does disclose a controlling unit **70**. A POSITA would have understood that such a controlling unit necessarily would include a memory to store the disclosed controlling software.

5. Claim [11D]: a processor in communication with the memory, the first screen, and the second screen, the processor operable to:

182. Chin discloses this limitation.

183. Chin discloses “controlling unit **70**” for “controlling various electronic apparatuses by sending and receiving electric controlling signals,” which is or

includes a “semiconductor chip” including “controlling *software*.” Ex. 1004, [0052]. Chin explains in some detail how the controlling unit sends and receives signals to and from other components of the device and controls the device’s operations. Some of these disclosures are reproduced below for ease of reference:

184. “The controlling unit **70** is electrically connected to a first button unit **32a** and a second button unit **33a**, so that the controlling unit **70** receives signals by a user manipulating the buttons. As shown, the second button unit **33a** includes a camera operating button **33b** and a multimedia operating button **33c** so that the user can operate a camera or multimedia player by using the second button unit **33a**.” *Id.*, [0053]

185. “Also, the controlling unit **70** is connected to a sensor unit **71** so as to receive signals from the first sensor unit **71a** and a second sensor unit **71b**. The controlling unit **70** detects positions of the first panel **10** and the second panel **20** through the sensor unit **71** so as to control (e.g., enable or disable) the first button unit **32a**, the second button unit **33a**, the digital camera **40**, the first and second display units **51** and **52**, and the like.” *Id.*, [0054]

186. “The controlling unit **70** is connected to an audio output unit **60** so as to control audio (sound) output. The controlling unit **70** may also control the first and second display units **51** and **52** for displaying images or text.” *Id.*, [0055].

187. “As illustrated in FIG. 1, the portable information terminal includes a first sensor unit **71a** which detects whether the first panel **10** and the second panel **20** are in the first position or not. If the controlling unit **70** senses that the portable information terminal is in the first position by using the first sensor unit **71a**, the controlling unit **70** can activate a multimedia operating button **33c** of the second button unit **33a**.” *Id.*, [0060]

188. “The second button unit **33a** includes a plurality of push-type buttons (e.g., microswitches, snap domes, etc.) which may include a light-emitting diode (LED). As shown in FIG. 2, some of the buttons of button unit **33a** may have a function of the camera operating button **33b** and some may have a function of the multimedia operating button **33c**. Accordingly, the second button unit **33a** receives signals from the controlling unit **70** (relative to the sensor unit **71**) so as to activate the camera operating button **33b** or the multimedia operating button **33c**. The structure of the second button unit **33a** is not limited to the above structure, and may be embodied by using different components such as a touch screen-type liquid crystal display.” *Id.*, [0061].

189. “The portable information terminal may include a second sensor unit **71b** which detects whether the first panel **10** and the second panel **20** are in the second position or not (see FIG. 3). If the controlling unit **70** senses that the portable information terminal is in the second position by using the second sensor unit **71b**,

the controlling unit **70** can activate the camera operating button **33b** of the second button unit **33a**.” *Id.*, [0067]

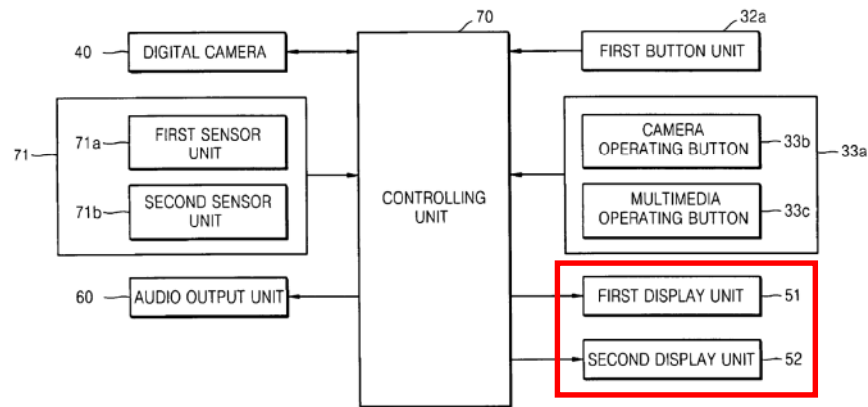
190. “The controlling unit **70** (FIG. 2) of the portable information terminal determines, relative to the sensor unit **71**, whether the first panel and the second panel are in a first position or in a second position, and activates a multimedia operating button or a camera operating button of a second button unit according to the determination result.” *Id.*, [0075].

191. As discussed in Section X.I.4 (claim [11C]), because the Chin device is a computer, a POSITA would have understood that the disclosed controlling unit **70**—a chip using software to control a portable electronic device—necessarily would include a processor.

192. A POSITA further would have understood that the processor and memory, both components of controlling unit **70**, would be in communication with each other because in order to work together in computers such as the Chin device, the processor and memory must be able to communicate.

193. Chin also teaches the controlling unit **70**—containing the processor—communicates with a first and second screen, represented by the first display unit **51** and second display unit **52**, as illustrated in Figure 2. Ex. 1004, [0054]:

FIG. 2



6. Claim [11E]: receive user interface input to execute an image capture function;

194. Chin discloses this limitation.

195. The limitations of claim [11E] are the same as or very similar to the limitations of claim [1B]. Thus, Chin discloses the limitations of claim [11E] for the same reasons it discloses the limitations of claim [1B].

196. Below is a table comparing the limitations of claim [11E] to those of claim [1B], showing the similarities between the language of the claims.

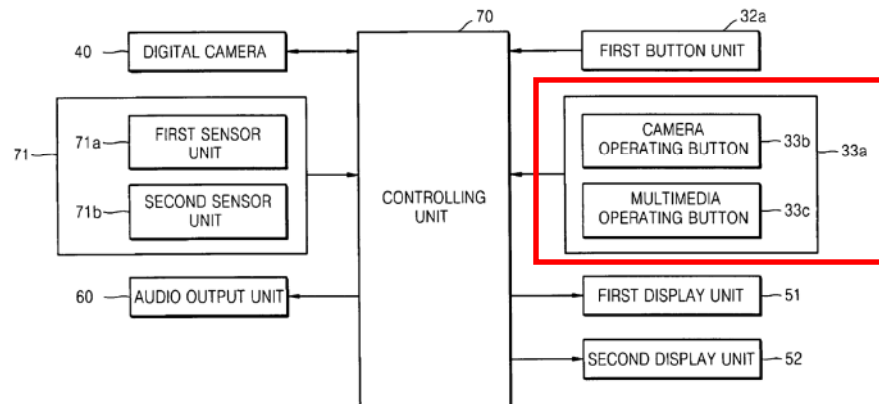
Claim [11E]	Claim [1B]
receive user interface input to execute an image capture function;	receiving user interface input to execute an image capture function;

The only difference between the claims is “receive” versus “receiving,” which is only a grammatical, and not a substantive, difference.

197. As discussed in Section X.I.5, Chin discloses a processor.

198. Figure 2 further illustrates how Chin teaches claim [11E]:

FIG. 2



Ex. 1004, Fig. 2. The “controlling unit **70** receives signals by a user manipulating the buttons” including “the second button unit **33a** [that] includes a camera operating button **33b**.” *Id.*, [0052], [0053].

7. Claim [11F]: determine one or more of an image capture function configuration, a device orientation, and a device state:

199. Chin discloses this limitation.

200. The limitations of claim [11F] are the same as or very similar to the limitations of claim [1C]. Thus, Chin discloses the limitations of claim [11F] for the same reasons it discloses the limitations of claim [1C].

201. Below is a table comparing the limitations of claim [11F] to those of claim [1C], showing the similarities between the language of the claims.

Claim [11F]	Claim [1C]
determine one or more of an image capture function configuration, a device orientation, and a device state:	determining one or more of an image capture function configuration, a device orientation, and a device state; and

202. The only difference between the claims is “determine” versus “determining,” which is only a grammatical, and not a substantive, difference.

203. As discussed in Section X.I.5, Chin discloses a processor.

204. Chin further discloses that the “processor” (part of “controlling unit 70”) is operable to determine one or more of an image capture function configuration, a device orientation, and a device state. As noted above, Chin describes the “determining” with reference to Figure 9. Chin also explains that the steps of Figure 9 are performed under the control of “controlling unit 70”: “The controlling unit 70 (FIG. 2) of the portable information terminal **determines**, relative to the sensor unit 71, **whether the first panel and the second panel are in a first position or in a second position**, and activates a multimedia operating button or a camera operating button of a second button unit **according to the determination result**.” Ex. 1004, [0075]; *see also* [0052]-[0054], [0067].

8. Claim [11G]: based on one or more of the image capture function configuration, the device orientation, and the device state, enter one of one or more image capture modes,

205. Chin discloses this limitation.

206. The limitations of claim [11G] are the same as or very similar to the limitations of claim [1D]. Thus, Chin discloses the limitations of claim [11G] for the same reasons it discloses the limitations of claim [1D].

207. Below is a table comparing the limitations of claim [11G] to those of claim [1D], showing the similarities between the language of the claims.

Claim [11G]	Claim [1D]
based on one or more of the image capture function configuration, the device orientation, and the device state, enter one of one or more image capture modes,	based on one or more of the image capture function configuration, the device orientation, and the device state, entering one of one or more image capture modes

208. The only difference between the claims is “enter” versus “entering,” which is only a grammatical, and not a substantive, difference.

209. As discussed in Section X.I.5, Chin discloses a processor.

210. Chin further discloses that the “processor” (part of “controlling unit 70”) is operable to perform this action; as explained above, control of the method in Figure 9 and of the two display units is performed by the controlling unit 70. Ex. 1004, [0052]-[0054], [0067], [0075], [0078], [0079]. A POSITA would have understood any similar evaluation or determination of system state based on either

signals received from various components of the system or the state of the system is functionality necessarily performed by the processor in a (computer) system like that disclosed in Chin.

9. Claim [11H]: wherein in each image capture mode a display on the first or second screen is different.

211. Chin discloses this limitation.

212. The limitations of claim [11H] are the same as the limitations of claim [1E]. Thus, Chin discloses the limitations of claim [11H] for the same reasons it discloses the limitations of claim [1E].

213. Below is a table comparing the limitations of claim [11H] to those of claim [1E], showing the similarities between the language of the claims.

Claim [11H]	Claim [1E]
wherein in each image capture mode a display on the first or second screen is different	wherein in each image capture mode a display on the first or second screen is different

J. Claim 12

1. Claim [12]: The device of claim 11, wherein the image capture function is configured to capture an outward-facing image, wherein the device is in a closed state, and wherein the device is in a landscape orientation.

214. Claim 12 is disclosed by Chin.

215. This claim requires configuring a device in three ways: (1) the image capture function is configured to capture an outward-facing image, (2) the device is

in a closed state, and (3) the device is in a landscape orientation. I understand the claim requires all three of these, but even if only some subset of these three are required, my conclusion that Chin teaches this limitation would not change.

216. The first required configuration (the image capture function is configured to capture an outward-facing image) is the same as the limitations of claim [2] and Chin discloses these limitations for the same reasons. *See* Section X.B.1.

217. Below is a table comparing these limitations of claim [12] to those of claim [2], showing the similarities between the language of the claims.

Claim [12]	Claim [2]
The device of claim 11, wherein the image capture function is configured to capture an outward-facing image, wherein the device is in a closed state, and wherein the device is in a landscape orientation	The method of claim 1, wherein the image capture function is configured to capture an outward-facing image

218. The second required configuration (the device is in a closed state) is the same as the limitations of claim [3] and Chin discloses these limitations for the same reasons. *See* Section X.C.1.

219. Below is a table comparing these limitations of claim [12] to those of claim [3], showing the similarities between the language of the claims.

Claim [12]	Claim [3]
The device of claim 11, wherein the image capture function is configured to capture an outward-facing image, wherein the device is in a closed state, and wherein the device is in a landscape orientation	The method of claim 2, wherein the device is in a closed state.

220. The third required configuration (the device is in a landscape orientation) is the same as the limitations of claim [4] and Chin discloses these limitations for the same reasons. *See* Section X.D.1.

221. Below is a table comparing these limitations of claim [12] to those of claim [4], showing the similarities between the language of the claims.

Claim [12]	Claim [4]
The device of claim 11, wherein the image capture function is configured to capture an outward-facing image, wherein the device is in a closed state, and wherein the device is in a landscape orientation	The method of claim 3, wherein the device is in a landscape or portrait orientation

K. Claim 13

- 1. Claim [13]: The device of claim 11, wherein the image capture mode is one of a full and disabled mode, a full and static mode, or a full and live mode, wherein in the full and disabled mode, the first screen displays a preview of an image to be captured and the second screen is disabled, wherein in the full and static mode, the first screen displays a preview of an image to be captured and the second screen is displays a static image, and wherein in the full and live mode, the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured.**

222. Claim 13 is disclosed by Chin.

223. Claim 13 recites three alternative options for the “image capture mode”—(1) a full and disabled mode, (2) a full and static mode, or (3) a full and live mode.

224. The claim specifies what each mode requires. In the full and disabled mode, “the first screen displays a preview of an image to be captured and the second screen is disabled.” In the full and static mode, “the first screen displays a preview of an image to be captured and the second screen is displays a static image.” And in the full and live mode, “the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured.”

225. Chin discloses at least the “a full and disabled mode,” and thus meets the claim.

226. As explained above with respect to Claims 6 and 7, in Chin’s outward-facing mode, “the first display unit can perform a preview function,” displaying a preview of an image to be captured, and the second display unit displays nothing and is disabled. *Supra* Sections X.F.1 and X.G.1.

L. Claim 16

227. Chin discloses all the limitations of claim 11, as set forth below, and thus anticipates claim 16.

1. Claim [16P]: A non-transitory computer readable medium having stored thereon computer-executable instructions, the computer executable instructions causing a processor of a device to execute a method for providing a user interface, the computer-executable instructions comprising:

228. If the preamble is limiting, Chin discloses this limitation. Claim 16 is written in a “computer-readable medium” format and the substance of Claim 16 largely tracks that of other claims of the ’842 patent.

229. Chin discloses a “non-transitory computer readable medium” (a memory, part of “controlling unit 70”) “having stored thereon computer-executable instructions” (the “controlling software”) and a “processor” (part of “controlling unit 70”) for the reasons explained above as to claim elements 11[C] and 11[D]. *Supra* Section X.I.4 and X.I.5.

230. Software is a set of instructions that tell a computer’s processor to perform a specific set of tasks. Thus, no matter the particular form of the “controlling software,” it would comprise “instructions.” These instructions would cause the processor to execute a method for providing the method carried out by the

instructions set forth in the rest of claim 16. A POSITA would have understood that the memory storing controlling software in Chin's device must be a non-transitory computer readable medium – e.g., because Chin's device is portable.

2. Claim [16A]: instructions to receive user interface input to execute an image capture function;

231. Chin discloses this limitation for the reasons explained as to claim limitations [1B] and [11E]. *Supra* Sections X.A.3 and X.I.6.

3. Claim [16B]: instructions to determine one or more of an image capture function configuration, a device orientation, and a device state, wherein the device has at least first and second screens, wherein the device is in a closed state, wherein, in the closed state, the first and second screens face opposite directions, wherein the image capture function is configured to capture an outward-facing image, wherein the device is in a landscape orientation, and wherein an image capture lens is associated with the second screen;

232. Chin discloses this limitation for the reasons explained as to claim limitations [1A], [1B], [2], [3], [4], [5], [11A], and [11B]. *Supra* Sections X.A.2, X.A.3, X.B.1, X.C.1, X.D.1, X.E.1, X.I.2, and X.I.3.

4. Claim [16C]: based on one or more of the image capture function configuration, the device orientation, and the device state, instructions to enter one of one or more image capture modes;

233. Chin discloses this limitation for the reasons explained as to claim limitations [1D] and [11G]. *Supra* Sections X.A.5 and X.I.8.

5. **Claim [16D]: wherein in each image capture mode a display on the first or second screen is different;**

234. Chin discloses this limitation for the reasons explained as to claim limitations [1E] and [11H]. *Supra* Sections X.A.6 and X.I.9.

6. **Claim [16E]: wherein the image capture mode is one of a full and disabled mode, a full and static mode, or a full and live mode.**

235. Chin discloses this limitation for the reasons explained as to claim [13]. *Supra* Section X.K.1.

M. Claim 17

1. **Claim [17]: The non-transitory computer readable medium of claim 16, wherein in the full and disabled mode, the first screen displays a first preview of an image to be captured and the second screen is disabled, wherein in the full and static mode, the first screen displays a first preview of an image to be captured and the second screen displays a static image, and wherein in the full and live mode, the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured.**

236. Claim 17 is disclosed by Chin.

237. The limitations of claim 17 are the same or very similar to the limitations of claim 13. Thus, Chin discloses the limitations of claim [17] for the same reasons it discloses the limitations of claim [13].

238. Below are tables comparing the limitation of claim 17 to those of claim 13, showing the similarities between the language of the claims.

Claim 17	Claim 13
The non-transitory computer readable medium of claim 16, wherein in the full and disabled mode, the first screen displays a first preview of an image to be captured and the second screen is disabled, wherein in the full and static mode, the first screen displays a first preview of an image to be captured and the second screen is displays a static image, and wherein in the full and live mode, the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured.	The device of claim 11, wherein the image capture mode is one of a full and disabled mode, a full and static mode, or a full and live mode, wherein in the full and disabled mode, the first screen displays a preview of an image to be captured and the second screen is disabled, wherein in the full and static mode, the first screen displays a preview of an image to be captured and the second screen is displays a static image, and wherein in the full and live mode, the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured.

N. Claim 19

- 1. Claim [19]: The non-transitory computer readable medium of claim 17, wherein user interface input for the second screen is disabled.**

239. Claim 19 is disclosed by Chin.

240. The limitations of claim 19 are the same or very similar to the limitations of claims 7 and 13. Thus, Chin discloses the limitations of claim [19] for the same reasons it discloses the limitations of claims [7] and [13].

241. Below are tables comparing the limitation of claim 19 to those of claims 7 and 13, showing the similarities between the language of the claims.

Claim 19	Claim 7
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The non-transitory computer readable medium of claim 17, wherein user interface input for the second screen is disabled.	The method of claim 5, wherein the first screen is disabled and does not receive user interface input while in the image capture mode.
	Claim 13 The device of claim 11, wherein the image capture mode is one of a full and disabled mode, a full and static mode, or a full and live mode, wherein in the full and disabled mode, the first screen displays a preview of an image to be captured and the second screen is disabled, wherein in the full and static mode, the first screen displays a preview of an image to be captured and the second screen is displays a static image, and wherein in the full and live mode, the first screen displays a first preview of an image to be captured and the second screen displays a second preview of the image to be captured.

O. Claim 20

1. Claim [20]: The non-transitory computer readable medium of claim 16, wherein the image is one of a picture and a video.

242. Claim 20 is disclosed by Chin.

243. Chin teaches displaying the image to be captured where that image is a picture. Ex. 1004, [0046], [0068], [0078], [0079].

244. Chin also teaches displaying the image to be captured where that images is a video because Chin teaches showing a “preview.” *Id.* A POSITA would

have understood a preview to be a video because until the user executes the image capture function, what is being captured by the digital camera and lens is a moving image. Not until image capture occurs does the device capture a still picture.

XI. GROUND 2: THE CHALLENGED CLAIMS WOULD HAVE BEEN OBVIOUS IN VIEW OF CHIN

245. In my opinion, based on the following analysis, all of the Challenged Claims of the '842 patent would have been obvious to a POSITA in view of Chin.

246. According to the instructions I received in Section IV.C above regarding “analogous art,” in my opinion a POSITA would have considered Chin to be analogous art to the '842 patent. Both the '842 patent and Chin concern multi-display handheld computing devices. *Compare* Ex. 1001, 1:45-48 *with e.g.*, Ex. 1004, [0003].

247. The '842 patent and Chin each also address how to present information in different image capture modes in a rotatable or foldable handheld electronic device. *E.g.*, Ex. 1001, Abstract; Ex. 1004, [0012]-[0027].

248. Accordingly, a POSITA would have understood the devices and methods disclosed in the '842 patent to be similar to—and directed to similar problems as—Chin.

249. For the reasons discussed in more detail below, it is my opinion that to the extent there are any differences between the subject matter of the Challenged

Claims and the disclosures of Chin such that Chin does not anticipate any of the claims, those differences would have been minor and obvious to a POSITA.

250. **Differences in terminology.** Chin and the '842 patent, at times, use different technology to describe similar structures and methods. For example, a POSITA would have understood that Chin's "display unit" is not meaningfully distinct from the '842 patent's "screen," although the two documents use different terminology. Both are hardware apparatus that enable a device to render visual data. At minimum, a POSITA would have found it obvious to implement "screens" as taught in the '842 patent in view of Chin's disclosure of "display units." The same is true for other terminology differences between Chin and the '842 patent. The disclosures I cited from Chin with respect to each of the claim limitations, to the extent they use different terminology from Chin, are not meaningfully different from the subject matter of the Challenged Claims, and the subject matter of the Challenged Claims would have been, at minimum, obvious variants of Chin.

251. **Touch Screen.** In my opinion, a POSITA would not understand claim 1 of the '842 patent to require a touch screen. And, as explained above with respect to claim 1, limitation [1A] (Section X.A.2), claim 10 (Section X.H), and claim 11, limitation [11A] (Section X.I.2), Chin discloses a touch screen.

252. Nonetheless, a POSITA at least would have found it obvious to modify Chin's disclosure (to the extent such a modification was deemed necessary) to

implement Chin's display units using touch screens. Initially, Chin discloses that its "display units" (the claimed "screens") can be liquid crystal displays, and further, that liquid crystal displays **can be** of a "touch-screen type." Ex. 1004, [0061]. From this disclosure alone, a POSITA would have been motivated to implement the display units using touch screens, because there is an express suggestion for a liquid crystal display to be a touch screen type.

253. A POSITA would have known that, even by 2011, the '842 patent's earliest priority date, it was well known in the art to use touch screens as a user interface for portable electronic devices, including using touch screen input to take a picture. Famously, the original iPhone launched in 2007 with a full touchscreen interface and a camera. Even the '842 patent acknowledges that "[a] substantial number of handheld computing devices, such as cellular phones, tablets, and E-Readers, make use of a touch screen display not only to deliver display information to the user but also to receive inputs from user interface commands." Ex. 1001, 1:15-19.

254. Several other references taught this functionality as well. One example is U.S. Patent No. 7,471,890 to Lee, which discloses: "the user can obtain the still image of the subject by pressing an image capture button of the mobile terminal, or alternatively, the user can obtain the still image of the subject by pressing a touch screen of the second display unit." Ex. 1009, 5:15-30. As another example, U.S.

Patent Application Publication No. 2011/0193806 A1 to Kim discloses “touch panel settings” including a “display unit” that “display[s] a control key map that includes various menu items for camera control” including “shutter control, consecutive shooting, and the like.” Ex. 1010, [0068]-[0069]. As another example, U.S. Patent Application Publication 2012/0139815 A1 to Aono discloses that “shooting [the camera] may be executed at the time of touching [] the touch sensor panel.” Ex. 1006, [0235]. A POSITA would have been motivated to add touch screen functionality to Chin (and in particular, the functionality to control the camera and take an image), to the extent any modification were deemed necessary, as a known technique to improve Chin’s device by adding another input option that some users may have deemed desirable. Given the well-known and understood nature of this functionality as exemplified by the references discussed immediately above, a POSITA would have reasonably expected success in doing so as the modification would have just required programming Chin’s device within the skill of a POSITA.

255. For the same reasons, if Chin’s disclosure were interpreted as not teaching the “one or more controls [] presented on a second screen” limitation of claim 10, or the “gesture capture region” limitation of claim 11, those too would have at least been obvious to a POSITA in view of Chin.

256. ***Different displays in different image capture modes.*** At minimum it would have been obvious to a POSITA, to the extent deemed not disclosed by Chin,

to modify Chin’s disclosure such that “wherein in each image capture mode a display on the first or second screen is different,” as in claim limitations [1E], [11H], and [16D], in view of the disclosure cited above in Sections X.A.6, X.I.9, and X.L.6, and for the reasons further discussed below.

257. Chin teaches that images are displayed on either the first or second screen to perform a preview function, depending on the image capture mode. Ex. 1004, Fig. 9, [0078]-[0079]. Because Chin specifies that the preview is shown on one screen or the other, and not on both screens in both modes, a POSITA at least would have found it obvious that the display on each of the screens changes between modes. Indeed, a POSITA would have understood that the screen *not* described as showing the preview would have one of two states: either on or off. Accordingly, a POSITA obviously would have had a design choice between those two states when designing a device according to Chin’s teachings.

258. And, among those two options, a POSITA in or around 2011 would have been motivated to turn off or disable a screen that is not facing the user because doing so would save power. In or around 2011, battery capacity was limited and turning off power to one screen in a multi-screen device was a known design option and well within the ability of a POSITA. And this would have made intuitive sense to a POSITA: displaying a preview of the image is for the benefit of the user taking the photo. Because the “outward-facing image” is captured by a lens on the side of

the device *opposite* the user, and there is already a “preview on a second screen,” showing a preview on the “first screen” where the user cannot see it would not have been desirable or necessary in many contexts, and thus not worth the tradeoff of the additional power consumption. A POSITA also would have been motivated to select the option of disabling the screen not facing the user because the user may not want the screen to be outwardly visible for privacy reasons and would want to avoid inadvertent inputs to the other touch screen.

259. For the same reasons, the limitations of claims 6, 7, 13, [16E], and 17 teaching disabling or not displaying an image on a screen at least have been obvious to a POSITA in view of Chin

260. ***Outward-facing image.*** As to the limitations reciting an “image capture function is configured to capture an outward-facing image,” as in claim limitations [2], [12], and [16B], if not deemed disclosed by Chin (see Sections X.B.1, X.J.1, and X.L.3) then at minimum, this limitation would have been obvious to a POSITA in view of Chin.

261. A POSITA would have understood these limitations could be met either by reconfiguring or reorienting Chin’s device, to the extent necessary, such that the camera was facing away from a user. This could be as simple as turning the device around in the user’s hand. Chin teaches that its disclosed devices can be used in “various orientations or configurations,” of which the specific examples are only

exemplary. Ex. 1004, [0041]. A POSITA would also have been motivated to do this because camera users typically desire to take photos facing away from them, and this functionality is ubiquitous.

262. **Memory and Processor.** At minimum, the “memory” and “processor” limitations, if not deemed to be disclosed by Chin, would have been obvious modification to Chin to a POSITA. Chin’s “present invention relates to a portable information terminal” “such as, for example cellular phones, portable multimedia players (PMPs), personal digital terminals (PDAs), notebook computers, tablet personal computers (PCs), and the like.” Ex. 1004, [0003]-[0005]. And, as cited in Sections X.I.4 and X.I.5, Chin discloses that its exemplary device includes “controlling unit 70, which “may be embodied as a semiconductor chip (not shown) including controlling software.” *Id.*, [0052]. A POSITA immediately would have understood this disclosure to at least suggest that the “portable information terminal” would have a memory and a processor. *Id.*

263. Despite the varying forms these devices take, a “controlling unit” of the type described in Chin would be understood by a POSITA to be a computer of one sort or another. Each necessarily would include one or more “memory” that stores instructions (*i.e.*, software applications) and one or more “processors” capable of executing those instructions. These instructions enable the device to perform operations, including image capture in different modes and display of images.

264. Furthermore, many prior art references describe the memories and processors in cell phones, PDAs, and other such devices operating in this manner. The following are some examples:

265. Kim (Ex. 1010) describes a “mobile terminal **100**” that includes “a storage unit **150**” and “a control unit **160**.” Ex. 1010, [0030]. The “storage unit” “stores programs such as an operating system to control the overall operation of the mobile terminal **100**.” *Id.*, [0036].

266. Kawasaki (Ex. 1011) discloses a “communication terminal” that includes “The control unit **10** includes, for example, a microprocessor, a ROM (Read Only Memory) **10a**, and a RAM (Random Access Memory) **10b**, and performs various types of control, according to control programs stored in the ROM **10a**, such as display control of images taken by the camera unit **22**. The control unit **10** follows the programs stored in the ROM **10a** to control images taken by the camera unit **22**, and controls display of images based on instructions from the user via the side key **14i** regarding taking images, (preparation instructions, still image taking instructions), and detection signals from the detection unit **16**.” Ex. 1011, [0082].

267. Park (Ex. 1012), discloses a “memory **160**” that “may store various programs for the operation of the controller **180**.” Ex. 1012, Fig. 1, [0067]. “The memory **160** may include at least one of a flash memory type storage medium, a hard disk type storage medium, a multimedia card micro type storage medium, a

card type memory (e.g., a secure digital (SD) or extreme digital (XD) memory), a random access memory (RAM), and a read-only memory (ROM).” *Id.*, [0068]. Park also teaches that “[t]he present disclosure can be realized as code that can be read by a processor (such as a mobile station modem (MSM)) included in a mobile terminal and that can be written on a computer-readable recording medium.” *Id.*, [0125].

268. U.S. Patent Application Publication No. 2010/0248788 to Yook (Ex. 1013) discloses a “mobile terminal 100” which can be, e.g., a PDA or smart phone, that includes a “storage unit **150**, and a control unit **160**.” Ex. 1013, [0025]. [0116]. “The mobile terminal **100** having the above configuration can activate a screen area management program stored in the storage unit **150** in response to a user request.” *Id.*, [0026]. The storage unit **150** can store an operating system and application programs. *Id.*, [0033]-[0034]. And, like Park, Yook discloses that “[t]he above-described methods according to the present invention can be realized in hardware or as software or computer code that can be stored in a recording medium.” *Id.*, [0117].

269. Indeed, a POSITA would have recognized that it would be difficult and impractical to implement the functionality disclosed in Chin *without* using a memory and a processor, and thus would have been motivated to do so and reasonably expected success in doing so.

270. For the same reasons, it would have at least been obvious to a POSITA, to the extent not expressly disclosed in Chin, to modify Chin to include the

“computer readable medium having stored thereon computer-executable instructions, the computer executable instructions causing a processor of a device to execute a method” as set forth in the body of the claim 16.

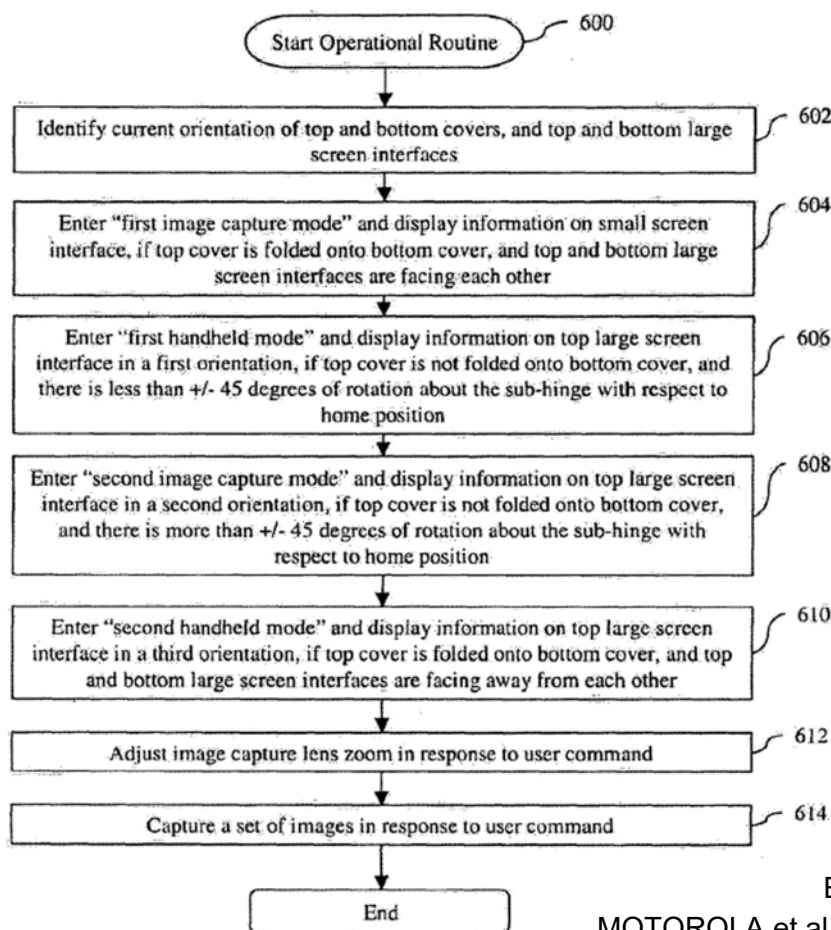
XII. GROUND 3: WHITEHORN ANTICIPATES CLAIMS 1-7 AND 11

271. In my opinion, based on the following analysis, at least claims 1-7 and 11 of the '842 patent are invalid as anticipated by Whitehorn.

A. Claim 1

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

272. If the preamble is limiting, Whitehorn discloses this limitation. Whitehorn discloses a method with the steps set forth in the following sections. Whitehorn illustrates an example method of controlling the disclosed device in Figure 6:



Ex. 1005, Fig. 6, [0016], [0021], [0026].

2. Claim [1A]: providing a device having at least first and second screens;

273. Whitehorn discloses this limitation.

274. Whitehorn discloses “permitting a *first large screen* interface to rotate about a first hinge axis with respect to a *second large screen* interface; capturing images aligned along the first hinge axis; and setting a mode in which the device operates in response to an orientation of the first large screen interface to a second large screen interface.” Ex. 1005, [0009].

275. Whitehorn also discloses a third screen, the “small screen interface **118**.” *Id.*, [0022]. Any two out of the two large screen interfaces, labeled as **124** and **128** in Whitehorn’s Figures, and the small screen interface **118**, meet the two claimed “screens.” *Id.*, [0023]-[0024].

3. Claim [1B]: receiving user interface input to execute an image capture function;

276. Whitehorn discloses this limitation.

277. Whitehorn discloses configuring a device to execute an image capture function. Specifically, Whitehorn discloses an image capture device **116**, which

“includes a light sensitive sensor for acquiring optical information, and one or more lenses for focusing optical light on the light sensitive device.” Ex. 1005, [0022].

278. Whitehorn also discloses “receiving user interface input” to operate the image capture device **116**. Specifically, Whitehorn discloses “a *shutter control 122* beneath the image capture device **116**.” *Id.*, [0023]. “[T]he *shutter control 122 instructs the device 102 to capture one or more images* (i.e. a still picture or a video clip) using the image capture device **116**.” *Id.*

279. Alternatively, the image capture device **116** can be operated using a touch-sensitive interface. Specifically, Whitehorn teaches receiving input via large screen interface **124** or touch sensitive pad **126**: “The bottom large screen interface **124** is at a minimum preferably capable of receiving input commands from users of the device **102** . . . The bottom large screen interface **124** preferably accepts a pen inputs, while user selections are made with the touch sensitive pad **126**.” Ex. 1005, [0023]. The top large screen interface **128** likewise “preferably can also accept user inputs.” *Id.*, [0024].

4. Claim [1C]: determining one or more of an image capture function configuration, a device orientation, and a device state; and

280. Whitehorn discloses this limitation.

281. I understand this limitation requires determining at least one of (1) an image capture function configuration, (2) a device orientation, and (3) a device state.”

282. Whitehorn at least discloses determining (2) a device orientation and (3) a device state.

283. Whitehorn’s Figure 6 “is a flowchart **600** of one embodiment of a method of operation for the device.” Ex. 1005, [0026]. “The method begins in step **602** where the device **102** identifies a current ***orientation*** of top and bottom covers **106** and **108**, and top and bottom large screen interfaces **128** and **124**.” *Id.*

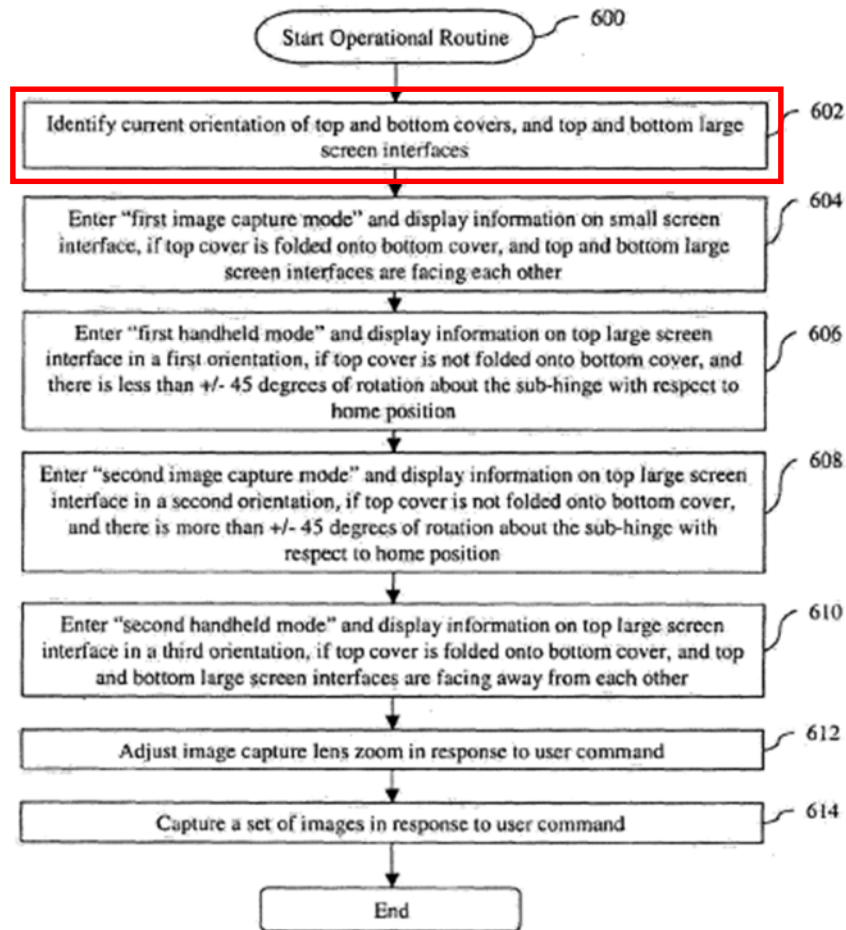


Fig. 6

284. Whitehorn teaches determining a device orientation. Whitehorn teaches that the two covers housing the two large screens can be rotated along two axes. “The device **102** includes a hinge **104** which permits a top cover **106** to rotate about a first axis (A) **107** with respect to a bottom cover **108**. The hinge **104** includes a first end **110**, and a second end **111** both affixed to the bottom cover **108**, and a middle portion **112** affixed to the top cover **106**. The middle portion **112** includes a sub-hinge **114**, which permits the top cover **106** to rotate about a second axis (B)

115 with respect to the bottom cover **108**. Those skilled in the art recognize that there are an *unlimited number of orientations* of the top cover **106** with respect to the bottom cover **108** about the hinge **104** and sub-hinge **114**.” Ex. 1005, [0020]. The orientations described can be illustrated with reference to Figure 5:

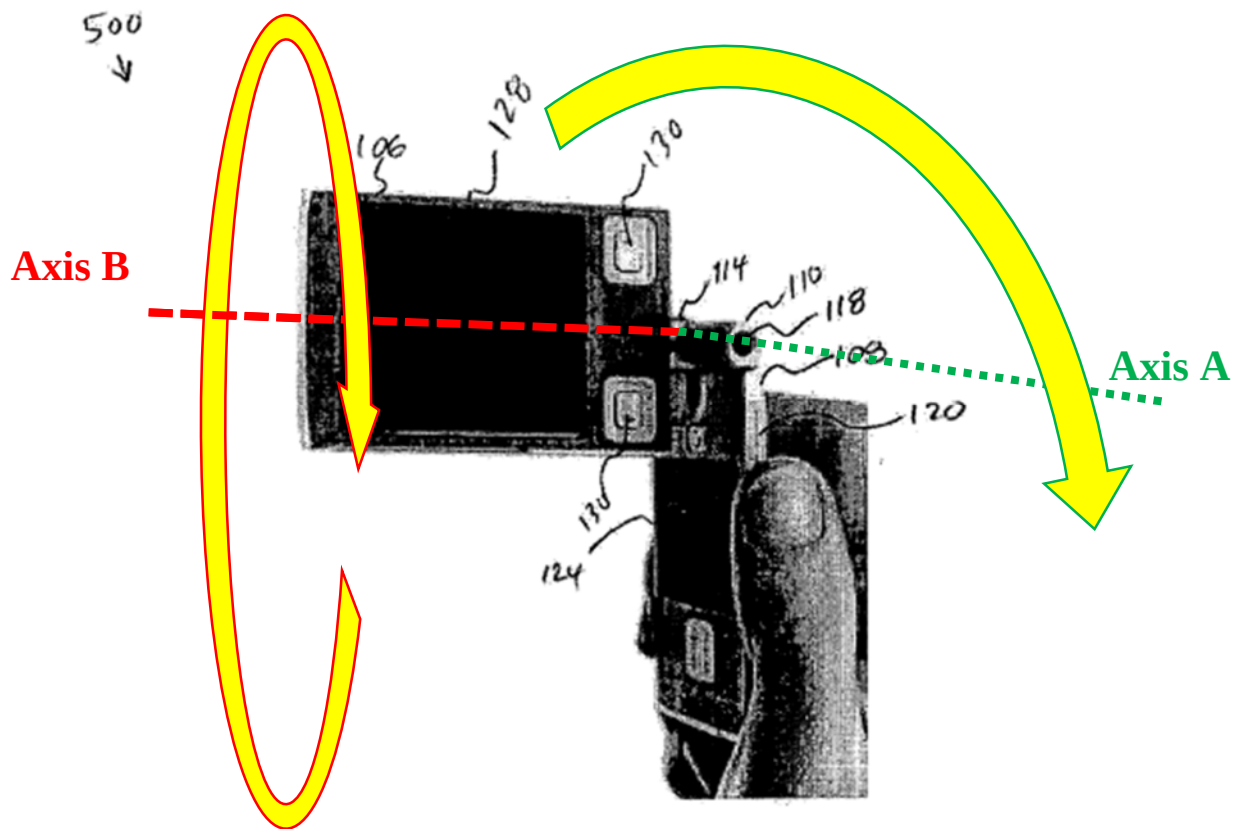


Fig. 5

Whitehorn describes rotation of the top cover **106** relative to the bottom cover **108** about Axis A via a hinge **104** (which is composed, in part by a first end **110**, visible in Figure 5). *See* Ex. 1005, [0020], Fig. 1 (showing Axis A **107** in line with hinge **104**). This is annotated with a green and yellow arrow. For clarity, the Axis A in the annotated Figure 5 can be understood to be collinear with the device's hinge, exiting from the small screen **118** and exiting the page towards the reader.

285. Whitehorn further describes rotation of the top cover **106** about Axis B via a sub-hinge **114** that is part of the middle portion **112** of hinge **104**. Axis B is orthogonal to Axis A. This is annotated with a red and yellow arrow. Whitehorn further teaches that the entire device, or components of the device, can have either a portrait or landscape orientation. For example, Whitehorn teaches that the device, in a “first handheld mode” “displays information on the top large screen interface **128** in a first (preferably portrait) orientation,” and in a “second image capture mode” “displays information on the top large screen interface **128** in a second (preferably landscape) orientation.” Ex. 1005, [0028]-[0029]. Whitehorn also depicts the device, e.g., in Figure 2, as being in a portrait orientation.

286. Whitehorn also teaches determining a device state. Specifically, Whitehorn teaches the device determining if it is in a particular physical configuration, such as open, closed, or other states. Whitehorn illustrates this in the flowchart shown in Figure 6:

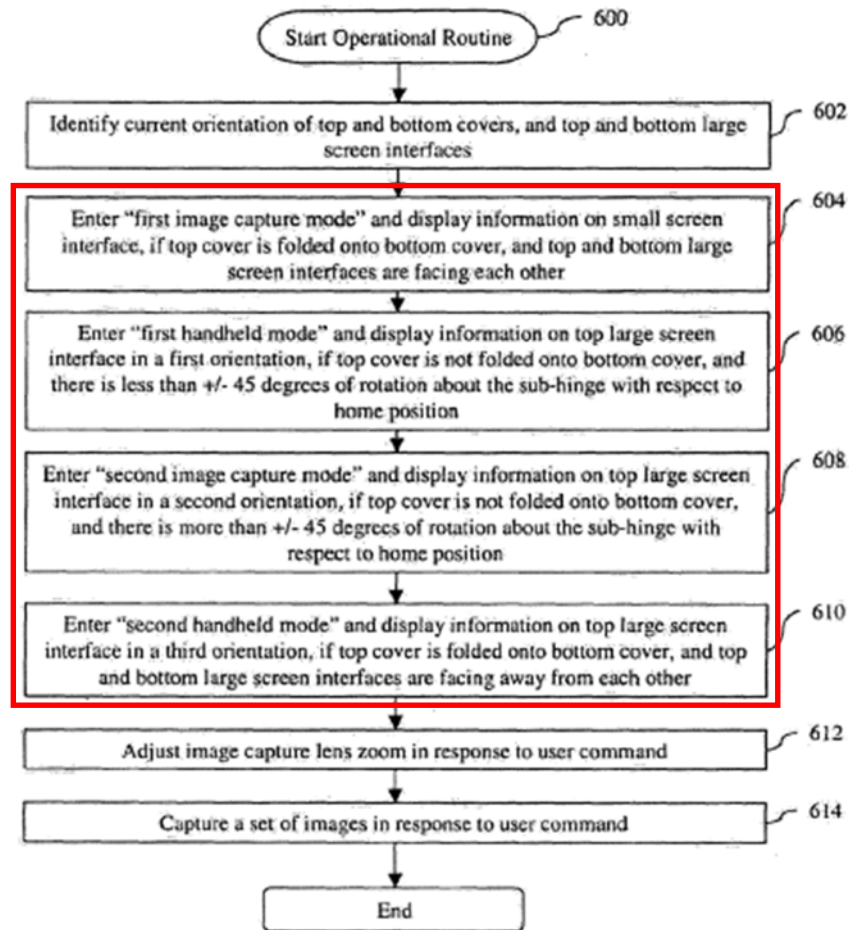


Fig. 6

287. Whitehorn teaches device states where, for example, the device is folded & closed (the top and bottom large screen interfaces **124** and **128** are facing each other) (see Ex. 1005, Fig. 1, [0027]), unfolded & open (see Ex. 1005, Figs. 2 and 5, [0028], [0029]), and folded & open (“the top cover **106** is folded onto the bottom cover **108**, and the top and bottom large screen interfaces **128** and **124** are facing away from each other”) (see Ex. 1005, [0030]).

5. **Claim [1D]: based on one or more of the image capture function configuration, the device orientation, and the device state, entering one of one or more image capture modes**

288. Whitehorn discloses this limitation.

289. This limitation requires determining at least one of (1) an image capture function configuration, (2) a device orientation, and (3) a device state.

290. As discussed in Section XII.A.4, Whitehorn teaches determining at least a device orientation and device state. It at least does this in Figure 6, at steps **602-610**. Whitehorn then teaches that the device enters a mode based on the device orientation and state (*i.e.*, based on the positioning and rotation of the components of the device, relative to one another). Some of these modes are image capture modes, *i.e.*, the “first image capture mode” and “second image capture mode” shown in Figure 6.

291. Whitehorn teaches that the device can automatically determine which mode to enter is made automatically depending on the device orientation and device state. Ex. 1005, [0021] (“Rotation of the top and bottom covers **106** and **108** with respect to each other *automatically* determines a mode in which the device **102** operates.”).

292. For example, in the Figure 6 method, Whitehorn teaches that the device enters a “first image capture mode” “if the top cover **106** is folded onto bottom cover

108, and top and bottom large screen interfaces **128** and **124** are facing each other.”

Ex. 1005, ¶ [0027].

293. Whitehorn also teaches that the device enters a “second image capture mode” “if top cover **106** is not folded onto bottom cover **108**, and there is more than ± 45 degrees of rotation about the sub-hinge **114** with respect to the home position.” Ex. 1005, [0029].

294. A POSITA would have understood that the Whitehorn device enters the two image capture modes described in Figure 6 “based on” the device orientation and device state. This is clear from Figure 6 and its accompanying description. The device enters these modes “*if*” the device is determined to have a particular orientation and state. The fact that the device “enter[s]” the image capture modes “if” certain orientations and states are determined by the device would have made clear to a POSITA that entering the image capture modes is “based on” the device orientation and device state.

6. Claim [1E]: wherein in each image capture mode a display on the first or second screen is different.

295. Whitehorn discloses this limitation.

296. Whitehorn teaches a first and second image capture mode in the embodiment described in Figure 6. In each of these two image capture modes, a display on at least the top large screen interface **128** (the “first screen” or “second screen”) is different.

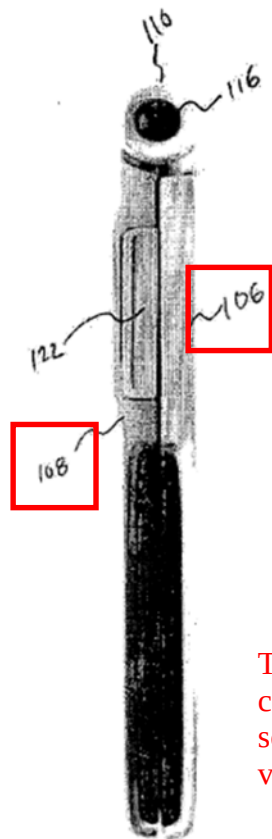
300
↓

Fig. 3

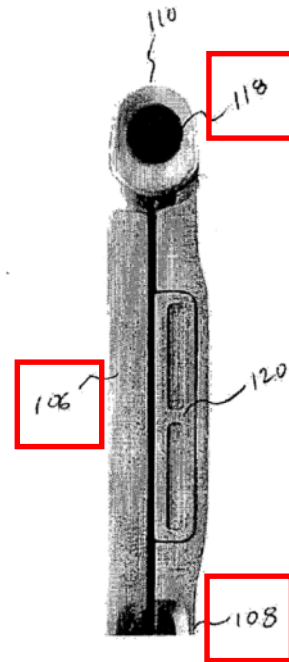
400
↓

Fig. 4

Top cover **106** rotated
closed and top large
screen interface **128** not
visible

Ex. 1005, Figs. 1, 3, and 4.

299. In the first image capture mode, the top large screen interface **128** is not visible. A POSITA would have understood and expected that when a device was in a state such as the first image capture mode, it would not display an image on a screen that was not visible to the user.

300. When the device is in a “second image capture mode,” Whitehorn teaches that “users are capturing images with the image capture device **116** while

looking through the top large screen interface 128 at what is being captured. Users may prefer this mode when viewing images on the top large screen interface **128** would be more convenient than viewing them on the small screen interface **118**.” Ex. 1005, [0029]; *see also* [0024] (the top large screen interface can display “captured images or other information generated by the device.”).

301. This second image capture mode is shown in annotated Figure 5:

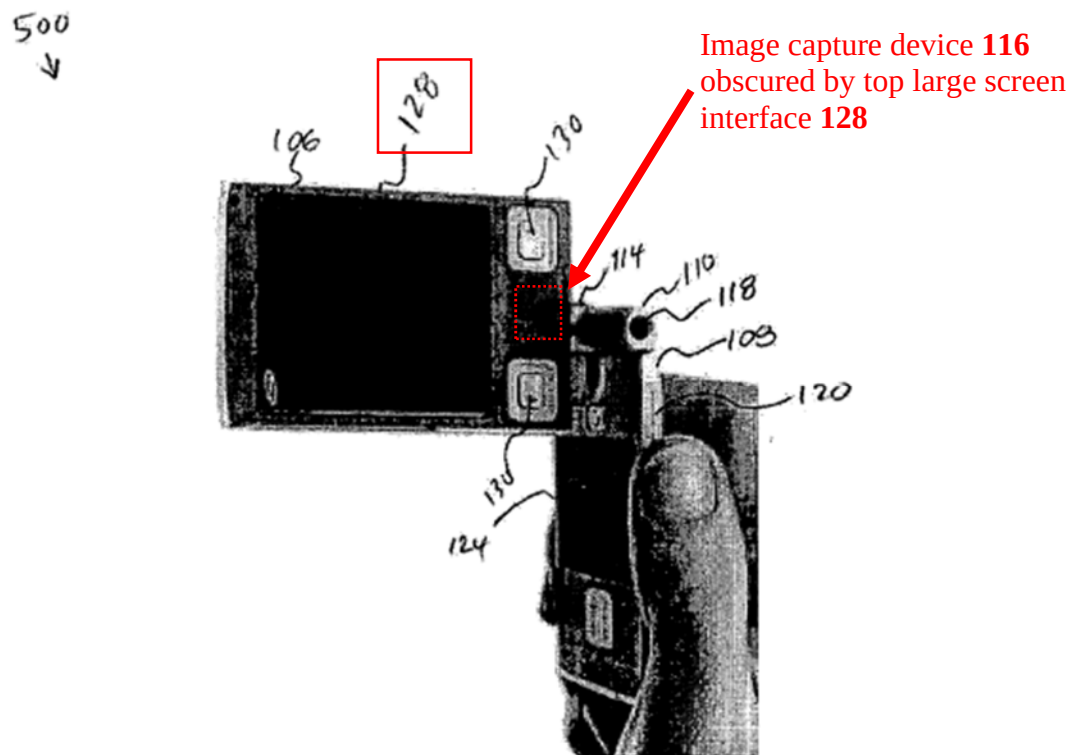


Fig. 5

A POSITA would have understood that the top large screen interface **128** would display an image when the device is in a second image capture mode because it is larger than the small screen interface **118**, unobstructed unlike the bottom large screen interface **124**, and configurable to be in the same direction as the image capture device **116**.

B. Claim 2

1. Claim [2]: The method of claim 1, wherein the image captures function is configured to capture an outward-facing image.

302. Whitehorn discloses the additional limitations of claim 2 and thus anticipates claim 2.

303. Initially, as I explained in Section X.B, the language of claim 2 is somewhat awkward. A POSITA would have understood an “outward-facing image” to describe an image taken of something facing outward from the user.

304. The image capture function is configured to capture an outward-facing image in both the “first image capture mode” and “second image capture mode” discussed above with respect to claim 1.

305. Whitehorn teaches “[t]he present invention ergonomically incorporates an image capture device into a hand held device” which “permits users to capture and view images under any lighting condition, while holding the device in a natural and ergonomically friendly manner, and even when the device is in a folded orientation.” Ex. 1005, [0017]. Whitehorn teaches placing an image capture device

(i.e., a camera) at the end of hinge **104**. *Id.*, [0022]. Whitehorn teaches that same side of the device contains a “a shutter control **122** beneath the image capture device **116**” that “instructs the device **102** to capture one or more images (i.e. a still picture or a video clip) using the image capture device **116**.” *Id.*, [0023]. On the opposite side of the hinge is the small screen interface **118**. *Id.*, [0022]. This is illustrated in Figures 1 and 3:

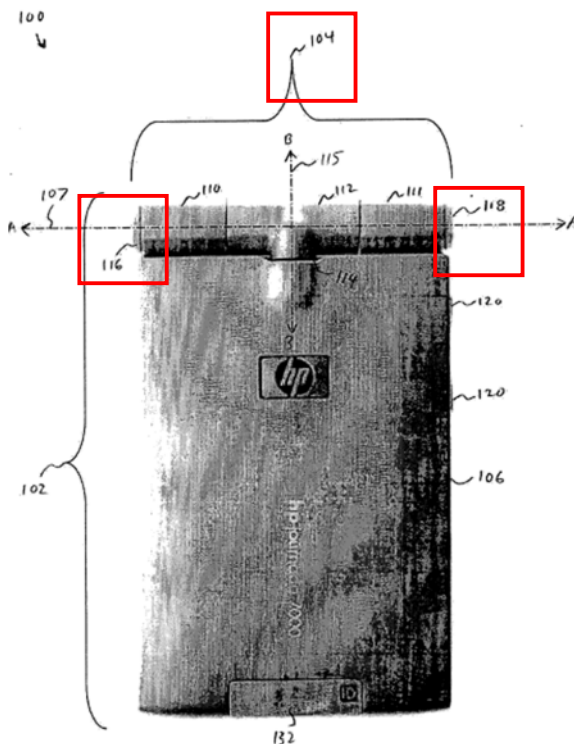


Fig. 1

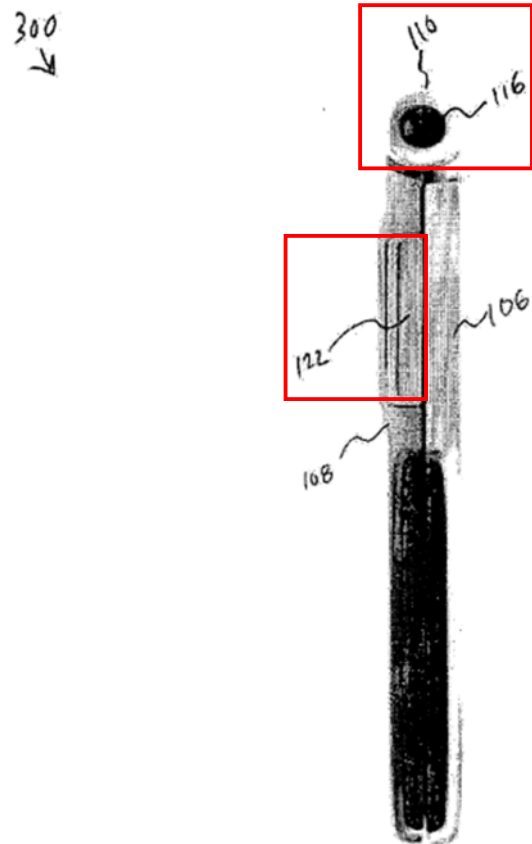


Fig. 3

306. When in a closed position as in Figures 1 and 3, i.e., the “first image capture mode,” “users are capturing images with the image capture device **116** while looking through the small screen interface **118** at what is being captured.” *Id.*, [0027]; *see also* [0022].

307. A POSITA would have understood that when the device is used in a first image capture mode, the device is configured to capture an “outward-facing image” because the image capture device **116** is pointed *away* from the user.

308. Likewise, Figure 5 (depicting the configuration of the “second image capture mode”) shows a device pointed with the image capture device **116** facing *away* from the user, and accordingly, configured to capture an “outward-facing image.” The large screen interface **128**, like the small screen interface **118**, is facing the user on the opposite side of the device from the image capture device **116**. In Figure 5, the image capture device **116** is obscured by top large screen interface **128**. An annotated Figure 5 follows:

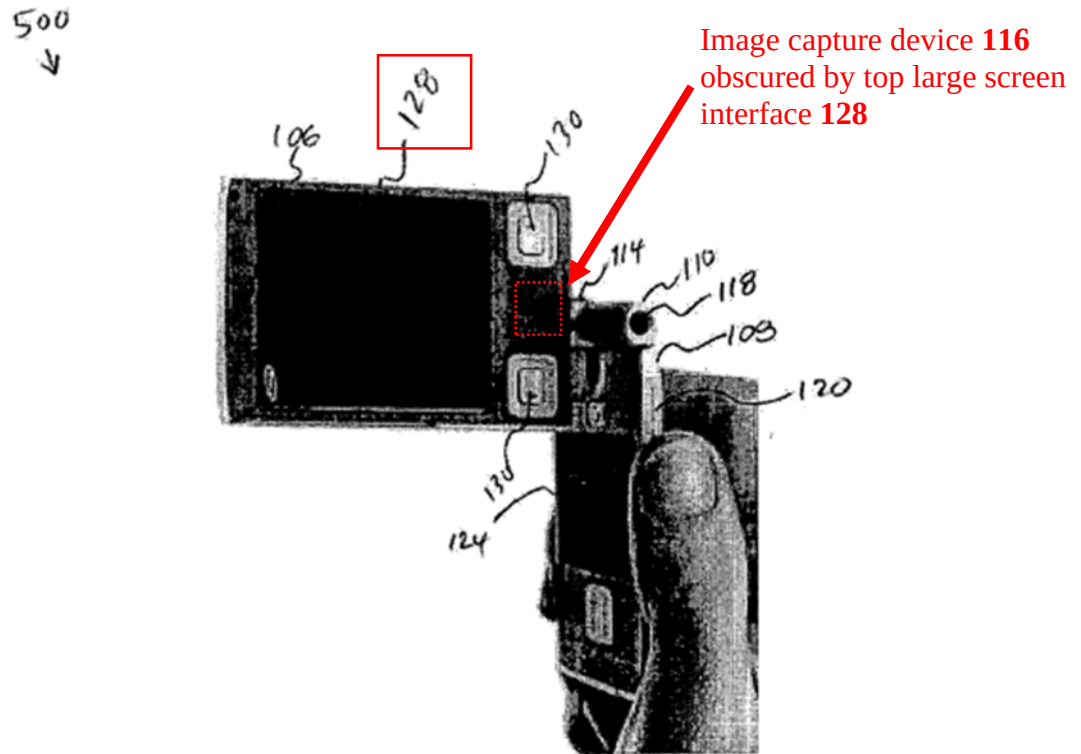


Fig. 5

C. Claim 3

1. **Claim [3]: The method of claim 2, wherein the device is in a closed state.**

309. Whitehorn discloses the additional limitations of claim 3 and thus anticipates claim 3.

310. As discussed above with respect to claim 2, when the Whitehorn device is configured to capture an outward-facing image in the “first image capture mode,”

the device can be in a closed state, as shown and described with respect to Figure 3. The device in Figure 3 is closed because “the top cover **106** is folded onto bottom cover **108**, and top and bottom large screen interfaces **128** and **124** are facing each other.” Ex. 1005, [0027]. A POSITA would have understood the device as shown in Figure 3 to be in a “closed” state; indeed, that is how Whitehorn describes this configuration: “Both the image capture device **116** and the small screen interface **118** are preferably aligned along the hinge's axis of rotation so that users may simultaneously capture and view images when the top and bottom covers **106** and **108** of the device **102** are *closed*.” *Id.*, [0022]. This also is similar to the “closed” position illustrated in Figure 1H of the '842 patent. Ex. 1001, Figure 1H, 9:25-26.

311. Figure 3 illustrates the first image capture mode with the device closed:

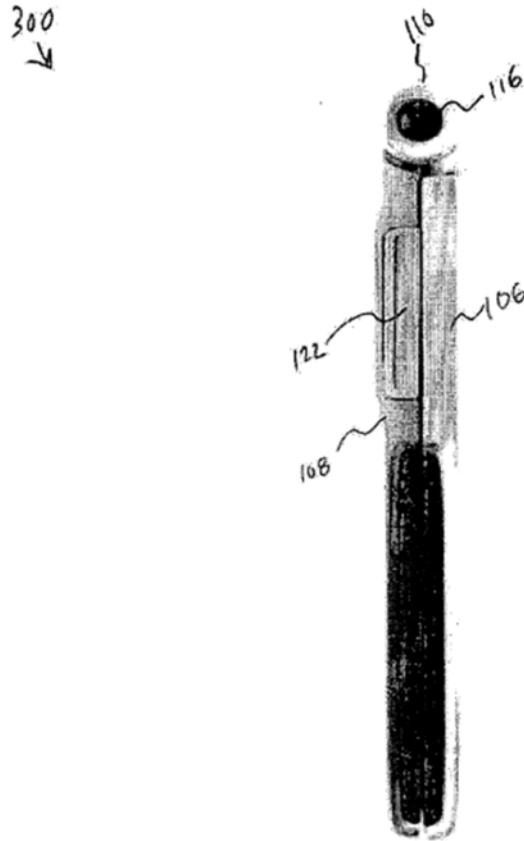


Fig. 3

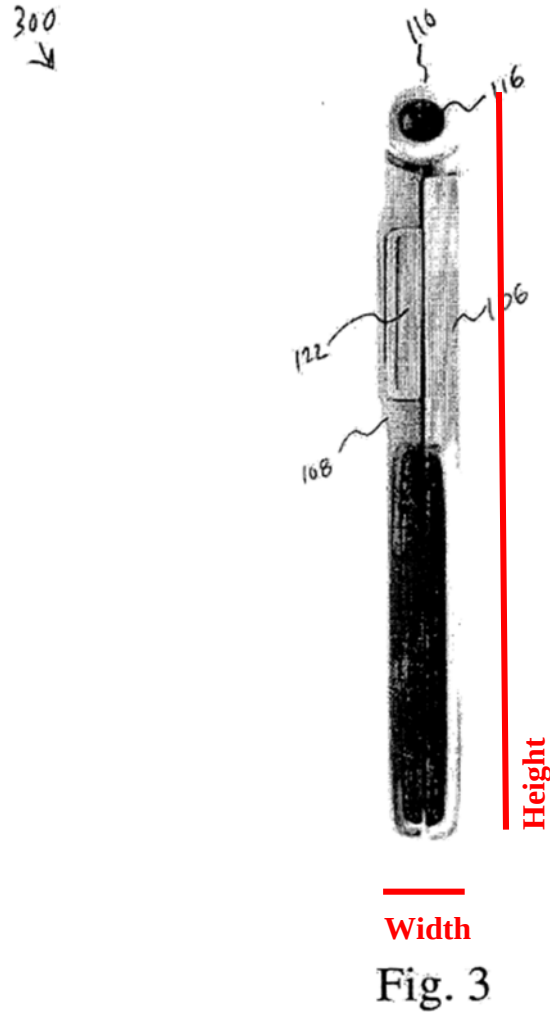
Ex. 1005, Fig. 3.

D. Claim 4

1. **Claim [4]: The method of claim 3, wherein the device is in a landscape or portrait orientation.**

312. Whitehorn discloses the additional limitations of claim 4 and thus anticipates claim 4.

313. Whitehorn discloses a device used in a portrait orientation (i.e., where the width is less than the height), as illustrated in annotated Figure 3:



E. Claim 5

1. **Claim [5]: The method of claim 4, wherein a lens is associated with either the first or second screen.**

314. Whitehorn discloses the additional limitations of claim 5 and thus anticipates claim 5.

315. The image capture device **116** includes “one or more *lenses* for focusing optical light on the light sensitive device.” Ex. 1005, [0022]. In the first

image capture mode, the lens is associated with the “small screen interface **118**” (for purposes of this claim, the “second screen”) in that “users are capturing images with the image capture device **116** while looking through the small screen interface **118**.” *Id.*, [0027].

316. The small screen interface **118** can display images captured by the image capture device **116** “either in real-time like a viewfinder or which have been previously recorded.” *Id.*, [0022].

317. A POSITA would have understood the small screen interface **118** is associated with the lens (image capture device **116**) because it is configured to display what that lens captures.

F. Claim 6

1. Claim [6]: The method of claim 5, wherein, in the image capture mode, the device does not display an image on a first screen and displays a preview on a second screen.

318. Whitehorn discloses the additional limitations of claim 6 and thus anticipates claim 6.

319. As explained above as to claim element [1E], in the “first image capture mode,” the top large screen interface **128** (here, the claimed “first screen”) is closed, not facing the user, and does not display an image. *Supra* Section XII.A.6. Whitehorn does not describe this top large screen interface as displaying an image in this configuration.

320. Whitehorn discloses that the small screen interface **118** (here, the claimed “second screen”) can display images “in real-time like a viewfinder,” *i.e.*, a preview. Ex. 1005, [0022].

G. Claim 7

- 1. Claim [7]: The method of claim 5, wherein the first screen is disabled and does not receive user interface input while in the image capture mode.**

321. Whitehorn discloses the additional limitations of claim 7 and thus anticipates claim 7.

322. The “first image capture mode,” the top large screen interface **128** does not display an image; nor does Whitehorn describe that screen as being enabled or receiving any user interface input. Ex. 1005, [0027], Fig. 3.

323. A POSITA would have understood from Whitehorn’s disclosure and expect that when the device is in a first image capture mode, the top large screen interface **128** would not display an image, be enabled, or receive user input because it is neither visible nor accessible to the user. Configuring the device for any of this functionality when the screen is not visible or accessible would serve no purpose.

H. Claim 11

- 1. Claim [11P]: A device, comprising:**

324. If the preamble is limiting, Whitehorn discloses this limitation.

325. Whitehorn discloses a “handheld device with integral axial camera.” Ex. 1005, [0008], [0019], [0020], Figs. 1, 2, 3, 5.

2. Claim [11A]: a first screen, the first screen including a first gesture capture region;

326. Whitehorn discloses this limitation.

327. Whitehorn teaches that the bottom large screen interface **128** (the claimed “first screen”) is capable of capturing user gestures: “The bottom large screen interface **124** is at a minimum preferably capable of receiving input commands from users of the device **102** ... [and] preferably accepts a pen inputs.” Ex. 1005, [0023].

328. A POSITA would have understood that “input commands from users” on the screen would be gestures, particularly given that the screen preferably accepts pen inputs, which would be gestures. The ’842 patent describes “gestures” and “gesture capture.” It describes a “gesture” as “a user action that expresses an intended idea, action, meaning, result, and/or outcome.” Ex. 1001, 3:63-64. The ’842 patent describe “gesture capture” as “a sense or otherwise a detection of an instance and/or type of user gesture.” Ex. 1001, 4:10-11. “Pen inputs” thus would be “gestures” and the screen that can accept pen inputs is capable of “gesture capture.” Accordingly, a POSITA would have understood that the bottom large screen interface **124** would include a first gesture capture region.

3. Claim [11B]: a second screen, wherein the second screen faces an opposite direction from the first screen when the device is closed, and wherein an image capture lens is associated with the second screen;

329. Whitehorn discloses this limitation.

330. Whitehorn teaches that “[t]he top cover **106** includes a top large screen interface **128**,” which is the claimed “second screen,” and “[t]he bottom cover **108** also includes a bottom large screen interface **124**,” which is the claimed “first screen.” Ex. 1005, [0023]–[0024]; *see also supra* Section XII.A.2.

331. When the device is closed as shown in Figures 1, 3, and 4, the two large screen interfaces are facing each other and thus the top large screen interface **128** faces an opposite direction from the bottom large screen interface **124**. *Supra* Section XII.B.1 and XII.C.1.

332. In addition, “the top cover **106** can be rotated and flipped back onto the bottom cover **108** such that the top large screen interface **128** faces away from the bottom large screen interface **124**,” in which case the two screens are facing away from each other, such that the top large screen interface **128** faces an opposite direction from the bottom large screen interface **124**. Ex. 1005, [0024]; [0031].

333. Whitehorn also teaches an “image capture lens” associated with the second screen. For example, when the device is configured in a “second image capture mode,” “users are capturing images with the image capture device **116** while looking through the top large screen interface **128** at what is being captured.” Ex. 1005, [0029].

334. A POSITA would have understood the image capture device **116** is associated with the top large screen interface **128** because the images captured by

the camera are displayed there. The act of transmitting an image from the camera to the large screen interface creates an association between those two components.

4. Claim [11C]: a memory;

335. Whitehorn discloses this limitation.

336. Whitehorn discloses a handheld device **102** that “falls into a class of devices known as Personal Digital Assistants (PDAs), and thus preferably provides certain computing and *information storage and retrieval functionalities* common to the class.” Ex. 1005, [0019]. A POSITA would have understood from the disclosure of “information storage and retrieval functionalities.” that handheld device **102** necessarily comprises a “memory.”

337. A POSITA would have understood the PDAs disclosed in Whitehorn are computers. In order to carry out the capabilities disclosed in Whitehorn, particularly the disclosed “information storage and retrieval functionalities” and device control steps discussed as to image capture and display, the device requires a processor to execute instructions and memory, including memory to store the executed instructions and for use in conjunction with the processor to execute the instructions.

5. Claim [11D]: a processor in communication with the memory, the first screen, and the second screen, the processor operable to:

338. Whitehorn discloses this limitation.

339. As discussed in Section XII.H.4, Whitehorn discloses a handheld device **102** that “falls into a class of devices known as Personal Digital Assistants (PDAs), and thus preferably provides certain **computing** and **information** storage and **retrieval functionalities** common to the class.” Ex. 1005, [0019]. Whitehorn further discloses modes where “the device functions as a tablet computer,” “handheld tablet computer,” or “laptop computer.” *Id.*, [0024], [0030], claim 4.

340. A POSITA would have understood such computing and information retrieval functionalities in a PDA (e.g., when functioning as a computer) necessarily would include a processor (e.g., a computer includes a processor) that would communicate both with the memory and the disclosed first and second screens (e.g., to store and retrieve information from the memory, and to control the screens to display information). The device would require a processor to execute instructions and memory, including memory to store the executed instructions and for use in conjunction with the processor to execute the instructions.

6. Claim [11E]: receive user interface input to execute an image capture function;

341. Whitehorn discloses this limitation.

342. The limitations of claim [11E] are the same as or very similar to the limitations of claim [1B]. Thus, Whitehorn discloses the limitations of claim [11E] for the same reasons it discloses the limitations of claim [1B].

343. Below is a table comparing the limitations of claim [11E] to those of claim [1B], showing the similarities between the language of the claims.

Claim [11E]	Claim [1B]
receive user interface input to execute an image capture function;	receiving user interface input to execute an image capture function;

344. The only difference between the claims is “receive” versus “receiving,” which is only a grammatical, and not a substantive, difference.

345. As discussed in Section XII.H.5, Whitehorn discloses a processor.

346. A POSITA would have understood that, in order to perform “computing . . . functionalities,” the handheld device **102** of Whitehorn would necessarily include a processor operable to handle input from the shutter control **122** to execute an image capture function.

7. Claim [11F]: determine one or more of an image capture function configuration, a device orientation, and a device state:

347. Whitehorn discloses this limitation.

348. The limitations of claim [11F] are the same as or very similar to the limitations of claim [1C]. Thus, Whitehorn discloses the limitations of claim [11F] for the same reasons it discloses the limitations of claim [1C].

349. Below is a table comparing the limitations of claim [11F] to those of claim [1C], showing the similarities between the language of the claims.

Claim [11F]	Claim [1C]
determine one or more of an image capture function configuration, a device orientation, and a device state:	determining one or more of an image capture function configuration, a device orientation, and a device state; and

350. The only difference between the claims is “determine” versus “determining,” which is only a grammatical, and not a substantive, difference.

351. As discussed in Section XII.H.5, Whitehorn discloses a processor.

352. A POSITA would have understood that, in order to perform “computing . . . functionalities,” the handheld device **102** of Whitehorn would necessarily include a processor operable to determine one or more of an image capture function configuration, a device orientation, and a device state. *See* Ex. 1005, [0021].

353. Specifically, Whitehorn discloses that in the method of operation in Figure 6, the device first (at step **602**) “identifies” the device’s orientation and state, then subsequently “automatically determines a mode in which the device **102** operates” based on that information. Ex. 1005, [0021], [0026].

354. A POSITA would have understood that such “identification” preceding “automatic determination” would be performed by the device’s processor executing instructions directed to carrying out the “identification.”

8. Claim [11G]: based on one or more of the image capture function configuration, the device orientation, and the device state, enter one of one or more image capture modes,

355. Whitehorn discloses this limitation.

356. The limitations of claim [11G] are the same as the limitations of claim [1D]. Thus, Whitehorn discloses the limitations of claim [11G] for the same reasons it discloses the limitations of claim [1D].

357. Below is a table comparing the limitations of claim [11G] to those of claim [1D], showing the similarities between the language of the claims.

Claim [11G]	Claim [1D]
based on one or more of the image capture function configuration, the device orientation, and the device state, enter one of one or more image capture modes	based on one or more of the image capture function configuration, the device orientation, and the device state, entering one of one or more image capture modes

358. A POSITA would have understood that, in order to perform “computing . . . functionalities,” the handheld device **102** of Whitehorn would necessarily include a processor operable to display different images on the first or second screen depending on the image capture mode.

9. Claim [11H]: wherein in each image capture mode a display on the first or second screen is different.

359. Whitehorn discloses this limitation.

360. The limitations of claim [11H] are the same as the limitations of claim [1E]. Thus, Whitehorn discloses the limitations of claim [11H] for the same reasons it discloses the limitations of claim [1E].

361. Below is a table comparing the limitations of claim [11H] to those of claim [1E], showing the similarities between the language of the claims.

Claim [11H]	Claim [1E]
wherein in each image capture mode a display on the first or second screen is different	wherein in each image capture mode a display on the first or second screen is different

362. A POSITA would have understood that, in order to perform “computing . . . functionalities,” the handheld device **102** of Whitehorn would necessarily include a processor operable to display different images on the first or second screen depending on the image capture mode.

XIII. GROUND 4: CLAIMS 1-7 AND 11 WOULD HAVE BEEN OBVIOUS IN VIEW OF WHITEHORN

363. In my opinion, based on the following analysis, at least claims 1-7 and 11 of the '842 patent would have been obvious to a POSITA in view of Whitehorn.

364. According to the instructions I received in Section IV.C above regarding “analogous art,” in my opinion a POSITA would have considered Whitehorn to be analogous art to the '842 patent. Both the '842 patent and Whitehorn

concern multi-display handheld computing devices. *Compare* Ex. 1001, 1:45-48 *with e.g.*, Ex. 1005, [0005], [0017], [0019].

365. The '842 patent and Whitehorn each also address how to present information in different image capture modes in a rotatable or foldable handheld electronic device. *E.g.*, Ex. 1001, Abstract; Ex. 1005, [0002]-[0010].

366. Accordingly, a POSITA would have understood the devices and methods disclosed in the '842 patent to be similar to—and directed to similar problems as—Whitehorn.

367. For the reasons discussed in more detail below, it is my opinion that to the extent there are any differences between the subject matter of claims 1-7 and 11 of the '842 patent and the disclosures of Whitehorn such that Whitehorn does not anticipate any of the claims, those differences would have been minor and obvious to a POSITA.

368. ***Differences in terminology.*** Whitehorn and the '842 patent, at times, use different terminology to describe similar structures and methods. The disclosures I cited from Whitehorn with respect to each of the claim limitations, to the extent they use different terminology from Whitehorn, are not meaningfully different from the subject matter of the Challenged Claims, and the subject matter of the Challenged Claims would have been, at minimum, obvious variants of Whitehorn.

369. ***Touch Screen.*** In my opinion, a POSITA would not understand claim 1 of the '842 patent to require a touch screen. And, as explained above with respect to claim 1, limitation [1A] (Section XII.A.2), and claim 11, limitation [11A] (Section XII.H.2), Whitehorn discloses a touch screen.

370. Nonetheless, a POSITA at least would have found it obvious to modify Whitehorn's disclosure (to the extent such a modification was deemed necessary) to implement Whitehorn's display units using touch screens. Initially, Whitehorn discloses that its "large screen interfaces" may accept user inputs, such as pen inputs. Ex. 1005, [0023]-[0024]. From this disclosure alone, a POSITA would have been motivated to implement the large screen interfaces using touch screens, because there is an express suggestion for a screen that can accept a user input.

371. A POSITA would have known that, even by 2011, the '842 patent's earliest priority date, it was well known in the art to use touch screens as a user interface for portable electronic devices, including using touch screen input to take a picture. Famously, the original iPhone launched in 2007 with a full touchscreen interface and a camera. Even the '842 patent acknowledges that "[a] substantial number of handheld computing devices, such as cellular phones, tablets, and E-Readers, make use of a touch screen display not only to deliver display information to the user but also to receive inputs from user interface commands." Ex. 1001, 1:15-19.

372. Several other references taught this functionality as well. One example is U.S. Patent No. 7,471,890 to Lee, which discloses: “the user can obtain the still image of the subject by pressing an image capture button of the mobile terminal, or alternatively, the user can obtain the still image of the subject by pressing a touch screen of the second display unit.” Ex. 1009, 5:15-30. As another example, U.S. Patent Application Publication No. 2011/0193806 A1 to Kim discloses “touch panel settings” including a “display unit” that “display[s] a control key map that includes various menu items for camera control” including “shutter control, consecutive shooting, and the like.” Ex. 1010, [0068]-[0069]. As another example, U.S. Patent Application Publication 2012/0139815 A1 to Aono discloses that “shooting [the camera] may be executed at the time of touching [] the touch sensor panel.” Ex. 1006, [0235]. A POSITA would have been motivated to add touch screen functionality to Whitehorn (and in particular, the functionality to control the camera and take an image), to the extent any modification were deemed necessary, as a known technique to improve Whitehorn’s device by adding another input option that some users may have deemed desirable. Given the well-known and understood nature of this functionality as exemplified by the references discussed immediately above, a POSITA would have reasonably expected success in doing so as the modification would have just required programming Whitehorn’s device within the skill of a POSITA.

373. For the same reasons, if Whitehorn's disclosure were interpreted as not teaching the "gesture capture region" limitation of claim 11, those too would have at least been obvious to a POSITA in view of Whitehorn.

374. *Different displays in different image capture modes.* At minimum it would have been obvious to a POSITA, to the extent deemed not disclosed by Whitehorn, to modify Whitehorn's disclosure such that "wherein in each image capture mode a display on the first or second screen is different," as in claim limitations [1E] and [11H] in view of the disclosure cited above in Sections XII.A.6, XII.H.9, and for the reasons further discussed below.

375. Whitehorn teaches in the first image capture mode that "the top cover 106 is folded onto bottom cover **108**, and top and bottom large screen interfaces **128** and **124** are facing each other" and shows the device as closed with the top large screen interface **128** not visible. Ex. 1005, [0027], Fig. 3. A POSITA at least would have found it obvious that the top large screen interface **128** is not displaying anything and is turned off, and thus the display is different from the second image capture mode which displays the image being captured. Indeed, a POSITA would have understood that a screen would have one of two states: either on or off. Accordingly, a POSITA obviously would have had a design choice between those two states when designing a device according to Whitehorn's teachings.

376. And, among those two options, a POSITA in or around 2011 would have been motivated to turn off or disable a screen that is not facing the user because doing so would save power. In or around 2011, battery capacity was limited and turning off power to one screen in a multi-screen device was a known design option and well within the ability of a POSITA. And this would have made intuitive sense to a POSITA: displaying a preview of the image is for the benefit of the user taking the photo. Showing a preview or any other image on the top large screen interface where the user cannot see it would not have been desirable or necessary, and thus not worth the tradeoff of the additional power consumption.

377. For the same reasons, the limitations of claims 6 and 7 teaching disabling or not displaying an image on a screen at least have been obvious to a POSITA in view of Whitehorn.

378. **Memory and Processor.** At minimum, the “memory” and “processor” limitations, if not deemed to be disclosed by Whitehorn, would have been obvious modification to Whitehorn to a POSITA. Whitehorn’s “handheld device **102** preferably falls into a class of devices known as Personal Digital Assistants (PDAs)” and alternatively could be “other types of hinged apparatus, such as cell phones” and “laptop computers.” Ex. 1005, [0019]. And, as cited in Sections XII.H.4 and XII.H.5, Whitehorn discloses that its exemplary device includes “certain **computing** and **information** storage and **retrieval functionalities** common to the class.” *Id.* A

POSITA immediately would have understood this disclosure to at least suggest that the “handheld device” would have a memory and a processor.

379. Despite the varying forms these devices take, components that provided computing and information storage and retrieval functionalities of the type described in Whitehorn would be understood by a POSITA to be a computer of one sort or another. Each necessarily would include one or more “memory” that stores instructions (*i.e.*, software applications) and one or more “processors” capable of executing those instructions. These instructions enable the device to perform operations, including image capture in different modes and display of images.

380. Furthermore, many prior art references describe the memories and processors in cell phones, PDAs, and other such devices operating in this manner. The following are some examples:

381. Kim (Ex. 1010) describes a “mobile terminal **100**” that includes “a storage unit **150**” and “a control unit **160**.” Ex. 1010, [0030]. The “storage unit” “stores programs such as an operating system to control the overall operation of the mobile terminal **100**.” *Id.*, [0036].

382. Kawasaki (Ex. 1011) discloses a “communication terminal” that includes “The control unit **10** includes, for example, a microprocessor, a ROM (Read Only Memory) **10a**, and a RAM (Random Access Memory) **10b**, and performs various types of control, according to control programs stored in the ROM **10a**, such

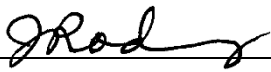
as display control of images taken by the camera unit **22**. The control unit 10 follows the programs stored in the ROM 10a to control images taken by the camera unit **22**, and controls display of images based on instructions from the user via the side key **14i** regarding taking images, (preparation instructions, still image taking instructions), and detection signals from the detection unit **16**.” Ex. 1011, [0082].

383. Park (Ex. 1012), discloses a “memory 160” that “may store various programs for the operation of the controller **180**.” Ex. 1012, Fig. 1, [0067]. “The memory **160** may include at least one of a flash memory type storage medium, a hard disk type storage medium, a multimedia card micro type storage medium, a card type memory (e.g., a secure digital (SD) or extreme digital (XD) memory), a random access memory (RAM), and a read-only memory (ROM).” *Id.*, [0068]. Park also teaches that “[t]he present disclosure can be realized as code that can be read by a processor (such as a mobile station modem (MSM)) included in a mobile terminal and that can be written on a computer-readable recording medium.” *Id.*, [0125].

384. U.S. Patent Application Publication No. 2010/0248788 to Yook (Ex. 1013) discloses a “mobile terminal **100**” which can be, e.g., a PDA or smart phone, that includes a “storage unit **150**, and a control unit **160**.” Ex. 1013, [0025]. [0116]. “The mobile terminal **100** having the above configuration can activate a screen area management program stored in the storage unit **150** in response to a user request.” *Id.*, [0026]. The storage unit **150** can store an operating system and application

XIV. OATH

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



Jeffrey J. Rodriguez

Oct. 17, 2024

Date